中国心理学会
Chinese Psychological Society

第二十五届全国心理学学术会议

The 25th National Academic Conference of Psychology

摘要集

主办单位：中国心理学会

承办单位：四川师范大学

鸣谢单位：赢富仪器科技（上海）有限公司

2023年10月13-15日　中国·成都



目 录

1 特邀报告 1
2 大会重点报告 2
2.1 大会重点报告一 2
2.2 大会重点报告二 4
2.3 大会重点报告三 6
2.4 大会重点报告四 7
2.5 大会重点报告五 8
2.6 大会重点报告六 10
3 专题研讨会 11
3.1 “教育心理学专业委员会”专题研讨会 11
3.2 “发展心理学专业委员会”专题研讨会 76
3.4“生理心理专业委员会”专题研讨会 172
3.5 “学校心理专业委员会”专题研讨会 206
3.6 “心理测量专业委员会”专题研讨会 222
3.7“社会心理学专业委员”专题研讨会 252
3.8“临床与咨询心理学专业委员会”专题研讨会 260
3.9 “决策心理学专业委员会”专题研讨会 289
3.10 “老年心理学专业委员会”专题研讨会 302
3.11 “护理心理学专业委员会”专题研讨会 308
3.12 “网络心理专业委员会”专题研讨会 324
3.13 “情绪与健康心理学专业委员会”专题研讨会 359
3.14 “心理学脑成像专业委员会”专题研讨会 373
3.15“心理学质性研究专业委员会”专题研讨会 380
3.16 “心理学与社会治理专业委员会”专题研讨会 394
3.17 “文化心理学专业委员会”专题研讨会 398
3.18 “积极心理学专业委员会”专题研讨会 405
3.19 “行为与健康心理学专业委员会”专题研讨会 421
3.20 “正念心理学专业委员会”专题研讨会 433
3.21 “学习心理专业委员会”专题研讨会 441
3.22 “神经心理学专业委员会”专题研讨会 449
4 博/硕研究生论坛 456
4.1 硕士生论坛—应用心理学 456
4.2 硕士生论坛—基础心理学 514
4.3 硕士生论坛—发展与教育心理学 545
4.5 博士生论坛—基础心理学 623
4.6 博士生论坛—发展与教育心理学 646
5 口头报告 684
5.1 教育心理学专业委员会 684
5.2 发展心理学专业委员会 740
5.3 理论心理与心理学史专业委员会 815
5.4 普通心理和实验心理专业委员会 820
5.5 工业心理专业委员会 853

5.6 医学心理专业委员会 869
5.9 法律心理学专业委员会 946
5.10 学校心理专业委员会 951
5.11 心理测量专业委员会 985
5.12 社会心理学专业委员会 1004
5.13 临床与咨询心理学专业委员会 1089
5.14 军事心理学专业委员会 1127
5.15 人格心理学专业委员会 1142
5.16 工程心理学专业委员会 1157
5.17 决策心理学专业委员会 1162
5.18 老年心理学专业委员会 1186
5.19 民族心理学专业委员会 1197
5.20 护理心理学专业委员会 1202
5.21 语言心理学专业委员会 1215
5.22 社区心理学专业委员会 1229
5.23 网络心理学专业委员会 1236
5.24 情绪与健康心理学专业委员会 1276
5.25 心理学脑成像专业委员会 1327
5.26 音乐心理学专业委员会 1344
5.27 眼动心理研究专业委员会 1346
5.28 心理学质性研究专业委员会 1353
5.29 脑电相关技术专业委员会 1359
5.30 心理学与社会治理专业委员会 1370
5.31 文化心理学专业委员会 1380
5.32 经济心理学专业委员会 1387
5.33 积极心理学专业委员会 1393
5.34 康复心理学专业委员会 1412
5.35 校园欺凌与暴力防治专业委员会 1414
5.37 时间心理学专业委员会 1454
5.38 婚姻家庭心理与咨询专业委员会 1459
5.39 正念心理学专业委员会 1463
5.40 学习心理专业委员会 1472
5.41 神经心理学专业委员会 1481
6 分组展贴报告 1486
6.1“硕士生学术论坛”分组展贴报告 1486
6.2“博士生学术论坛”分组展贴报告 1807
6.3“教育心理学”分组展贴报告 1871
6.4“发展心理学专业委员会”分组展贴报告 1924
6.5“理论心理学与心理学史专业委员会”分组展贴报告 1992
6.6“普通心理和实验心理专业委员会”分组展贴报告 2000
6.7“工业心理专业委员会”分组展贴报告 2061
6.8“医学心理专业委员会”分组展贴报告 2071
6.9“生理心理专业委员会”分组展贴报告 2093
6.10“体育运动心理学专业委员会”分组展贴报告 2098

6.11“法律心理专业委员会”分组展贴报告 2156
6.12“学校心理学专业委员会”分组展贴报告 2159
6.13“心理测量专业委员会”分组展贴报告 2214
6.14“社会心理学专业委员会”分组展贴报告 2237
6.15“临床与咨询心理学专业委员会”分组展贴报告 2297
6.16“军事心理学专业委员会”分组展贴报告 2334
6.17“人格心理学专业委员会”分组展贴报告 2339
6.18“工程心理学专业委员会”分组展贴报告 2348
6.19“决策心理学专业委员会”分组展贴报告 2355
6.20“老年心理学专业委员会”分组展贴报告 2366
6.21“护理心理学专业委员会”分组展贴报告 2381
6.22“语言心理学专业委员会”分组展贴报告 2390
6.23“网络心理学专业委员会”分组展贴报告 2395
6.24“情绪与健康心理学专业委员会”分组展贴报告 2430
6.25“心理学脑成像专业委员会”分组展贴报告 2476
6.26“音乐心理学专业委员会”分组展贴报告 2484
6.27“眼动心理学专业委员会”分组展贴报告 2487
6.28“心理学质性研究专业委员会”分组展贴报告 2491
6.29“脑电相关技术专业委员会”分组展贴报告 2493
6.30“心理学与社会治理专业委员会”分组展贴报告 2503
6.31“文化心理学专业委员会”分组展贴报告 2504
6.32“积极心理学专业委员会”分组展贴报告 2507
6.33“康复心理学专业委员会”分组展贴报告 2520
6.34“校园欺凌与暴力防治专业委员会”分组展贴报告 2522
6.35“行为与健康心理学专业委员会”分组展贴报告 2529
6.36“时间心理学专业委员会”分组展贴报告 2543
6.37“婚姻家庭心理与咨询专业委员会”分组展贴报告 2545
6.38“正念心理学专业委员会”分组展贴报告 2548
6.39“学习心理专业委员会”分组展贴报告 2555
6.40“神经心理学专业委员会”分组展贴报告 2562

1 特邀报告

Psychology and Science diplomacy: An intersection to promote human well-being and global sustainability

Germán Gutiérrez

International Union of Psychological Science

Personal Biography：

Germán Gutiérrez is the president of the International Union of Psychological Science, the leading global psychology organization. He studied Psychology at the Universidad Nacional de Colombia (UNC) and earned his Ph.D. in Behavioral neuroscience from the University of Texas at Austin, USA. Gutiérrez is a professor at UNC and researches the evolution of learning mechanisms in reproduction and other behavioral systems. In addition, he has studied the development of psychology worldwide. He has held numerous leadership positions at the national, regional, and international levels, including President of the Colombian Association of Psychology Departments, Director of the Observatory of Psychology in Latin America, and President of the International Society for Comparative Psychology. Gutiérrez is currently an advisor to the International Science Council's Regional Focal Point for Latin America and the Caribbean.

Abstract：

The connection between human behavior and global problems has long been documented by science. In recent decades, psychological knowledge has played a significant role in promoting human well-being and global sustainability. This presentation makes a case for connecting psychological insights and scientific diplomacy strategies to improve the power of psychology to address complex global issues. Psychology has made significant discoveries in cognitive, emotional, and social processes used to develop behavioral strategies to improve the well-being of individuals and communities. Yet, there is a need for a broader approach to address global concerns that affect the human population. Psychological science diplomacy promotes international collaboration to share behavioral knowledge to address problems like climate change, conflict resolution, demographic challenges, and infectious and non-communicable diseases. Psychology and science diplomacy must create a common framework to enhance sustainable development, global harmony, and aspiring human qualities.

2 大会重点报告

2.1 大会重点报告一

自我控制的过去、现在与未来

党君华

报告人简介：

现任西安交通大学教授、博士生导师。曾任瑞典乌普萨拉大学副教授、博士生导师，瑞典乌普萨拉大学和加拿大多伦多大学博士后研究员。本科毕业于北京邮电大学自动化学院，硕士毕业于北京大学心理学系，博士毕业于瑞典隆德大学心理学系。

共发表 SCI/SSCI 论文 40 余篇 ，部分论文发表在行为科学高影响力期刊如 Trends in Cognitive Sciences (2022IF=19.9)，Perspectives on Psychological Science (2022IF=12.6), Behavioral and Brain Sciences (2022IF=29.3)，Social Psychological and Personality Science (2022IF=5.7)，Journal of Global Health (2022IF=7.2)，以及 Translational Psychiatry (2022IF=6.8)，或入选高被引论文。谷歌学术总被引 1300 余次，H index = 16。曾获瑞典心理学会评选的 2020 度优秀青年研究者奖（全瑞典每年一位）。

现任中国心理学学会行为与健康心理学专业委员会委员，美国心理学会旗舰期刊 American Psychologist (2022IF=16.4)编委、欧洲社会心理学会旗舰期刊 European Journal of Social Psychology (2022IF=3.9)编委。曾任 BMC Psychology 副主编、International Journal of Social Psychology 副主编，Social Psychology 和 Frontiers in Psychology 客座编辑，曾为美国国家科学基金与二十余种国际知名期刊如 Journal of Experimental Psychology: General 担任审稿人。

主要研究领域为社会心理学，包括自我控制、决策与群体关系。主要贡献为：1）为自我控制及社会心理学领域普遍存在的方法学问题提供了理论解释并指出了应用方向，相关论文 2020 年发表于 TiCS,目前谷歌学术被引超过 350 次，为 TiCS 过去 3 年发表的所有论文中被引最高。2）通过多项元分析、多实验室重复研究，有效地推动了自我损耗效应可重复性的发展；3）提出了新的整合性的自控理论；4）在其他研究方向如人际晕轮效应、跨期决策、外群体偏差提出新的理论解释，相关论文发表在 BBS、SPPS 等。

摘要：

自我控制（self-control）是人类区分于其他物种的核心特征之一，对人类生活的方方面面都有着重要的促进作用。现在心理学对于自控控制的科学探索肇始于上世纪六十年代，后来一直缓慢发展，直到本世纪初才被学界高度重视，目前正处于蓬勃发展之际，虽然这其中也有可重复性危机带来的一些不利影响。本报告分为以下几个方面。首先，报告人将界定自我控制的概念，介绍其与相关概念的区别与联系，比如自我调控（self-regulation）。其次，报告人将梳理自我控制研究的发展历史，介绍其肇始、发展、各个子领域的当前状况，可重复性危机带来的影响及解决思路等。最后，报告人将在以上分析的基础上提出自我控制未来发展与整合的几个可能方向。

The Past, Present, and Future of Self-Control

Abstract：

Self-control is one of the defining features of human nature. No matter how self-control was measured, it has been consistently associated with numerous positive outcomes. The empirical exploration of modern psychology on self-control started in 60s of the 20th century, which then developed slowly during the next 40 years. Until the beginning of the 21th century did self-control receive the attention it deserves. Currently, self-control is one of the most flourishing areas in social psychology, although it has also been negatively influenced by the replication crisis. This report consists of the following sections. First, the reporter will talk about the definition of self-control and differentiate it from other related concepts such as self-regulation. Second, the reporter will review the research history of self-control, introducing the inception, development, the current status of various subfields of self-control, and the negative influence of the replication crisis. Finally, the reporter will propose possible directions for future integration and further development based on the above-mentioned analyses.

2.2 大会重点报告二

生死之间：生命史框架内的跨期决策

王晓田

香港中文大学（深圳）人文社科学院 广东 深圳 518172

报告人简介：

王晓田教授现任香港中文大学（深圳）人文社科学院，应用心理学学科主任, 终身教授，深圳市人民政府认证的外籍高层次人才, 美国南达科他州大学终身荣誉教授，国际心理科学学会的会士。曾任北京大学光华管理学院特聘教授，中欧国际商学院访问教授，德国柏林马克斯.普朗克研究所人类发展研究中心访问科学家，香港科技大学工商管理学院访问教授; 新加坡管理大学访问教授。王晓田教授的跨学科研究聚焦于行为决策、风险认知、和进化心理学。王晓田教授的研究成果发表在 30 多种专业期刊，也被普通心理学, 认知心理学, 认知神经学, 和进化心理学的教科书所引用。美国《时代》周刊,《科学新闻》,《科学日报》等均有专文报道王晓田教授的研究；维基百科, 雅虎新闻,《华尔街日报》以及《中欧商业评论》均对王晓田教授的研究有所介绍。王晓田教授任美国国家科学基金会, 美国麦克道尔基金会, 中国国家自然科学基金委等资助项目的主持人, 中国科学院王宽诚科研奖获奖人; 曾任美国国家科学基金会特邀评审专家; 中国国家基金委管理学部海外评审专家, 及香港研資局评审专家; 也曾为松下、IBM, 中国移动、招商银行、平安保险等机构， 政府部门以及民营企业的管理人员讲授培训课程。

摘要：

经济学和心理学大多数学说背后都存在两个共同的前提：时间的有限性和资源的有限性。时间有限性也就是生命有限性如何塑造了人类的行为？我们每个人与时间的交互仅仅存在于短暂或漫长的一生之中，所以心理学需要关注生命史和生命史理论。不同于其他动物，自主意识使人类能够有意识地在有限的生命中规划人生并依此决策。决定一个人世界观（时间观和价值观）的不仅仅是时间的感知和时间观，还在于我们如何感知和应对生命的两大特性：死亡的必然性（inevitability of death）和死亡的不确定性/无常性（uncertainty of death）。在报告中我将展示如何在生命史的框架内通过调节死亡的必然性和不确定性影响个体或人群的延迟折扣（未来折扣），以及如何通过元分析建模比较不同的发展心理学理论并从 172 个样本中生成对应全生命史延迟折扣的年龄曲线；并讨论我们目前的研究进展以及相关思考。

Between Birth and Death: Intertemporal Decision-Making within the Framework of Life History

WANG XT (XiaoTian)

School of Humanities and Social Science, The Chinese University of Hong Kong (Shenzhen), Shenzhen 518172, China

There are two common premises behind most theories in economics and psychology: the finiteness of time and limited resources. How does the finiteness of time, that is, the finiteness of life, shape human behavior? We interact with time only within a short or long lifespan, so psychology needs to pay attention to life-history variables and theory. Unlike other animals, autonoetic consciousness enables humans to consciously plan their lives in their limited lives and make decisions accordingly. What determines a person's worldview (time perspective and values) is not only time perception and time perspective but also how we perceive and respond to the two major characteristics of life: the inevitability of death and the uncertainty of death. In this talk, I will show how delay discounting (future discounting) of individuals or groups is affected by manipulating the inevitability and uncertainty of death within a life-history framework and how to compare different theories in developmental psychology via meta-analytic modeling and generate age age-specific delay discounting curve across the lifespan based on 172 samples. I will also discuss ongoing research progress in my lab and related thinking.

2.3 大会重点报告三

从神经心理到神经调控

汪 凯

报告人简介：

长江学者特聘教授，万人计划领军人才，百千万人才工程国家级人选，获吴阶平-保罗 杨森奖，中国杰出神经内科医师--学术成就奖，人民名医，江淮名医。安徽医科大学学术委员会主任，第一附属医院神经内科主任；安徽省转化医学研究院院长，“神经精神疾病与心理健康”协同创新中心主任，“认知与神经精神疾病”安徽省重点实验室主任；中国医师协会神经内科医师分会副会长；中国卒中学会血管性认知障碍分会主任委员；中国研究型医院学会神经科学专业委员会副主委；中华医学会神经病学分会神经心理学和行为神经病学组组长；安徽省医学会神经病学分会主任委员。主持国家自然科学基金 9 项（其中重大项目 1 项，重大研究计划 1 项），国家重点研发计划 2 项。研究论文在 Nature Genetics, Nature Neuroscience, Nature Mental Health， PNAS, European Heart Journal, Neurology, Schizophrenia Bulletin, Stroke 等 SCI 杂志发表 307 篇，其中第一、通讯作者 SCI 论文 217 篇。获得省科技进步一、二等奖各 2 项，中华医学科技一等奖 1 项。

摘要：

神经心理学的主要任务是认知与行为的脑图以及认知促进。神经心理学利用脑损伤患者的行为学研究来刻画脑功能取得了大量里程碑式成果，奠定了脑图的基础。新近 fMRI 的研究能更加精确地、个体化刻画脑皮层功能图谱。我们进一步建立了脑白质功能研究方法，刻画了神经心理疾病的皮层和皮层下宏观脑环路。基于脑影像的脑环路研究，我们进行了 rTMS 参数优化，完成了焦虑抑郁、Alzheimer 病和帕金森病等脑疾病等的 rTMS 脑调控系列临床研究。初步的临床研究结果表明 rTMS 等无创脑调控对脑与心理疾病具有临床应用价值。

From Neuropsychology to brain stimulation

The main mission and goal of neuropsychology is brain-mapping or function-promoting of behavioralor psychological activity. Neuropsychological studies of brain-injured patients have been useful in mapping brain function, leading to important milestones and foundation for understading of brain mapping. More recently, functional magnetic resonance imaging (fMRI) studies have enabled us to achieve even a precision and individualization in cortical function mapping. Our team has focused an approach for detecting brain macro-connections in individuals with mental health disorders based on rfMRI of the brain cortex or white matter. We try to optimize parameters for precise target rTMS, and also expand the application prospect of rTMS on neuropsychiatry disorders. The clinical trials have demonstrated a series of positive results for the rTMS modulation of numerous brain disorders, including anxiety, depression, Alzheimer's disease, Parkinson's disease, and other neuropsychiatry disorders. Primary results have shown the clinical value for the non-invasive brain modulation, known as rTMS, of brain and psychological disorders.

2.4 大会重点报告四

休息和睡眠期间的离线学习

柳昀哲

报告人简介：

柳昀哲，北京师范大学认知神经科学与学习国家重点实验室，教授。北京脑科学与类脑研究中心，研究员，PI，博士生导师，国家级人才。博士毕业于伦敦大学学院（UCL）计算精神病学中心，于牛津大学完成博士后训练。成立了计算和整合认知神经科学课题组，关注人类高级智能和灵活行为的心理、神经机制。目前以第一或通讯作者身份，围绕“认知地图的神经机制”，在 Science，Cell，Nature Neuroscience，Neuron，Nature Reviews Neuroscience 等杂志发表论文多篇。先后主持科技创新 2030-“脑科学与类脑研究”（脑计划）重大项目，国家自然科学基金项目等。

摘要：

人类高级智能的核心在于举一反三和触类旁通。特别是，有组织地串联和整合相关信息与事件，进而进行推理决策，这无疑是人类智能的一个突出特征。休息和睡眠期间，人们的记忆会经历某种转变，进而构建认知地图。有研究证明，睡眠可以增强人在无意识状态下的长距离推理能力。但对于人类认知地图的形成，其背后的神经和计算机制仍不清楚。在啮齿动物的研究中，休息和睡眠期间，经验的离线重现（replay）被认为是形成此类地图的关键环节。目前，我们已经开始针对这一主题进行人类实验研究。在这次报告中，我将详细介绍：1) 我们如何开发算法，利用 MEG、EEG 和 EEG-fMRI 来测量人类的离线回放；2) 睡眠是如何加强信息与事件之间的“串联关联”；3) 以及我们在探索超出线性连接，向 2 维认知地图发展的相关研究成果。

Offline Learning During Rest and Sleep

Abstract:

‘‘Joining the-dots’’ between events that have not been observed together is crucial for inferential decisions – a key feature of human intelligence. Such memory transformation, forming cognitive map, is thought to happen during rest and sleep. For example, sleep is found to promote long distance transitive inference with unconsciousness in human. However, little is known about the neural and computational underpinning of cognitive map formation in humans. In rodents, offline replay of past experience is found important to form the map. We have set out to test this in humans. In this talk, I will discuss 1) our efforts for developing algorithms to measure offline replay in humans using MEG, EEG and simultaneous EEG-fMRI; 2) our findings on sleep promoting “dots joining”; 3) and beyond line chainning, promoting formation of 2-diemensional cognitive map.

2.5 大会重点报告五

基于脑影像大数据的抑郁症默认网络机制

严超赣

报告人简介：

严超赣，中国科学院心理研究所研究员，博士生导师，心理所所务委员，认知与发展心理学研究室主任，抑郁症大数据国际研究中心主任，磁共振成像研究中心主任，国家优秀青年科学基金获得者，入选爱思唯尔中国高被引学者（2019/2020/2021/2022 年度）和斯坦福全球前 2%顶尖科学家，获国际人脑图谱学会青年科学家奖、北京市科学技术奖自然科学奖二等奖（第一完成人）和中国科学院优秀导师奖。主要研究领域为脑影像学及其在抑郁症中的应用。在 PNAS、Science Bulletin 和 Molecular Psychiatry 等期刊发表论文 90 余篇，总引用 1.9 万余次（Google Scholar）。有 6 篇第一/通讯作者论文入选 ESI 高被引论文（其中 1 篇为前万分之一，1 篇为前千分之一），3 篇单篇被引过千。他建立了被引 5000 余次的脑成像系列分析软件 DPARSF、 DPABI、DPABISurf、DPABIFiber 和 DPABINet，牵头建立了抑郁症脑成像大数据联盟(DIRECT)，发起了“心花计划”抑郁症干预研究项目， 还是《Imaging Neuroscience》执行编辑。

摘要：

抑郁症，是一种具有高复发率、高自杀率和高致残率的精神疾病，但诊断手段仍然依靠临床观察，缺乏生物学客观标志物。我们联合国内外抑郁症研究专家成立了抑郁症脑影像大数据联盟(DIRECT)，建立了全球最大的抑郁症脑功能影像数据库（REST-meta-MDD），基于抑郁症脑影像大数据明确了抑郁症默认网络异常机制，推动了抑郁症脑影像研究从小样本模式转向大数据开放合作模式。我们开发了抑郁反刍思维研究新范式，明确了抑郁反刍思维默认网络机制，提出了抑郁反刍思维默认网络干预新假说。我们还开发了高效信度的脑影像计算方法和平台，成为领域通用流程，推动了抑郁症脑影像学领域的发展。基于脑影像大数据，我们开发了大数据统计图引导的抑郁症经颅磁刺激个体化靶点定位方法，正在展开多中心临床验证。未来，我们希望和全国心理学同道通过认知实验标准工具箱建设，共同为中国人群建立可用于参考基线的脑认知和脑影像参考常模，并应用于抑郁症以识别患者个体精准的异常靶点，改善抑郁症个体化精准神经调控治疗。

Mechanism of the Default Mode Network in Major Depressive Disorder Based on Big Data of Brain Imaging

Speaker:

Dr. Chao-Gan Yan is a professor at the Institute of Psychology, Chinese Academy of Sciences, a member of the Institute's Administrative Committee, the Director of the Cognitive and Developmental Psychology Research Branch, the Director of the International Big-Data Center for Depression Research, and the Director of the Magnetic Resonance Imaging Research Center. He is a recipient of the National Excellent Young Scientist Fund, and has been ranked as an Elsevier Highly Cited Researcher in China for the years 2019/2020/2021/2022, and ranked Top 2% Scientists Worldwide by Stanford University. He has received awards such as the Early Career Investigator Award by The Organization for Human Brain Mapping (OHBM), the Second Prize for Natural Science from the Beijing Science and Technology Awards (as the first author), and the Outstanding Mentor Award from the Chinese Academy of Sciences. He has long focused on the development of brain imaging techniques and is committed to discovering reliable neuroimaging biomarkers for depression. To address the issue

of high heterogeneity in small-sample studies on depression brain imaging, he initiated the Depression Imaging REsearch ConsorTium (DIRECT) through innovative open team collaboration. Based on multi-center big data, he has discovered reliable abnormal brain imaging patterns in patients with depression (papers published in PNAS, Molecular Psychiatry, and other journals, and ranked as ESI Highly Cited Papers). He has developed a new research paradigm for depressive rumination and proposed a new hypothesis for intervening in the default mode network of depressive rumination (papers published in NeuroImage and other journals, and ranked as ESI Highly Cited Papers). He has initiated a prospective study called the "Mind Flower Project" to propose new integrated psychophysical intervention programs for depression. To provide methodological support for brain imaging research in depression, he has developed highly reliable computational methods for brain imaging (adopted by over 2,000 studies), and a standardized brain imaging analysis platform used by peers in 58 countries/regions (cited over 5,000 times), becoming one of the internationally accepted analysis procedures (papers published in Science Bulletin and other journals, including one in the top 0.01% of ESI Highly Cited Papers, one in the top 0.1%, and two in the top 1%).

Abstract:

Major Depressive Disorder (MDD) is a mental illness with high rates of recurrence, suicide, and disability. However, diagnostic methods still rely on clinical observations and lack objective biomarkers. We have collaborated with depression research experts both domestically and internationally to establish the Depression Imaging REsearch ConsorTium (DIRECT). We have built the world's largest functional brain imaging database of MDD (REST-meta-MDD). Based on the big data of brain imaging for depression, we have discovered the abnormal mechanisms of the default mode network in depression, promoting the transition from small-sample research to large scale open collaboration in the field of depression brain imaging. We have developed a new paradigm for researching depressive rumination, identified the default mode network mechanism of depressive rumination, and proposed a new hypothesis for intervening in the default mode network of depressive rumination. We have also developed highly reliable computational methods and platforms for brain imaging, becoming a general process in the field and driving the development of depression neuroimaging. Based on big data of depression brain imaging, we have developed a big-data statistical map guided method for individualized target localization in transcranial magnetic stimulation for depression and are currently conducting multi-center clinical validations. In the future, we hope to collaborate with psychology colleagues nationwide to build a cognitive experiments standard toolbox. Together, we aim to establish a reference norm for brain cognition and brain imaging applicable to the Chinese population, and apply them to depression to identify precise abnormal targets for individual patients, improving personalized precision neural modulation treatment for depression.

2.6 大会重点报告六

下颞叶中的客体表征空间

鲍平磊

报告人简介：

鲍平磊 ，北京大学心理与认知科学学院、麦戈文脑科学研究所、北大-清华生命科学联合研究中心研究员，博士生导师，自然科学基金优秀青年科学基金项目（海外）获得者，并参与和主持了科技部科技创新 2030-“脑科学与类脑研究”重大项目, 国家自然科学基金重点项目和面上项目，以第一作者以及共同通讯作者身份《Nature》,《Nature Communications》,以及《eLife》等知名期刊上发表文章。2020 年加入北京大学之前，与 2014 年南加州大学获得神经科学博士学位，并在加州理工学院进行了博士后的工作。研究方向是探索物体识别的神经技术，实验室采用了一系列技术，包括电生理记录，脑功能成像，钙成像，微电刺激，心理物理以及数学建模，来探索这一问题。

摘要：

下颞叶（IT cortex）在物体识别中具有关键作用，但其功能性组织原则一直以来尚不清楚。我们的研究采用了功能性磁共振成像（functional MRI）、微电刺激（microstimulation）、电生理学以及深度神经网络，对猕猴和人类的下颞叶皮层组织进行了研究。我们发现，深度神经网络所构建的低维客体空间，可以解释不同人和猕猴的下颞叶皮层组织。该物体空间不仅能帮助我们理解下颞叶未知脑区的物体选择性，也可以解释类别特异性区域的存在。分析进一步揭示了人类下颞叶皮层反应构建的物体空间与猕猴下颞叶皮层中的物体空间之间存在高度相似性，而且进一步阐明了物体客间模型是由物体的视觉特性，而非语义类别决定，并且依赖于视觉经验。我们的研究证明了客体空间模型对于理解客体识别机制的重要性，对人工智能的发展也有着启迪作用。

Object representation space in the inferotemporal cortex

Abstract:

The inferotemporal cortex (IT cortex) plays a pivotal role in object recognition, yet its principles of functional organization have remained unclear. Our research utilized fMRI, microstimulation, electrophysiology, and deep neural networks to investigate the organization of the IT cortex in both macaques and humans. We found that a low-dimensional object space constructed by a deep neural network can account for the organization of the IT cortex across different individuals and macaques. This object space not only helps us understand the object selectivity in uncharted regions of the IT cortex but also explains the presence of category-specific areas. Further studies revealed a high similarity between the object space constructed by human IT cortex responses and that in the macaque IT cortex. Additionally, it elucidated that the object space model is determined by the visual properties of objects rather than semantic categories and is reliant on visual experience. Our research demonstrates the importance of object space models in understanding object recognition mechanisms and provides insights that can inspire developments in artificial intelligence.

3 专题研讨会

3.1 “教育心理学专业委员会”专题研讨会

网络学习情境下自主选择反馈对初中生数学学习的影响：元认知监控能力的调节作用

龚少英（通讯作者）王静　郭江南

华中师范大学心理学院，武汉，430079，gongsy@ccnu.edu.cn

摘 要　随着计算机技术的快速发展，在网络学习环境中提供反馈逐渐受到关注，但不同反馈类型对学习的影响的研究结果并不一致，这可能是由于提供的反馈缺乏个性化，忽略了学习者的个体特征。自主选择反馈可以让学习者根据自身需求选择适合自己的反馈类型，提高反馈的个性化。然而，少有研究将自主选择与反馈复杂性结合，探究学习者自主选择不同反馈的作用。此外，根据交互-辅导反馈模型，学习者的元认知能力是影响反馈学习的重要因素。基于此，本研究聚焦于网络学习情景下的反馈学习设计了两个实验，探究学习者自主选择反馈相比于系统提供的反馈是否对初中数学学习更有效，并探究其发挥作用的边界条件。实验 1 采用单因素被试间设计，以 310 名初中生为研究对象，探究不同反馈类型（自主选择反馈、系统提供的简单反馈、系统提供的线索反馈、系统提供的解释性反馈）对其数学学习的影响。结果发现：（1）与系统提供的反馈（简单反馈、线索反馈、解释性反馈）相比，自主选择反馈可以提高学习者的决策自由感；（2）与系统提供的简单反馈和线索反馈相比，自主选择反馈可以提高积极情绪和动机；（3）与系统提供的简单反馈相比，自主选择反馈可以提高迁移成绩。实验 2 在实验 1 的基础上，采用了 2 元认知监控能力（高 VS 低）×2 反馈类型（自主选择反馈 VS 系统提供的简单反馈）的两因素被试间设计，探究元认知监控能力在自主选择反馈影响学习中的调节作用，并发现：（1）自主选择反馈可以提高学习者的积极情绪、动机、自主需求满足感和迁移成绩，验证了实验 1 的结果；（2）元认知监控能力调节了反馈类型对积极情绪、动机、相关认知负荷和迁移成绩的影响。当可以自主选择反馈类型时，高元认知监控能力的学习者有更高的积极情绪、更强的动机和更好的迁移表现；而对于低元认知监控能力的学习者，系统提供的反馈更能提高其相关认知负荷。本研究启发教师和教学设计者在设计和提供反馈时要考虑学习者的个体特征，为其提供自主选择反馈的机会或者由系统为其提供反馈。

关键词　网络学习，反馈类型，自主选择反馈，元认知监控能力

资助课题：国家自然科学基金面上项目(61877025)

The effects of autonomous choice feedback on junior high school students’ mathematics learning in online: the moderating role of metacognitive monitoring ability

Shaoying Gong, Jing Wang, Jiangnan Guo

School of Psychology, Central China Normal University, Wuhan

Abstract： With the rapid development of computer technology, the provision of feedback has gradually gained attention in online learning, but the results of research on the effects of different feedback types on learning are inconsistent, which may be due to the lack of personalization of feedback and the neglect of learners’ individual characteristics. Autonomous choice feedback could allow learners to choose according to their own needs and improve the personalization of feedback. However, few studies have combined autonomous choice with feedback complexity to explore the role of

autonomous choice of different feedback. In addition, according to the interaction-coaching feedback model, metacognitive ability is an important factor influencing feedback. Based on this, this study focused on feedback learning designing two experiments to investigate whether learner autonomous choice feedback is more effective for junior high school mathematics learning compared to feedback provided by the system in online learning, and to explore the boundary conditions for its role. Experiment 1 used a one-way between-subjects design with 310 junior high school students to investigate the effects of different types of feedback (autonomous choice feedback/simple feedback provided by the system/cue feedback provided by the system/explanatory feedback provided by the system) on their mathematics learning. The results found that (1) compared with feedback by the system (simple feedback, cue feedback, and explanatory feedback), autonomous choice feedback could increase learners' sense of decision-making freedom; (2) compared with simple feedback and cue feedback provided by the system, autonomous choice feedback could increase positive emotions and motivation; (3) compared with simple feedback, provided by the system, autonomous choice feedback increased transfer performance. Based on experiment 1, experiment 2 used a two-factor between-subjects design with 2 metacognitive monitoring ability (high vs. low) × 2 feedback types (autonomous choice feedback vs. simple feedback provided by the system) to investigate the moderating effect of metacognitive monitoring ability on the influence of autonomous choice feedback on learning and found that (1) autonomous choice feedback improved learners' positive emotions, motivation, autonomy need satisfaction and transfer performance, validating the results of experiment 1; (2) metacognitive monitoring ability moderated the effects of feedback type on positive emotions, motivation, related cognitive load and transfer performance. When learners could autonomously choose the type of feedback, learners with high metacognitive monitoring ability had higher positive emotions, stronger motivation, and better transfer performance; whereas for learners with low metacognitive monitoring ability, feedback provided by the system was more likely to increase their related cognitive load. This study has the potential to inspire teachers and instructional designers take into account the individual characteristics of learners when designing or providing feedback, and to provide them with the opportunity to choose feedback on their own or have the system provide feedback for them.

Keywords：online learning, types of feedback, autonomous choice feedback, metacognitive monitoring ability

Funding: The National Natural Science Foundation of China [grant number: 61877025].

弹幕属性和认知风格对线上视频学习效果的影响

高峰强[1]　赵宇飞[1]　刘忠[1]　韩磊[1]（通讯作者）

1 山东师范大学心理学院，山东，济南，250358，hanlei-0333@163.com

摘 要　目前弹幕对在线学习的实证研究还比较少，尤其是缺乏弹幕自身属性对在线学习效果影响的研究。因此，探讨不同弹幕属性设置对学生在线视频学习效果的影响成为一项重要的科学问题。此外，弹幕的多维感官刺激，在一定程度上对不同认知风格的人会有不同的影响。因此，本研究以《PR 教学课程》为例展开实验研究，考察弹幕属性设置对场独立和场依存学习者学习效果和学习感知的影响。研究 1 考察弹幕呈现方式（滚动、固定）对不同认知风格学习者学习效果、学习感知和认知负荷的影响。结果发现：在固定弹幕呈现方式下，场独立学习者的材料感知难度显著低于场依存学习者；在滚动弹幕呈现方式下，场独立学习者的相关认知负荷显著高于场依存学习者；在场依存条件下，相较于固定弹幕呈现方式，滚动弹幕呈现方式下学习者的材料感知难度更低、相关认知负荷更低。在研究 1 的基础上，研究 2 使用滚动弹幕呈现方式，继续考察弹幕显示区域（四分之一、二分之一）对不同认知风格学习者学习效果、学习感知和认知负荷的影响。结果发现：与二分之一弹幕显示区域相比，在四分之一弹幕显示区域下学习者的测验得分更高。对于场独立的个体，四分之一弹幕组的学习兴趣更高，相关认知负荷更高；对于场依存个体，二分之一弹幕组学习者课堂参与度更高，相关认知负荷更高。综上所述，本研究发现弹幕滚动或固定式呈现方式以及弹幕显示区域面积对个体在线视频学习都会产生影响，且受个体认知方式的调节。因此，在线教学过

程中如果开启弹幕，除了弹幕呈现方式和呈现区域外，我们还需要考虑学习者的认知风格。该研究能够为在线视频教学设计中如何使用弹幕提供研究依据和优化建议，有利于加深关于在线视频教学中弹幕作用的认识。

关键词　线上视频学习，弹幕呈现方式，弹幕显示区域，认知风格，学习效果

The Influence of Danmaku Properties and Cognitive Styles on Online Video Learning Effect

Gao Fengqiang[1],　Zhao Yufei[1],　Liu Zhong[1],　Han Lei[1](corresponding author)
1 School of Psychology, Shandong Normal University, Jinan, Shandong 250358, hanlei-0333@163.com

***Abstract*：** Currently, empirical research on the influence of danmaku (barrage) on online learning is limited, particularly regarding the impact of danmaku properties on learning effects. Therefore, investigating the influence of different danmaku property settings on students' online video learning effects becomes an important scientific inquiry. Additionally, the multidimensional sensory stimuli of danmaku may have varying effects on individuals with different cognitive styles. Thus, this study focuses on experimental research conducted on the "PR Teaching Course" to examine the influence of danmaku property settings on learning effects and perceived learning of field-independent and field-dependent learners. Study 1 investigated the influence of danmaku presentation modes (scrolling, fixed) on learning effects, perceived learning, and cognitive load of learners with different cognitive styles. The results revealed that under the fixed danmaku presentation mode, field-independent learners exhibit significantly lower material perception difficulty compared to field-dependent learners. Conversely, under the scrolling danmaku presentation mode, field-independent learners experience significantly higher germane cognitive load than field-dependent learners. Moreover, under field-dependent conditions, compared to the fixed danmaku presentation mode, the scrolling danmaku presentation mode leads to lower material perception difficulty and lower germane cognitive load among learners. Building upon Study 1, Study 2 utilized the scrolling danmaku presentation mode to further explore the influence of danmaku display areas (one-quarter, one-half) on learning effects, perceived learning, and cognitive load of learners with different cognitive styles. The results indicated that compared to the one-half display area, learners achieve higher test scores in the one-quarter display area. For field-independent individuals, the one-quarter danmaku group exhibits higher learning interest and higher germane cognitive load, whereas for field-dependent individuals, the one-half danmaku group demonstrates higher classroom engagement and germane cognitive load. In summary, this research revealed that both scrolling and fixed danmaku presentation modes, as well as the danmaku display area, have an impact on individuals' online video learning and are influenced by their cognitive styles. Therefore, when implementing danmaku in online teaching processes, in addition to considering the presentation mode and display area, learners' cognitive styles should also be taken into account. This study provided research insights and optimization suggestions for the utilization of danmaku in online video teaching design, enhancing our understanding of the role of danmaku in online video instruction.

***Keywords*：** online video learning, danmaku presentation modes, danmaku display areas, cognitive styles, learning effect

学习材料复杂性和呈现学习目标对诱人细节效应的影响及其机制

李芊诺[1,2]　路海东[1]（通讯作者）
1 东北师范大学心理学院，长春，130024 通讯作者 luhd@nenu.edu.cn
2 无锡市硕放中学，无锡，214142

摘 要　最初在教学材料中添加诱人细节是为了吸引学生注意力，提高学习兴趣。一方面诱人细节存在不可忽视的情感益处，另一方面诱人细节被发现损害学生的认知过程从而降低学习成绩产生了诱人细节效应。但随着研究的不断丰富，发现诱人细节效应也存在一定边界条件，这些发现对于如何发挥诱人细节的积极作用，减少其不利影响具有重要的意义。本研究以大学生为被试，在有关病毒与免疫的多媒体学习中，对学习材料复杂程度、诱人细节、学习目标进行操纵，并对学习者的保持和迁移成绩、自我报告的认知负荷、学习动机、情境兴趣以及学习过程中的眼动指标进行了测量。研究包括两个实验。实验一采用 2（学习文本的复杂程度：简单 vs.复杂）×2（诱人细节：有 vs.无）两因素被试间设计；实验二采用 2（诱人细节：有 vs.无）×2（学习目标：呈现 vs.不呈现）两因素被试间设计。本研究得出以下结论：（1）学习材料的复杂性是诱人细节效应产生的一个重要的边界条件。在简单学习材料中添加诱人细节并不影响学习者的学习成绩，而在复杂学习材料中添加诱人细节会降低学习者的学习成绩，表现出诱人细节效应。（2）在学习材料中增加诱人细节具有提高学习者的学习动机和情境兴趣的积极作用。（3）学习目标的呈现对诱人细节效应起缓冲调节作用。呈现学习目标通过增加学习者对学习文本的注视时间和注视次数从而提高了学习成绩，学习者对学习文本的注视时间和注视次数在学习目标呈现对学习成绩的影响中起到中介作用，在有诱人细节条件下，学习者对学习文本的注视次数在学习目标呈现对学习成绩的影响中起到中介作用。

关键词　诱人细节，学习材料复杂性，学习目标，认知负荷，眼动追踪

The Influence of Learning Material Complexity and Presenting Learning Objective on Seductive Detail Affect and Its Mechanism

Qiannuo Li[1,2]　Haidong Lu[1]
1 School of Psychology, Northeast Normal University,Changchun,130024
2 Wuxi Shuofang Middle School,Wuxi,214142

Abstract：Seductive details were originally added to teaching materials to attract students' attention and increase their interest in learning. On the one hand, seductive details have emotional benefits that cannot be ignored; on the other hand, seductive details have been found to damage students' cognitive processes and thus reduce their academic performance, resulting in seductive details effect. This study took college students as subjects, manipulated the complexity, seductive details and learning objectives of the learning materials in the multimedia learning about viruses and immunity, and measured the learners' retention and transfer performance, self-reported cognitive load, learning motivation, situational interest and eye movement indicators during the learning process. The study consisted of two experiments. In experiment 1, used a 2 (seductive details: with vs. without) × 2 (complexity of learning material: simple vs. Complex) between-subjects design; In experiment 2, used a 2 (seductive details: with vs. without) × 2 (learning goals :with vs. without) between-subjects design. This study draws the following conclusions: (1) The complexity of learning materials is an important boundary condition for the seductive detail effect. Adding seductive details to simple learning materials does not affect learners' academic performance, while adding seductive details to complex learning materials will reduce learners' academic performance, showing the effect of seductive details. (2) Adding seductive details to learning materials has a positive effect on improving learners' learning motivation and situational interest. (3) The presentation of learning objectives plays a moderating role in the effect of seductive details. Presenting learning objectives improves learning performance by

increasing learners' dwell time and fixation count of learning texts. Learners' dwell time and fixation count of learning texts play a mediating role in the influence of the presentation of learning objectives on learning performance. Under condition of seductive details, The fixation count on learning text plays a mediating role in the influence of learning goal presentation on learning achievement.

Keywords：seductive details, complexity of learning materials, learning objectives, cognitive load, eye tracking

提取练习与生成性策略的组合对文本学习的效果

唐云[1,2] （通讯作者） 杨晶莹[1]

1 华中师范大学心理学院，湖北武汉，430079

2 青少年网络心理与行为教育部重点实验室，湖北武汉，430079

通讯作者 E-mail: tangyun@ccnu.edu.cn

摘 要 以往研究发现，提取练习(retrieval practice)和生成性策略都能有效促进文本学习，但是二者的具体功能存在差异。提取练习主要通过提取过程巩固所学内容，促进记忆的长期保持，而生成性策略则通过帮助学习者构建连贯的心理表征来促进对学习材料的理解和迁移。本研究通过两个实验室实验，采用社科类文本作为学习材料，探究不同策略组合对学习过程和学习效果的影响。

实验 1 采用 3×2 混合设计，组间因素为学习策略（线索提取+生成、自由提取+生成、生成），组内因素为后测时间（即时、延迟），被试为 105 名大学生。结果发现，提供提取线索能提高学习者的初始提取表现，且不会降低提取阶段的认知负荷；但生成任务得分和后测成绩与其他组没有差异。与只完成生成任务的学习者相比，同时完成提取练习和生成任务的学习者在生成任务中会投入更少的努力，但生成质量、保持和迁移成绩没有差异。此外，进行提取练习对学习判断的准确性产生积极作用。实验 2 采用 3×2 混合设计，组间因素为学习策略（笔记+提取、生成+提取、提取），组内因素为后测时间（即时、延迟），被试为 99 名大学生。结果发现，与只进行提取练习的学习者相比，先记录笔记或者先完成生成任务的学习者在提取质量、保持和迁移成绩都有更好的表现，但是笔记+提取和生成+提取之间并不存在显著差异。

综合两项实验的结果，本研究表明提取练习和生成策略的组合相比单纯进行提取练习具有更积极的效果，且这种积极作用不受到任务顺序的影响。对提取再生成而言，提取对信息的激活和巩固并不会影响生成性任务的质量；对生成再提取而言，生成有利于学习者构建更高质量的心理表征，帮助学习者记忆更多信息。这些发现提示教师或学习者，在学习文本材料的时候可以考虑结合记忆类策略和生成性策略，能促进较深层次的认知加工，以达到更好的学习效果。

关键词 学习策略，文本阅读，提取练习，生成性学习

The Effect of Combining Retrieval Practice and Generative Strategy on Learning Social Science Texts

Yun TANG[1,2], Jingying YANG[1]

1 School of Psychology, Central China Normal University, 430079, Wuhan, Hubei

2 Key Laboratory of Adolescent Cyberpsychology and Behavior, Ministry of Education, 430079 Wuhan, Hubei

Abstract: Previous studies have found that both retrieval practice and generative strategies are effective in facilitating text learning, but there are differences in their specific functions. Retrieval practice consolidates what has been learned through the retrieval process and promotes long-term retention, whereas generative strategies promote comprehension and

transfer of learning materials by helping learners construct coherent mental models. In this study, two laboratory experiments were conducted to investigate the effects of different strategy combinations on the learning process and learning outcomes by using social science texts as learning materials.

Experiment 1 used a 3 × 2 mixed design with the between-group factor of learning strategies (cued recall + generation, free recall + generation, and generation) and the within-group factor of posttest time (immediate, delayed). Participants were 105 college students. The results found that providing retrieval cues improved learners' initial recall performance and did not reduce cognitive load in the retrieval phase, whereas no difference was found on generation task or posttest scores. Learners who completed both the retrieval practice and the generative tasks would engage less into the generative task compared to learners who only completed the generation task, but there were no differences in generation quality, retention, or transfer scores. In addition, learners who performed retrieval practice demonstrated more accurate metacognitive monitoring. Experiment 2 used a 3 × 2 mixed design with the between-group factor of learning strategies (notes + free recall, generation + free recall, free recall) and the within-group factor of posttest time (immediate, delayed). Participants were 99 college students. It was found that learners who took notes first or completed the generative task first performed better in terms of retrieval quality, retention, and transfer scores compared to learners who only did retrieval practice. No significant difference was found between notes + free recall and generation + free recall.

Collectively, the present study suggests that the combination of retrieval practice and generative strategies has a more positive effect than retrieval practice alone, and that this positive effect is not affected by task order. For retrieve-then-generate, the activation and consolidation of information by retrieval did not affect the quality of the generative task; for generate-then-retrieve, generation facilitated the construction of higher-quality mental models and helped learners memorize more information. These findings suggest that teachers or learners may consider combining retrieval practice and generative strategies when learning textual materials, which can promote deeper cognitive processing for better learning outcomes.

Keywords: Learning strategies, learning from text, retrieval practice, generative learning

上网课需要开摄像头吗？社会存在感对在线学习的影响

祝婉玲[1]　冷晓雪[1]　王福兴[2]（通讯作者）

1 华中师范大学心理学院，武汉，430079

2 华中师范大学心理学院，武汉，430079，fxwang@ccnu.edu.cn

摘 要　在视频学习中，教师存在和学生存在是影响学习效果的重要因素。准社会交往理论、社会代理理论和社会存在感理论认为呈现教师形象能够促进学习，而多媒体学习理论和认知负荷理论则认为教师形象会与学习材料竞争认知资源从而阻碍学习。近年来，随着在线同步教育的发展，教师存在的操控由在视频中呈现教师形象转变为教师直接打开摄像头。同时，技术的保障也使得学生可以自由选择是否打开摄像头呈现自己的形象，形象呈现可能会诱发更高的自我监控，影响学生的学习投入和心理努力。本研究主要关注在线教学课堂中，教师和学生的存在（开关摄像头）是否会影响学习体验和学习结果。实验采用 2（教师存在：打开摄像头，关闭摄像头）×2（学生存在：打开摄像头，关闭摄像头）的被试内设计，共招募 33 名被试，在模拟真实线上授课情景的实验室中完成英语单词的学习，并对比不同学习条件下学习者的学习表现（保持测验和迁移测验）、主观体验（元认知判断、心理努力、感知难度和社会存在感）和动作能量（头部移动变化量）。被试需要连续 4 天来到实验室学习不同的英语单词，不同条件和不同材料的学习顺序在被试间进行平衡。结果发现：（1）在保持和迁移测验上，教师存在的主效应显著，当教师关闭摄像头时，学生的学习表现优于教师打开摄像头，其他主效应和交互作用均不显著；（2）在元认知判断和心理努力上，学生存在的主效应显著，相比于关闭摄像头，学习过程中学生打开摄像头提高了学习投入，同时对测验成绩有更高的估计。在社会存在感上，教师存在的主效应显著，教师打开摄像头时，学生感知到教师的社会存在

更高。（3）在动作能量上，教师的主效应显著，当教师关闭摄像头时，学生的动作幅度更大。研究结果表明，在线教学中，教师打开摄像头可能会造成学生的身体紧张和注意资源分散，从而不利于学习效果，并且学生的主观感受和学习表现存在偏差。本研究支持了多媒体学习理论和认知负荷理论，对在线同步教学的开展具有一定指导意义。

关键词　在线学习；社会存在；动作能量分析

Can the presence of teacher and student promote online learning?

Zhu Wanling[1]　Leng Xiaoxue[1]　Wang Fuxing[1]

1. School of Psychology, Central China Normal University, Wuhan 430079

Abstract：The presence of teachers and students is considered a crucial factor that affects learning outcomes in video-based learning. Parasocial interaction theory, social agency theory, and social presence theory suggest that presenting teacher images can enhance learning, while multimedia learning theory and cognitive load theory argue that teacher images may compete for cognitive resources with learning materials, thereby hindering learning. In recent years, with the development of synchronous online education, the manipulation of teacher presence has shifted from presenting teacher images in videos to teachers directly turning on their webcams. Simultaneously, technological advancements have allowed students to choose whether or not to present their own images by turning on their webcams. Students' presentation of images may induce higher self-monitoring, thereby influencing students' learning engagement and mental. This study primarily focuses on whether the presence of teachers and students (webcam on/off) in online teaching classrooms affects learning experiences and outcomes. A within-subject design was employed, with a total of 33 participants recruited. Participants completed English vocabulary learning tasks in a laboratory setting that simulated real online teaching scenarios. The study compared learners' performance (retention and transfer tests), subjective experiences (judgment of learning, mental effort, perceived difficulty, and social presence), and motion energy under different learning conditions. Participants were required to come to the laboratory for four consecutive days to learn different English vocabulary words, with the learning conditions and material sequences counterbalanced across participants. The results revealed that: (1) significant main effects of teacher presence were found on retention and transfer tests, with students performing better when the teacher's webcam was off; no other main effects or interaction effects were significant; (2) significant main effects of student presence were found on judgment of learning and mental effort, indicating that students' engagement and estimation of test scores were higher when they had their webcams on during the learning process. A significant main effect of teacher presence was found on social presence, with students perceiving higher social presence when the teacher's webcam was on; (3) a significant main effect of teacher presence was found on motion energy, with students exhibiting greater head movement when the teacher's webcam was off. The findings of the present study suggest that within the realm of online teaching, the presence of a teacher's webcam may elicit physical tension and result in divided attention among students, ultimately exerting a detrimental influence on learning outcomes. Moreover, it is important to acknowledge that students' subjective perceptions and learning performance may be susceptible to bias in relation to this particular factor. These empirical findings are consistent with the theoretical frameworks of multimedia learning and cognitive load, thereby providing valuable insights and guidance for the advancement of synchronous online teaching.

Keywords：online learning; social presence; motion energy analysis

教师高兴的面部表情什么时候促进视频学习？手势和鼠标指示的作用

皮忠玲[1]　黄雪玫[1]　李西营[1]（通讯作者）

1 陕西师范大学现代教学技术教育部重点实验室，西安，710062

摘 要　教学视频中教师常常无意识的使用多种非言语行为，如面部表情、手势和身体动作等，激发学生的社会反应，或引导其注意资源分配。研究表明，这些行为会共同影响视频学习的过程和效果。然而，以往研究主要关注单一的教师非言语行为的作用，忽略了它们的整合作用。本研究包含三个眼动实验，其中实验一和实验二考察教师面部表情和指示性手势在幻灯片复杂度不同的教学视频中的作用，实验三考察了教师面部表情在有鼠标指示的教学视频中的作用。实验一和实验二发现，指示性手势吸引了学习者分配更多的注意资源加工教师形象，并且教师高兴的面部表情和指示性手势同时使用时，会降低学习者在幻灯片较为复杂的视频中的学习效果。实验三发现，教师高兴的面部表情增加了学习者在幻灯片较为复杂且有鼠标指示的视频中的学习效果。本研究结果对教学视频设计具有重要的指导意义。

关键词　教学视频，教师，面部表情，指示性手势，鼠标指示

Promoting Learning with Happy Facial Expressions: The Role of Pointing Gestures and Mouse Pointing in Video Lectures

Zhongling Pi, Xuemei Huang, Xiying Li

Key Laboratory of Modern Teaching Technology (Ministry of Education), Shaanxi Normal University

Address: South Chang'an Road 199, Yanta District, Shaanxi Normal University, Xi'an 710062, Shaanxi Province, P.R.China

Abstract：Instructors frequently use multiple nonverbal behaviors to trigger a social reaction and guide learners' attention even in video lectures. Furthermore, these nonverbal behaviors interactively influence learners' learning process and performance. However, previous studies mainly focus on either the behaviors acting as social cues or the behaviors acting as attentional cues. This study conducted three eye-tracking experiments to examine the effects of an instructor's facial expressions and pointing gestures in video lectures with simple and complex slides. The study also examined the effects of the instructor's facial expressions in the video lectures with mouse pointing. Results of Experiments 1 and 2 exhibited that the instructor's pointing gestures attracted learners' greater attention to her image, and the combination of happy facial expressions and pointing gestures hindered learning performance regardless of the complexity of slides in video lectures. Results of Experiment 3 exhibited that when video lectures with complex slides presented mouse pointing, the instructor's happy facial expressions enhanced learning performance. The current study affords implications for designing of video lectures with instructor presence. Specifically, instructors should use mouse pointing instead of pointing gestures to strengthen the benefits of happy facial expressions in video lectures with complex slides.

Keywords：video lectures, instructor, facial expressions, pointing gestures, mouse pointing

小学生注意控制对数学策略灵活性的作用

蒋舒阳[1]　刘儒德[1]（通讯作者）　王佳[2]

1 北京师范大学心理学部，北京，100875，通讯作者 E-mail：rdliu@bnu.edu.cn

2 北京联合大学

摘 要　数学策略灵活性反映了学生灵活地运用所学知识选择最优策略来解决问题的能力。以往大量以单一问题为背景的研究仅关注个体在策略转换方面的表现，而忽略了数学问题解决的系列背景以及策略灵活性可能具有不同的表现形式。对此，近期研究提出了新的看法，即策略灵活性的本质要求个体在面对变化的问题情境时决定是要保持先前的策略还是要转换到新策略，经历了一个更为复杂的加工过程。相应地，策略灵活性的表现形式、测量方式需要随之思考，其影响因素及作用机制也有待重新探讨。为此，本研究首先提出策略灵活性“策略保持、策略转换”的双重表现框架，并通过设置系列问题情境，同时考察双重过程；其次，从过程重叠理论视角出发，探究注意控制与策略灵活性的关系及其随年级的发展变化；最后，引入心智游移作为中介变量，进一步揭示二者的关系的内在机制。本研究通过三个研究逐步检验上述观点。研究 1a 和 1b 分别以加法、乘法估算问题为例开发策略灵活性任务，通过比较不同灵活性水平学生的任务表现差异，来验证双重过程指标的有效性。研究 2a 和 2b 通过考察小学生的注意控制水平与策略灵活性加法、乘法任务表现的关系以及年级的调节作用，以明确注意控制与策略灵活性的关系及其边界条件。研究 3a 和 3b 则分别采用中介测量、中介操纵设计，检验心智游移是否在注意控制对策略灵活性的影响中起到中介作用。结果表明：1）相比于低灵活性学生，高灵活性学生在策略保持和策略转换上的表现均更好，表明双重过程都是反映策略灵活性的有效指标；2）在控制了工作记忆容量之后，注意控制正向预测小学生策略灵活性的双重表现，且年级因素起到调节作用，表明策略灵活性需要注意控制的参与，尤其针对发展早期阶段；3）心智游移在注意控制与策略灵活性的关系中起到中介作用。本研究提出的数学策略灵活性双重表现框架有助于完善相关测查方式，并为揭示策略灵活性背后的认知机制与发展规律提供科学依据。

关键词　策略灵活性，注意控制，心智游移，小学生

The Relation between Attention Control and Mathematical Strategic Flexibility among Elementary School Students

Jiang Shuyang[1]　Liu Ru-De[1]　Jia Wang[2]
1 Faculty of Psychology, Beijing Normal University
2 Beijing Union University

Abstract： Mathematical strategic flexibility reflects students' ability to flexible use of mathematical knowledge to choose the most efficient strategy in the problem-solving process. Previous studies mostly focused on investigating participants' performance in strategic switching by using a single question context, which neglected the context of mathematical problem-solving and the possibility that strategic flexibility may manifest in different forms. In fact, recent studies have suggested that the nature of strategic flexibility requires that when confronted with a series of mathematical problems, it is important to know when to continue with a previous strategy and when to switch to a new one, which involved with a more complex processing procedure. Accordingly, the form and measurement of strategic flexibility need to be considered, and it’s impact factors and underlying mechanisms need to be revisited.

To address the above issues, the first concern of this study was to propose a dual-process framework for strategic flexibility and investigate it in a series of problem-solving contexts. Tasks were developed to assess performance in both maintenance and switching aspects. Secondly, by taking the perspective of the process overlap theory, the relationship between attention control and strategic flexibility , as well as its developmental changes were explored. Thirdly, b it is proposed that mind wandering may serve as a possible mediating factor to account for the relationship between attention control and strategic flexibility. We tested these hypotheses in three studies.

Studies 1a and 1b developed tasks of strategic flexibility using addition and multiplication estimation problems as examples. By comparing the performance of students with different levels of flexibility, the effectiveness of dual-process indicators is verified. To clarify the relationship between attention control and strategic flexibility, Study 2a and 2b examined

the relationship between primary school students' attention control and task performance, as well as the moderating effect of grade level. Study 3a and 3b further tested whether mind wandering play a mediating role in the relationship between attention control and strategic flexibility through mediation measurement and mediation manipulation design.

The results showed that: 1）Students with higher strategic flexibility exhibited better performance in both maintaining and switching, indicating that maintaining and switching are valid indicators for measuring mathematical strategic flexibility. 2）After controlling for the effect of working memory capacity, attention control demonstrated a significant predictive effect on strategic flexibility. Grade moderated the relationship between attention control and strategic flexibility. These indicated that both maintaining and switching involve attention control processes, particularly for low-grade students. 3） Mind wandering served as a mediator in the relationship between attention control and strategic flexibility.

By proposing a dual-process framework of strategic flexibility, the present study improved the related methods and provided empirical evidence for a deeper understanding of the cognitive mechanisms and developmental patterns underlying strategic flexibility.

Keywords： Mathematical strategic flexibility, attention control, mind wandering, elementary school student

以促进知识建构为核心的学习策略开发框架

庞维国

华东师范大学心理与认知科学学院，上海，200062，E-mail：wgpang@psy.ecnu.edu.cn

摘 要　传统上，学习策略被分为三大类：认知策略，元认知策略，资源管理策略。其中认知策略又包含注意策略、精加工策略、复述策略、组织策略等，元认知策略又包含自我监控、自我评价、自我调节策略等，资源管理策略又包含时间管理策略、环境营造策略和学业求助策略等。从心理学研究角度看，这种分类框架有助于聚焦某一特定的学习过程，进而对学习者的有效学习提供支持；但它也存在两个明显的缺点：一是过于碎片化，不利于教师在教学设计和教学实施过程中整体顾及；二是过于关注信息的输入性加工，而相对忽视信息的输出过程。在实际的教学情境中，教师较少教授学生学习策略与这两方面都存在密切关系。无论是哪种形式的学习策略，最终都要通过促进学生的知识建构来促进其学习。建构主义通常把建构分为认知建构和社会建构两类，但后者依然需要通过促进前者来最终促进学习。我们认为，从更为有效地促进学生的学习和相应的教学角度，学习策略的开发应围绕学生的知识建构过程来进行。学生的知识建构有两个基本过程：输入性建构和输出性建构。输入性建构重在通过新旧知识的互动建构理解和记忆，输出性建构则重在重组已有知识建构问题解决方案。当前研究者聚焦的认知策略（如精加工策略）和资源管理策略（如学业求助策略）主要指向的是输入性建构，问题解决策略所指向的主要是输出性建构，元认知策略则同时适用于两种建构过程。总体而言，旨在促进输出性建构的学习策略研究目前相对缺乏。为此，我们应围绕学生的生成性作业（如写作）、项目化学习、创造性问题解决等方面，着力开发促进其学习的策略。如此，经过一段时间探索，就可以构建起促进输入性建构和输出性建构相平衡的学习策略系统。

关键词　学习策略，知识建构，输入性建构，输出性建构

A Knowledge Constrution-based Taxonomy of Learning Strategies

Weiguo Pang

School of Psychology and Cognitive Science, East China Normal University

***Abstract*：** Traditionally, learning strategies are categorized into three types, namely cognitive strategy, meta-cognitve strategy, and resource management strategy. Cognitive strategies, such as attention strategy, elaboration, rehearsal, and organization, are developed to promote general information processing. Meta-cognitve strategies are used to monitor, evaluate, and regulate learning processes. And resource management strategies, which include time management, environmental arrangement, and academic help-seeking, are acquired to enhance the employment of learning resoureces. Although the trichotomy of learning strategies is helpful for the psychologists to highlight some learning processes and develop according strategies to support them, the taxonomy is with two pitfalls. First, the strategies in the trichotomy are so miscellaneous that teachers could not sufficiently integrate them into instruction. Second and more importantly, the strategies are mainly developed to promote the input processes of learning whereas the strategies used to improve the output processes are relatively rare. To some extent, these pitfalls account for the less learning strategies instruction in the classroom. Any learning strategies must make effect through the intervention of individual knowledge construction. Despite that constructivists emphasize the significances of both coginitive construction and social construction, social construction essentially affect the learner by strengthening their personal knowledge construction. As such, we recommend that, in order to effectively support students learning and classroom instruction, the development of learning stratigies should centre on individual knowledge construction. Basically, knowledge construction takes in two forms: input-oriented construction (IOC) and output-oriented construction (OOC). While IOC occurs when prior knowledge interacts with new information to construct understanding and memory, OOC arises when prior knowledge was reorganized and combined to achieve solutions

for given problems. It is important to point out that the cognitive strategies (e.g. elaboration) and resource management strategies (e.g. academic help-seeking) highlighted by the previous researchers are mainly used to promote the IOC, whereas problem solving strategies are mainly used to inprove the OOC, though meta-cognitive strategies can serve the both construction. Considering that the research on the learning strategies which could promote the OOC, we suggest that the development of learning strategies should pay more attention to the activities which involve the OOC process, such as generative assignment, project-based learning, and creative problem solving. As such, the number of learning strategies which could serve both the IOC and the OOC would be commensurate.

Keywords： Learning strategies, Knowledge construction, Input-oriented construction, Output-oriented construction

儿童犯错态度的特征、前因和结果：基于变量中心及个体中心视角

刘宇轩　姚梅林　刘红瑞（通讯作者）

北京师范大学心理学部，北京，100875，hrliu@bnu.edu.cn

摘 要　接受并纠正错误有益进步，但学生对犯错的态度与反应复杂多样，如厌恶犯错的同时积极改错、接受犯错但拒绝改正等。目前鲜有研究就学生的犯错态度开展异质性研究。同时，关于“不同犯错态度如何形成？”“不同犯错态度会带来怎样的结果？”等科学问题尚缺乏充分解答。本研究综合运用变量中心和个体中心的方法，探索犯错态度的三个方面即认知（关于犯错是否有益的观念）、情感（犯错时的情绪体验）及行为（犯错后采取的行动）的组合模式，检验环境（父母失败思维和社会比较）及个人因素（成就目标）在犯错态度形成中的作用，并考察犯错态度对主观幸福感和学业发展的影响。采取随机整群抽样的方法，对 495 名小学高年级儿童（$M_{年龄}$ = 11.03 岁，SD = 0.82）进行问卷调查。检验共同方法偏差后，首先在 Mplus 中采用结构方程模型考察犯错态度与各变量的线性关系，再用潜在剖面分析探索学生犯错态度的剖面类型与占比，最后用回归混合模型揭示犯错态度剖面与前因变量及结果变量的关系。结果显示，（1）父母失败思维和社会比较正向预测犯错情感，不同成就目标对犯错态度的认知、情感及行为的影响侧重不同，犯错态度的这三个方面对儿童主观幸福感、学业自我妨碍、求学意愿的影响侧重也不同；（2）存在 3 种学生犯错态度剖面，即消极组（55.35%）、积极组（28.28%）和知行不一组（16.36%）；（3）年级、父母失败思维、掌握目标得分越高的儿童越易进入消极组和知行不一组，父母社会比较倾向及自身表现目标越高的儿童越有可能归于知行不一组；（4）知行不一组儿童的消极情感和学业自我妨碍最高，积极组儿童的求学意愿最高。整体而言，研究表明学生犯错态度的不同方面难以一概而论，需加以区分；家长信念与行为以及儿童自身持有的成就目标对犯错态度乃至未来发展的影响不容忽略；犯错态度中的“知”与“行”虽不同但关系密切，未形成对错误的积极认知而被动或被迫改错可能会危害儿童的心理健康及学业发展。

关键词　犯错态度，成就目标，主观幸福感，学业发展，潜在剖面分析

Characteristics, Predictors, and Outcomes of Attitudes Toward Mistakes Among Children: From Variable- and Person-Centered Perspectives

Yuxuan Liu, Meilin Yao, Hongrui Liu

(Faculty of Psychology, Beijing Normal University, Beijing, 100875)

Abstract： Accepting and correcting mistakes is beneficial for progress, yet the students' attitude and reaction to making mistakes are complex (e.g., disgusting but correcting mistakes carefully, accepting mistakes but refusing to correct). Currently, limited studies have focused on mistake attitudes, let alone exploring the heterogeneity of student attitudes toward

mistakes and addressing the significant issues of “how different mistake attitudes form?” and “What are the consequences of mistake attitudes?” deeply. The present study adopted both variable- and person-centered approaches to a) explore the combinations of three aspects of mistake attitudes, including cognition (belief about the benefits of mistake), emotions (emotional experiences when making mistakes), and behavior (actions taken when making mistakes), b) examine the role of potential environmental (i.e., parental failure mindset and social comparison) and personal antecedents (i.e., achievement goals) in the formation of mistake attitudes, and c) investigate the impact of mistake attitudes on subjective well-being and academic development among children. For the questionnaire survey of 495 primary high school children (M_{age} = 11.03 years, SD = 0,82), a random sampling method was adopted. After testing the common method bias, the structural equation model was used to examine the liner relationship of attitudes toward mistakes with other variables; then, latent profile analysis was applied to explore the profiles of mistake attitude and profile proportions; and finally, regression mixed modeling was taken to reveal the relationships of mistake attitude profiles with antecedent and consequent variables. The results showed that (1) parental failure mindset and social comparison positively predicted mistake attitude, and various achievement goals had different predicting role in the three aspects of mistake attitude, which differed in predicting subjective well-being, academic self-inhibition, and willingness to pursue education. (2) Three mistake attitudes profiles were identified: Negative (55.35%), positive (28.28%), and disunity of knowing and doing (16.36%). (3) High grades, parental failure mindset, and mastery goals increased probabilities of belonging to the negative and the disunity of knowing and doing group; and high perception of parental social comparison and performance goals increased probabilities of belonging to disunity of knowing and doing group. Moreover, (4) disunity of knowing and doing group had the highest negative affect and academic self-handicapping, while the positive group had the highest willingness to pursue education. Overall, findings indicate that it is necessary to distinguish the different aspects of mistake attitudes, and to value the influences of parental beliefs and behaviors, as well as personal achievement goals on the mistake attitude and future development of children. Move on, note that the cognition and behaviors in the mistake attitudes are different but closely related. Passive or forced correction without a positive cognition of making mistake may endanger child’s mental health and academic development.

Keywords：Attitudes Towards Mistakes, Achievement Goals, Subjective Well-Being, Academic Development, Latent Profile Analysis (LPA)

弹幕同步交互对初中生在线学习投入的影响

刘颖[1]　韩超楠[2]（通讯作者）
1 河北师范大学教育学院，石家庄，050000
2 商丘工学院，商丘，476000，通讯作者 E-mail：hcn2018@163.com

摘 要　在线学习往往因其教学交互深度、广度不足而导致学习者产生较低的学习投入。随着“互联网+”时代到来，弹幕为在线学习提供了新的即时性、可控性的交互方式。大量研究证实，及时反馈是促进深层次学习的有效策略之一，因而，弹幕交互其独特的交互优势是否有利于增强在线学习投入值得进一步验证。然而，目前尚无研究直接证明这一点。已有研究大多仅从理论上推论弹幕的特点与学习过程及学习结果之间的相关关系，且相对忽略了实时模式下，师生、生生弹幕同步交互对在线学习投入的本质影响。本研究通过四个实验，从生生交互、师生交互两大方面探究弹幕同步交互对初中生在线学习投入的影响。实验 1 即探索性研究，实验 1a 揭示弹幕交互功能（打开、关闭、偶尔打开偶尔关闭）对学生学习投入的影响。实验 1b 进一步将弹幕状态限制在开启功能时，揭示学生弹幕使用模式（自发、观看）对其学习投入的影响。在此基础上，实验 2 进一步探究生生弹幕互动数量及质量对学习投入的影响。实验 3 则从师生交互角度，探究教师对学生弹幕的回应方式以及回应时间对学生学习投入的影响。研究结果表明：1）开启弹幕功能组的学生的学习投入水平显著高于关闭弹幕功能组。2）发送弹幕组的学生学习投入水平显著高于观看弹幕组。3）发送高质量弹幕组的学生学习投入水平显著高于低质量组。4）教师不回应组和延时回应组学生的学习投入差异不显著，及时回应组学生的学习投入水平显著高于其他各组。基于时代背景，本研究通过探清弹幕交互对在线学习投入的作用机理，为在线学习中适当发挥弹幕交互的作用提供实证支持。
关键词　弹幕交互，在线学习投入，初中生

The Effect of Danmaku on Middle School Students' Online Learning Engagement

Liu Ying　Han Chaonan
School of Education, Hebei Normal University
College Student Mental Health Education Center, Shangqiu Institute of Technology

Abstract：Online learning often leads to low engagement due to insufficient depth and breadth of teaching interaction. With the arrival of the "Internet+" era, danmaku provides a new interactive way for online learning with immediacy and controllability. A large amount of research has confirmed that timely feedback is one of the effective strategies to promote deep learning. Therefore, it is worth further exploring whether the unique interactive advantages of danmaku interaction are conducive to enhancing online learning engagement. However, there is currently no direct research to prove it. Most existing research only infers the correlation between the characteristics of danmaku and the learning process and results from a theoretical perspective, and relatively neglects the essential impact of synchronous danmaku interaction between teachers and students or among students on online learning engagement in real-time mode.

This study explores the impact of danmaku synchronous interaction on the engagement of middle school students in online learning from two aspects: student-student interaction and teacher-student interaction through four experiments. Experiment 1 is an exploratory study, and Experiment 1a reveals the impact of danmaku interaction functions (turning on, turning off, occasionally turning on and off) on student engagement. Experiment 1b further limits the danmaku status and reveals the impact of student danmaku usage patterns (spontaneous, watching) on their engagement. Based on this, Experiment 2 further explores the impact of the quantity and quality of student-student danmaku interaction on engagement.

Experiment 3 explores the impact of teacher response methods and response time to students' danmaku on engagement from the perspective of teacher-student interaction. The results show that: 1) the engagement level of students in the group with danmaku turned on is significantly higher than that of the group with danmaku turned off; 2) the engagement level of students in the group sending danmaku is significantly higher than that of the group watching danmaku; 3) the engagement level of students in the group sending high-quality danmaku is significantly higher than that of the low-quality group; 4) there is no significant difference in the engagement level of students in the group where the teacher did not respond and the group with delayed response, and the engagement level of students in the group with timely response is significantly higher than that of other groups. In a word, this study provides empirical support for appropriately leveraging the role of danmaku interaction in online learning by exploring the mechanism of the impact of danmaku interaction on online learning engagement. In a word, this study provides empirical data on the impact of danmaku synchronous interaction on learning engagement, and supports the optimization of the role of danmaku in online learning with empirical results.

Keywords： Danmaku, Online Learning Engagement, Middle School Students

课堂测验对新知识学习、走神频率、考试焦虑及学业成绩的影响

杨春亮

北京师范大学心理学部-发展心理研究院，北京，100875

Email：chunliang.yang@bnu.edu.cn

摘要：在教学情境中，学生及教师往往将测试（即记忆提取练习）视之为一种知识或能力评估工具，但大量认知与教育心理学研究表明测试更是一种高效的学习策略和教学技术。例如，测试已学知识能够巩固人们对所学知识的长时记忆保持，该现象被称之为后向测试效应（the backward testing effect）。此外，大量实验室研究表明，测试已学知识还能够促进人们对新知识的学习效率，该现象被称之为前向测试效应（the forward testing effect）。本研究首次在课堂情境下考察课堂测验是否能够促进学生对新知识的学习效率。在持续四周的英语课程中，学生共参加四次英语课程。在前三次英语课程中，测试条件下的学生需要在每次课程结束后完成一个课堂测验，而重学条件下的学生则重新复习每次课程的知识要点。在完成第四次课程后，测试条件和重学条件下的学生均完成本次课程的课堂测验。在每次授课过程中，本研究使用走神探针测量每位学生的走神状态。在第四次课程结束一周后，学生完成单元测验，且在测验前报告考试焦虑程度。

结果表明，测试组的第四次课堂测验成绩显著高于重学组，表明真实教学情境下前向测试效应依然稳定存在。测试组学生的课堂走神频率显著低于成学组，表明课堂测验能够有效维持学生的学习投入。测试组关于单元测验的焦虑程度显著低于重学组，表明课堂测验能够有效降低考试焦虑。测试组的单元测试成绩显著高于重学组，表明课堂测验能够提升学生的学业成绩。个体差异分析表明课堂测验能够更有效提高学习能力较差的学生的学业成绩，表明课堂测验能够减小学生间的学业成绩差异。学生普遍对低风险的课堂测验持积极态度，且推荐教师在未来课程中继续实施课堂测验。上述结果表明，课堂测验是一种有效的教学技术，能够促进学生对新知识的学习效率、增强课堂注意力、提升学业成绩及降低考试焦虑。研究结果的理论贡献将在会议报告中进行详细阐述。

关键词：提取练习；前向测试效应；课堂测验；走神；考试焦虑；学业成绩

Effects of Class Quizzes on New Learning, Mind Wandering, Test Anxiety and Exam Performance

Chunliang Yang

Institute of Developmental Psychology, Faculty of Psychology, Beijing Normal University, Beijing, 100875

Email: chunliang.yang@bnu.edu.cn

Abstract: In educational settings, both students and teachers frequently regard testing (i.e., retrieval practice) as a tool for knowledge or skill assessment. However, a substantial body of research in cognitive and educational psychology suggests that testing is not only an assessment tool but also an effective learning strategy and instructional technique. For instance, testing can consolidate long-term retention of previously learned material, a phenomenon known as *the backward testing effect*. Additionally, numerous laboratory studies have shown that testing can also potentiate subsequent learning of new material, known as *the forward testing effect*. We conducted the first quasi-experiment to investigate whether end-of-class quizzes can promote students' learning of new information in the real classroom.

Over the course of four weeks of English classes, students attended to four English lessons. During the first three lessons, students in the testing condition completed a quiz at the end of each lesson, while students in the restudy condition reviewed the key knowledge summary of each lesson. After the fourth lesson, both the testing and restudy groups took a classroom quiz on that lesson. During each lesson, students' mind states were measured by five occasionally presented mind-wandering (MW) probes. One week after the fourth lesson, the students took a unit exam and reported their levels of test anxiety (TA) before the exam.

The results showed that Class 4 quiz performance was significantly better in the test than in the restudy group, indicating that the forward testing effect survives in real classroom settings. MW rates during classes were significantly lower in the test than in the restudy group, suggesting that classroom quizzes effectively sustain students' learning engagement across the lecture phase. The test group also exhibited significantly lower levels of TA regarding the unit exam compared to the re-study group, indicating that classroom quizzes can also effectively reduce TA. Moreover, the test group's unit exam performance was significantly better than the restudy group's exam performance, suggesting that classroom quizzes can boost academic performance. Individual difference analysis revealed that classroom quizzes were more effective in enhancing academic performance for students with lower learning abilities, thereby reducing achievement gaps among students. Students generally held positive perspectives on low-stakes quizzes and recommended teachers to continue implementing quizzes in future classes. These findings indicate that classroom quizzes are an effective instructional technique that potentiates new learning, enhances learning engagement, improves academic performance, and mitigates TA. Theoretical contributions of the documented findings will be further elaborated in the conference presentation.

Keywords: Retrieval practice; Forward testing effect; Class quizzes; Mind wandering; Test anxiety; Academic performance

大学生规则学习方法的选择倾向及学习效果

班宇威　张奇 (通讯作者)
辽宁师范大学心理学院, 大连, 116029, zq55822@163.com

摘要：规则学习方法主要有三种：（1）阅读学习法,即通过阅读教材习得规则；（2）样例学习法，即通过样例学习习得规则；（3）范例学习法，即在规则范例教学条件下通过范例学习习得规则。为考察大学生三种规则学习方法的自我选择倾向和学习效果，也为了考察大学生先前知识水平对三种学习方法选择倾向和学习效果的影响，我们开发出低、中、高三种元素交互性水平的各 4 种人工代数运算规则，并划分出有、无先前知识的两种被试，使有、无先前知识的被试都经历分别采用三种学习方法学习三种元素交互性水平的前三个代数规则的学习过程。最后，让被试自主选择一种学习方法进行第四个规则的学习。以此考察大学生阅读学习、样例学习和范例学习三种规则学习方法的自我选择倾向及学习效果。

实验结果显示：（1）在学习低交互水平的规则时，三种学习方法的学习效果均较好，学习成绩均无显著差异。被试选择样例学习方法的人数显著多于选择另两种学习方法的人数，有、无先前知识对学习方法的自我选择倾向均无显著影响。（2）在学习中等交互水平的规则时，有先前知识被试的样例学习和范例学习效果均明显优于阅读学习；无先前知识被试的样例学习的效果明显优于阅读学习。无先前知识被试选择样例学习方法的人数显著多于选择另两种学习方法的人数；有先前知识的被试选择范例学习方法的人数显著多于选择另两种学习方法的人数，选择样例学习方法的人数显著多于选择阅读学习方法的人数。（3）在学习高交互水平的规则时，有先前知识被试的范例学习效果均明显优于样例学习和阅读学习，样例学习的效果明显优于阅读学习；无先前知识被试的样例学习和范例学习的效果均明显优于阅读学习。有、无先前知识的被试选择样例学习和范例学习的人数均显著多于选择阅读学习的人数。

实验结果表明，在学习规则时，大学生更倾向于选择样例学习方法或范例学习方法并取得较好学习效果。

关键词：规则学习方法；元素交互性水平；阅读学习；样例学习；范例学习

The Choose Tendency and Learning Effect of Learning Method for Rule of Student

Ban Yuwei　Zhang Qi
School of Psychology, Liaoning Normal University, Dalian

***Abstract*:** There were three main methods of students learning rules: first method was read learning; second method was worked-examples learning; third method was modeling example learning. In order to research the influence of element interactivity and prior knowledge to the applicability of learning method, we created four kinds of new algebraic operation rules for each low, middle and high interactive element, and the participants were divided into two kinds, one was the with prior knowledge of students, other was without prior knowledge students. The participants with or without prior knowledge were all experienced three kinds of learning methods to learn three different algebraic rules that have the same level of element interaction. Then themselves choose one of three kinds methods to learn the fourth rule, we investigated the choose tendency and the learning effects of every kind learning method.

The experimental results showed that: (1) When learning the algebraic rules of low element interaction, three learning methods could all achieved better learning effect, and the difference among three learning methods was not significant. The number of choose second method were significantly more than those of the first and third method. (2) When learning the algebraic rules of middle element interaction, the learning effect of second method and third method of participants with prior knowledge were all significantly better than those of first method. The learning effect of second method of the participants without prior knowledge was significantly better than those of first method. The number of choose second method of the participants without prior knowledge were all significantly more than those of the first method and third

method. The number of choose third method of the participants with prior knowledge were all significantly more than those of the first method and second method. (3)When learning the algebraic rules of high element interaction, the learning effect of third method of the participants with prior knowledge were all significantly better than those of first method and second method, and the learning effects of second method and third method of the participants without prior knowledge were all significantly better than those of first method. The number of choose second method or third method of participants with or without prior knowledge were all significantly more than those of first method.

The conclusion was that when learning rule, the students more tend to choose the method of modeling example learning or worked-example learning and achieved better learning effect.
Keywords: learning methods for rule; interaction of elements; read learning; worked-example learning; modeling example learning

青少年抑郁和自杀问题的时代特点与教育对策

——基于“无望理论”的拓展性分析

盖笑松[1,2]（通讯作者）

1 东北师范大学心理学院，长春，130024

2 吉林省普通高等学校人文社会科学重点研究基地东北师范大学心理健康教育研究中心，长春，130024

通讯作者 Email: gaixs669@nenu.edu.cn

摘要：古今中外都不乏青少年抑郁和自我伤害事例，然而近年来我国青少年抑郁和自我伤害问题的高发趋势和低龄化趋势需要得到特别的注意。流调显示中学生抑郁发生率达到 17.9%（史珊珊等，2023），13.65%的中学生曾有意伤害过自己，12.25%的中学生认真考虑过自杀,6.46%的中学生有过自杀计划,2.33%的中学生采取过自杀措施（沈艳辉等，2020）。尽管心理学中的“无望”理论（Abramson, Metalsky, Alloy, 1989）和自杀人际理论（Van Orden, 2010）已经对抑郁和自杀问题做出了有力的解释，但是这些解释未能考虑中国社会转型期青少年问题的特殊性。本文基于我国社会转型期的时代背景分析和社会主要矛盾转型分析，结合社会学的阶层分化模型和失范理论，从学校教育竞赛、家长育儿焦虑、学生竞争心态、文化取向变迁、网络信息穿透性等角度拓展了远端变量，从青少年幸福感、基本心理需求（自主感、胜任感、关联感）受阻等角度拓展了介观变量，以无望感、无力感、意义感危机和消极推理风格为近端变量，建构了具有本土时代特征的抑郁和自杀行为的解释模型。在此基础上，一方面提出了预警监测系统的建设方案，从问题症状、风险因子、韧性因子三个方面去建设红、橙、黄、蓝、绿不同性质的心理档案；另一方面设计了分层应对的教育方案，从人生观引导、家长心态导向和养育风格优化、学校氛围改进措施、学生心理韧性提升活动等角度提出了有针对性的应对方法。
关键词：抑郁,自杀,无望理论,社会转型期

Current Characteristics and Educational Interventions of Adolescent Depression and Suicide: An Extensional Analysis Based on the Hopelessness Theory of Depression

Xiaosong Gai[1,2]

1 School of Psychology, Northeast Normal University, Changchun 110024, China

2 Key Research Base of Humanities and Social Sciences of Higher Education in Jilin Province, Center of Mental Health Education and Research, Northeast Normal University, Changchun 110024, China

Abstract：Cases of adolescent depression and suicide are not uncommon throughout history. However, in recent years, the escalating trend of depression and suicide among Chinese adolescents, starting at younger ages, warrants special attention.

Epidemiological investigation reveals that the incidence of depression among middle school students has reached 17.9% (Shi et al., 2023). Moreover, 13.65% of middle school students have intentionally harmed themselves, while 12.25% have seriously considered about suicide. Furthermore, 6.46% of middle school students have formulated suicide plans and 2.33% have taken actual steps toward it (Shen et al., 2020). While the hopelessness theory of depression (Abramson et al., 1989) and the interpersonal theory of suicide (Van Orden, 2010) in psychology have provided powerful explanations for depression and suicide, they did not consider the particularities of adolescent issues in China's social transition period. Based on the analysis of the historical context and major social contradictions during China's social transition period, this study integrates the sociological models of class differentiation and the anomie theory. It expands the distal variables including school educational competition, parental anxiety in child-rearing, students' competitive mentality, cultural orientation shifts, and the permeability of online information. Additionally, mesoscopic variables pertaining to adolescent well-being and obstructed basic psychological needs (autonomy, competence, relatedness) are also examined. By considering hopelessness, powerlessness, crisis of meaning, and negative reasoning style as proximal variables, an explanatory model of depression and suicide behavior with local era characteristics is constructed. Building upon this model, on the one hand, an early warning monitoring system is proposed. It aims to construct psychological profiles from the perspectives of problem symptoms, risk factors, and resilience factors, categorized into different natures, namely red, orange, yellow, blue, and green. On the other hand, a stratified response educational plan is designed. The targeted approaches include guiding outlook on life, orienting parental mentality, optimizing parenting style, improving school atmosphere, and implementing activities to enhance students' psychological resilience.

Keywords：depression, suicide, hopelessness theory of depression, social transition period

阻断大学生自杀意念向自杀尝试演变的保护因子：构成、维度、特点

孟迎芳[1]（通讯作者） 许世梅[12]

1 福建师范大学心理学院，福州，350117

2 福州大学心理中心，福州，350108，Mengyf1978@126.com

摘要：自杀危机依然严峻的原因之一是目前对自杀内部进程演变认识不足导致的自杀干预受限。以往研究较多关注的是自杀进程如何从自杀意念演变成自杀尝试，即导致自杀意念演变的风险因素。仅关注风险因素不足以全面了解和预防自杀，识别保护因素同样重要。多数自杀意念者不会尝试自杀，背后原因不得而知。本研究聚焦回答为何多数自杀意念者没有尝试自杀这一问题，寻找阻断自杀意念向自杀尝试演变的保护因素，探讨这些保护因素的构成、维度、特点等。本研究通过访谈 19 名无自杀尝试史的大学生自杀意念者，基于扎根理论范式进行文本编码，总结出保护因子由联结、理智、自杀否定构成。在此基础上，编制了联结问卷、理智问卷和自杀否定问卷，确定了联结因子包括家庭联结、自我联结和社会联结 3 个维度，理智因子包括理性认知、调节情绪、生命至上、勇敢乐观 4 个维度，自杀否定因子包括自杀行为否定、自杀后果否定、自杀情绪否定和自杀条件否定 4 个维度。经检验，3 个因子问卷信效度良好。为进一步探讨当前大学生在各类保护因子上的现状，为大学生自杀或生命教育提供更多参考依据，本研究采用自编的联结问卷、理智问卷和自杀否定问卷，选取 1014 名大学生进行调查研究。结果发现，总体上大学生在三个保护因子上处于中上水平。但也表现出一些人口学上的差异。女生的自杀后果否定、自杀情绪否定略显著高于男生，男生的勇敢乐观、自杀行为否定略显著高于女生。没有留守经历的大学生更担心自杀给他人带来不良影响。家庭经济不困难的大学生的保护因子高于家庭经济困难学生。非独生大学生的保护因子高于独生大学生。大二学生的保护因子在所有年级中最突出。本研究揭示了阻断自杀意念向自杀尝试演变的保护因子，有助于更全面了解自杀演变过程，为及时阻断自杀演变发展提供科学参考，为从上游防止自杀行为发生提供干预焦点。

关键词：自杀意念，自杀尝试，保护因子

Protective Factors Against the Progression of Suicidal Ideation to Suicide Attempt: Construct, Dimension and Characteristic

Meng Yingfang [1], Xu Shimei [12]

1 School of Psychology, Fujian Normal University, Fuzhou, 350117

2 Psychological Center, Fuzhou University, Fuzhou, 350108

Abstract: One of the reasons underlying the acute nature of suicide crisis is the limited understanding of the internal processes and progression of suicidal ideation; correspondingly, suicide interventions have limited efficacy. Previous studies have focused on how the suicide process evolves from suicidal ideation to suicide attempt, that is, the risk factors that lead to the progression of suicidal ideation. Focusing on risk factors alone is not enough to fully understand and prevent suicide, and it is equally important to identify protective factors. Most individuals with suicidal ideation do not attempt suicide, but the reasons are unknown. The present study focuses on answering the question of why most suicidal ideators do not attempt suicide, looking for protective factors against the progression of suicidal ideation to suicide attempt, and exploring the construct, dimension and characteristics of these protective factors. In this study, 19 college students without a history of suicide attempts but with suicidal ideation within the past year were interviewed, text coding was conducted based on the grounded theory paradigm, and the protective factors were concluded to be composed of connection, sanity and suicide negation. On this basis, the connection questionnaire, sanity questionnaire and suicide negation questionnaire were compiled. The connection factor included three dimensions: family connection, self-connection and social connection. The sanity factor included four dimensions: rational cognition, emotional regulation, life first, courage and optimism. Suicide negation factor include four dimensions: suicide behavior negation, suicide consequence negation, suicide emotion negation and suicide condition negation. The reliability and validity of the questionnaires were good. In order to further explore the current characteristics of college students in various protective factors and provide more reference for college students' suicide or life education, this study used self-designed connection questionnaire, sanity questionnaire and suicide negation questionnaire, and selected 1014 college students for investigation and research. The results showed that college students were above average in the three protective factors. But there were also some demographic differences. The negation of suicide consequence and suicidal emotion of girls were slightly higher than that of boys. Brave optimism and negation of suicidal behavior of boys were slightly higher than that of girls. College students who had no experience of left-behind were more worried about the adverse effects of suicide on others. The protective factors of college students who did not have financial difficulties were higher than that of students with financial difficulties. The protective factors of non-only-child college students were higher than that of only-child college students. The protective factors of sophomores were most prominent in all grades. This study reveals the protective factors against the progression of suicidal ideation to suicide attempt, which is helpful to understand the progression of suicide more comprehensively, provides scientific reference for timely blocking the evolution and development of suicide, and intervention focus for preventing the occurrence of suicidal behavior from the upstream.

Keywords: suicidal ideation, suicide attempt, progression, protective factors

积极父母教养与青少年亲社会行为：自我控制的中介作用和多基因分数的调节作用

聂衍刚（通讯作者）[1]　陈沛[1]　王林欣[2]　喻承甫[1]　利振华[1]
1 广州大学教育学院心理学系/青少年心理与行为研究中心，广州，510006，nie-yangang@gzhu.edu.cn
2 北京师范大学发展心理研究院，北京，100875

摘要：遗传和社会环境因素均是亲社会行为产生的基础，以往研究也证明单基因多态性与消极环境可以交互影响青少年亲社会行为的发展。随着研究的深入，越来越多研究者强调多基因与积极社会环境的交互作用对青少年亲社会行为的影响。此外，具有生物学基础的内表型（如自我控制）被证明与亲社会行为显著关联，可能是环境与基因交互影响行为水平的重要桥梁。基于此，本研究从“多基因×积极环境→内表型→行为”的理论视角，纵向考察积极父母教养与多基因分数如何通过自我控制影响青少年亲社会行为。本研究对广东省广州市三所普通中学的 880 名中学生（$Mean_{age}$=14.11 岁，*SD*=1.48）进行为期半年的追踪研究。所有被试进行了积极父母教养(W1)、自我控制(W2)、亲社会行为(W1/W2)的问卷填写，并提供了唾液样本进行基因分型。多基因分数是根据四个基因多态性 *OXTR* rs2254298、*OXTR* rs2254295、*COMT* rs6269 和 *5-HTR2A* rs6313 进行累加获得。研究结果显示：（1）W2 自我控制在 W1 积极父母教养与 W2 青少年亲社会行为的关系中起中介作用（indirect effect = 0.01, *SE*= 0.003, 95%CI = [0.001, 0.016]）；（2）多基因分数显著调节“W1 积极父母教养→W2 自我控制双系统→W2 青少年亲社会行为”的前半段（β= 0.15, *SE*= 0.04, $p < 0.001$），具体表现为，相比于多基因分数较低的青少年，积极父母教养对多基因分数较高的青少年自我控制的影响更显著。本研究有助于我们较为深刻地了解环境因素和遗传因素如何交互作用于内表型，并进一步影响亲社会行为，对培养和促进儿童青少年的亲社会倾向和行为具有重要意义。
关键词：积极父母教养，亲社会行为，自我控制，多基因分数，青少年

Positive Parenting and Adolescent Prosocial Behavior: The Mediating Role of Self-control and The Moderating Role of Polygenic Score

Yangang Nie[1]　Pei Chen[1]　Linxing Wang[2]　Chengfu Yu[1]　Zhenhua Li[1]

1 Department of Psychology/Research Center of Adolescent Psychology and Behavior, School of Education, Guangzhou University, Guangzhou, 510006

2 Institute of Developmental Psychology, Beijing Normal University, Beijing, 100875

Abstract: Prosocial behavior was based on genetic and environmental factors. Previous studies have also demonstrated that negative environment and single gene polymorphism interact to predict the development of prosocial behavior. With the in-depth study, more and more researchers emphasize the interaction between positive social environment and multiple genes on adolescent prosocial behavior. In addition, endophenotypes with a biological basis, such as self-control, have been shown to be associated with prosocial behavior, and may be important mediators of environmental and genetic interactions on individual behavior. Therefore, from the theoretical perspective of "polygenic × positive environment → endophenotype → behavior", this study investigates longitudinally how positive parenting and polygenic score influences adolescent prosocial behavior through self-control. In this research, 880 Chinese adolescents ($Mean_{age}$=14.11 years, *SD*=1.48) were recruited to participate in a two-wave longitudinal study (6 months apart) and complete questionnaires regarding positive parenting (W1), self-control (W2), prosocial behavior (W1/W2), and provided saliva samples for genotyping. Polygenic score was created by *OXTR* rs2254298, *OXTR* rs2254295, *COMT* rs6269 and *5-HTR2A* rs6313. The results showed that: (1) W2 self-control played a mediating role in the relationship between W1 positive parenting and W2 adolescent prosocial behavior; (2) this mediating mechanism was moderated by polygenic score, the relationship between positive parenting and self-control was

more significant for participants with high polygenic scores than those with low polygenic scores. This study contributed us to deeply understand how environmental factors and genetic factors interact with endophenotypes and further affect prosocial behavior, and provided scientific guidance for adolescent prosocial behavior intervention programs in practice.
Key words: positive parenting, prosocial behavior, self-control, polygenic score, adolescent

父母对孩子自我客体化的影响：物质教养和外表自我价值权变性的作用

向梦涵[1] 吴泳桃[1] 刘学兰[1]（通讯作者）

1“儿童青少年阅读与发展”教育部哲学社会科学实验室(华南师范大学)/ 心理应用研究中心 /华南师范大学心理学院，广州，510631，liuxuelan@m.scnu.edu.cn

摘要：自我客体化指的是人们通过所接触的被社会默认的身体标准信息来评估自身身体的程度 (Tiggemann, 2011)。自我客体化高的个体会因对身体变化极其敏感而更多进行身体监控，且因未能达到社会标准而产生更高身体羞耻感(Bradley & David , 2016；McKinley & Hyde,1996)。以往的研究主要集中在自我客体化对成年女性群体的负面影响，然而较少关注家庭内部，父母自我客体化对其孩子自我客体化的影响。因此，本研究采用亲子配对的调查方式，共招募到 592 对被试。采用自我客体化量表、物质教养问卷以及外表自我价值权变性量表进行调查。

结果发现：（1）中学生群体中女性自我客体化显著高于男性；中学生自我客体化水平整体较高，各个年级之间差异并不显著；父母的自我客体化、父母无条件物质奖励、青少年外表自我价值权变性和孩子自我客体化之间均存在密切的相关关系。（2）父母无条件物质奖励和青少年外表自我价值权变性在父母自我客体化对孩子自我客体化的影响中起链式中介作用。（3）父母自我客体化对孩子自我客体化的影响路径在不同性别的青少年群体中存在差异。

结果表明，父母自我客体化会影响孩子自我客体化，本研究为进一步了解父母自我客体化对孩子自我客体化的作用机制提供了理论支持，对孩子自我客体化的干预具有实践意义。
关键词：自我客体化，物质教养，无条件物质奖励，外表自我价值权变性

The Influence of Parents on Children's Self-objectification: The Role of Material Parenting and Appearance-contingent Self-Worth

Menghan Xiang[1], Yongtao Wu[1], Xuelan Liu[1]

1 Philosophy and Social Science Laboratory of Reading and Development in Children and Adolescents (South China Normal University), Ministry of Education / Center for Studies of Psychological Application/ School of Psychology, South China Normal University, Guangzhou, 510631

Abstract: Self-objectification refers to individuals evaluating their own bodies based on societal body standards that they have been exposed to (Tiggemann, 2011). Individuals with high levels of self-objectification are more sensitive to changes in their bodies and experience higher levels of body shame due to not meeting societal standards (Bradley & David, 2016; McKinley & Hyde, 1996). Previous research has mainly focused on the negative effects of self-objectification on adult women, but little attention has been paid to intergenerational transmission of self-objectification. Therefore, this study recruited 592 parent-child pairs and used Objectified Body Consciousness Scale, Material Parenting Questionnaire, and

Appearance-contingent Self-worth Scale to investigate.

The results showed that: (1) Female self-objectification was significantly higher than male self-objectification in middle school students; The overall level of self-objectification of middle school students is higher, and there is no significant difference among different grades; There is a close correlation between parents' self-objectification, parents' unconditional material reward, adolescents' appearance-contingent self-worth and adolescents' self-objectification. (2) Parents' unconditional material rewards and adolescents' self-worth rights play a chain mediating role in the intergenerational transmission of self-objectification. (3) There are differences in the intergenerational transmission paths of self-objectification among adolescents of different genders.

The results show that parents' self-objectification affects adolescents' self-objectification. This study provides theoretical support for further understanding of the mechanism of intergenerational transmission of self-objectification, and has practical significance for the intervention of adolescents' self-objectification.

Keywords: self-objectification, material parenting, unconditional material rewards, appearance-contingent self-worth

青少年自我意识与问题性互联网使用的关系：意向性自我调节的作用

胡花花　陈沛　吴煜琪　陈振锋　聂衍刚（通讯作者）

广州大学教育学院心理学系/青少年心理与行为研究中心，广州，510006，nie-yangang@gzhu.edu.cn

摘要：问题性互联网使用是一种指向自我的社会适应不良的行为障碍。以往研究表明，青少年自我意识与其社会适应行为密切相关，但自我意识与问题性互联网使用的关系及其作用机制有待深入考察。根据自我意识的心理功能理论，自我意识在个体的心理活动和社会生活中起着调节和监控的作用，它可能是问题性互联网使用的保护因素。同时，问题性互联网使用容易导致个体产生自我失调，可能降低个体的自我意识。为考察自我意识和问题性互联网使用的双向关系，及两者的作用机制，本研究采用交叉滞后设计，对广州市三所中学 669 名学生进行间隔半年的两次追踪测量。结果发现：（1）青少年自我意识在追踪研究期间显著下降（其中，自我认识和自我控制成分显著下降，t= 8.85, p < 0.001; t = 2.28, p < 0.05，自我体验成分保持稳定，t = -1.89, p > 0.05），问题性互联网使用显著上升（t= -8.74, p < 0.001）。（2）路径分析表明，T1 自我控制显著预测 T2 问题性互联网使用（β = -0.13, p < 0.001），T1 问题性互联网使用显著预测 T2 自我认识（β = -0.09, p < 0.01）、自我体验（β = -0.07, p < 0.05）和自我控制（β = -0.11, p < 0.01）。（3）T1 意向性自我调节在自我意识和问题性互联网使用的关系中起调节作用，不起中介作用。调节效应分析表明，T1 意向性自我调节显著调节了 T1 自我控制与 T2 问题性互联网使用的关系（β = -0.06, p < 0.05）。当青少年具有更高水平的 T1 意向性自我调节时，T1 自我控制对 T2 问题性互联网使用的负向预测作用更强。结果表明自我控制更高的青少年更少产生问题性互联网使用，尤其是当青少年具有更强的意向性自我调节时。而青少年更多的问题性互联网使用则容易导致更低的自我认识和评价、更消极的自我体验和更弱的自我控制。本研究揭示了自我意识和问题性互联网使用的双向关系，以及意向性自我调节在其中所起的作用，为减少青少年问题性互联网使用提供了重要参考。

关键词：自我意识，问题性互联网使用，意向性自我调节，青少年

Self-consciousness and problematic Internet use in adolescence: Role of intentional self-regulation

Huahua Hu　Pei Chen　Yuqi Wu　Zhenfeng Chen　Yangang Nie

Department of Psychology/Research Center of Adolescent Psychology and Behavior, School of Education, Guangzhou University, Guangzhou, 510006

Abstract：Problematic Internet use is a socially maladaptive behavioral disorder directed at the self. Previous studies have shown that adolescent self-consciousness is closely related to their social adaptation behavior. However, it should be further investigated about the relationship between self-consciousness and problematic Internet use and its mechanism. According to the mental function theory of self-consciousness, self-consciousness plays a regulating and monitoring role in an individual's mental activity and social life, and it may be a protective factor of problematic Internet use. Meanwhile, problematic Internet use can easily lead to self-dysregulation, which may reduce an individual's self-consciousness. To examine the bidirectional association between self-consciousness and problematic Internet use, and the underlying mechanism, this study used a cross-lagged study design, and investigated 669 students in three middle schools in Guangzhou. The participants were followed up 6-months later. The results showed that: (1) Adolescents' self-consciousness decreased significantly (the self-cognition and self-control components decreased significantly, t= 8.85, p < 0.001; t = 2.28, p < 0.05, and the self-experience component remained stable, t = -1.89, p > 0.05), and the problem Internet use increased significantly (t= -8.74, p < 0.001). (2) Path analyses showed that T1 self-control significantly predicted T2 problem Internet use (β = -0.13, p < 0.001), and T1 problem Internet use significantly predicted the self- cognition (β = -0.09, p < 0.01), self-experience (β = -0.07, p < 0.05) and self-control components of T2 self-consciousness (β = -0.11, p < 0.01). (3) In the relationship between self-consciousness and problematic Internet use, T1 intentional self-regulation played a moderating rather than mediating role. The moderation effect analysis showed that T1 intentional self-regulation significantly moderated between the self-control component of T1 self-consciousness and T2 problem Internet use (β = -0.06, p < 0.05). T1 self-control had a stronger negative and predictive effect on T2 problematic Internet use among those adolescents with higher levels of T1 intentional self-regulation. The findings suggest that adolescents with higher self-control may be less likely to engage in problematic Internet use, especially when they have stronger intentional self-regulation. More problematic internet use among adolescents may lead to lower self-cognition and evaluation, more negative self-experience, and weaker self-control. This study reveals a bidirectional relationship between self-consciousness and problematic Internet use, and the role of intentional self-regulation in this relationship, which provides an important support for reducing adolescent problematic Internet use.

Keywords：Self- consciousness, problematic Internet use, intentional self-regulation, adolescence

小学儿童阅读信念与阅读理解的双向关系：一项交叉滞后研究

王淏蘭[1]　赵轶[1]　伍新春[1]（通讯作者）陈红君[1]　赵英[2]

1 北京师范大学心理学部，应用实验心理北京市重点实验室，儿童阅读与学习研究院，北京，100875，xcwu@bnu.cdu.cn

2 南京师范大学心理学院，南京，210097

摘 要　阅读信念指个体对阅读过程和价值等方面的较为稳定的认知，一般可分为传递信念和互动信念两个维度。传递信念指读者倾向于认为阅读是被动地接收信息，强调提取文本作者的原意；互动信念指读者倾向于认为阅读需要通过积极地解释、组织和运用信息来建构意义，强调读者在理解文本过程中的个人贡献。这两种信念并非对立关系，而可能在不同的阅读情境中同时存在并发挥作用。小学阶段是儿童逐步形成稳定阅读信念的关键期，该阶段的阅读信念对其当下和未来的阅读能力发展有着重要影响。以往研究表明，阅读信念可能会直接或间接地影响儿童的阅读理解。然而，阅读信念究竟会影响何种类型和层次的阅读理解仍有待探究。此外，根据成就动机理论和经验效应，读者自身的阅读理解能力也可能会反过来影响儿童的阅读信念。为探讨小学儿童阅读信念（传递信念、互动信念）与不同文本体裁类型（叙事性文本、说明性文本）和理解加工层次（基础理解、高阶理解）阅读理解的双向关系，本研究采用交叉滞后研究设计，对 290 名小学中高年级儿童（男生占比：55.5%，平均年龄：10.69±1.03 岁）进行为期半年的追踪测量。结果发现：（1）T1 和 T2 时间点的传递信念和互动信念两两之间均呈正相关；（2）T1 和

T2 时间点的阅读信念仅与 T1 和 T2 时间点的高阶叙事理解呈正相关，而与两个时间点的基础叙事理解和说明理解不相关。（3）传递信念、互动信念和高阶叙事理解的交叉滞后分析结果表明，高阶叙事理解与互动信念在半年时间内能够互相正向预测；此外，T1 高阶叙事理解和 T1 互动信念均能正向预测 T2 传递信念，但 T1 传递信念不能预测 T2 高阶叙事理解和 T2 互动信念。本研究揭示了阅读信念与阅读理解之间的复杂双向关系，并进一步明确了二者关系的作用靶点在于互动信念与高阶叙事阅读理解之间的相互预测，启示教育者应在教学中关注并促进儿童互动信念的生成，重视培养其高阶阅读理解能力，并综合考虑二者在儿童阅读发展中的相互影响。

关键词　阅读信念，阅读理解，交叉滞后设计，小学儿童

The Bidirectional Relationship between Reading Beliefs and Reading Comprehension in Primary School Children: A Cross-Lagged Study

Haolan Wang[1], Yi Zhao[1], Xinchun Wu[1*], Hongjun Chen[1], Ying Zhao[2]

[1]Research Center of Children's Reading and Learning, Beijing Key Laboratory of Applied Experimental Psychology, Faculty of Psychology, Beijing Normal University, Beijing, China
[2]School of Psychology, Nanjing Normal University, Nanjing, China

Abstract：Reading beliefs refer to an individual's relatively stable cognitive understanding of the reading process and its value, which can be broadly categorized into two dimensions: transmission beliefs and interaction beliefs. Transmission beliefs involve perceiving reading as a passive process of receiving information, emphasizing the extraction of the author's intended meaning. Interactive beliefs, on the other hand, involve considering reading as an active process that requires actively interpreting, organizing, and applying information to construct meaning, highlighting the reader's personal contribution in the comprehension process. Nevertheless, these two beliefs are not mutually exclusive but can coexist and exert influence simultaneously within different reading contexts. The primary school years are a crucial period for children to develop stable reading beliefs, which significantly influence their current and future reading abilities. Previous research suggests that reading beliefs may directly or indirectly impact children's reading comprehension processes. However, the exact impact of reading beliefs on the types and levels of reading comprehension remains to be explored. Furthermore, based on achievement motivation theory and the experience effect, children's own reading comprehension abilities may, in turn, affect their reading beliefs. To investigate the bidirectional relationship between reading beliefs (transmission beliefs, interactive beliefs) and different text genres (narrative texts, expository texts) and levels of comprehension processing (basic comprehension, higher-order comprehension), this study employed a cross-lagged research design and conducted a six-month longitudinal measurement involving 290 primary school children in upper grades (55.5%males, M_{age}=10.69±1.03). The results revealed that (1) transmission beliefs and interactive beliefs at T1 and T2 were positively correlated; (2) reading beliefs at T1 and T2 were only positively correlated with advanced narrative comprehension at T1 and T2, while showing no correlation with basic narrative comprehension and expository comprehension at both time points; and (3) The results of a cross-lagged analysis examining the relationship between transmission beliefs, interaction beliefs, and advanced narrative comprehension indicate that advanced narrative comprehension and interaction beliefs positively predict each other over a six-month period. Additionally, T1 advanced narrative comprehension and T1 interactive beliefs positively predicted T2 transmission beliefs, while T1 transmission beliefs did not predict T2 advanced narrative comprehension or interactive beliefs. This study reveals the complex bidirectional relationship between reading beliefs and reading comprehension and further clarifies that the interplay between interactive beliefs and advanced narrative comprehension is the target for mutual

prediction. These findings emphasize the importance of promoting the generation of interactive beliefs in educational settings and also cultivating their advanced reading comprehension abilities, while considering the mutual influence of these factors on children's reading development.

Keywords：Reading beliefs, Reading comprehension, Cross-lagged design, Primary school children

解码和听力理解对阅读理解的影响：朗读流畅性和默读流畅性的中介作用

陈红君[1]　赵英[2]　伍新春[1,3]（通讯作者）　王淏蘭[1]　孙鹏[1]

1 北京师范大学心理学部，应用实验心理北京市重点实验室，儿童阅读与学习研究院，北京，100875，xcwu@bnu.cdu.cn

2 南京师范大学心理学院，南京，210097

3 北京师范大学应用心理学院（珠海校区），广东，519087

摘 要　篇章阅读理解是一项复杂的活动，既包含读者基于篇章内容的加工，又涉及读者站在篇章之外的思考。本研究旨在考察小学不同学段儿童的解码和听力理解对不同层次阅读理解（基于文本和超越文本）的纵向影响，并进一步检验朗读阅读流利性和默读流利性在其中的中介作用。共有 449 名二、四、六年级的儿童参加了这项研究。在时间 1 (T1，2020 年 11 月)测试解码（汉字识别）和听力理解（篇章听力测试），同时测试瑞文、工作记忆和快速命名作为控制变量。半年后，在时间 2 (2021 年 5 月，T2)测试儿童的朗读流畅性、默读流畅性和阅读理解。使用 Process 程序分别在三个年级中检验 T1 的解码和听力理解对 T2 阅读理解的预测作用，及朗读流畅性和默读流畅性的中介效应，在控制了年龄、瑞文测试、工作记忆和快速命名后，结果表明：(1)在二年级儿童中，解码既能直接预测基于文本的理解，也能通过朗读流畅性的中介作用产生影响；解码和听力理解都直接预测超越文本的理解。(2)四年级儿童中，解码对基于文本的理解有显著的直接预测作用，并通过朗读流畅性的中介作用影响基于文本和超越文本的理解；而听力理解通过默读流畅性间接预测基于文本的理解。(3)在六年级儿童中，听力理解直接预测基于文本的理解，解码和听力理解均能显著预测超越文本的理解；默读流畅性中介了解码和听力理解对基于文本的理解和超越文本的理解的影响。研究结果表明，解码和听力理解对阅读理解的影响因年级而异。在早期“学习阅读”阶段，解码在阅读理解中的作用较为突出，而随着儿童基础技能的提高，听力理解的影响变得更加明显。阅读理解(尤其是超越文本的理解)在高年级受默读流畅性的影响最大，而朗读流畅性主要在低年级中起作用。

关键词　阅读理解，听力理解，汉字识别，阅读流畅性，小学儿童

Decoding and listening comprehension contribute to reading comprehension in different ways: The mediating roles of oral and silent reading fluency

Hongjun CHEN [1], Ying ZHAO [2], Xinchun WU [1, 3 *], Haolan WANG [1], Peng SUN [1]

1 Beijing Key Laboratory of Applied Experimental Psychology, National Demonstration Center for Experimental Psychology Education (Beijing Normal University), Research Center of Children’s Reading and Learning, Faculty of Psychology, Beijing Normal University, Beijing 100875, China

2 School of Psychology, Nanjing Normal University, Nanjing 210023, China

3 School of Applied Psychology, Beijing Normal University at Zhuhai, Guangdong 519087, China

Abstract：Reading comprehension (RC) is a complicated activity with several components. This study aims to examine the longitudinal effect of decoding and listening comprehension (LC) on different levels of RC (in-text comprehension and beyond-text comprehension), and explore the mediating effect of oral reading fluency (ORF) and silent reading fluency (SRF) in various grades of Chinese elementary school students. A total of 449 Chinese students from grades 2, 4, and 6 participated in this study. Decoding and LC was tested at Time 1 (T1, November of 2020), along with nonverbal intelligence (IQ),

working memory (WM), and rapid automatized naming (RAN) as controlling variables. After half a year, ORF, SRF and RC were test at Time 2 (T2, May of 2021). Model 4 in macro program PROCESS 3.3 was used to test the direct and indirect effect through ORF and SRF of decoding and LC on text-based comprehension and critical comprehension. After controlling for age, IQ, WM, and RAN, the results showed that (1) among second graders, decoding predicted in-text comprehension directly and indirectly through ORF, and both decoding and LC directly precited later beyond-text comprehension; (2) In Grade 4, decoding predicted in-text comprehension directly and indirectly through ORF, and indirectly predicted beyond-text comprehension through ORF, while LC indirectly predicted in-text comprehension through SRF; (3) In Grade 6, only LC directly predicted in-text comprehension, both decoding and LC directly predicted beyond-text comprehension, and SRF mediated the effects of decoding and LC on in-text and beyond-text comprehension. The influence of decoding and LC on RC varied across different grades. During the early “learning to read” phase, decoding was more important in RC while the impact of LC became more apparent as children improved their reading skills. The mediating effect of ORF was primarily highlighted in the lower grades, while the RC (especially beyond-text comprehension) was most influenced through SRF in the upper grades.

Keywords：Reading comprehension, Reading fluency, Decoding, Listening comprehension, Elementary school

汉语儿童阅读理解与阅读流畅性的影响因素及机制：来自六年追踪研究的证据

赵英[1]　伍新春[2]（通讯作者）　程亚华[3]

[1]南京师范大学心理学院，南京，210097

[2]北京师范大学心理学部，北京，100875，xcwu@bnu.edu.cn

[3]上海政法学院政府管理学院，上海，201701

摘 要　阅读是个体积累知识、提升自身素质的重要途径，对于儿童各方面的发展都十分重要。因此，明晰表征儿童阅读能力的指标，并进一步探索其影响因素及机制具有重要意义。然而，以往研究多仅仅关注儿童阅读理解的影响因素及机制。近些年来，阅读流畅性逐渐进入研究者及教育者的视野。本研究同时以篇章层面的阅读理解与阅读流畅性作为表征儿童阅读能力的指标，追踪小学一年级的汉语儿童至六年级，旨在探讨儿童一年级时的元语言意识与快速命名对小学末期两项阅读能力的影响，以及两项阅读能力影响机制的共享性与特异性。本研究以 117 名小学汉语儿童为被试，在一年级时测量了其元语言意识（语音意识、正字法意识和语素意识）与快速命名，在四年级时测量了其字词层面的阅读技能（字词识别准确性、字词识别流畅性和词汇知识），在六年级时测量了其篇章层面的阅读能力（阅读理解和阅读流畅性）。直接效应模型的结果表明，在控制了一般认知能力和工作记忆后，一年级的语素意识可以显著预测六年级的阅读理解，而一年级的快速命名可以显著预测六年级的阅读流畅性。此外，中介模型的结果表明，四年级的词汇知识在一年级的语素意识影响六年级阅读理解的过程中发挥中介作用，而四年级的字词识别流畅性在一年级的快速命名影响六年级阅读流畅性的过程中发挥中介作用，其他的间接路径均不显著。本研究的结果表明，早期的语素意识与快速命名对于小学末期的阅读能力十分重要，且阅读理解与阅读流畅性影响机制的特异性而非共享性更为突显。

关键词　阅读理解，阅读流畅性，中介效应，汉语儿童

Examining factors and mechanisms of reading comprehension and reading fluency: Longitudinal evidence for Chinese children from grade 1 to grade 6

Ying Zhao[a], Xinchun Wu[b*], Yahua Cheng[c]

[a]School of Psychology, Nanjing Normal University, Nanjing, China
[b]Faculty of Psychology, Beijing Normal University, Beijing, China
[c]School of Government, Shanghai University of Political Science and Law, Shanghai, China

***Abstract*:** Reading is an important way for individuals to accumulate knowledge and improve their own quality, and it is important for all aspects of children's development. Thus, it is necessary to clarify the indicators representing children's reading ability and explore their influencing factors and underlying mechanisms. However, most of the previous studies only focused on children's reading comprehension. In recent years, reading fluency gradually came into the vision of researchers and educators. This study aimed to explore early predictors of reading ability at the end of elementary school in 117 Chinese children and further examined whether shared or distinct factors and mechanisms affected reading comprehension versus reading fluency. Metalinguistic awareness (phonological awareness, orthographic awareness, and morphological awareness) and rapid automatized naming (RAN) were administered in grade 1 (G1), word-level reading skills (word-reading accuracy, word-reading fluency, and vocabulary knowledge) were administered in grade 4 (G4), and passage-level reading abilities were administered in grade 6 (G6). The results of direct effect model showed that G1 morphological awareness had a significant effect on G6 reading comprehension, while G1 RAN predicted G6 reading fluency significantly. The results of mediation model revealed that G4 vocabulary knowledge played a mediating role in the effect of G1 morphological awareness on G6 reading comprehension, while G1 RAN predicted G6 reading fluency via G4 word-reading fluency. The effects of other indirect routes were not significant. Our findings demonstrate the importance of early morphological awareness and RAN in facilitating reading ability at the end of elementary school, and suggest the distinct rather than shared factors and mechanisms of reading comprehension versus reading fluency.

***Keywords*:** reading comprehension, reading fluency, mediation effects, Chinese children

网络语言对小学高年级儿童字词句加工的影响

赵轶[1] 伍新春[1]（通讯作者） 赵英[2] 王淏蘭[1] 陈红君[1] 吴皖赣[1,3]

1 北京师范大学心理学部，应用实验心理北京市重点实验室，儿童阅读与学习研究中心，北京，100875，xcwu@bnu.edu.cn

2 南京师范大学心理学院，南京，210097

3 合肥师范学院，教育与心理科学学院，合肥，230061

摘 要 在网络媒体海量信息的冲击下，具有高度简洁度、生动性和创意性特点的网络语言逐渐受到儿童青少年群体的追捧。一方面，网络语言作为智能时代发展的必然产物，丰富了现代汉语的表达功能。另一方面，越来越多小学生沉迷“网络烂梗”的现象不断引发社会争议。小学儿童处于语言能力发展的关键阶段，网络语言往往脱离了传统语言规范限制，在汉字、词汇或句法上表现出不规则的变体形式，那么长期接触这些变体语言对小学儿童在汉字、词汇或句法层面的语言加工分别会产生怎样的影响？首先，本研究基于对近五年 616 条网络语言的项目评定，编制了包含谐音、缩略、转义、新词、语句五类网络语言、共 50 个项目的网络语言测验。其次，以北京市某小学的 180 名高年级儿童（男：86 人；女：94 人；平均年龄：11.61 ± 0.58 岁）为对象，进一步考察了不同类型网络语言对小学高年级儿童汉字识别、词汇知识和句法意识三个层次语言能力的影响。结果发现：（1）本研究编制的网络语言测验在各项信效度指标上符合心理测量标准，能够用于衡量小学高年级儿童对各类网络语言的熟知程度；（2）在控制性别、年龄、一般认知能力、工作记忆、快速命名、句子流畅性和传统文学性阅读经验后，网络语言测验总分对小学高年级儿童的汉字识别和句法意识有显著的正向预测作用；（3）从网络语言的类型看，谐音、缩略、转义与语句四类网络语言得分均能显著正向预测汉字识别水平，转义类得分能显著正向预测词汇知识水平，语句类得分能显著正向预测句法意识水平。综上，本研究结果表明，网络语言能够对小学高年级儿童汉字、词汇和句法层次的语言加工产生正向预测作用，且网络语言的各类型与语言能力的各层次间存在部分对应关系。这提示不应将网络语言全盘视为儿童青少年发展中的洪水猛兽，而应适当利用网络语言在汉字、词汇和句法等层次上的创新变化，引导儿童青少年在适度使用中提升不同层次的语言能力，以此发挥网络语言的教育价值。

关键词 网络语言，测验编制，汉字识别，词汇知识，句法意识

Effects of Internet Language on the Processing of Character, Vocabulary and Sentence in Senior Children of Primary School

Yi Zhao[1], Xinchun Wu[1*], Ying Zhao[2], Haolan Wang[1], Hongjun Chen[1], Wangan Wu[1,3]

[1]Research Center of Children’s Reading and Learning, Beijing Key Laboratory of Applied Experimental Psychology, Faculty of Psychology, Beijing Normal University, Beijing, China

[2]School of Psychology, Nanjing Normal University, Nanjing, China

[3]School of Education and Psychological science, Hefei Normal University, Hefei, China

Abstract: With the impact of massive information in network media, Internet language with high simplicity, vividness and creativity is gradually sought after by children and adolescents. On the one hand, as an inevitable product of the development of the intelligent age, Internet language enriches the expression function of modern Chinese language. On the other hand, more and more primary school students indulging in "bad Internet memes" became a problem that caused social controversy. Primary school children are at the key stage of language ability development. Internet language often breaks away from

traditional language norms and shows irregular variants in Chinese characters, vocabulary or syntax. So what are the effects of long-term use of these variants on primary school children's language processing at the Chinese character, vocabulary and syntactic levels? Firstly, this study evaluated 616 items of Internet language in the past five years and developed 50 items of Internet language tests including homophony, contraction, escape, neologism and sentence. Secondly, this study took 180 senior children (86 males, 94 females; mean age: 11.61 ± 0.58 years) in a primary school in Beijing as subjects to investigate the effects of different types of Internet language on Chinese character recognition, vocabulary knowledge and syntactic awareness. The results revealed that (1) The Internet language test developed in this study meets the psychological measurement standards in various reliability and validity indicators, and can be used to measure the familiarity of senior primary school children with various Internet languages; (2) After controlling for gender, age, general cognitive ability, working memory, quick naming, sentence fluency and traditional literary reading experience, the total score of Internet language test has a significant positive effect on Chinese character recognition and syntactic awareness of primary school children; (3) From the perspective of the types of Internet language, the scores of homophony, contraction, escape and sentence can significantly predict the level of Chinese character recognition, the scores of escape can significantly predict the level of vocabulary knowledge, and the scores of sentence can significantly predict the level of syntactic awareness. In summary, the results of this study show that Internet language can positively predict the language processing of primary school children at the Chinese character, vocabulary and syntactic levels, and there is a certain correspondence between various types of Internet language and various levels of language ability. This suggests that Internet language should not be regarded as a scourge in the development of children and adolescents. We should make proper use of the innovative changes of Internet language in different levels such as Chinese characters, vocabulary and syntax, and guide children and adolescents to improve their language ability at different levels in moderate use, so as to give full play to the educational value of Internet language.

Keywords **：** Internet language, Test development, Chinese character recognition, Vocabulary knowledge, Syntactic awareness

家庭阅读环境对学龄儿童汉字识别、口语词汇知识与阅读理解的影响：基于发展级联模型

程亚华[1]（通讯作者） 沈岚岚[2] 李宜逊[3]

1 上海政法学院政府管理学院，上海 201701, chengyahua@nbu.edu.cn

2 宁波大学心理学系，宁波 315211

3 香港教育大学幼儿教育学系，香港 999077

摘 要 家庭阅读环境是影响儿童阅读发展的直接生态环境。相关研究发现了家庭阅读环境与儿童的语言和阅读发展关系密切，然而，目前研究主要探讨的是家庭阅读环境与儿童某一阅读能力如字词识别或阅读理解的关系，体现的是简单的单向关系，而阅读是一项复杂的认知活动。因此，家庭阅读环境与儿童阅读能力之间可能存在着复杂的相互关系。发展级联指的是发展系统中多个层次或多个水平的因素之间相互作用及相互累积作用所产生的跨时间或跨领域影响。家庭阅读环境与儿童阅读能力之间可能的发展级联对儿童阅读发展具有潜在价值，能够更加系统和深入地了解儿童阅读发展的规律。本研究对 149 名小学一年级儿童进行三年追踪，探讨学龄儿童家庭阅读环境、汉字识别、口语词汇知识和阅读理解的发展级联。结果发现：(1)家庭阅读环境通过一年级的阅读理解扩散到二年级的汉字识别，进而影响三年级的阅读理解。(2)家庭阅读环境通过一年级的口语词汇知识扩散到二年级的阅读理解，进而影响三年级的口语词汇知识和阅读理解。(3)虽然家庭阅读环境对一年级汉字识别仅有边缘显著的直接预测效应，但一年级的汉字识别可以预测二年级的阅读理解和口语词汇知识，进而影响三年级的汉字识别、阅读理解和口语词汇知识。结果表明，学龄儿童家庭阅读环境、汉字识别、口语词汇知识和阅读理解之间存在间接的、多向的发展级联

效应，这一结果有助于揭示家庭阅读环境对儿童阅读发展潜移默化的影响机制，为系统考察家庭阅读环境对儿童阅读发展的影响及作用机制提供了参考依据。
关键词 家庭阅读环境, 口语词汇知识, 汉字识别, 阅读理解, 发展级联

The developmental cascades of Chinese children's home literacy environment, character recognition, vocabulary knowledge, and reading comprehension

CHENG Yahua[1] SHEN Lanlan[2] LI Yixun[3]

1 School of Government, Shanghai University of Political Science and Law, Shanghai 201701, China

2 Department of Psychology, Ningbo University, Ningbo 315211, China

3 Department of Early Childhood Education, The Education University of Hong Kong, Hong Kong 999077, China

Abstract: Home literacy environment (HLE) could be more influential than intervention programs because HLE promotes children's language and literacy development from early on. Therefore, understanding the developmental cascades of HLE, character recognition, oral vocabulary knowledge, and reading comprehension is of great value to children's reading development. The present study aimed to test the developmental cascades of HLE, character recognition, oral vocabulary knowledge, and reading comprehension among Chinese children. Participants were 149 children, who were followed up from Grades 1 to 3. Their HLE was obtained from their parents in Grade 1. They were assessed on character recognition, oral vocabulary knowledge, and reading comprehension once per school year, three times in total. A structural equation model was constructed to examine the developmental cascades of HLE, character recognition, oral vocabulary knowledge, and reading comprehension over the three testing time points. Results suggested the excellent model fit of the developmental cascade model: (1) HLE spread through reading comprehension in Grade 1 ($\beta = 0.19$, $p = 0.030$) to character recognition in Grade 2 ($\beta = 0.28$, $p < 0.001$), and then affected reading comprehension in Grade 3 ($\beta = 0.26$, $p = 0.002$). (2) HLE spread through oral vocabulary knowledge in Grade 1 ($\beta = 0.45$, $p < 0.001$) to reading comprehension in Grade 2 ($\beta = 0.20$, $p = 0.003$), which in turn affected oral vocabulary knowledge ($\beta = 0.27$, $p < 0.001$) and reading comprehension ($\beta = 0.34$, $p < 0.001$) in Grade 3. (3) Although the direct predictive effect of HLE on character recognition in Grade 1 ($\beta = 0.16$, $p = 0.078$) was found to be marginally significant, character recognition in Grade 1could predict reading comprehension ($\beta = 0.41$, $p < 0.001$) and oral vocabulary knowledge ($\beta = 0.14$, $p = 0.051$) in Grade 2, which in turn affected character recognition ($\beta = 0.15$, $p < 0.001$) and reading comprehension ($\beta = 0.27$, $p < 0.001$) in Grade 3. The results demonstrate that the relationship between HLE and children's reading development is not merely a one-way predictive effect, but a complex process with long-term, mutual influence. The present findings have an important role in elucidating developmental cascades of HLE and children's reading competence. The findings underline the importance of HLE and suggest a long-standing impact of HLE on reading development both directly and indirectly through oral vocabulary knowledge and character recognition. These findings extend our understanding of the relationship between HLE and children's reading development. The practical implications for HLE and Chinese children's reading development are discussed.

Keywords: Home Literacy Environment, oral vocabulary knowledge, character recognition, reading comprehension, developmental cascades

儿童口语词汇知识和词语结构意识的相互作用及其对汉语阅读理解的预测作用:一项 3-6 年级的纵向研究

张文建[1]　李宜逊[2]　程亚华[3]（通讯作者）

1 宁波大学心理学系，宁波 315211

2 香港教育大学幼儿教育学系，香港 999077

3 上海政法学院政府管理学院，上海 201701, chengyahua@nbu.edu.cn

摘　要　以往的跨语言研究发现，儿童的口语词汇知识与词语结构意识(即对复合词的语法结构的意识)有关，并且这两者都对阅读理解有显著的预测作用。然而，以往很少有研究探讨口语词汇知识和词语结构意识之间的动态关系，以及两者的发展速度对阅读理解的预测作用。本研究对中国大陆 125 名母语为汉语的儿童进行了为期 4 年 4 次的追踪测试，从三年级到六年级，每个年级的秋季有一个测试点，总共有四次测试。每次，测量所有参与者的口语词汇知识、词语结构意识和阅读理解，并评估他们的汉字识别和字词流畅性作为所有模型分析的两个控制变量。所有的测量方法都是根据已发表的研究改编的，并且被认为是高度可靠和有效的。本研究采用了潜变量增长模型考察了儿童口语词汇知识与词语结构意识的独立发展对阅读理解的预测作用，以及儿童口语词汇知识与词语结构意识的发展相互促进后对阅读理解的预测作用。结果发现：(1)在控制儿童的汉字识别和字词流畅性后，学生词汇知识与构词意识三年级时的起始水平和三至六年级间的发展速度对其六年级时的阅读理解水平有预测作用；(2) 同样在控制儿童的汉字识别和字词流畅性后，学生口语词语知识三年级时的起始水平可预测其三至六年级间构词意识的发展速度，进而对六年级时的阅读理解水平有预测作用；没有发现学生构词意识三年级时的起始水平对其三至六年级间词汇知识发展速度的显著预测作用。

关键词　口语词汇知识，词语结构意识，阅读理解，潜变量增长模型

Interaction between children's oral vocabulary knowledge and word structure awareness and its predictive effect on Chinese reading comprehension: a longitudinal study of grades 3-6

ZHANG Wenjian[1]　LI Yixun[2]　CHENG Yahua[3]

1 Department of Psychology, Ningbo University, Ningbo 315211, China

2 Department of Early Childhood Education, The Education University of Hong Kong, Hong Kong 999077, China

3 School of Government, Shanghai University of Political Science and Law, Shanghai 201701, China

Abstract：Previous cross-language studies have found that children's oral vocabulary knowledge is related to the awareness of word structure (that is, the awareness of grammatical structure of compound words), and both of them have a significant predictive effect on reading comprehension. However, few studies have explored the dynamic relationship between oral vocabulary knowledge and word structure awareness, and the predictive effect of their development speed on reading comprehension. In this study, 125 Chinese-speaking children in Chinese mainland were followed up for four times in four years. From grade three to grade six, there was a test point in autumn of each grade, with a total of four tests. Each time, all participants' oral vocabulary knowledge, word structure awareness and reading comprehension were measured, and their

Chinese character recognition and word fluency were evaluated as the two control variables of all model analysis. All measurement methods are adapted from published research and are considered to be highly reliable and effective. In this study, the latent variable growth model was used to investigate the predictive effect of independent development of children's oral vocabulary knowledge and word structure awareness on reading comprehension, and the predictive effect of mutual promotion of children's oral vocabulary knowledge and word structure awareness on reading comprehension. The results show that: (1) after controlling children's Chinese character recognition and word reading fluency, the initial level of students' vocabulary knowledge and word structure awareness in the third grade and the development speed between the third and sixth grades can predict their reading comprehension level in the sixth grade; (2) After controlling children's Chinese character recognition and word reading fluency, the initial level of students' oral word knowledge in the third grade can predict the development speed of their word structure awareness between the third and sixth grades, and then predict the reading comprehension level in the sixth grade; It is not found that the initial level of students' word structure awareness in the third grade has a significant predictive effect on the development speed of their vocabulary knowledge between the third and sixth grades.
Keywords：oral vocabulary knowledge, word structure awareness, reading comprehension, latent variable growth model

人际伤害对青少年自伤的影响

——基于追踪研究的个体间和个体内分析

王晖[1]　高叶淼[2] 薛的妮[2] 刘霞[2]（通讯作者）

1 北京工业大学文法学部，北京，100124

2 北京师范大学心理学部，北京，100875，liuxia@bnu.edu.cn

摘 要　自伤是指个体在没有明确自杀意图的情况下，由自己施加的对身体组织的伤害或损坏，包括自伤的行为、倾向和意念。自伤的整合发展病理模型指出，来自人际互动中的伤害性事件是青少自伤的关键影响因素，并且随着个体步入青少年期，家人、同伴、教师等不同人际领域对自伤的作用可能不同。然而，已有研究多从单一领域考察了如同伴侵害、亲子冲突等的作用，缺乏整合不同人际伤害事件的系统考察，并不能很好地回答这一研究问题。此外，已有研究关注了个别人际伤害事件对青少年自伤的长期影响，然而由于并未剥离个体间和个体内效应，难以明确二者关系的真实效应。因此，本研究将同时纳入家人、同伴、教师多个人际领域，通过对 934 名 13~16 岁青少年进行为期近一年的三次追踪测查，采用个体内分析方法考察家人伤害、同伴伤害和教师伤害对青少年自伤行为、自伤倾向和自伤意念的纵向作用，并与传统的交叉滞后分析进行比较。结果发现，采用个体内分析方法得到的研究结果与传统交叉滞后分析方法不同。具体而言，（1）当采用传统交叉滞后分析方法，也即并未区分个体间和个体内效应时，家人和同伴伤害与青少年自伤存在双向预测关系，T1/T2 的家人、同伴伤害显著正向预测 T2/T3 自伤行为、倾向或意念，T1/T2 自伤行为、倾向或意念显著正向预测 T2/T3 的家人或同伴伤害，不过教师伤害仅能单向预测后期青少年自伤；（2）当区分个体间与个体内效应时，发现在个体内水平上，家人伤害与青少年自伤表现为循环作用关系，T1 家人伤害正向预测 T2 自伤行为/倾向/意念，并且 T2 自伤行为会进一步显著正向预测 T3 家人伤害；而同伴和教师伤害仅能单向预测青少年自伤， T1 同伴教师伤害显著正向预测 T2 自伤行为或倾向。综上所述，本研究在排除了稳定的个体间差异的基础上，揭示了不同领域人际伤害的个体内部变化与自伤内部变化的纵向作用关系，为促进青少年自伤预防和干预提供科学参考和实践依据。

关键词　青少年，人际伤害，自伤，个体内分析，交叉滞后

The Relations Between Interpersonal Harm and NSSI among Adolescents: Within- and Between- person Analysis Based on a Follow-up Study

WANG Hui[1], GAO Yemiao[2], XUE Dini[2], LIU Xia[2]

1 Faculty of Humanities and Social Sciences, Beijing University of Technology，Beijing，100124

2 Faculty of Psychology, Beijing Normal University，Beijing，100875

Abstract：Non-suicidal Self-injury (NSSI) refers to the injury, tendencies, and intentions of self-inflicted on body tissues without clear suicidal intent. The integrated developmental pathological model of NSSI pointed out that harmful events from interpersonal interaction are the key influencing factors of adolescent NSSI. As individuals enter adolescence, different interpersonal fields such as family, peers, and teachers may have different effects on NSSI. However, previous studies have examined the role of peer victimization and parent-child conflict, lack of systematic investigation of different interpersonal injury events. Moreover, studies focused on the long-term effects of several interpersonal harm on adolescent NSSI failed to clarify the true effect of the relationship because the between- and within- person effects have not been separated. Therefore, this study used three follow-up tests of 934 adolescents aged 13~16 for nearly one year to explore the longitudinal effects of family, peer, and teacher harm on adolescents' NSSI behavior, tendency, and intention, using within-personal analysis and compared with traditional cross-lagged analysis. The results from two kinds of analysis are different. Specifically, (1) when the traditional cross-lagged analysis method was adopted, there is a bidirectional relationship between family and peer harm and adolescent NSSI. T1/T2 family and peer harm significantly positively predicted T2/T3 NSSI behavior, tendency or intention, T1/T2 NSSI behavior, tendency or intention significantly predicted T2/T3 family or peer harm, but teacher harm could only predict later adolescent NSSI; (2) Using within-person analysis, it was found that there was a reciprocal relation between family harm and adolescent NSSI, T1 family harm positively predicted T2 NSSI behavior/tendency/intention, and T2 NSSI further significantly predicted T3 family harm. However, peer and teacher harm could only predict adolescent NSSI in one direction, that is T1 peer and teacher harm significantly predicted T2 NSSI behavior or tendency. Overall, this study reveals the longitudinal relationship between interpersonal harm in different fields and NSSI at within-person level, providing a scientific reference and practical basis for promoting the prevention and intervention of adolescent NSSI.

Keywords：adolescents, interpersonal harm, NSSI, within-person analysis, cross-lagged analysis

留守/非留守初中生抑郁的发展轨迹异质性：亲子沟通和友谊质量的作用

王玉龙（通讯作者） 李荣 刘冰瑞

湖南师范大学教育科学学院，湖南师范大学认知与行为湖南省重点实验室，长沙 410081，E-mail: yulongwang107@126.com

摘　要 抑郁（depression）是一种较持续、长久的负面情绪，其发展始于童年期，爆发于青春期。青少年由于同时遭受身心发展巨变和学业竞争增大的双重压力，心理健康往往面临着严峻的挑战，而留守初中生由于父母关爱的缺乏则更容易出现心理适应问题。父母和同伴是初中生最重要的社会支持来源，为初中生应对不利处境提供了必要的心理资源，也在个体身心健康的发展以及有效社会化的过程中扮演着关键角色。为此，本研究采用纵向追踪设计，通过比较留守和非留守初中生的抑郁在初中三年期间发展趋势的异质性，并通过探讨亲子沟通和友谊质量对留守和

非留守初中生抑郁轨迹分类及不同类别的作用。本研究对湖南省八所中学的 882 名七年级学生（M_{age} = 12.23 岁，*SD*=0.51）进行三次追踪测量，间隔时间为 1 年。结果发现：(1) 初中生的总体抑郁发展呈倒 U 性发展趋势，对比留守/非留守初中发现，留守初中生抑郁发展轨迹呈现倒 U 型发展，初一到初二的增长迅速，初二到初三的下降较缓，而非留守初中生抑郁发展轨迹呈线性增长；(2)留守初中生抑郁发展轨迹类型可以分成 3 个潜类别，分别是：低抑郁－陡升组；低抑郁－稳定组；高抑郁－下降组。多元 Logistic 回归分析的结果发现，男生更可能属于“高抑郁－下降组”，父(母)子沟通和友谊质量越好的个体越可能属于“高抑郁－下降组”；(3)非留守初中生抑郁发展轨迹类型可以分成 2 个潜类别，分别是：高抑郁－下降组，低抑郁－缓升组。二元 Logistic 回归分析的结果发现，父（母）子沟通和友谊质量越好的个体越可能属于“高抑郁－下降组”。本研究通过构建潜类别增长模型来考察留守与非留守初中生抑郁的发展趋势和类别，以及亲子沟通和友谊质量的作用，其中亲子沟通和友谊质量对留守初中生抑郁发展的作用较非留守初中生大。本研究丰富了留守青少年抑郁发展的理论研究和为其干预提供了一些启示。

关键词 留守初中生，抑郁，亲子沟通，友谊质量

Developmental trajectory heterogeneity of depression in left-behind/non-left-behind junior high school students: The role of parent-child communication and friendship quality

WANG Yulong（Corresponding Author） Li Rong Liu Bingrui

School of Education, Cognition and Human Behavior Key Laboratory of Hunan Province, Hunan Normal University, Changsha, 410081，E-mail: yulongwang107@126.com

Abstract: Depression is a more persistent, long-lasting negative emotion that begins in childhood and erupts in adolescence. Adolescents often face severe challenges to their mental health due to the dual pressure of great changes in physical and mental development and increased academic competition, while left-behind junior high school students are more likely to have psychological adjustment problems due to a lack of parental care. Parents and peers are the most important sources of social support for junior high school students, providing the necessary psychological resources for junior high school students to cope with disadvantage, and also playing a key role in the development of individual physical and mental health and effective socialization. To this end, this study adopts a longitudinal tracking design, compares the heterogeneity of depression trends of left-behind and non-left-behind junior high school students during the three years of junior high school, and explores the effects of parent-child communication and friendship quality on the classification of depression trajectories and different categories of left-behind and non-left-behind junior high school students. In this study, 882 grade 7 students (*Mage* = 12.23 years, *SD*=0.51) were followed three times in eight middle schools in Hunan Province with an interval of 1 year. The results showed that: (1) the overall depression development of junior high school students showed an inverted U development trend, and compared with the left-behind/non-left-behind junior high schools, it was found that the depression development trajectory of left-behind junior high school students showed an inverted U-shaped development, with rapid growth from the first to the second year of junior high school, and a slower decline from the second to the third year of junior high school, while the development trajectory of depression among non-left-behind junior high school students showed a linear increase. (2) The development trajectory of depression among left-behind junior high school students can be divided into three latent categories, namely: low depression-steep rise group; Low depression stable group; High depression-falling group. The results of multivariate logistic regression analysis found that boys were more likely to belong to the "high depression-decline group", and individuals with better communication and friendship quality between parents and children were more likely to belong to the "high depression-falling group"; (3) The development trajectory of depression in non-left-behind junior high school students can be divided into two latent categories, namely: high depression-decline group and low depression-slow rise group. The results of binary logistic regression analysis found that individuals with

better quality parent-child communication and friendship were more likely to belong to the "high depression-falling group". In this study, the development trend and categories of depression in left-behind and non-left-behind junior high school students, as well as the role of parent-child communication and friendship quality, were examined by constructing a latent category growth model, among which the role of personal communication and friendship quality on the depression development of left-behind junior high school students was greater than that of non-left-behind junior high school students. This study enriches the theoretical research on the development of depression in left-behind adolescents and provides some enlightenment for its intervention.
Keywords: left-behind junior high school students, depression, parent-child communication, friendship quality

亲子分离与青少年抑郁的发展轨迹：亲子沟通与性别的作用

赵景欣（通讯作者） 上官梦麒
山东师范大学心理学院，济南，250014，jingxinzhao@126.com

摘 要 在中国，约有25%的儿童青少年因父母外出务工而经历亲子分离。长期的亲子分离会极大地增加青少年出现抑郁症状的风险。揭示亲子分离对青少年抑郁发展的影响，并考察其中可能存在的保护因素已经成为亟待解决的重要科学问题。虽然父母外出务工会让青少年在空间上与父母分离，但是良好的亲子沟通不仅能够维系亲子之间的情感联结，还能让青少年获得必要的心理资源以应对亲子分离处境下的各种挑战。研究表明，良好的亲子沟通能够缓解亲子分离青少年的情绪适应问题。然而，已有研究以横断设计为主，主要关注亲子沟通与留守青少年抑郁水平的关系，难以探明亲子分离、亲子沟通对青少年抑郁发展轨迹的影响；并且，亲子沟通如何作用于亲子分离与青少年抑郁发展轨迹之间的关系也不清楚。

基于追踪研究设计，本研究对2726名初中生（696名与双亲分离青少年、685名父子分离青少年、1345名非亲子分离青少年）进行了间隔6个月的5次追踪测查，系统考察亲子分离、亲子沟通对抑郁发展轨迹的影响及其性别差异。结果发现：（1）青少年抑郁的发展轨迹呈非线性，具体来说，青少年抑郁在T1到T3呈上升趋势，T4下降，T5又略有上升；（2）亲子分离正向预测青少年抑郁发展的线性斜率，负向预测青少年抑郁发展的二次斜率；（3）父子沟通负向预测青少年抑郁的初始水平，正向预测青少年抑郁发展的线性斜率；母子沟通负向预测青少年抑郁的初始水平；（4）亲子分离与青少年抑郁的初始水平、发展的线性斜率和二次斜率之间的关系会因亲子沟通和性别的不同而有所差异。这表明，良好的亲子沟通能够缓解亲子分离对青少年抑郁发展轨迹的影响，且该作用存在性别差异。

关键词 亲子分离，抑郁，亲子沟通，性别

Parent-Child Separation and Developmental Trajectory of Depressive Symptoms in Adolescents: The Roles of Parent-Child Communication and Gender

Jingxin Zhao (corresponding author), Mengqi Shangguan
School of Psychology, Shandong Normal University, Jinan 250014, China

***Abstract*:** In China, about a quarter of children and adolescents have experienced parent-child separation due to their one or both parents' migration in search of better employment opportunities. Adolescents who experience parent-child separation are at increased risk for depressive symptoms. In this situation, it is critical to explore the effects of parent-child separation

on the developmental trajectory of depressive symptoms in adolescents, and to examine the possible protective factors in their relationships. Although parents' migration will make them separated from their children in space, good parent-child communication could not only maintain the emotional connection between parents and children, but also enable adolescents to obtain the necessary psychological resources to cope with various challenges in the context of parent-child separation. Studies have shown that good parent-child communication could alleviate the emotional problems in adolescents experiencing parent-child separation. However, existing studies mainly focused on cross-sectional design, and it is still unclear how parent-child separation and parent-child communication affect the developmental trajectory of depressive symptoms in adolescents, and how parent-child communication affects the relationship between parent-child separation and development trajectory of depressive symptoms in adolescents.

Based on longitudinal design, 2726 junior high school students (696 adolescents separated from their both parent, 685 adolescents separated from their father, and 1345 adolescents without parent-child separation) were measured five times at intervals of 6 months. The purpose is to investigate the effects of parent-child separation, parent-child communication and their interactions on the developmental trajectory of depressive symptoms in adolescents, as well as gender differences in these relationships. The results showed that: (1) The development trajectory of adolescents' depressive symptoms showed a non-linear trend. Specifically, depressive symptoms increased from T1 to T3, decreased in T4, and slightly increased in T5. (2) Parent-child separation positively predicted the linear slope of adolescents' depressive symptoms development, and negatively predicted the quadratic slope of adolescents' depressive symptoms development. (3) Both mother-child communication and father-child communication negatively predicted the initial level of adolescents' depressive symptoms development, and father-child communication positively predicted the linear slope of adolescents' depressive symptoms development. (4) The relationships between parent-child separation and the initial level, the linear slope and the quadratic slope of depressive symptoms development in adolescents varied by parent-child communication and gender. These results indicate that good parent-child communication could buffer the effects of parent-child separation on the developmental trajectory of depressive symptoms in adolescents, and there are gender differences in these effects.

Keywords：parent-child separation, depressive symptoms, parent-child communication, gender

留守青少年孤独感的发展轨迹：

友谊质量与副交感神经系统活动的作用

赵景欣（通讯作者） 敖成明 王蕾 徐国翔

山东师范大学心理学院，济南，250014，jingxinzhao@126.com

摘 要 孤独感是留守青少年普遍存在的情绪体验。探讨能够缓解留守青少年孤独感发展的保护因素已经成为该领域研究中的一个重要问题。然而，已有研究主要采用横断设计考察留守青少年孤独感水平的差异，对于留守青少年孤独感的发展轨迹尚不清楚。并且，以往研究主要考察环境因素对于留守青少年孤独感的作用，相对忽视了个体神经生物因素及其与环境因素的交互作用。鉴于此，本研究将在探讨青少年孤独感异质性发展轨迹的基础上，考察友谊质量、副交感神经系统活动(以呼吸性窦性心律不齐为测量指标, RSA)对孤独感发展轨迹的作用及其群体类别差异。

采用追踪设计，本研究对 482 名青少年(162 名双亲外出青少年、164 名父亲外出青少年、156 名非留守青少年)进行了间隔 6 个月的四次追踪测查。结果表明：(1)青少年的孤独感存在三条发展轨迹：低-下降组(46.1%)、中等-上升组(37.5%)、恒高组(16.4%)；与非留守青少年相比，父亲外出青少年更有可能进入恒高组而非中等-上升组。(2)朋友信任与支持、陪伴与娱乐、肯定价值、亲密袒露与交流水平较高的青少年更有可能进入低-下降组和中等-上升组而非恒高组；朋友冲突与背叛水平较高的青少年更有可能进入中等-上升组和恒高组而非低-下降组；与非留守青少年相比，朋友陪伴与娱乐水平较高的父亲外出青少年更有可能进入低-下降组而非中等-上升组。(3)RSA 反应性能够调节友谊质量与青少年孤独感异质性发展轨迹之间的关系，且该调节作用存在群体类别差异：对于 RSA 反应性较高的双亲外出青少年和 RSA 反应性较低的非留守青少年，朋友较高水平的肯定价值、亲密袒露与交流会使其更有可能进入为低-下降组而非中等-上升组，朋友较高水平的冲突与背叛会使其更有可能进入恒高组而非低-下降组。这表明，青少年孤独感的发展轨迹存在个体差异，友谊质量、副交感神经系统活动及其交互项能够影响该发展轨迹且该影响会因群体类别的不同而有所差异。

关键词 留守青少年，孤独感，友谊质量，副交感神经系统活动

Developmental Trajectories of Left-Behind Adolescents' Loneliness: The Roles of Friendship Quality and Parasympathetic Nervous System Activity

Jingxin Zhao Chengming Ao Lei Wang Guoxiang Xu

School of Psychology, Shandong Normal University, Jinan 250014, China

Abstract：Loneliness is a common emotional experience among left-behind adolescents. It has become an important issue to explore the protective factors that could buffer the development of left-behind adolescents' loneliness. However, existing studies have mainly focused on the differences of the levels of left-behind adolescents' loneliness by cross-sectional design, and far less is known about the developmental trajectories of left-behind adolescents' loneliness. Meanwhile, previous studies primarily examined the effects of environmental factors on left-behind adolescents' loneliness, relatively ignoring the roles of individual neurobiological factors and the interactions between neurobiological and environmental factors. To address these research gaps, the present study investigated the heterogeneous developmental trajectories of adolescents' loneliness, and examined the roles of friendship quality and parasympathetic nervous system activity (measured by respiratory sinus arrhythmia, RSA) on the heterogeneous developmental trajectories of loneliness. In addition, the potential differences of group category in the above associations were also tested.

A total of 482 adolescents were measured four times at an interval of 6 months, including 162 adolescents from both-parent migrant families, 164 adolescents from father-only migrant families, and 156 adolescents from nonparent

migrant families. The results showed that: (1) The trajectories of adolescents' loneliness could be divided into three sub-groups: "low-decreasing" (46.1%), "moderate-increasing" (37.5%), and "sustained-high" (16.4%). Compared to adolescents from nonparent migrant families, those from father-only migrant families were more likely to be classified into sustained-high group rather than moderate-increasing group. (2) Adolescents with higher levels of trust and support, companionship and recreation, validation, and intimate exchange were more likely to be classified into low-decreasing and moderate-increasing group rather than sustained-high group. Adolescents with higher levels of conflict and betrayal were more likely to be classified into moderate-increasing and sustained-high group rather than low-decreasing group. Compared to adolescents from nonparent migrant families, those from father-only migrant families with higher levels of companionship and recreation were more likely to be classified into low-decreasing group rather than moderate-increasing group. (3) RSA reactivity moderated the association between friendship quality and the heterogeneous developmental trajectories of adolescents' loneliness, and the moderating effect differed by group category: for adolescents with higher RSA reactivity from both-parent migrant families and those with lower RSA reactivity from nonparent migrant families, higher levels of validation and intimate exchange would make them more likely to be classified into low-decreasing group rather than moderate-increasing group. Similarly, higher levels of conflict and betrayal would make them more likely to be classified into sustained-high group rather than moderate-increasing group. These indicated that there were individual differences in the developmental trajectories of left-behind adolescents' loneliness. Friendship quality, parasympathetic nervous system activity, and their interactions were important factors affecting the developmental trajectories of left-behind adolescents' loneliness, and these effects varied with group category.

Keywords：left-behind adolescents, loneliness, friendship quality, parasympathetic nervous system activity

强化敏感性对青少年重复性自伤的影响：抑制控制的作用

刘金梦[1]　刘霞[2]（通讯作者）

1 北京师范大学发展心理研究院，北京，100875

2 北京师范大学发展心理研究院，北京，100875，liuxia@bnu.edu.cn

摘 要　重复性自伤行为（Repetitive non-suicidal self-injury, R- NSSI, 以下简称重复性自伤）是指在没有自杀倾向的情况下，直接地、重复性地导致身体轻微或中度伤害的行为，是青少年适应不良的典型表现，也是预测后续严重心理健康问题的重要风险因素。基于神经发育的自伤模型指出，强化敏感性异常是青少年重复性自伤行为发生的重要风险因素之一，而以往研究多关注重复性自伤青少年奖励敏感性特征，忽略了惩罚敏感性在重复性自伤青少年中的具体表现。另外，已有研究指出重复性自伤青少年普遍表现出较低的抑制控制，控制因素是否在重复性自伤青少年的奖惩加工过程中发挥作用，以及如何影响其奖惩加工进程，还尚不明确，需要进一步探讨和关注。

本研究共包含三个实验，其中实验一采用改编的金钱奖惩敏感性任务，检验对照组和重复自伤组在金钱奖励和惩罚任务中的差异，结果表明，重复性自伤组青少年在奖励和惩罚刺激条件下均表现出较高的敏感性。实验二与实验三纳入抑制控制因素，将奖惩敏感性范式与双选 Oddball 范式相结合，进一步考察奖惩敏感性与抑制控制相互作用对青少年重复性自伤行为的影响。结果发现：（1）奖励背景下，不论是高奖励还是低奖励，重复性自伤青少年表现出与对照组相当的抑制控制能力；（2）惩罚背景下，与对照组相比，重复性自伤组表现出更弱的抑制高惩罚线索的能力。研究结果提示，重复性自伤青少年的强化敏感性异常；个体可以有效控制奖励线索，但在抑制惩罚线索时存在一定偏差，惩罚敏感性与抑制控制相互作用的不平衡可能是影响青少年重复性自伤行为产生的重要机制。

关键词 重复性自伤行为，强化敏感性，抑制控制，青少年

The effect of reinforcement sensitivity in repetitive non-suicidal self-injury adolescence: The role of inhibitory control

Liu Jinmeng　Liu Xia
Institute of Developmental Psychology, Beijing Normal University, Beijing, China

Abstract：Repetitive non-suicidal self-injury (R-NSSI) refers to the direct and repetitive destruction of body tissue and leads to minor or moderate physical harm in the absence of any observable intent to die. It is a typical manifestation of adolescent maladaptation and an important risk factor for predicting subsequent serious mental health problems. Developmental neuroscience model of NSSI pointed that abnormal reinforcement sensitivity is one of the important risk factors for R-NSSI in adolescence. However, previous studies have mostly focused on the reward sensitivity of adolescents with NSSI, ignoring the features of punishment sensitivity. In addition, existing studies have found that adolescents with NSSI generally show lower inhibitory control. Whether in the process of reward and punishment processing, adolescents will further interact with inhibitory control, resulting in R-NSSI still unclear, and needs further discussion and attention.

This study consists of three experiments. Experiment 1 used an adapted monetary reward and punishment sensitivity tasks to explore the difference between control group and R-NSSI group. The results showed that R-NSSI group showed high sensitivity under both reward and punishment stimuli. Experiment 2 and 3 included inhibitory control, combined the reward and punishment sensitivity paradigm with the two choice Oddball paradigm, and further investigated the impact of the interaction between reward and punishment sensitivity and inhibitory control on adolescent with R-NSSI. The results showed that: (1) In the context of reward, there was no significant difference in the response between R-NSSI group and control group in either the standard stimulus or the deviation stimulus; (2) In the context of punishment, compared to the control group, R-NSSI group showed weaker ability to suppress high punishment cues. The results suggest that adolescents with R-NSSI exhibit abnormal reinforcement sensitivity; Individuals with R-NSSI can effectively control reward cues, but there is a certain deviation in inhibiting punishment cues. The imbalance between punishment sensitivity and inhibitory control may be an important mechanism that affecting the occurrence of R-NSSI.

Keywords：Repetitive Non-Suicidal Self-Injury, Reinforcement sensitivity, Inhibitory control, Adolescence

留守初中生成就动机与学习投入的关系：时间管理倾向与自我控制的链式中介作用

冯新敏[1]　朱盈盈[1]　赵俊峰[1,2]（通讯作者）
1 河南大学心理学院，开封，475004
2 河南大学心理与行为研究所，开封，475004，jfzhao63@hotmail.com

摘 要　由于父母外出务工，中国出现了大量的留守儿童。留守儿童缺少父母的监管与陪伴，尽管其自我意识不断增强，但仍缺乏自律能力，学习专注力和坚持力较弱，容易受到外界环境中不利因素的干扰。此外，初中阶段是学生学业发展的重要时期，也是价值观和学习习惯形成的关键期，衡量学生学业成就的核心要素就是其学习投入。以往研究均表明，学生的成就动机是预测其学习投入水平的重要因子，但成就动机如何促进学生的学习投入行为还需要进一步探讨。因此，本研究对河南省四所中学的 1460 名初中生的成就动机和学业投入进行调查，考察留守初中生成就动机和学习投入的现状及其作用机制。结果发现：（1）城市留守初中生和农村留守初中生的学习投入水平存在显著差异（$t=-11.14$，$p<0.01$）；（2）留守初中生的成就动机、时间管理倾向、自我控制、学习投入两两之间存在显著相关；（3）时间管理倾向和自我控制在留守初中生追求成功与学习投入之间起到链式中介作用。（4）时间管理倾向和自我控制在留守初中生避免失败与学习投入之间起到完全中介作用。综上所述，本研究揭示了留守初中生的学习投入水平在居住地上的差异，且留守初中生追求成功、避免失败通过影响时间管理倾向和自我控制进而影响学习投入。

关键词　留守初中生，成就动机，学习投入，时间管理倾向，自我控制

The Relationship between Achievement Motivation and Learning Engagement of Left-Behind Junior Students: a chain mediation of Time Management Disposition and Self-Control

FENG Xinmin[1] ZHU Yingying[1] ZHAO Junfeng[1, 2]
1 School of Psychology, Henan University, Kaifeng 475004
2 Institute of Behavior and Psychology, Henan University, Kaifeng 475004

Abstract： A large number of left-behind children have appeared in China as a result of their parents going out to work. Left-behind children lack supervision and companionship from their parents, and despite their self-awareness is growing, they still lack self-discipline, their learning concentration and persistence are weak, and they are easily disturbed by adverse factors in the external environment. In addition, junior high school is an important period for students' learning development, and it is also a critical period for the formation of values and learning habits. The core element to measure students' learning achievement is their learning engagement. Previous studies have shown that students' achievement motivation is an important factor to predict their learning engagement level, but how achievement motivation promotes students' learning engagement behavior needs further discussion. Therefore, this study investigated the achievement motivation and learning engagement of 1460 middle school students from four middle schools in Henan Province, and investigated the status quo and mechanism of achievement motivation and learning engagement of left-behind junior students. The results showed that: (1) there were significant differences in the level of learning engagement between urban and rural left-behind middle school students (t = — 11.14, p < 0.01); (2) There is a significant correlation between achievement motivation, time management disposition, self-control and learning engagement of left-behind junior students; (3) Time management disposition and self-control play a chain mediating role between left-behind junior middle school students' hope of success and learning engagement. (4) Time management tendency and self-control play a totally mediating role between left-behind junior students' fear of failure and learning engagement. To sum up, this study reveals the differences in the level of learning engagement of left-behind junior middle school students in residential areas, and left-behind junior students' hope of success and fear of failure affect their learning engagement through influencing their time management disposition and self-control.

Keywords： left-behind junior students, achievement motivation, time management disposition, self-control, learning engagement

专家-新手教师理解学生课堂动作意图的认知神经差异

林怡杉[1] 李蕊[1] 孙炳海[1]（通讯作者）
1 浙江师范大学心理学院，浙江金华，3210041，jky18@zjnu.cn

摘 要 在教学情境中观察学生的行为并理解其背后的意图是教学专长的重要体现，不同发展阶段的教师在处理课堂教学情境信息时存在明显的认知加工差异。先前研究探讨了先验知识对教师识别学生课堂动作的影响。然而，以前的研究更多关注执行动作的方式，而较少关注执行动作背后的原因。为了研究不同知识经验的教师在理解学生课堂动作意图时的行为和认知神经差异，我们招募了专家教师和新手教师，将 “如何/为什么”文字提示与行动图片联

系起来，让教师推断学生的课堂动作意图，并利用 ERP(Event-related potentials）技术探讨了这一过程的神经机制。行为结果显示，在实验结束后，两类教师对学生课堂行为的理解程度均高于实验前；专家教师的理解程度显著高于新手教师；规范动作的可理解性高于非规范动作。ERP 结果表明，新手教师在理解学生课堂动作意图时诱发的 N250 波幅显著大于专家教师，而专家教师的晚期 P300 波幅显著大于新手教师。此外，对于两类教师来说，在理解学生规范动作时的 N250 波幅更为显著，而 P300 和 LPC 波幅对于非规范动作更为显著。当前结果表明，专家教师和新手教师在对学生课堂动作的判断和感知上存在差异，专家教师具有更好的意图理解能力和洞察力。本研究为不同专业发展阶段的教师理解学生动作意图的动态加工过程提供了神经电生理学的初步证据。
关键词　专家-新手教师，意图理解，课堂动作，教师专业洞察力， 事件相关电位

Expert and Novice Teachers' Cognitive Neural Differences in Understanding Students' Classroom Action Intentions: A ERP study

Yishan Lin[1], Rui Li[1], Binghai Sun[1]
1 College of Psychology, Zhejiang Normal University, Jinhua, 321004, Zhejiang, China

***Abstract*：** Observing students' behavior in instructional contexts and understanding the intentions behind them is an important demonstration of teaching expertise, and there are significant cognitive processing differences between teachers at different developmental stages in processing information about classroom instructional contexts. Prior research has explored the effects of prior knowledge on teachers' recognition of students' classroom actions. However, previous research has focused more on the manner in which actions are executed and less on the reasons behind the execution of the actions. In order to investigate the behavioral and cognitive neural differences of teachers with different knowledge and experience in understanding students' classroom action intentions, we recruited expert and novice teachers and linked the "how/why" text prompts with action pictures, so that teachers were asked to infer students' classroom action intentions, and used ERP technology to explore the neural mechanisms of this process. Behavioral results showed that at the end of the experiment, both types of teachers understood students' classroom actions better than they did before the experiment; expert teachers' understanding was significantly higher than novice teachers'; and normative actions were more comprehensible than non-normative actions. The results of the ERP showed that novice teachers induced significantly greater N250 amplitudes than did expert teachers when they understood the intentions of students' classroom actions, and that expert teachers had significantly greater P300 amplitudes in the late period than did novice teachers. In addition, for both types of teachers, N250 amplitudes were more significant in understanding students' normative actions, while P300 and LPC amplitudes were more significant for non-normative actions. The current results suggest that expert and novice teachers differ in their judgments and perceptions of students' classroom actions, with expert teachers having better intention understanding ability and insight. This study provides preliminary electroneurophysiology evidence of the dynamic processing process for teachers at different stages of professional development to understand students' action intention.
***Keywords*：** expert-novice teacher, understanding of intentions, classroom actions, teacher's professional insight, ERPs

专家-新手教师比较范式揭示了哪些差异？一项元分析

孙长康 [1] 肖威龙 [2,1] 孙炳海 [1]（通讯作者）
1 浙江师范大学心理学院，浙江金华，321004，jky18@zjnu.cn
2 荷语鲁汶大学心理与教育学院，比利时弗兰德斯鲁汶，3000

摘 要　在过去的 40 年中，基于基础教育背景下的教学专长研究已成为备受关注的领域。教学专长指教师有效促进学习、推动学生获取知识和技能的能力。自 20 世纪 70 年代初以来，关于教师教学专长的研究主要采用了专家-新手的比较范式。尽管存在大量关于专家与新手差异的研究报告，但据我们所知，在基础教育背景下尚未发表过针对该主题的系统综述文献。

本研究通过进行四个独立的元分析，探讨了专家与新手比较范式对基础教育背景下教学专长的差异。经过文献搜索和筛选，最终纳入了 45 篇符合标准的文章进行后续分析。元分析结果显示，整体上，专家教师在教学专长方面优于新手教师（k = 131，g = 0.53）。进一步的分析结果表明，专家教师在与技能相关的教学专长（k = 79，g = 0.58）和判断相关的教学专长（k = 20，g = 0.80）方面表现出更高水平。然而，在知识相关的教学专长方面（k = 32，g = 0.26），本研究未发现专家和新手教师之间存在显著差异。我们从不同的理论角度讨论了这些发现。总的来说，专家教师在技能（例如, 反馈）与判断等方面的专长优于新手教师。

本研究首次对过去几十年来专家与新手教师比较范式的研究结果进行了详细描述。该研究提供了全面的总结，对全球基础教育和教育研究领域的教师、教育师资和其他专业人员具有重要意义。
关键词 教学专长，专家与新手教师比较范式，元分析

What differences are revealed? A systematic literature review of expert-novice comparison paradigm on teaching expertise

Changkang Sun[1], Weilong Xiao[2,1], Binghai Sun[1]

1. College of Psychology, Zhejiang Normal University, Jinhua, Zhejiang, China
2. Faculty of Psychology and Education, Katholieke Universiteit Leuven, Flanders, Belgium

Abstract：Teaching expertise in the K12 context has become a popular of educational research over the last 40 years. Teaching expertise refers to the ability of a teacher to effectively facilitate learning and promote the acquisition of knowledge and skills in students. Since the early 1970s, investigations into the nature of teaching expertise have predominantly assumed the form of expert-novice comparisons. Despite the existence of numerous of such research reports of expert-novice differences, there are, to our knowledge, no published systematic reviews of this ever-expanding literature for primary and secondary contexts.

The study described in this paper provides conducted four separate meta-analyses to address what differences are revealed based on the expert-novice comparison paradigm on teaching expertise in primary and secondary contexts from a wide range of educational systems around the world. We found 45 articles met the inclusion criteria. The results of the meta-analysis indicated that expert teachers have better teaching expertise than novice teachers (k = 131, g = 0. 53). Moreover, expert teachers also have superior performance than the novice teachers in the skill-related (k = 79, g = 0. 58) and judgement related (k = 20, g = 0. 80) teaching expertise. However, we did not find the difference in knowledge (k = 32, g = 0. 26) related teaching expertise.

This study offers the first detailed description of the expert–novice teacher comparison paradigm findings for the past decades. We believe this work provides a comprehensive and unbiased summary of the comparison between expert teachers and novice teachers, which will be of use to teachers, teacher educators, and other professionals working in basic education and educational research around the world.
Keywords：teaching expertise, expert-novice comparison, meta-analyse

课堂教学中知识重构的认知神经机制

冯小丹[1] 徐昕然[1] 孟兆楠[1] 周思远[2] 龙宇航[3] 郑丽芬[4] 卢春明[1]（通讯作者）

1 北京师范大学认知神经科学与学习国家重点实验室，北京，100875，luchunming@bnu.edu.cn

2 四川师范大学脑与心理科学研究院，北京，100875，

3 北京师范大学心理学部，北京，100875,

4 中国民航管理干部学院航空运输经济与管理系，北京，100102

摘要 以往研究对个体或小组学习的认知神经机制进行了广泛的探讨。然而，囿于实验室情境或单脑活动的研究结果还不足以解释课堂教学的认知神经机制，尤其是学生的大脑如何对授课知识进行编码和建构仍不明晰。为了解决这个问题，本研究招募 21 名被试，在真实课堂中开展教学和知识回忆，结合近红外超扫描技术同步测量师生的脑活动。首先，使用隐含狄利克雷分布模型（LDA）对知识点进行向量化表征，并将知识点的语义表征转化为知识网络，结果发现影响学生记忆表现的是知识结构而非知识内容，即知识的中心度越高，学生的记忆表现越好。其次，运用表征相似性方法对实验 1 的教学阶段以及教学后的回忆阶段的脑活动进行分析。结果表明，角回(AG)的神经表征与教学阶段的知识结构表征显著相关，而额中回(MFC)的神经表征则与回忆阶段的知识结构表征呈现显著正相关，可能表明在回忆过程中，学生通过主观建构对知识进行深度加工。最后，为了检验知识重构是否只发生在教学之后，我们在实验 2 先进行知识回忆而后开展教学。表征相似性分析结果发现，回忆阶段并未在任何脑区出现显著的神经表征，而在回忆后的教学阶段发现知识结构与 MFC 的神经表征显著相关。以上结果表明，在课堂教学中，对概念知识的共享表征与知识的内在结构有关，并受到学习方式的调节。教学与浅层语义的共享表征有关，而回忆则与基于个体先验知识的主观建构所获得的深层语义有关。

关键词 教学，回忆，近红外，表征相似性，知识重构

The neurocognitive mechanism of knowledge reconstruction during classroom teaching

Xiaodan Feng[1], Xinran Xu[1], Zhaonan Meng[1], Siyuan Zhou[2], Yuhang Long[3], Lifen Zheng[4], Chunming Lu[1,*]

[1]State Key Laboratory of Cognitive Neuroscience and Learning and IDG/McGovern Institute for Brain Research, Beijing Normal University, No.19 Xinjiekouwai Street, Beijing 100875, PR China

[2]Institute of Brain and Psychological sciences, Sichuan Normal University, Chengdu 610066, PR China

[3]Institute of Developmental Psychology, Faculty of Psychology, Beijing Normal University, No19. Xinjiekouwai Street, Beijing 100875, PR China

[4]Department of Air Transport Economics and Management, Civil Aviation Management Academy of China, Beijing 100102, PR China

*Corresponding author

E-mail: luchunming@bnu.edu.cn

***Abstract*:** Previously extensive studies have been conducted on the cognitive and neural mechanism of individual or group learning. However, the neurocognitive mechanism of classroom teaching is largely unknown. To address this issue, an integrated functional near-infrared spectroscopy hyperscanning system with 21 nodes was employed to measure changes of hemoglobin concentrations as well as behavioral data such as the videos, audio and memory tests from 21 students while a teaching or a recalling occurred during classroom teaching (i.e., either lecturing or discussing). By vectoring the knowledge segments using the Latent Dirichlet Allocation (LDA) model and transforming semantic representations into networks of knowledge, we found the knowledge structure, rather than the knowledge content itself, positively predicted the subsequent recall probability; that was, the stronger the semantic connections a knowledge has with other knowledges, it is better to be remembered. Next, to understand neural representations, a representational similarity analysis was conducted between fNIRS signals and knowledge structure in experiment 1. The results indicated that, while shared neural representation was found in the angular gyrus (AG) during teaching phase. And the neural responses in the middle frontal cortex (MFC) was closely associated with the representation of knowledge structure during the recalling phase immediately following teaching phase, suggesting a deep processing of knowledge through subjective construction during recalling. Additionally, test whether knowledge reconstruction occurred only after teaching, RSA was applied to the data in the recalling phase of experiment 2. However, the results did not show any significant results in neural alignment. During the teaching phase that immediately followed the recalling phase, we found that knowledge structure was significantly associated with the activity of the MFC. Together, these results suggested that during the classroom teaching, the shared cognitive representation of conceptual knowledge was associated with the intrinsic structure of the knowledge and modulated by group learning styles. While teaching was associated with the shared representation of shallow semantics, recalling was associated with the deep semantics accessed through subjective construction probably based on individual's prior knowledge.

***Keywords*:** Teaching; Recall; fNIRS; Representation similarity; Knowledge construction

Acknowledgements
This work was supported by the National Natural Science Foundation of China (62293550, 62293551, 61977008).
Conflict of interest
The authors declare no competing financial interests.

专家型数学教师课堂视觉注意轨迹的眼动研究

丁福军[1]，肖威龙[1]，朱锋[1]，孙炳海[1]（通讯作者）
1 浙江师范大学心理学院，浙江金华，321004，jky18@zjnu.cn

摘 要 视觉注意作为课堂最典型的非言语行为，不仅反映教师的教学意图，同时也是教师教学机智的具体表现之一。课堂视觉注意力的提升是新手向专家型教师转变的重要成长环节。由此，解码专家型教师课堂视觉注意特征，是理解专家型教师核心特征与促进专家型教师培养的重要切入口。新兴眼动追踪技术可以实时记录教师课堂教学过程中的眼动轨迹，使得在真实课堂情境下打开专家型教师视觉注意过程的黑箱成为可能。本研究以专家型数学教师为研究对象，利用眼动追踪技术从视觉注意分布和视觉注意转移两个方面揭示专家型数学教师课堂视觉注意轨迹。研究发现，专家型数学教师视觉注意分布主要聚焦于学生，且以中间位置学生为视觉中心点来回扫视左右两边学生；对

于学业成就水平低的学生提供了更多的视觉注意，且频繁将视觉注意由学生转移到学习材料；在课堂引入阶段重视将视觉注意分配给学生和学习材料，同时频繁将视觉注意由教学材料转移到黑板；在课堂讲解阶段增加了对黑板的视觉注意，且频繁将视觉注意由黑板转移到学生。
关键词 专家型数学教师； 视觉注意力； 注意分布； 注意转移；眼动追踪

Eye-tracking Study on Classroom Visual Attention Trajectories of Expert Mathematics Teachers

Fujun Ding1, Weilong Xiao1, Feng Zhu1, Binghai Sun1 (Corresponding author)
1 School of Psychology, Zhejiang Normal University, Jinhua, Zhejiang 321004, jky18@zjnu.cn

Abstract: Visual attention, as the most typical nonverbal behavior in the classroom, not only reflects the teacher's instructional intentions but also represents one of the specific manifestations of a teacher's teaching expertise. Enhancing classroom visual attention is an important developmental milestone for novice teachers to become expert teachers. Therefore, decoding the characteristics of expert teachers' classroom visual attention serves as an important entry point for understanding the core features of expert teachers and promoting their cultivation. The emerging eye-tracking technology allows real-time recording of teachers' eye movement trajectories during classroom instruction, making it possible to open the "black box" of expert teachers' visual attention processes in authentic classroom contexts. This study focused on expert mathematics teachers and used eye-tracking technology to reveal their classroom visual attention trajectories from two aspects: visual attention distribution and visual attention shifts. The study found that expert mathematics teachers primarily focused their visual attention on students, with the central students serving as the visual center point, scanning left and right repeatedly. They provided more visual attention to students with lower academic achievement, and frequently shifted visual attention from students to learning materials. During the introduction phase of the class, they prioritized distributing visual attention to students and learning materials, while frequently shifting visual attention from teaching materials to the blackboard. During the explanation phase of the class, they increased visual attention on the blackboard and frequently shifted visual attention from the blackboard to students.
Keywords: Expert mathematics teachers, visual attention, attention distribution, attention shifts, eye-tracking.

成长型思维与大脑结构和功能发育的关系研究

家晓余 [1] 陈群林 [2] 郝磊 [1]
1 西南大学教师教育学院，重庆，400715
2 西南大学心理学部，重庆，400715

摘 要 大脑可塑性是成长型思维干预的核心要点，大脑的可塑性是指大脑在经历学习、经验和环境刺激后产生结构和功能上的变化能力。成长型思维干预旨在培养个体积极、灵活和发展的思维方式，从而促进他们在面对挑战时的成长和成功。然而，目前对于成长型思维干预所依赖的神经基础还不够明确。为了深入揭示成长型思维与大脑结构、功能发育之间的关系，本研究使用了功能磁共振成像（FMRI）技术，并选择了 53 名小学生作为研究对象（其中男生 33 名，平均年龄为 8.42 岁）。每位学生接受了两次磁共振扫描，两次扫描之间的平均时间间隔为 1.8 年，以此收集了关于大脑结构和静息态功能方面的数据。研究结果表明，成长型思维得分与背侧前扣带回（dACC）的灰质体积变化呈正相关。这意味着那些具有成长型思维的个体，在大脑发育阶段，其 dACC 的灰质体积增长更快。此外，以

dACC 作为种子点，计算了两次静息态数据的全脑功能连接，并进行了比较。结果发现，与腹内侧前额叶（包括内侧眶额叶）和外侧前额叶之间的功能连接得到增强，且连接变化率与成长型思维得分呈正相关，而 dACC 与后扣带回之间的功能连接减弱。本研究首次揭示了成长型思维与儿童大脑结构和功能发育之间的关系，这为成长型思维干预的神经可塑性提供了一定的证据。

关键词 成长型思维，神经可塑性，灰质体积，功能连接，前扣带回

The Relationship Between Growth Mindset and Brain Structure and Functional Development

Xiaoyu Jia[1], Qunlin Chen[2], Lei Hao[1]
1 School of Teacher Education, Southwest University, Chongqing, 400715
2 Department of Psychology, Southwest University, Chongqing, 400715

Abstract: Brain plasticity is the core concept of growth mindset intervention. It refers to the brain's ability to undergo structural and functional changes after learning, experience, and environmental stimuli. The goal of growth mindset intervention is to cultivate individuals' positive, flexible, and developmental ways of thinking, thereby promoting their growth and success in the face of challenges. However, the neural basis on which growth mindset intervention relies is not yet clear.To delve into the relationship between growth mindset and the structural and functional development of the brain, this study employed functional magnetic resonance imaging (fMRI) technology and selected 53 primary school students as participants (including 33 boys, with an average age of 8.42 years). Each student underwent two MRI scans, with an average time interval of 1.8 years, to collect data on brain structure and resting-state function.The research findings indicate that there is a positive correlation between growth mindset scores and gray matter volume changes in the dorsal anterior cingulate cortex (dACC). This suggests that individuals with a growth mindset experience faster increases in gray matter volume in the dACC during brain development. Additionally, using the dACC as a seed region, the researchers calculated whole-brain functional connectivity based on the resting-state data collected from the two scans and compared them. The results revealed enhanced functional connectivity between the dACC and the ventromedial prefrontal cortex (including the medial orbitofrontal cortex) and the lateral prefrontal cortex. Furthermore, the rate of connectivity changes was positively correlated with growth mindset scores. On the other hand, the functional connectivity between the dACC and the posterior cingulate cortex was found to be weakened.This study provides evidence for the neural plasticity of growth mindset interventions by revealing the relationship between growth mindset and the structural and functional development of the brain in children. Further research is needed to explore the roles of other brain regions and validate the stability and generalizability of these findings.
Keywords: Growth mindset, neuroplasticity, gray matter volume, functional connectivity, anterior cingulate cortex.

场景序列性对专家-新手教师动作意图理解的影响：一项 ERP 研究

林怡杉[1] 张秦涵[1] 孙炳海[1]（通讯作者）
1 浙江师范大学心理学院，浙江金华，321004，jky18@zjnu.cn

摘 要 教师的意图理解能力体现出教师教学的监控能力，是有效课堂教学活动的基础。以往研究使用眼动技术，发现专家和新手教师对不同教学场景下学生动作意图的注视次数时间以及判断正确率等有所不同，但其脑机制差异尚不可知。本研究采用两项实验，利用事件相关电位（Event-Related Potentials）技术，探讨场景信息对专家-新手教师理解学生课堂动作意图的行为及其认知神经差异。实验一和实验二考察场景信息（教学场景与非教学场景）与学生动作（课堂动作与非课堂动作）分别作为启动和目标刺激时，专家与新手教师对二者一致性的判断与加工。行为结果显示，相较于新手教师，专家教师在判断学生动作与场景信息一致性时反应时更快，正确率更高；相比于场景信息作为启动刺激，当学生动作作为启动刺激时，教师判断二者一致性的反应时更快，正确率更高。ERP 结果显示，相较于新手教师，专家教师在学生动作与场景信息不一致条件下，大脑的后部顶枕区诱发的 N400 更为显著；相较于学生动作作为启动刺激，当场景信息作为启动刺激时，教师在不一致条件下产生 N400 的更为显著。本研究发现

场景信息对不同职业发展阶段教师意图理解能力的影响，新手教师需要加深对学生在教学场景中所产生动作意图的理解，以加强课堂上的教学监控能力。

关键词　专家-新手教师，动作意图理解，场景序列性，事件相关电位

The Effect of Scenario Information on Expert-Novice Teachers' Understanding of Students' Classroom Action Intentions

Yishan Lin[1], Qinhan Zhang [1], Binghai Sun[1] (corresponding author)
College of Psychology, Zhejiang Normal University, Jinhua, Zhejiang, 321004, jky18@zjnu.cn

Abstract：Teachers' ability to comprehend intentions reflects their ability to monitor their teaching and is the basis for effective classroom activities. Previous studies using eye-movement techniques have found that expert and novice teachers differ in the number and duration of gaze and the rate of correct judgment of students' movement intentions in different teaching scenarios, but the differences in brain mechanisms are unknown. The present study used two experiments to examine the behavioral and cognitive-neural differences of scene information on expert-novice teachers' understanding of students' movement intentions in the classroom and their cognition using Event-Related Potentials (ERPs) technology. Experiments 1 and 2 examined expert and novice teachers' judgments and processing of the congruence between scene information (instructional vs. non-instructional scenes) and student actions (classroom vs. non-classroom actions) when they were used as initiating and target stimuli, respectively. Behavioral results showed that expert teachers reacted faster and were more correct when judging the consistency of student actions and scene information compared to novice teachers, and that teachers reacted faster and were more correct when judging the consistency of the two when student actions were used as the initiating stimulus compared to scene information as the initiating stimulus. The ERP results showed that expert teachers evoked more significant N400s in the posterior parieto-occipital region of the brain under the condition of incongruence between student actions and scene information compared to novice teachers, and that teachers produced more significant N400s under the condition of incongruence when scene information was used as a priming stimulus compared to when student actions were used as a priming stimulus. The present study found the effects of scene information on teachers' intention comprehension at different stages of professional development, and that novice teachers need to deepen their understanding of the intentions of students' movements produced in instructional scenarios in order to strengthen their ability to monitor instruction in the classroom.

Keywords：expert-novice teachers, action intention understanding, scene information, Event-Related Potentials

精神分裂症患者在空间路线学习中的前向测试效应

谭瑶瑶 [12]　李甜甜 [12]　马小凤 [12]（通讯作者）
1 甘肃省行为与心理健康重点实验室,甘肃 兰州，730070
2 西北师范大学心理学院，甘肃 兰州，730070，psymaxiaofeng@126.com

摘 要　前向测试效应是指在学习过程中进行测试，将会减少前面所学材料的前摄干扰，促进后续学习的新信息的记忆保持。这种记忆效应并不局限于健康人群，在严重的创伤性脑损伤患者中，提取先前学习的信息可以提高后续学习新信息的记忆保持率，其影响大小与健康对照组相当。但是，尚未有研究探讨测试的前向效应是否适用于精神分裂症患者。本研究拟探讨在空间位置记忆任务上受损的精神分裂症患者是否可以通过前置测试提高空间位置的记忆。

研究选取了 124 名精神分裂症患者和 124 名健康被试作对照组参与实验，探讨在四个二维平面路线地图（实验 1）和四个三维视频空间路线信息（实验 2）的学习中，精神分裂症患者的前向测试效应。实验 1 的结果表明，在二维平面路线地图中，相对于重复学习条件，测试条件下的精神分裂症患者和健康组对于空间路线信息的回忆效果更好。但是，由于精神分裂症患者的抑制能力受损，在抑制前摄干扰上比健康被试要差。中介检验表明，无论是健康组还是精神分裂症患者，干扰率的部分中介效应显著，说明干扰率的降低的确在正确率的提升上起到了作用。其后，在实验 2 中使用三维视频空间路线信息，发现了与实验 1 一致的结果。

综上，本研究揭示了前向测试效应的内在机制，为前摄抑制减少理论提供直接的实验证据，也发现测试带来的好处不局限于前摄干扰的减少，学习材料对认知资源的要求也会影响前置测试在促进新信息学习时的作用。本研究提供了关于测试增强精神分裂症患者视觉空间信息学习的重要的新发现，测试可能是改善精神分裂症患者学习和记忆的有力工具。

关键词　精神分裂患者，前向测试效应，空间记忆，路线信息

The Forward Testing Effect in Spatial Route Learning in Patients with Schizophrenia

Tan YaoYao Li TianTian Ma XiaoFeng

1Key Laboratory of Behavioral and Mental Health of Gansu province, Lanzhou Gansu, 730070
2 School of Psychology, Northwest Normal University, Lanzhou Gansu, 730070

Abstract：Forward testing effects indicate that testing in the learning process reduces proactive interference from previously learned materials and promotes the retention of new information in subsequent learning.These effects are not limited to healthy individuals. In patients with severe TBI (Traumatic brain injury), previous research demonstrates that retrieving previously learned information helps improve retention rates of subsequent learning of new information with effect sizes comparable to that in the control group. To date, it has not been determined whether the forward effects of tests are applicable to clinical patients with cognitive impairments, such as patients with schizophrenia.Therefore, this study intends to investigate whether schizophrenia patients with impaired spatial location memory can improve spatial location memory through preposed tests.

We conducted two experiments—to explore the forward testing effects in schizophrenic patients in learning a new route—with 124 schizophrenic patients and a control group of 124 randomly selected healthy. All participants were tasked with learning four two-dimensional planar route maps (Experiment 1) and four three-dimensional video spatial route information (Experiment 2). Results from Experiment 1 demonstrated that in a two-dimensional planar route map, both schizophrenic and healthy participants recalled the spatial route information under the test condition versus the repetitive learning condition. However, due to the impaired inhibitory ability of patients with schizophrenia, their ability to suppress proactive interference is worse than that of healthy subjects. The mediation test shows that in 2D route learning, the mediation effect of the interference rate is significant, and it is part of the mediation, whether it is the healthy group or schizophrenic patients, indicating that the reduction of interference rate does play a role in improving the accuracy rate. In Experiment 2, we used three-dimensional video spatial route information and obtained the same results found in Experiment 1.

In summary, this study reveals the intrinsic mechanism of the forward testing effect.It not only provides direct experimental evidence for the reduction of proactive inhibition theory but also finds that the benefits of testing are not limited to the reduction of proactive interference and that the requirements of learning materials on cognitive resources affected the mechanism of forward testing in promoting the learning of new information.This study provides important new findings regarding how testing enhances visuospatial information learning in schizophrenia,tests may be a powerful tool for improving learning and memory in patients with schizophrenia.

Keywords：schizophrenic patient, forward test effect, spatial memory, route information

患寡且患不均：公平和奖赏对情景记忆的影响

龙翼婷　姜英杰（通讯作者）　袁媛　张晓靖
东北师范大学心理学院，长春，130024，jiangyj993@nenu.edu.cn

摘 要　在教育领域中，奖赏作为一种促进学生记忆效果的方法被广泛使用。然而，实际情境中，除了奖赏的客观高低之外，个人收益与他人收益的差异，即公平性，也可能对个体的记忆产生影响。为了考察同一情境中公平和奖赏对情景记忆的影响，本研究采用了独裁者游戏范式进行了实验。

在学习阶段，被试接触了不同独裁者的奖赏分配，包括 1：4 到 2：3 以及 1：9 到 5：5 共 7 种分配条件，被试的公平感随着比例值的升高而提高。在测试阶段，被试需要根据独裁者的头像回忆其分配情况并做出信心判断（JOC）。最后，在决策阶段，被试需要报告与不同独裁者的合作意愿，其选择合作的独裁者所分配奖赏的平均值将作为额外的被试费用。

两种分析方法（t 检验和广义混合效应线性模型）的结果一致地显示：首先，情景记忆成绩随着公平程度的提高而下降，但随着奖赏的增加而提高。其次，被试更倾向于选择高公平或高奖赏的独裁者进行合作，此外，在回忆正确时，被试对高奖赏独裁者的合作率更高。然而，两种方法对于 JOC 的分析结果略有不同：t 检验显示高奖赏提高了 JOC，而低公平时的 JOC 准确性更高，但广义混合效应线性模型显示高公平提高了 JOC，而低奖赏时被试的 JOC 准确性更高。

综上所述，情境中的公平和奖赏信息对情景记忆有共同的影响，人们不仅关注自身的收益，也关注收益的公平性，即患寡且患不均。一方面，奖赏是非社会性信息，高奖赏偏好的价值导向记忆是稳定的，且个体能够根据记忆中的奖赏信息进行合作决策。另一方面，公平作为社会性信息，更低程度的公平意味着对社会规范更强的违背，此时个体的情景记忆被增强，并且个体无需记忆的帮助就能更多地选择与高公平独裁者合作。对于提取阶段的元记忆监测（JOC），高奖赏时个体有更高的信心，但其准确性更低，而低公平能够提高元记忆监测的准确性。

关键词　情景记忆，奖赏，公平，JOC，独裁者游戏

Suffering from Scarcity and Inequality: The Influence of Fairness and Reward on Episodic Memory

LONG Yiting, JIANG Yingjie, YUAN Yuan, ZHANG Xiaojing
School of Psychology, Northeast Normal University, Changchun

Abstract：In the field of education, reward is widely used as a method to promote students' memory effectiveness. However, in actual situations, besides the objective high or low of the reward, the equality between personal gain and others' gain, namely fairness, may also have an impact on individuals' memory. To investigate the influence of fairness and reward on episodic memory in the same situation, this study used the dictator game paradigm to conduct the experiment.

During the learning phase, the subjects were exposed to different dictators' reward allocations, including seven allocation conditions from 1:4 to 2:3 and from 1:9 to 5:5. The subjects' sense of fairness increased with the increase of the ratio value. In the testing phase, the subjects needed to recall the allocations based on the dictators' portraits and make confidence judgments (JOC). Finally, in the decision stage, the subjects needed to report their willingness to cooperate with different dictators, and the average value of the rewards allocated by the dictator they chose to cooperate with would be used as additional participant compensation.

The results of two analysis methods (t-test and generalized mixed-effect linear model) consistently showed that: firstly,

episodic memory performance decreased with increasing fairness but increased with increasing reward. Secondly, subjects tended to choose dictators with high fairness or high reward to cooperate with. In addition, when recalling correctly, subjects had higher cooperation rates with dictators with high reward. However, the two methods had slightly different results for JOC analysis: t-test showed that high reward increased JOC, and JOC accuracy was higher when fairness was low, but the generalized mixed-effect linear model showed that high fairness increased JOC, and JOC accuracy was higher when reward was lower.

In summary, fairness and reward information in one situation have a joint influence on episodic memory. People not only pay attention to their own gain but also to the fairness of the gain, that is, they suffer from both poverty and inequality. On the one hand, reward is a non-social information, and the preference for high reward in value-directed memory is stable, and individuals can make cooperation decisions based on reward information in memory. On the other hand, fairness is a social information, and lower fairness means a stronger violation of social norms, at which time individuals' episodic memory is enhanced, and individuals can choose to cooperate more with dictators with high fairness without the help of memory. For metamemory monitoring during retrieval (JOC), individuals have higher confidence when reward is high, but its accuracy is lower, and low fairness can improve the accuracy of metamemory monitoring.

Keywords：episodic memory, reward, fairness, JOC, dictator game

文化对元认知的影响：非洲和中国人群的比较分析

黄滢[1]　吴罗汐[1]　叶群[1]（通讯作者）

1 浙江师范大学心理学院，金华，321004，qun.ye@zjnu.edu.cn

摘 要　文化起源假说认为，文化选择可能塑造了人类元认知的某些形式，比如依赖于工作记忆且对认知负荷敏感的外显元认知。目前支持该假说的研究主要集中在比较东亚和欧美地区人群的元认知能力差异，而对于非洲地区的研究较为缺乏。相较于东亚和欧美地区，非洲地区在价值观、社会结构等方面都具有独特性。基于此，本研究旨在分析非洲人的元认知能力，并与中国人元认知进行比较，以探究文化选择对元认知能力的影响。40 名中国大学生和 26 名非洲留学生被招募完成知觉任务和记忆任务以及相应的回溯性信心度评估。通过采用线性混合模型分析文化对元认知指标（元认知敏感性、元认知效率）的影响，研究结果显示：非洲被试在知觉任务上的正确率和辨别力显著高于中国被试，而在记忆任务上两者的正确率和辨别力没有显著差异。非洲被试在知觉任务上的平均信心显著高于记忆任务，但中国被试在两个任务上的平均信心没有差异。非洲被试在两个任务上的平均信心均显著高于中国被试。在元认知指标上，不论是非洲被试还是中国被试，记忆任务的元认知敏感性和元认知效率均显著高于知觉任务。非洲被试和中国被试的元认知敏感性不存在显著差异，然而非洲被试的元认知效率显著低于中国被试。综上所述，本研究为文化起源假说提供了直接证据，即社会文化可以塑造个体的元认知能力。另外，本研究提供了对非洲文化背景的初步探索，为未来进一步研究非洲文化背景提供了借鉴和启示。

关键词　元认知，跨文化，文化起源假说，信心度

Cultural Influence on Metacognition: A Comparative Analysis of African and Chinese Individuals

Ying Huang[1]　Luoxi Wu[1]　Qun Ye[1]

1 College of Psychology, Zhejiang Normal University, Jinhua, 321004, qun.ye@zjnu.edu.cn

Abstract： The Cultural Origins Hypothesis suggests that cultural selection may shape certain forms of metacognition in humans, such as explicit metacognition, which relies on working memory and is sensitive to cognitive load. While previous research has predominantly focused on comparing metacognitive abilities between East Asian and Western populations, there is a lack of studies examining the African region. Compared to East Asia and the West, African is unique in terms of values and social structures. This study analyzed and compared the metacognitive abilities of Africans and Chinese to investigate how cultural selection influences metacognitive abilities. A total of 40 Chinese university students and 26 African international students were recruited to complete perceptual and memory tasks, as well as corresponding retrospective confidence judgment. Linear mixed-effects models were employed to analyze the effects of culture on metacognitive performance indicators (metacognitive sensitivity, metacognitive efficiency). The results revealed that African participants had significantly higher accuracy and discriminability in the perceptual task compared to Chinese participants. However, no significant differences were observed between African and Chinese participants in accuracy and discriminability for the memory task. Chinese participants did not show a significant difference in average confidence between the two tasks, whereas African participants displayed significantly higher average confidence on the perception task compared to the memory task. On both tasks, African participants' average confidence was noticeably higher than Chinese participants'. Regarding metacognitive indicators, both African and Chinese participants showed significantly higher metacognitive sensitivity and metacognitive efficiency in the memory task compared to the perception task. Although there was no significant difference in metacognitive sensitivity between African and Chinese participants, African participants displayed significantly lower metacognitive efficiency compared to Chinese participants. In conclusion, the present study provides direct evidence for the Cultural Origins Hypothesis, suggesting that socio-cultural could shape an individual’s metacognitive abilities. Additionally, the current study offers a preliminary exploration of the African culture, providing valuable insights for further studies investigating the African cultural context.

Keywords： metacognition, cross culture, the cultural origins hypothesis, confidence

元认知监测对元认知控制的影响：框架效应的作用

王婉宁[1]，贾宁[1]（通讯作者）

1 河北师范大学教育学院，河北，石家庄 050024，jianing@hebtu.edu.cn

摘要　目前关于元认知监测对控制的影响，及框架效应对该过程的调节，主要集中在前瞻性元认知监测（如学习判断）。本研究以信心判断作为回溯性元认知监测的指标，以重学选择作为元认知控制的指标，基于信号检测论分析信心判断对元认知控制的影响，以及框架效应对该过程的作用。研究旨在通过两个实验探讨如下问题：（1）信心判断是否影响元认知控制；（2）框架效应是否调节信心判断对元认知控制的影响。实验一采用被试间设计，以有无信心判断作为自变量，重学选择次数作为因变量，探讨信心判断对元认知控制的影响；实验二采用被试间设计，以正负框架作为自变量，重学选择次数作为因变量，探讨框架效应在信心判断影响元认知控制过程中的作用。实验发现：第一，信心判断影响元认知控制。信心判断组的重学选择次数与辨别力标准 d'显著低于无信心判断组；第二，框架效应能够调节信心判断对元认知控制的影响。正框架组的重学选择次数显著低于负框架组，报告标准 c 显著高于负框架组。正负框架下选择是否重学的信心判断阈值不同，正框架组最大约登指数所对应的信心判断等级低于负框架组。研究得出以下结论：回溯性的信心判断能够影响元认知控制，且这一过程会受到框架效应的调节。使用信号检测论进行的分析能够很好地解释信心判断如何影响元认知控制与框架效应对该过程的调节作用，为未来的元认知监控研究提供了启示。

关键词　元认知监测，元认知控制，信心判断，框架效应，信号检测论

Metacognitive monitoring influences metacognitive control: the role of framing effects

Wanning Wang[1], Ning Jia[1]

1 Department of Education, Hebei Normal University, Shijiazhuang

Abstract：Current research on the influence of metacognitive monitoring on control, and the moderation of the process by framing effects, has focused on prospective metacognitive monitoring (e.g., judgements of learning). In the present study, we used confidence judgements as an indicator of retrospective metacognitive monitoring and restudy choice as an indicator of metacognitive control, and analysed the influence of confidence judgements on metacognitive control and the role of framing effects on the process based on signal detection theory. The study aimed to explore the following questions through two experiments: (1) whether confidence judgements influence metacognitive control; (2) whether framing effects modulate the influence of confidence judgements on metacognitive control. Experiment 1 used a between-subjects design with the presence or absence of confidence judgements as the independent variable and the number of restudy choice as the dependent variable to explore the effect of confidence judgements on metacognitive control; Experiment 2 used a between-subjects design with positive and negative framing as the independent variable and the number of restudy choices as the dependent variable to explore the role of framing effects in the process of confidence judgements affecting metacognitive control. The experiment found that, first, confidence judgements influences metacognitive control. The number of restudy choices and the sensory discriminability d' were significantly lower in the confidence judgement group than in the no-confidence judgement group; secondly, the framing effect was able to modulate the influence of confidence judgement on metacognitive control. The number of restudy choices was significantly lower in the positive framing group than in the negative framing group, and the report criterion c was significantly higher than in the negative framing group. The confidence judgement thresholds for choosing whether or not to restudy were different in the positive and negative frames, and the confidence judgement level corresponding to the maximum Yoden index was lower in the positive frame group than in the negative frame group. The study concluded that retrospective confidence judgements can influence metacognitive control and that this process is moderated by framing effects. Analyses using signal detection theory can well explain how confidence judgements affect metacognitive control versus the moderating role of framing effects on this process, providing insights for future research on metacognitive monitoring.

Keywords：Metacognitve monitoring, Metacognitive control, Confidence judgment, Framing effects, Signal detection theory

线索影响提取选择倾向——来自行为和 ERP 的证据

张孟霞　张俐娟 张锦坤（通讯作者）

福建师范大学心理学院，福州，350117

jinkunzhang@126.com

摘 要　提取练习对促进记忆长久保持的有效性已得到大量研究支持。然而，在自我管理学习情境下，学习者常常存在元认知偏差，导致难以做出有效的学习策略选择。本研究旨在探讨如何提高学习者对有效策略的选择倾向，并考察提取线索的加入及线索类型对学习策略选择的影响。实验 1 探究斯瓦西里语词汇学习的提取过程中，逐步呈

现辅音线索（如 w_ _ _ _, w_ng_, wingu）对学习者策略选择、内在动机、学习有效性感知的影响。结果表明，相较于重学和无线索提取，学习者对线索提取具有更强的选择倾向。同时，加入线索使得提取过程更有趣，提升了学习者的内在动机和对学习有效性的认识，从而增加了对线索提取的选择。研究发现了学习有效性感知在有趣性与策略选择间起完全中介作用。实验 2 进一步探究不同线索类型（辅音线索、元音线索）以及线索呈现方式（逐步呈现、非逐步呈现）对学习者线索提取选择倾向的影响。结果发现，学习者更倾向于选择辅音线索提取，且非逐步呈现的辅音线索（如 w_ng_, wingu）对选择倾向的促进作用更加显著；相反，学习者提取过程中对元音线索（如_ i _ _ _，_i_ _u， wingu）表现出回避倾向，并且在逐步呈现元音线索时，学习者感知到的心理努力与无线索条件之间没有显著差异。实验 3 采用事件相关电位探讨不同线索类型在情绪、认知加工上的差异以及对记忆保持的影响。实验设计为 2（线索数量：2 字母提示、3 字母提示）×2（线索类型：辅音线索、元音线索）的被试内实验，另设置无线索为控制组。结果显示，行为结果上，相较于无线索，线索的加入会损害记忆表现，且线索越多对记忆的损害越大。脑电指标上，P200 成分显示 2 字母元音线索提取的波幅显著高于无线索提取；而在 LPC 成分上，3 字母辅音线索提取的波幅显著高于元音线索，这表明元音线索可能伴随更多消极情绪，学习者需要投入更多的注意资源且难以成功提取相关信息。本研究表明，提取线索类型影响学习策略的选择，元音线索下的负面情绪与提取困难可能降低对该线索的选择倾向。

关键词　提取练习，线索提示，记忆，ERP

Cue Types Affect Desire to Test-Evidence from Behavior and ERPs

Mengxia Zhang, Lijuan Zhang, Jinkun Zhang*

School of Psychology, Fujian Normal University, No.1, Science and Technology Road, University Town, Fuzhou, Fujian, China

Abstract：The effectiveness of retrieval practice in facilitating long-lasting memory retention has been extensively supported by numerous research. However, learners often fail to make accurate metacognitive monitoring and make suboptimal strategy choices in self-regulated learning. This study aims to investigate how to enhance learners' inclination to choose effective strategies and to explore the effects of cue incorporation and cue type on learning strategy choice. Experiment 1 explored the effects of the gradual presentation of consonant cues (e.g., w_ _ _ _ _, w_ng_, wingu) on learners' tendency to strategies options, intrinsic motivation, and perceived effectiveness during Swahili word learning. The results showed that learners exhibited a stronger preference for cue-based retrieval compared to restudy and no-cue retrieval. Furthermore, the inclusion of cues made the retrieval process more interesting, enhancing learners' intrinsic motivation and their perception of learning effectiveness, thus increasing the inclination to choose cue-based retrieval. The study revealed that the perception of learning effectiveness fully mediated the relationship between interestingness and strategy option. Experiment 2 further investigated the effects of different cue types (consonant cues, vowel cues) and cue presentation modes (gradual presentation, non-gradual presentation) on learners' strategy options. The findings showed that learners demonstrated a preference for consonant cue retrieval, and non-gradual presentation of consonant cues (e.g., w_ng_, wingu) facilitated the option tendency for retrieval more significantly. Conversely, learners tend to avoid the vowel cues (e.g., _ i _ _ _ _, _i_ _u, wingu) during the retrieval process, and no significant difference was observed in perceived mental effort between the gradual presentation of vowel cues and the no-cue condition. Event-related potentials were conducted in experiment 3 to explore the differences between different cue types in emotion and cognitive processing and the effects of different cue types on memory retention. There was a 2 (number of cues: 2-letter cues, 3-letter cues)×2(type of cues: consonant cues, vowel cues) within-subject experimental design, and a standard retrieval condition as the control group. The results showed that in terms of behavioral outcomes, cues may hinder memory performance, and the more cues there were, the greater the damage to memory. In terms of electroencephalographic (EEG) indicators, the P200 component exhibited

significantly higher amplitude for the retrieval of 2-letter vowel cues compared to the no-cue retrieval, whereas the LPC component showed significantly higher amplitude for the retrieval of 3-letter consonant cues compared to the retrieval of vowel cues. These findings suggest that the vowel cues may be associated with more negative emotions, requiring learners to devote more attention and making it more challenging to successfully retrieve relevant information. The present study indicates that cue type influences learning strategy options, and the negative emotions and retrieval difficulties with vowel cues may reduce retrieval inclination to select such cues.

Keywords：retrieval practice, hint, memory, ERP

情绪线索在学习判断中的误导性作用

孙晓军　姜英杰（通讯作者）
东北师范大学心理学院，长春，130024，jiangyj993@nenu.edu.cn

摘 要　学习判断(Judgments of learning，JOLs)是个体对当前所学内容在随后测试中能否正确回忆的预测性评估。直接访问假说提出 JOLs 能通过监测记忆内容来进行预测，但线索利用理论则认为 JOLs 并不能直接监测记忆，而是依据线索来进行推测。先前研究表明，人们通常对情绪信息有比中性信息更高的 JOLs，但前人研究大多集中在项目记忆，鲜有探究情绪对联结记忆 JOLs 的影响。情绪对记忆的影响因记忆类型而异，情绪仅影响项目记忆而不影响联结记忆(图片-边框形式)。若情绪对项目和联结记忆的不同影响能反映在 JOLs 上就支持了直接访问假说，反之则支持线索利用框架。故本研究通过探究情绪对项目和联结记忆 JOLs 的影响，来揭示情绪影响的 JOLs 认知机制。被试学习负性、正性和中性图片，之后进行 JOLs(项目记忆任务中评估记住图片的可能性，联结记忆中评估记住图片对应边框的可能性)，然后进行记忆测试，让他们判断该图片是否在学习阶段见过(项目记忆)或图片对应的边框是什么(联结记忆)。结果发现，项目记忆表现出情绪显著效应，即被试对情绪图片的记忆优于中性图片，联结记忆中则无情绪显著效应，项目和联结记忆的 JOLs 都表现出情绪显著效应。上述结果揭示了情绪对 JOLs 的影响并非依据对记忆内容的直接访问，而是个体将情绪作为可用线索对记忆进行推测的结果，说明情绪线索在 JOLs 中可能会产生误导性作用。这有助于进一步了解元记忆监测机制，并为提高个体元记忆监测准确性提供了前期理论支持。

关键词　情绪，学习判断，项目记忆，联结记忆，元记忆

The misleading role of emotional cues in judgments of learning

Xiaojun Sun　Yingjie Jiang
School of Psychology，Northeast Normal University，Changchun

Abstract：Judgments of learning (JOLs) are predictive assessments of an individual's ability to correctly recall currently learned content on subsequent tests. While the direct-access view proposes that JOLs can be predicted by monitoring memory content, the cue utilization theory suggests that JOLs do not directly monitor memory but make inferences based on cues. Previous research has shown that people typically have higher JOLs for emotional information than for neutral information, but most of the previous research has focused on item memory, and rarely has it examined the effect of emotion on the JOLs of associative memory. The effect of emotion on memory varies by memory type, and emotion only affects item memory but not associative memory. If the different effects of emotion on the item and associative

memory can be reflected in JOLs it supports the direct access hypothesis, and vice versa supports the cue utilization framework. Therefore, the current study was conducted to reveal the cognitive mechanism of emotion-influenced JOLs by exploring the effects of emotion on item and associative memory JOLs. Participants studied negative, positive, and neutral pictures, followed by JOLs (the likelihood of remembering the picture was assessed in the item memory task, and the likelihood of remembering the picture's corresponding frame was assessed in the associative memory), and then a memory test in which they were asked to decide whether the picture had been seen in the learning phase (item memory) or what the picture's corresponding frame was (associative memory). It was found that item memory showed emotional salience effects, i.e., participants remembered emotional pictures better than neutral pictures, while there were no emotional salience effects in associative memory, and JOLs for both item and associative memory showed emotional salience effects. The above results reveal that the effect of emotion on JOLs is not based on direct access to memory content, but is the result of individuals' speculation about memory using emotion as an available cue, suggesting that emotional cues may have a misleading effect in JOLs. This contributes to further understanding of metamemory monitoring mechanisms and provides pre-theoretical support for improving the accuracy of individual metamemory monitoring.

Keywords：Emotion，Judgments of learning (JOLs)，Item Memory，Associative Memory，Metamemory

低执行功能可能是儿童学习数学焦虑发展的重要远端风险因素：数学表现的纵向中介作用

黄碧娟[1]　朱红祥[1]　李红霞[1]　禚新峰[1]　司继伟[1]（通讯作者）

1 山东师范大学心理学院，济南，250358，sijiwei1974@126.com

摘 要　数学焦虑是影响所有年龄阶段的、普遍的、全球性问题。高数学焦虑个体更可能出现数学回避行为，数学成绩低下，数学自我概念和态度更消极，数学信心和动机较低，甚至限制个体后期的专业或职业选择（如，从事 STEM 相关职业）和长期职业成功。因此，降低数学焦虑水平对个体的学业情感和成就以及职业成功等方面的发展显得尤为重要。数学焦虑的相关理论指出，执行功能与数学表现对儿童数学焦虑发展均有显著预测作用。但尚缺乏研究对比两者在数学焦虑发展过程中的相对贡献。此外，执行功能不足是否引起个体较差的数学表现，进而诱发个体的学习数学焦虑，对于该间接效应仍未得到检验。为回答上述问题，本研究采用纵向设计，对三、四年级的儿童（$N = 756$，$M_{age} = 9.25$，51.85%女生）进行一年追踪，每次间隔六个月，以确定执行功能、数学表现与儿童学习数学焦虑的纵向联系。结果显示：执行功能与数学表现之间存在交叉滞后联系；前一时间点的数学表现可显著负向预测后一时间点的学习数学焦虑；数学表现在执行功能与学习数学焦虑之间起纵向中介作用。上述结果表明，较低的执行功能通过诱发更差的数学表现致使个体发展学习数学焦虑的可能性。该研究结果增进了对童年中期儿童学习数学焦虑发展的认识，有助于更深刻地理解促成数学焦虑的认知因素。

关键词　执行功能，数学表现，学习数学焦虑，纵向中介

Lower Executive Function may be an Important Distal Risk Factor for the Development of Mathematics Anxiety for Learning in Children: A Longitudinal Mediating Role of Mathematical Performance

Bijuan Huang, Hongxiang Zhu, Hongxia Li, Xinfeng Zhuo, Jiwei Si
School of Psychology, Shandong Normal University, Jinan

Abstract：Mathematics anxiety is a universal, global problem that affects all ages. Students, who experience higher level of mathematics anxiety, are more likely to take fewer elective math course, receive lower math grades, report negative self-concepts and attitudes towards mathematics, and hold lower confidence and lower motivation for mathematics. Moreover, these negative effects further limit the individual's later professional or career choices, such as a stem-related career, or even long-term professional success. Therefore, it is vital to alleviate mathematics anxiety for the development of individual academic emotion and achievement, as well as career success. The relevant theories of mathematics anxiety pointed out that both executive function and mathematical performance are important predictors on the development of mathematics anxiety in children. However, few research compared their relative contributions in the development of mathematics anxiety. In addition, it is still unknown that whether insufficient executive function causes poor mathematical performance and then lead to children's mathematics anxiety. To answer the above questions, the present study used a longitudinal design with one-year tracking of 3- and 4-grade children (N = 1,169, M_{age} = 9.49 years, 49.19% girls) with six months apart to determine the longitudinal association of executive function, mathematical performance and children's mathematics anxiety for learning. The results showed that there was a cross-lag link between executive function and mathematical performance. The mathematical performance at the previous time points could predict children's LMA at the later time points. The executive function could longitudinally predict children's mathematics anxiety for learning through mathematical performance. The above results suggested that lower executive function drove the possibility of developing children's mathematics anxiety for learning by inducing worse mathematical performance. The findings of it deepened our understanding of the development of mathematics anxiety for learning during middle childhood. It also helped to better recognize how the cognitive factors contributed to the development of mathematics anxiety.

Keywords：executive function, mathematical performance, mathematics anxiety, longitudinal mediation

小学生不同层次数学学习的认知基础

徐洁　蔡丹（通讯作者）
上海师范大学心理学系，上海，200234, caidan@shnu.edu.cn

摘 要　数学能力的发展需要以特定的认知能力为基础。LeFevre 等人于 2010 年提出的数学路径模型(the Pathways to Mathematics Model)指出，数量、言语和空间注意，这三种认知能力为幼儿掌握基础数学技能做出了重要贡献。尽管随后有多项研究为该模型提供了实证研究支持，但现有的研究缺乏对不同数学学习层次充分考虑。本研究的主要目标是修改和扩展 LeFevre 等人的数学路径模型，并使用该模型来揭示小学生不同层次数学能力发展的潜在认知机制。从上海市两所小学招募一至五年级共 309 名小学生作为研究对象（平均月龄=112.78; 173 个男孩）。对这些小学生进行一系列认知、符号数字处理和数学能力测试，包括近似数量系统（点估计、符号数字比较）、言语能力（阅读流畅性）、视觉空间工作记忆（空间 N-back）、以及不同水平的数学能力（数学流畅性、数值计算和数学问题解决任务）。在控制了儿童年龄和非言语智力后，路径分析的结果表明: 1) 近似数量、言语和空间路径对于儿童符号数字加工具有独特的贡献；2)符号数字加工为数学流畅性的发展提供了支持; 3)不同层次数学学习所需要的认知基础有所不同。具体而言，数量路径与数学流畅性和问题解决直接相关，并通过符号数字加工和数学流畅性间接影响数值计算；言语路径与数学流畅性、数值计算和问题解决直接相关；空间路径则与数值计算直接相关，并通过符号数字加工间接影响数学流畅性，通过符号数字加工、数学流畅性和数值计算间接影响数学问题解决。4)基本的数学流畅性能力对于复杂的数值计算具有支持作用，并进而影响儿童问题解决能力的发展。这些研究结果表明数学学习具有层次性，从基本认知能力到符号数字处理，再到数学流畅性，再到复杂的数值计算和问题解决，层层递进。这些发现进一步揭示了小学生基本符号加工和正式数学技能发展的潜在认知机制，对于数学知识的教学和实践和学习困难的筛选和

改善具有启示意义。

关键词　儿童，数学学习，数字符号加工，认知能力

The Cognitive Foundations of Different Levels of Mathematics in School-aged Children

XU Jie, CAI Dan

(Department of Psychology, Shanghai Normal University, Shanghai 200234)

Abstract： Mathematics, as a vital tool in our lives, was crucial for individuals to obtain and maintain success in school and elsewhere. Domain-general and domain-specific cognitive factors have always been suggested to serve as the critical building blocks for the acquisition and development of mathematical skills. In light of the Pathways to Mathematics Model, three types of cognitive precursors provided important contributions to young children's mathematics skills learning and development. The existing model-based research was deficient in at least two aspects—lack of attention to school-aged children, insufficient consideration of mathematical hierarchy. The main goal of the study was to modify and extend the original model and use it to further reveal the cognitive mechanisms underlying mathematics development in school-aged children. A battery of cognitive, symbolic number processing and mathematics measures, including dot estimation, reading fluency, spatial N-back, symbol number comparison, math fluency, numerical calculation and math problem -solving tasks, were performed on 309 7- to 12-year-old children (mean month age = 112.78; with 141 girls). After controlling for sex, age, nonverbal intelligence and verbal speed, the main results of the path analysis were as follows: 1) Three basic cognitive precursors—quantitative, linguistic and spatial abilities—could make independent contributions to symbolic number processing; 2) The development of symbolic number processing could support math fluency; 3) The contributions of these three cognitive precursors to mathematics learning were different. Specifically, the quantitative pathway was directly associated with math fluency and problem-solving, and indirectly associated with numerical computation via symbolic number processing and math fluency; the linguistic pathway was directly associated with all three mathematical outcomes; the spatial pathway was directly associated with numerical computation, and indirectly associated with math fluency via symbolic number processing, indirectly associated with math problem-solving via symbolic number processing, math fluency and numerical computation. 4) Basic math fluency supported complex the development of numerical calculation, which in turn influenced problem-solving. These findings further revealed the cognitive mechanisms underlying the development of basic symbolic number processing and formal mathematical skills in school-age children, having implications for the effective teaching and practice of mathematics knowledge and early identification and intervention of learning difficulties.

Keywords： children, mathematics learning, symbolic number processing, cognitive abilities

数量感知中时间维度下的分组化效应：

刺激目标异步性和分组线索的影响

杨环瑜[1] 潘运[1](通讯作者)

1 贵州师范大学心理学院，贵阳， 550025，通讯作者 E-mail：panyun129@163.com

摘 要 “分组化”（Groupitizing）是指当一组数组在视觉上被划分为子组时，数量估计变得更快、更准确的现象。尽管已有研究探讨了数量感知中的分组化策略的认知机制，但主要基于空间分布的角度，忽略了数量与其他知觉因素之间的相互关系。根据"量级理论"（ATOM）的观点，数量、时间和空间是互补概念，在数量系统中共享相同的量级系统，并且顶叶皮层是该系统的核心脑区。如果数量感知的加工机制确实依赖于这种共享的量级系统，那么通过操作时间顺序这一变量可能会导致数量感知中的分组化策略发生变化。以往研究主要从内部分组线索（如邻近性、颜色相似性）的角度探讨分组化策略，较少直接比较内部和外部分组线索对分组化效应强度的影响。由于这两种分组线索在性质上存在明显差异，通过直接比较这两种线索产生的效应，可以揭示它们在数量感知分组化策略中的作用。已有研究指出，时间维度上数量感知的研究中，刺激目标异步性（SOA）对结果有重要影响，300 毫秒的 SOA 被认为是计数和估计的临界值。本研究通过操纵不同的刺激目标异步性（150 毫秒、300 毫秒）和分组线索（内部和外部），来探索时间维度中数量感知的分组化效应。结果显示，在数量感知中，分组条件具有明显的优势，能够使估计速度更快、准确性更高。特别是在高数学能力个体中，分组化效应更为显著。我们的结果还发现外部分组线索的感知精度优于内部分组线索。此外，在较短的 SOA 下（150 毫秒），分组化效应更为明显，进一步证实了刺激持续时间对于时间序列数量感知的重要性。最后，本研究复制了序列估计中的小数量优势（SNA），与以前的研究结果一致。研究发现对于深入理解数量感知中的分组化现象以及数量系统的运作机制具有重要意义。直接比较内部和外部分组线索的效应揭示了它们在数量感知分组化策略中的不同作用。此外，研究结果对于数量感知中刺激持续时间和数学能力的影响也提供了进一步证据。

关键词 数量感知，分组化，时间维度，刺激目标异步性，分组线索

Groupitizing in Numerosity Perception within the Temporal Dimension: Effects of Stimulus Onset Asynchronies and Grouping Cues

Yang Huanyu[1] Pan Yun[1*]

School of Psychology, Guizhou Normal University, Guiyang, China. Email: panyun129@163.com

Abstract：When a set of arrays is visually divided into subgroups, the estimation of numerosity becomes faster and more accurate, a phenomenon referred to as "groupitizing." While previous studies on groupitizing have primarily focused on the spatial dimension, only a limited number of studies have explored groupitizing in the temporal dimension. According to the Theory of Magnitude (ATOM), space, time, and number are interconnected concepts that share common mechanisms within the magnitude system. Thus, it is crucial to systematically investigate groupitizing in numerosity perception within the temporal dimension. In this study, we manipulated different stimulus onset asynchronies (SOAs) (150 ms, 300 ms) and employed various grouping cues (intrinsic and extrinsic) to explore the phenomenon of groupitizing in numerosity perception within the temporal dimension. The findings revealed a clear advantage of grouping in numerosity perception, with a more pronounced effect observed in individuals with a high level of mathematics proficiency. Additionally, the sensory precision of extrinsic grouping cues surpassed that of intrinsic grouping cues. Furthermore, we found a stronger grouping effect at shorter SOAs (150 ms), providing further evidence for the significance of stimulus duration in temporal sequence numerosity perception. Finally, our study replicated the small numerosity advantage (SNA) for sequential enumeration, which aligns with previous research. These findings contribute to a deeper understanding of the phenomenon of groupitizing in numerosity perception and shed light on the operational mechanisms of the numerical system. The direct comparison of intrinsic and extrinsic grouping cues reveals their differential roles in numerosity perception grouping strategies. Furthermore, the results provide additional evidence regarding the impact of stimulus duration and mathematical abilities on numerosity perception.

Keywords：Numerosity perception, Groupitizing, Temporal dimension, Stimulus onset asynchrony, Grouping cues

关系推理在学龄儿童符号分数表征中的作用

戚玥[1]　于晓[2]　陈英和[1]（通讯作者）

1 北京师范大学心理学部发展心理研究院，北京，100875

2 北京林业大学人文社会科学学院心理学系，北京，100083

通讯作者 E-mail: chenyinghe@bnu.edu.cn

摘 要 分数是一种以关系形式表达的数，被认为是小学阶段最困难的数学知识之一。整数偏向是分数表征中的常见错误，指个体倾向于分离地考虑分数中各元素（分子或分母）的数值，而不是元素之间的关系，这与个体在关系推理中的常见错误是相似的。因此，儿童在分数表征中相对较差的表现，可能正是源于其关系推理困难，即难以在表面不同的情景中识别和整合抽象关系。先前对这一问题的研究停留在相关层面，本研究采用 A:B::C:D 类比任务这一常用的关系推理任务，通过正启动范式直接检验上述假设。如果分数表征与类比同样包含关系推理过程，则类比启动将促进后续的分数表征。

本研究首先招募 32 名五年级儿童（9 名男生，平均年龄 11.57 ± 0.27 岁）为被试。实验任务包含测试条件和控制条件，每种条件下包含启动和探测刺激。测试条件的启动刺激为数材料类比任务（如，7:28::9:?），控制条件的启动刺激为材料相同的数字搜索任务。探测刺激均为符号分数比较任务，包含一致试次（分子和分母更大的，分数值也更大）和不一致试次（分子和分母更大的，分数值反而小），以两种试次的表现差异刻画整数偏向大小。2（条件：测试，控制）×2（一致性：一致，不一致）两因素重复测量方差分析结果表明，数材料类比启动显著减小了儿童分数比较的整数偏向。

然而，数材料类比任务不仅包含关系推理，也包含完成分数比较所需的计算过程。为进一步剥离出关系推理的作用，以 31 名五年级儿童（14 名男生，平均年龄 11.70 ± 0.43 岁）为被试，将测试和控制条件的启动刺激分别替换为非数材料类比任务（如，粉笔:黑板::铅笔:？）和相应的物品搜索任务。2（条件：测试，控制）×2（一致性：一致，不一致）两因素重复测量方差分析结果表明，非数材料类比启动显著降低了儿童分数比较的错误率，且同样显著减小了儿童分数比较的整数偏向。本研究揭示了关系推理对符号分数表征的重要作用，有助于深入理解表征分数的心理过程，并说明强调分数的关系结构、提升关系推理能力是促进儿童分数学习的可能途径。

关键词 关系推理，分数，整数偏向，儿童，正启动

The Role of Relational Reasoning in School-age Children's Symbolic Fraction Magnitude Processing

Qi Yue[1] Yu Xiao[2] Chen Yinghe[1]

[1]School of Developmental Psychology, Faculty of Psychology, Beijing Normal University, Beijing, P. R. China, 19 Xinjiekouwai Avenue, Haidian District, 100875, Beijing, P. R. China

[2]Department of Psychology, School of Humanities and Social Sciences, Beijing Forestry University, Beijing, P. R. China, 35 Qinghua East Road, Haidian District,100083, Beijing, P. R. China

Abstract：Fractions are inherently relational and are considered one of the most difficult mathematical skills for primary school students. Whole number bias is a common error in fraction magnitude processing, which refers to individuals' inclination to consider the components of a fraction (i.e., the numerator and the denominator) separately rather than considering the relations between its components. This is similar to the common error in relational reasoning. Therefore, the bias showed in children's fraction magnitude processing may reflect their difficulties in relational reasoning. That is, they have difficulties in identifying and integrating abstract relations in situations with different surface features. Previous studies on this question were correlational. The current study would directly examine this hypothesis with the inter-task positive priming paradigm, using A:B::C:D analogical reasoning task (a commonly used relational reasoning task). If symbolic

fraction magnitude processing contains relational reasoning, analogical priming could facilitate subsequent fraction magnitude processing.

Firstly, 32 fifth graders (9 boys, mean age: 11.57 ± 0.27 years old) were recruited. The task contained a test condition and a control condition. Each condition included prime stimuli and probe stimuli. The prime stimuli of the test condition were numerical analogical reasoning tasks (e.g., 7:28::9:?), and the prime stimuli of the control condition were numerical visual searching tasks that used the same materials as the analogical reasoning task. The probe stimuli were the symbolic fraction magnitude comparison task, which contained two types of trials: congruent trials (the fraction with the larger overall magnitude was made up of larger numerator and denominator) and incongruent trials (the fraction with the larger overall magnitude was made up of smaller numerator and denominator). 2(condition: test, control) × 2(congruency: congruent, incongruent) repeated ANOVA showed that the numerical analogical priming significantly reduced children's whole number bias in fraction magnitude comparison.

However, the numerical analogical reasoning task involved not only relational reasoning but also calculation, which was also needed in fraction magnitude processing. To isolate the role of relational reasoning, 31 fifth graders (14 boys, mean age: 11.70 ± 0.43 years old) completed another positive priming task. In this task, the prime stimuli of the test condition were non-numerical analogical reasoning tasks (e.g., chalk:blackboard::pencil:?), and the prime stimuli of the control condition were non-numerical visual searching tasks that used the same materials as the non-numerical analogical reasoning task. 2(condition: test, control) × 2(congruency: congruent, incongruent) repeated ANOVA showed that the error rate of fraction comparison in the test condition was significantly lower than that in the control condition, and non-numerical relational priming also significantly reduced children's whole number bias. The results of the current study revealed the importance of relational reasoning for symbolic fraction magnitude processing, which contributes to the understanding of the cognitive process underlying fraction magnitude processing. It also showed that emphasizing the relational structure of fractions and improving children's relational reasoning ability may be potential ways to prompt fraction learning.

Keywords: relational reasoning, fractions, whole number bias, children, positive priming

3-5 岁儿童概率推理的发展特点及其影响机制

靳紫阳　侯如月　史滋福（通讯作者）

湖南师范大学心理学系，长沙，410000，shizf@hunnu.edu.cn

摘要 概率推理是学龄前儿童理解数字认知发展的基础，研究 3-5 岁学龄前儿童的概率推理不仅可以帮助其更好地进行推理决策，而且对儿童其他方面能力的提升也具有重要的意义。纵观以往，有关 3-5 岁学龄前儿童是否具备概率推理能力的结论并不一致，这可能与材料的呈现方式和任务难度有关。因此，本文试图设计 3 个实验，探讨在不同呈现方式和不同任务难度的情况下 3-5 岁儿童的概率推理及其特点，同时进一步探讨提升儿童概率推理能力的策略。具体地，实验 1 探究呈现方式对 3-5 岁儿童概率推理表现的影响；实验 2 则在实验 1 的基础上选用更适合儿童进行推理的呈现方式来探究任务难度对 3-5 岁儿童概率推理表现的影响；实验 3 继续探究提问方式在不同难度下是否可以提高 3-5 岁儿童的概率推理表现。结果发现，(1)3-5 岁儿童在平面呈现方式上的概率推理表现显著优于空间呈现方式下的表现，在简单难度上的推理表现显著优于中等难度和困难难度，中等难度和困难难度之间的差异较小；(2)相比于一般性提问，指导性提问可以显著提升 3-5 岁儿童的概率推理成绩，特别是在简单难度任务上的提升最为迅速，中等难度次之，困难难度作用不大；(3)有关推理策略，3 岁儿童主要依靠一阶关系，而 4、5 岁儿童则可以使用二阶关系进行推理判断。总之，儿童是否具有概率推理能力，与呈现方式和任务难度有关，指导性提问可以促进儿童概率推理，且学龄前儿童概率推理策略具有由简单到复杂的发展特点。本研究对儿童数学认知的培养具有一定的指导意义。

关键词 概率推理，呈现方式，任务难度，提问方式，儿童

Developmental Characteristics and Influencing Mechanisms of Probabilistic Reasoning in Children aged 3-5 Years

Ziyang Jin Ruyue Hou Zifu Shi
Department of Psychology, Hunan Normal University，Changsha，410000

***Abstract*:** Probabilistic reasoning is the basis of preschool children's understanding of number cognitive development. Studying the probabilistic reasoning of 3-5 years old preschool children can not only help them make better reasoning decisions, but also have important significance for the improvement of children's ability in other aspects. Throughout the past, the conclusions about whether preschoolers aged 3-5 years old possess probabilistic reasoning ability have been inconsistent, which may be related to the way the material is presented and the difficulty of the task. Therefore, this paper attempted to design three experiments to explore the probabilistic reasoning and its characteristics of children aged 3-5 under different presentation modes and task difficulties, and further explore strategies to improve children's probabilistic reasoning ability. Specifically, experiment 1 explored the effect of presentation style on the probabilistic reasoning performance of children aged 3-5. On the basis of experiment 1, experiment 2 selected a more suitable way for children to reason to explore the influence of task difficulty on the probabilistic reasoning performance of 3-5 years old children. Experiment 3 continued to explore whether questioning methods can improve the probabilistic reasoning performance of children aged 3-5 at different difficulties. The results showed that (1) the probability reasoning performance of 3-5 years old children in the plane presentation mode was significantly better than that in the space presentation mode, and the reasoning performance in the easy difficulty mode was significantly better than that in the medium difficulty mode and the hard difficulty mode, and the difference between the medium difficulty and the hard difficulty mode was small; (2) Compared with general questioning, guided questioning could significantly improve the probabilistic reasoning performance of children aged 3-5, especially in simple and difficult tasks, the fastest improvement, followed by moderate difficulty tasks, and difficult difficulty tasks had little effect; (3) Regarding reasoning strategies, 3-year-olds mainly relied on first-order relations, while 4 - and 5-year-olds could use second-order relations to make reasoning judgments. In short, whether children had the ability of probabilistic reasoning was related to the presentation mode and task difficulty. Guided questioning could promote children's probabilistic reasoning, and preschool children's probabilistic reasoning strategies had the characteristics of development from simple to complex. This study has certain guiding significance to the cultivation of children's mathematics cognition.

***Keywords*:** Probabilistic reasoning, Presentation style, Task difficulty, Question style, Children

空间能力对数学能力的影响：心理数字线和视空间工作记忆的中介作用

郑柯君[1]　谢芳[2]　张丽[3]（通讯作者）

[1] 贵州师范大学心理学院，贵阳，550025, zhengkj19@163.com，18580767307

[2] 重庆师范大学教育科学学院，重庆，401331, marchxie@126.com，13637962710

[3] 中央财经大学社会与心理学院，北京，100098，lilyking_0717@126.com，13699203261

摘　要　随着 STEM 教育的兴起，空间能力对数学能力的影响受到越来越多研究者和教育者的关注。一般而言，空间能力强的个体，数学能力也越好。以往研究大多选择某一种数学或空间能力进行考察，然而，空间能力和数学能力都是多结构的综合能力，不同空间能力和数学能力具有特异性，仅基于某种空间或数学能力对二者关系进行考察，难以厘清每一种空间能力和数学能力间的确切关系，造成空间能力对数学能力的影响及其认知机制结果的不一致。本研究基于认知负荷理论和空间-数学关联理论，在中学生中考察了不同空间能力对不同数学能力的同时和延时作用，在此基础上进一步探讨了心理数字线和视空间工作记忆在不同空间和数学能力间的中介作用。研究结果主要发现：(1)不同空间能力对不同数学能力存在影响且影响不同，心理旋转对数量能力、计算能力和逻辑思维能力存在同时和延时影响，而镶嵌图形、运动迷宫和定位对不同数学能力具有预测作用，这种预测作用随时间发生变化。(2)心理旋转、镶嵌图形、定位测验可以通过心理数字线分别影响数量能力、计算能力和几何能力。心理旋转、镶嵌图形、运动迷宫和定位测验四种空间能力可以通过视空间工作记忆影响数量能力、计算能力、几何能力和逻辑思维能力。由此可见，心理数字线的中介作用受到空间能力和数学能力亚成分的调节，而视空工作记忆的中介作用几乎不受空间能力和数学能力亚成分的影响。

关键词　空间能力，数学能力，心理数字线，视空间工作记忆

The association between spatial ability and mathematical ability: The mediating role of mental number line and visuo-spatial working memory

Zheng Kejun[1]　Xie Fang[2]　Zhang Li[3]

[1] School of Psychology, Guizhou Normal University, Guiyang, 550025

[2] School of Educational Science, Chongqing Normal University, Chongqing, 401331

[3] School of Sociology and Psychology, Central University of Finance and Economics, Beijing, 100098

Abstract：With the rise of STEM education, the impact of spatial ability on math ability has received increasing attention from researchers and educators. In general, individuals with better spatial ability also have better math ability. However, both spatial ability and mathematical ability are multi-structural and comprehensive abilities, and previous studies have chosen a certain type of mathematical or spatial ability to be examined, ignoring the specifics of different spatial abilities and different mathematical abilities, and it is difficult to clarify the exact relationship between each type of spatial and mathematical ability, resulting in inconsistent results, including the influence of spatial ability on mathematical ability and the cognitive m mechanisms. Based on cognitive load theory and the spatial-mathematical correlation theory, this study examined the simultaneous and delayed effects of different spatial abilities on different mathematical abilities, on the basis of which we explored the mediating roles of mental digit lines and visuospatial working memory between different spatial and mathematical abilities. The main findings of present study are: (1) Different spatial abilities have effects on different

mathematical abilities, mental rotation has simultaneous and delayed effects on numerical ability, arithmetical ability and logical thinking ability, while embedded figures test, motion maze, and localization ability have a predictive effect on different mathematical abilities, and this predictive effect changes over time. (2) Mental rotation, embedded figures test and localization ability can affect numerical ability, arithmetical ability, and geometric ability through the mental number line, respectively. The four spatial abilities can influence quantitative, computational, geometric, and logical thinking abilities through visuospatial working memory. It can be seen that the mediating effect of mental number line is moderated by the subcomponents of spatial and mathematical abilities, whereas the mediating effect of visuospatial working memory is hardly affected by the subcomponents of spatial and mathematical abilities.

Keywords： Spatial ability, mathematical ability, mental number line, visuo-spatial working memory

3.2 “发展心理学专业委员会”专题研讨会

基于 RTI 模式对小学低年级阅读障碍高危儿童的鉴别和干预

古丽菲艳　买合甫来提•坎吉（通讯作者）
新疆心智发展与学习科学重点实验室，乌鲁木齐，830000

摘 要　干预反应模式(Response to Intervention,RTI)是评估鉴别并干预学习障碍的多层级教育干预模式，是通过三个层级评估和干预，分析在每个层级中对教学干预的反应，以动态评估学习障碍的儿童。本研究以乌市某小学一年级学生为被试，通过三个层级的鉴别和干预，，探讨 RTI 模式对小学低年级阅读障碍高危儿童鉴别和干预的有效性。

在第一层级，以一年级全体学生（267 名）学生为被试，在正常教学环境中进行为期一个学期的教学干预后，根据学生期中与期末成绩后 10%和教师提名初步筛选出 20 名阅读障碍高危儿童进入第二层级。依据这 20 名学生的课程本位测验结果制定第二层级的干预方案，每周进行 5 次小组式干预，每次 1 个小时，持续 10 周。之后，分析 20 名阅读障碍高危儿童在干预前和干预后的期末成绩与正常学生期末成绩的差异发现，干预前有显著差异($p<0.001$)，而干预后没有显著差异($p=0.844>0.05$)。对这 20 名阅读障碍高危儿童进行的课程本位测量结果进行周测验成绩和周改善率分析，发现，与第一周相比第十周测验成绩显著提高。其中 16 名儿童周改善率大于 1，其余 4 名儿童周改善率小于 1，表明 16 名儿童的学业成就和行为表现在第二层级中得到了明显的改善和提高，其余 4 名学生儿童成绩仍没有明显进步。这 4 名学生中有 2 名儿童继续进入第三层级干预，另有 2 名儿童由于外在因素退出。对这 2 名儿童在第二层级干预中的表现，制定了针对性更强的干预方案，并进行了每周 5 次的一对一干预，每次 1 个小时，持续干预 4 周。结果显示，其中，1 名学生周改善率大于 1，表明对第三层级有反应，另 1 名学生周改善率小于 1，表明对第三层级干预没有反应。通过对这名无反应学生进行全方位分析确定该生为阅读障碍儿童。

综上得出结论： RTI 模式能够对小学低年级阅读障碍高危儿童进行有效的动态评估，能够及早发现阅读障碍高危儿童，并对其给予及时有效地干预，及早鉴别出真正的阅读障碍儿童。

关键词　RTI 模式，阅读障碍，三层干预。

Application of RTI Model in Identification and Intervention of Children at High Risk of Dyslexia in Lower Grade

Gulifeiyan　Maihefulaiti•Kanji（corresponding author）
Xinjiang Key Laboratory of Mental Development and Learning Science

***Abstract*：** Response to Intervention (RTI), which can be translated as Response to Intervention or Response to teaching, is a multi-level educational model that provides identification and Intervention for people with learning disabilities. the RTI model is designed to dynamically assess children with learning disabilities through three levels of assessment and intervention, analyzing responses to instructional interventions at each level. In this study, RTI model was used to explore the effectiveness of RTI model in the identification and intervention of children at high risk of dyslexia in the lower grades of elementary school.

In this study, the first grade students in a primary school in Urumqi were selected as the subjects. And the children with dyslexia were dynamically evaluated through three levels of identification and intervention. At the first level, all the first grade students (267 students) were selected as the subjects. After the one-semester teaching intervention in the normal teaching environment, 20 high-risk children with dyslexia were initially selected to enter the second level according to the bottom10% of the mid-term and final scores of the students as well as the teacher's nomination. According to the curriculum standard test results of 20 students for the second level of intervention, with one-hour group interventions 5 times a week for

10 weeks, the results were as follows: By analyzing the difference between the final scores of 20 students at high risk of dyslexia and those of normal students before and after intervention, it was found that the final scores of 20 students at high risk of dyslexia were significantly different from those of normal students before intervention ($p < 0.001$). After intervention, the final scores of 20 students at high risk of dyslexia were not significantly different from those of normal students ($p= 0.844> 0.05$). The weekly test scores and weekly improvement rate analysis of the curriculum based measurement results of the 20 children at high risk of reading disability showed that the test scores in the tenth week were significantly higher than those in the first week.

Among them, the weekly improvement rate of 16 children was greater than 1, and the weekly improvement rate of the remaining 4 children was less than 1, indicating that the academic achievement and behavior of 16 children were significantly improved and improved in the second level, while the performance of the remaining 4 students was still not significantly improved. Of these 4 students, 2 children went on to the level 3 intervention, and the other 2 children withdrew due to external factors. A more targeted intervention program was developed for the two children in response to their performance at the second level of intervention, and one-on-one intervention was conducted five times a week for 1 hour each time for 4 weeks. The results showed that one student had a weekly improvement rate of more than 1, indicating a response to level 3 intervention, while the other student had a weekly improvement rate of less than 1, indicating no response to level 3 intervention. The nonresponsive student was identified as dyslexic by comprehensive analysis.

It can be concluded from the above that RTI model can effectively and dynamically assess children at high risk of dyslexia in the lower grade of primary school, and early detection of children at high risk of dyslexia, timely and effective intervention can be given to them, and early identification of real dyslexia children.

Keywords：RTI Mode，Dyslexia，Differential intervention.

汉-英双语者比西班牙-英语双语者对环境声音感知更敏感：采用自上而下的认知加工机制

王翠翠 [1,2,3,4,5] Krystal Flemming[5] Giulia Cortiana[6] Vesa Putkinen[7,8] Jessica Lammert[5] Yasaman Rafat[6] 陶沙 [4#] Marc F. Joanisse[5#]

1 杭州师范大学婴幼儿发展与托育实验室，杭州，311121

2 杭州师范大学附属医院认知与脑疾病研究中心，杭州，310015

3 杭州师范大学附属德清医院，湖州

4 北京师范大学认知神经科学与学习国家重点实验室，北京，100875

5 Department of Psychology & Brain and Mind Institute, The University of Western Ontario, London, Ontario, Canada

6 Department of Modern Languages and Literatures, The University of Western Ontario, London, Ontario, Canada

7 Turku PET Centre, University of Turku, Turku, Finland

8 Cognitive Brain Research Unit, University of Helsinki, Finland

通讯作者 E-mail：陶沙: taosha@bnu.edu.cn; Marc F. Joanisse: marcj@uwo.ca

摘 要 准确和敏感地感知到环境的声音对个体的日常生活很重要，因为它有助于个体对环境做出快速的反应并避免潜在的风险。但是，目前尚不清楚不同母语背景的双语学习经验是否以及如何影响个体环境声音感知的大脑反应。本研究比较了汉-英双语者、西班牙-英语双语者和英语母语者对环境声音感知的大脑反应，并进一步探讨了其加工机制。本研究未发现英语母语者和两组双语者在环境声音感知方面的差异，但是却发现，与西班牙-英语双语者相比，汉-英双语者表现出显著更大的失匹配负波（mismatch negativity, MMN），这表明汉-英双语者对环境声音的感知比西班牙-英语双语者更敏感。此外，与西班牙-英语双语者相比，汉-英双语者表现出显著更大的 theta 振荡，而

且，汉-英双语者的 theta 振荡与 MMN 显著相关，这表明汉-英双语经验在环境声音感知方面的优势可能是由于其自上而下的认知能力增强所致。总之，本研究的发现表明，与西班牙-英语双语者相比，汉-英双语者通过增强自上而下的认知加工机制调节了其在环境声音感知方面的加工优势。

关键词　环境声音感知，汉-英双语者，西班牙-英语双语者，自上而下的认知加工机制

Chinese-English bilinguals are more sensitive to environmental sound perception than Spanish-English bilinguals through top-down cognitive mechanism

Cuicui Wang[1,2,3,4,5], Krystal Flemming[5], Giulia Cortiana[6], Vesa Putkinen[7,8], Jessica Lammert[5], Yasaman Rafat[6], Sha Tao[4#], Marc F. Joanisse[5#]

1 Zhejiang Philosophy and Social Science Laboratory for Research in Early Development and Childcare, Hangzhou Normal University, China

2 Center for Cognition and Brain Disorders, The Affiliated Hospital of Hangzhou Normal University, Hangzhou, China

3 Deqing Hospital of Hangzhou Normal University, China

4 State Key Laboratory of Cognitive Neuroscience and Learning and IDG/McGovern Institute for Brain Research, Beijing Normal University, Beijing, 100875, China

5 Department of Psychology & Brain and Mind Institute, The University of Western Ontario, London, Ontario, Canada

6 Department of Modern Languages and Literatures, The University of Western Ontario, London, Ontario, Canada

7 Turku PET Centre, University of Turku, Turku, Finland

8 Cognitive Brain Research Unit, University of Helsinki, Finland

Corresponding author E-mail：Sha Tao: taosha@bnu.edu.cn; Marc F. Joanisse: marcj@uwo.ca

Abstract：Sensitive perception to environmental sound is important for an individual's daily life since it helps in responding to the environment quickly and avoiding potential risks. It remains unclear, however, whether and how bilingual experiences with different native language backgrounds influence brain responses reflecting environmental sound perception. The present study compared Chinese-English bilinguals, Spanish-English bilinguals, and English monolinguals on their brain response to environmental sound perception and further examined its processing mechanism. The present study did not find the differences between English monolinguals and two bilingual groups on the environmental sound perception. However, we found that compared with Spanish-English bilinguals, Chinese-English bilinguals showed significantly larger mismatch negativity (MMN), indicating that Chinese-English bilinguals were more sensitive to the environmental sounds than that of Spanish-English bilinguals. Further, compared with Spanish-English bilinguals, Chinese-English bilinguals showed significantly larger theta oscillation. In addition, the theta oscillation is significantly correlated with MMN for Chinese-English bilinguals. The results indicated that the advantage of Chinese-English bilingual experience on environmental sound perception may be due to the enhanced top-down cognitive ability. In summary, these findings suggest that compared with the Spanish-English bilinguals, Chinese-English bilinguals showed an advantage in environmental sound perception via enhanced top-down cognitive modulation.

Keywords: Environmental sound perception; Chinese-English bilinguals; Spanish-English bilinguals; top-down

cognitive mechanism

兄弟姊妹共读干预对农村小学低年级儿童阅读发展的影响

李世峰[1,2]（通讯作者），夏迎春[1,2]，赵伟[1,2]
1 西北师范大学心理学院，兰州，730070
2 甘肃省心理健康与行为重点实验室，兰州，730070
通讯作者 E-mail：lishifeng1988@126.com

摘　要：家庭读写环境在儿童早期阅读发展的过程中提供了一个非常重要的环境支持，但已有研究主要聚焦于家长、尤其是父母的作用。已有研究显示在多子女家庭中，同辈兄弟姊妹参与在儿童发展中起着独特的作用，尤其是在父母参与较低的低社会经济地位家庭中。本研究基于干预的设计，考察了在农村多子女家庭中，兄弟姊妹共读参与在小学低年级儿童阅读发展中的作用。60 名 1-2 年级儿童被随机分配到干预组和对照组（每组各 30 名），两组儿童在性别、年龄、家长受教育水平、家庭月均收入、家庭读写资源以及基线水平的阅读测试上都进行了匹配。干预组儿童参与为期八周，每周 2 次，每次 30 分钟的兄弟姊妹共读活动，对照组不进行任何处理。研究结果显示，在 8 周的干预结束后，兄弟姊妹共读组儿童不仅在共读干预故事书中的词汇理解和文本理解上显著优于对照组；同时也在共读干预故事书外的篇章阅读理解上显著高于对照组。本研究的结果扩展了已有主要聚焦于父母作用的家庭读写模型，表明在父母之外，兄弟姊妹读写参与在小学低年级儿童阅读技能的发展中也起着重要的作用。这一研究结果也对促进农村多子女家庭儿童阅读技能的发展提供了重要的基于科学证据的指导。

关键词：家庭读写环境；兄弟姊妹共读；农村儿童；干预

The Effect of Sibling Shared-reading Intervention on the Reading Development of Children in Lower Grade Primary Schools in Rural China

Shifeng Li[1,2,*], Yingchun Xia[1,2], Wei Zhao[1,2]
1 School of Psychology, Northwest Normal University, Lanzhou, China
2 Key Laboratory of Behavioral and Mental Health of Gansu, Lanzhou, China
*Corresponding author E-mail：lishifeng1988@126.com

Abstract: The home literacy environment provides important support for reading development for preschool and early school-aged children; however, existing research has mainly focused on the role of parents. Studies also revealed sibling involvement plays a unique role in child development in multi-child families, especially in families of lower socio-economic status in which parents are hardly engaged with their children. The current study examines the effect of sibling-shared reading on the reading development of children in lower-grade primary schools in rural China via an intervention approach. Sixty children in grades 1-2 in multi-child families were randomly assigned to the intervention and control groups (30 in each group), and the two groups were matched on gender, age, parental education level, family income, home literacy resources, and reading performances at baseline. Children in the intervention group participated in an eight weeks sibling shared-reading activity (2 times a week, and 30 minutes each time), and the control group did not receive any treatment. The results showed that after the 8-week intervention, the children in the intervention group not only performed significantly better than the control group on intervention-based vocabulary comprehension and reading comprehension, but also showed significantly higher performance on reading comprehension beyond intervention materials than the control group. The findings of the present study extended the home literacy model and suggested that sibling is also an important resource in facilitating the reading development of children in multi-child families beyond the parents. The findings of the present study also had important implications in promoting the development of reading skills of children from multi-child families in rural China.

Keywords: Home literacy environment; sibling-shared reading; rural children; intervention

学校环境下语音干预与语义干预对 3 年级汉语阅读障碍儿童的作用

徐琴芳，梁喻然

南京特殊教育师范学院语言学院，南京，240012

通讯作者 E-mail：fangerhappy@163.com

摘　要：阅读障碍影响了儿童的学业成绩和身心发展，但是当下对儿童阅读障碍的认知机制尚且存在争论，普通学校缺乏对阅读障碍有效的干预。本研究基于前期阅读障碍儿童的筛选结果，阅读困难的儿童主要在语音加工和语义加工上存在缺陷，对存在阅读障碍的 3 年级儿童进行了干预。22 名 3 年级阅读障碍儿童根据其缺陷类型分为两组，一组接受词形语音教学干预，另外一组接受词形语义干预。语音干预组儿童在课后参与为期八周，每周 2 次，每次 30 分钟的语音干预，语义干预组在此时间内接受语义干预。研究结果显示，在 8 周的干预结束后，语音干预促进汉语发展性阅读障碍儿童的声母意识、韵母意识、声调意识与音素意识发展；语义组的干预效果更加全面，它不仅训练了阅读障碍儿童的语素意识，而且提高了阅读障碍儿童的阅读成绩。这一研究结果对学校环境下阅读障碍儿童的干预提供了重要的证据。

关键词：阅读障碍；基于学校的音-义干预

The Effect of Phonological Intervention and Semantic Intervention on Chinese Dyslexic Students in Grade 3

Xu Qinfang, Liang Yuran

Nanjing Normal University of Special Education, Nanjing, 240012

Correspondence: fangerhappy@163.com

Abstract: Dyslexia influences the children's academic performance and mental development, however, there is no consensus on the mechanism of dyslexia and lack of effective intervention in the mainstream school. This research is conducted on the basis of the results of screening of third graders and found reading difficulties mainly have deficits on phonological and semantic processing. Thus, 22 third graders were divided into two groups according to their difficulties. The first group received phonological intervention twice a week and last 8 weeks. At the same time, the second group received the sematic intervention. The results showed that phonological intervention can improve onset and rhyme, tone and phonological awareness, while the effect of sematic intervention is more comprehensive, which can improve morphological awareness and reading comprehension as well. It also provided evidence for the intervention in the mainstream school for dyslexia.

Keywords: Dyslexia; School based sound-meaning intervention

中小学英语教师语言学知识与教学策略的关系：基于潜在剖面分析

杨一鸣[1] (17-16222) 李世峰[2] 陶沙[1]（通讯作者）
1 北京师范大学认知神经科学与学习国家重点实验室，北京，100875
2 西北师范大学心理学院，兰州，730070
通讯作者：陶沙，taosha@bnu.edu.cn

摘 要 掌握基本语言学知识是中小学英语教师实现有效教学的重要前提，英语教师基本语言知识包括词素意识（morphological awareness）、音素意识（phonemic awareness）、语音技能（phonological skill）、自然拼读（phonics）和语法知识（grammar knowledge）五个构成要素。以 587 名中小学英语教师为研究对象验证英语教师基本语言学知识的潜在剖面结构，并探讨不同知识类型教师的教学策略是否存在差异。结果显示，中小学英语教师语言学知识可分为优势型（10.9%）、均衡型（68.86%）和薄弱型（20.24%）三类。其中，优势型教师的词汇教学显著优于均衡型教师，优势型教师的语音教学和语法教学显著优于薄弱型教师。因此，中小学英语教师在提高自身语言知识水平的同时，应根据自身的优势开展有针对性的教学策略，以提高教学效果。

关键词 语言学知识，教学策略，基于潜在剖面分析，中小学英语教师

Teachers' English Language Knowledge and Its Relationship with Instruction：A Latent Profile Analysis

Yiming Yang[1], Shifeng Li[2], Sha Tao[1]
1 State Key Laboratory of Cognitive Neuroscience and Learning, Beijing Normal University, Beijing, 100875
2 School of Psychology, Northwest Normal University, Lanzhou, 730070

Abstract： This study aimed to validate the potential profile structure of basic linguistic knowledge among 587 primary and secondary school English teachers and examine possible differences in teaching strategies across different knowledge types. The essential components of English teachers' linguistic knowledge, including morphological awareness, phonemic awareness, phonological skill, phonics, and grammar knowledge. Findings revealed three distinct types of linguistic knowledge among the EFL teachers: superior (10.9%), balanced (68.86%), and weak (20.24%). Notably, the superior teachers demonstrated significantly enhanced vocabulary instruction compared to the balanced ones. Furthermore, superior teachers exhibited notable proficiency in phonics and grammar teaching, surpassing the weak teachers in these domains. Therefore， English teachers need to continuously enhance their linguistic knowledge as well as to tailor their teaching strategies based on their individual strengths, ultimately enhancing overall teaching efficacy.

Keywords：Language Knowledge, Instructional strategy , latent profile analysis, EFL teacher

小学生英语训练个体差异的静息脑电预测指标

卢静[1]，张海博[1]， 邓尧[1]， 王翠翠[2]， 杜彬[1]，陶沙[1]
1 北京师范大学认知神经科学与学习国家重点实验室，北京，100875
2 杭州师范大学婴幼儿发展与托育实验室，杭州，311121
通讯作者 E-mail：陶沙: taosha@bnu.edu.cn

摘 要 高效掌握英语阅读技能对于学业成就和职业成功都至关重要，英语单词解码是第一步。对于促使某些英语学习者比其他同伴更快掌握英语单词解码技能的神经预测指标知之甚少。本研究旨在探讨英语单词解码技能训练获益的个体差异的静息脑电预测指标。为此，我们在小学采用随机干预设计开展了为期一年的研究。在英语单词解码与绘本阅读训练前后，我们测量了学生的睁眼和闭眼静息态脑电、英语单词解码能力、一般认知能力。其中，43名7-10岁小学生完成了训练及训练前后脑电和行为测试。34名同龄对照学生完成了前后测。结果表明，与对照组相比，参加英语单词解码与绘本阅读训练的小学生英语解码能力显著提高。训练组学生训练前睁眼静息态脑电节律有效预测其英语单词解码能力的提高，其中β节律发挥主要的预测作用。在对照组中，没有任何静息脑电特征显著预测其英语单词解码能力的提高。训练前睁眼静息态θ和α节律有效预测英语训练带来的认知获益。总之，研究结果表明，大脑静息态活动的个体差异，尤其是与学习和记忆相关的静息活动特征有效预测小学生英语解码训练获益。这提示，性价比高、耗时短且易于实施的静息态脑电可作为外语解码技能学习和认知能力提高的有效神经指标。

关键词 英语解码技能，个体差异，静息态脑电，英语训练，小学生

Resting EEG predictors of individual differences in response to English tutoring in primary-grade school children

Jing Lu[1], Haibo Zhang[1], Yao Deng[1], Cuicui Wang[2], Bin Du[1], Sha Tao[1]

1 State Key Laboratory of Cognitive Neuroscience and Learning and IDG/McGovern Institute for Brain Research, Beijing Normal University, Beijing, 100875, China

2 Zhejiang Philosophy and Social Science Laboratory for Research in Early Development and Childcare, Hangzhou Normal University, China

Corresponding author E-mail：Sha Tao: taosha@bnu.edu.cn

Abstract The ability to acquire English skills efficiently is critical for academic and professional success, yet little is known about the neural mechanisms that drive some children to acquire these skills faster than others. Here we investigated the neural predictors of individual differences in English decoding skills in response to one year, group-based English training programs involving 43 children aged 7 to 10. A passive control group was also included (n = 34). In pre-tutoring and post-tutoring, eyes-closed and eyes-open resting-state EEG recording, English decoding skills, and generally cognitive abilities were measured for all children. Our results illustrate a significant improvement in English decoding skill among the training participants as compared to the control group. Interestingly, pre-tutoring eyes-open resting-state EEG rhythms predicted individual differences in English decoding improvement, with beta band playing an important predictive role. While, no neural measures in the control group predicted improvement in English decoding. Moreover, pre-tutoring resting-state EEG rhythms also forecasted the cognitive gains from English training. In conclusion, our findings underscore that individual difference in resting-state brain activity, particularly those associated with learning and memory, strongly predict the responsiveness to English training in school-age children. This suggests the potential of low-cost, easily-implementable resting-state EEG as sensitive marker of skill acquisition and general cognitive functions.

Keywords**:** English decoding skill, individual difference, resting-state EEG, English training, school-age children

亲子间期望差异与青少年教育规划的关系：基于多项式回归的分析

于凤杰[1]（通讯作者） 张文杰[2] 王瑞洁[2]

1 山东青年政治学院政治与公共管理学院，济南，250103, yufengjie2003@126.com

2 山东师范大学心理学院，济南，250014

摘 要 教育规划是指个体通过思考确定未来教育目标，制定教育计划，执行和实施教育计划的过程，其确立对个体的发展适应具有重要意义。已有研究表明，青少年自我期望和父母期望可以分别从内外部角度影响青少年自身的教育规划水平，但二者是如何相互协调共同发挥作用，尚不明晰。为此，本研究以 794 名高中生为对象，采用问卷调查的方式，考察了亲子间期望差异、父母之间期望差异对青少年未来规划的影响，并进一步分别探讨了青少年与父亲、母亲之间期望差异的不同方向，以及父母之间期望差异的不同方向对青少年自身教育规划的影响。研究结果如下：（1）与青少年自我期望与父亲、母亲期望不一致相比，青少年的教育规划水平在父子期望、母子期望一致情况下均更高；（2）青少年自我期望与父亲、母亲期望一致且一致性水平较高时，教育规划水平更高；（3）分别与父亲、母亲期望高于青少年自我期望相比，青少年自我期望高于父亲、母亲期望时，教育规划水平均更高；（4）与父母之间期望不一致相比，青少年的教育规划水平在父母期望一致情况下更高；（5）父母期望一致且一致性水平较高时，青少年的教育规划水平更高；（6）父母之间期望差异的方向不能显著预测青少年的教育规划。这些结果表明，在对青少年教育规划的干预工作中，要重视亲子间期望差异以及父母期望差异的作用。

关键词 教育规划，自我期望，父母期望，亲子期望差异，父母期望差异

The Association between Parent-Child Discrepancies in Expectations and Adolescents' Educational Planning: A Polynomial Regression Analysis

Yu Fengjie[1], Zhang Wenjie[2], Wang Ruijie[2]
1 Shandong Youth University of Political Science, Jinan, 250103, yufengjie2003@126.com
2 School of Psychology, Shandong Normal University, Jinan, 250014

***Abstract*:** Educational planning refers to the process in which individuals think and make decisions about their future educational goals. Previous studies have shown that adolescents' self-expectations and parental expectations can affect the level of adolescent educational planning, but it is not yet clear how the two variables coordinate and interact with each other. Therefore, this study surveyed 794 high school students using questionnaires to investigate the impact of the discrepancies in expectations about future between parent-adolescent and both parents on adolescent future planning. The results show that: (1) Compared to the inconsistency between adolescents' self-expectations and the expectations of fathers and mothers, adolescents' educational planning level is higher when both father-child expectations and mother-child expectations are consistent; (2) When adolescents' self-expectations are highly consistent with those of their parents, the level of adolescent educational planning is higher; (3) Compared with those fathers' or mothers' expectations being higher than adolescents' self-expectations, when adolescents' self-expectations are higher than fathers' or mothers' expectations, adolescents' level of educational planning is higher; (4) Compared to inconsistent expectations between parents, adolescents' educational planning level is higher when parents' expectations are consistent; (5) When parents show consistent expectations and a high level of consistency, adolescents' educational planning level is higher; (6) The direction of the expectation difference between parents cannot significantly predict adolescents' educational planning. These results indicate that in intervention on adolescents' educational planning, attention should be paid to the differences in expectations between parents and adolescents, as well as the role of differences in parental expectations.

***Keywords*:** educational planning, self-expectations, parental expectations, parent-adolescent expectations' difference, parental expectations' difference

10-16 岁儿童青少年执行功能结构：分化和去分化

马建平　翟欣　袁媛　纪林芹（通讯作者）
山东师范大学心理学院，济南，250014，sdjlq@126.com

摘要 执行功能在儿童青少年阶段表现出持续的发展，且对儿童青少年的人际关系、学业成就等非常重要。执行功能的操作化和测量会影响对执行功能的评估。当前对于执行功能的测量、结构及其发展还存在争议。其一，现有研究表明执行功能存在包括单因子、双因子、三因子多种结构；其次，执行功能的结构发展是否具有稳定性还未有定论；最后，执行功能发展是分化还是去分化仍未得到一致的结论。基于此，本研究通过多队列追踪研究的设计考察执行功能的结构及其发展稳定性，以期探究执行功能结构及其发展是否随年龄分化或去分化。以 799 名 4 年级（$M_{年龄}$ = 9.90，SD = 0.60，161 男孩, 113 女孩），6 年级（$M_{年龄}$ = 11.63，SD = 0.56，140 男孩，101 女孩)，8 年级（$M_{年龄}$ = 13.62，SD = 0.68，134 男孩，150 女孩）学生作为研究对象进行为期 3 年共 6 次数据收集。采用抑制（Flanker test，Stroop task）、转换（Dimension Change Card Sort，Picture-Symbol，Wisconsin Card Sorting Test）、更新（The Backwards Digit Span Task，The Ranking Test）等实验任务测量。验证性因子分析和纵向因子分析表明，4 年级队列存在二因子模型到三因子模型的分化，具体表现为转换和抑制的分离；6 年级队列分化和去分化同时存在；8 年级队列显示出稳定的抑制/转换—更新二因子模型。本研究揭示了执行功能结构在儿童青少年期存在双因子和三因子模型，结构发展同时存在分化和去分化，表明执行功能不同成分发育时期不一致，为执行功能的发展和分化提供了依据。

关键词 执行功能，分化和去分化，儿童青少年

The Component Structure of Executive Functions across Age 10 to 16 Years: Differentiation and/or de-differentiation across development

Ma Jianping　Zhai Xin　Yuan Yuan　Ji Linqin
School of psychology, Shandong Normal University, Jinan 250014

Abstract: Executive functioning shows continuous development during childhood and adolescence and it is important to children and adolescents' interpersonal relationships, academic achievement, and so on. The operationalization and measurement of EF is a key issue that directly impact the inferences we can make about these competencies, yet there are consistently arguments regarding the measurement, structure, and development of executive functioning. First, existing research suggests that there are multiple structures of executive functioning, including one-factor, two-factor, and three-factor; second, it is inconclusive whether the structural development of executive functioning is stable; and lastly, there is no consistent conclusion on whether executive functioning develops differentially or de-differentially. Based on this, the present study examined the structure of executive functioning and its developmental stability through a multiple cohort follow-up study design, with the aim of investigating the structure of executive functioning and whether its development differentiates or de-differentiates with age. A total of 799 grade 4 (M_{age} = 9.90, SD = 0.60, 161 boys, 113 girls), grade 6 (M_{age} = 11.63, SD = 0.56, 140 boys, 101 girls), and grade 8 (M_{age} = 13.62, SD = 0.68, 134 boys, 150 girls) students were enrolled in the study for a total of 6 data collections over a 3-year period. Experimental tasks such as inhibition (Flanker test, Stroop task), switching (Dimension Change Card Sort, Picture-Symbol, Wisconsin Card Sorting Test), and updating (The Backwards Digit Span Task, The Ranking Test) to measure executive function. Confirmatory factor analyses and longitudinal factor analyses indicated that two-factor differentiated to three-factor model with grade 4 cohort, implying the separation of switching and inhibition; the structure was not stable for the grade 6 cohort, during which the two- and three-factor models vacillated in their abilities to provide the best description for the data, simultaneous differentiation and de-differentiation exist. and the grade 8 cohort showed a stable bifactorial structure. This study reveals the existence of

two-factor and three-factor models of executive function structure in childhood and adolescence, and the simultaneous existence of differentiation and de-differentiation in structural development, suggesting inconsistencies in the developmental periods of different components of executive functioning, and provide evidence for the development and differentiation of executive functions.
Keywords: executive function, differentiation and de-differentiation, childhood and adolescence

积极同伴特征对初中生学业成绩的影响：社会比较和焦虑的调节作用

陈亮（通讯作者） 张师霞 唐鹤
山东师范大学心理学院，济南，250014， chen_liang1010@126.com

摘 要 同伴群体的特征能够影响到青少年的行为表现，这种影响程度在不同的学生中影响是否一致？为探索这个问题，本研究采用问卷调查法对来自 2 所初中 20 个班级的 898（男生占比 51.3%）名学生进行测量，考察了同伴群体的积极特征对初中生学业成绩的影响，并探讨初中生的社会比较倾向以及焦虑在积极同伴特征和学业成绩之间的调节作用。研究结果如下：（1）积极同伴特征水平越高，学生的学业成绩越高。（2）社会比较和焦虑在积极同伴特征与学业成绩之间起调节作用。具体来说，相较于低焦虑水平的青少年，高焦虑水平的青少年中，积极同伴特征对青少年的学业成绩预测能力更强；对于高比较（高上行比较和高下行比较）倾向的个体，积极的同伴特征负向预测学生的学业成绩；对于单纯下行比较倾向的个体，积极的同伴特征正向预测学生的学业成绩,而对于单纯上行比较倾向和低比较(低上行比较和低下行比较)倾向的个体，积极的同伴特征对学生的学业成绩的预测作用不显著。（3）积极同伴特征、社会比较和焦虑间存在显著的三项交互作用。具体来说，对于高比较倾向、高焦虑的个体来说，积极同伴特征的水平越高，学生的学业成绩越低；对于其他社会比较倾向和焦虑水平的个体来说，积极的同伴特征对学生的学业成绩的预测作用不显著。研究结果揭示了青少年同伴群体特征与其自身学业成绩的关系，同时说明对于不同的个体而言，同伴群体的积极特征所产生的影响并不一致。
关键词 积极同伴特征，学业成绩，同伴影响，调节作用

The Influence of Positive Peer Characteristics on Academic Performance of Junior High School Students: The Moderating Effect of Social Comparison and Anxiety

Chen Liang , Zhang Shixia , Tang He
School of Psychology, Shandong Normal University, Jinan, 250014, chen_liang1010@126.com

Abstract：Peer characteristics can influence adolescent behavior. Is this degree of influence consistent among different students? In order to further explore this issue, this study investigated 898 (boys accounted for 51.3%) students from 20 classes in two junior high schools, examined the impact of positive characteristics of their peers on the academic performance of junior high school students, and explored the moderating role of social comparison tendency and anxiety in the associations between positive peer characteristics and academic performance in junior high school students. The research results are as follows: (1) The higher the level of positive peer characteristics, the higher the students' academic performance. (2) Social comparison and anxiety moderated the relationship between positive peer characteristics and academic

performance. Specifically, compared with adolescents with lower anxiety levels, for those with higher levels of anxiety, positive peer characteristics showed greater effects on adolescents' academic performance; for individuals with higher levels of comparison (high upward comparison and high downward comparison), positive peer characteristics negatively predict students' academic performance; for individuals with pure downward comparison tendency, positive peer characteristics positively predict students' academic performance, whereas for individuals with pure upward comparison tendency and low comparison tendency (low uplink comparison and low downward comparison), positive peer characteristics showed no significant effects on students' academic performance. (3) A significant three-way interaction among positive peer characteristics, social comparison and anxiety was found. Specifically, for individuals with higher comparison tendency and higher anxiety, higher levels of positive peer characteristics are associated with lower academic performance of students; for individuals with other levels of social comparison and anxiety, positive peer characteristics were not significant predictors of student academic performance. The findings revealed the relationship between adolescents' peer characteristics and their own academic performance, and illustrated that the impact of characteristics of peer groups depends on their individual acharacteristics.

Keywords：positive peer characteristics, academic performance, peer influence, moderating effect

父母教育参与与心理控制对学龄儿童发展的联合作用

刘伊宁[1]　邢淑芬[1]（通讯作者）

1 首都师范大学，北京，100048，通讯作者 E-mail：xsf2986@163.com

摘　要　父母教育参与一直是教育研究领域的热点话题，许多研究表明父母教育参与对于儿童的学业成绩有着至关重要的作用。但是，父母高度的教育参与是否总是在儿童发展中产生理想的结果仍然存在争议。大多数研究也只关注父母教育参与程度在儿童学业发展中的作用，而没有同时考虑父母如何参与（即心理控制是高或低的）以及父母教育参与与儿童内化问题的关系，对父母教育参与质量的研究仍然是不充分的。为此，本研究基于以个体为中心的研究视角，采用潜在剖面分析探索青春期早期学龄儿童父母教育参与和心理控制的潜在组合，并探究这些组合与学龄儿童学业成绩和内化问题的关系。本研究以我国北京、山东、河北等多地区 516 名青春期早期的学龄儿童为被试（平均年龄 12.57 ± 1.43 岁, 248 名男孩），采用问卷调查等方法进行数据收集。研究结果发现：1）父母教育参与和心理控制有 5 种潜在组合类型：低参与低控制型（C1; 18.41%），低参与高控制型（C2; 9.30%），中等参与控制型（C3; 44.38%），高参与低控制型（C4; 18.80%），高参与高控制型（C5; 9.11%）；2）处于不同组合类型中的学龄儿童学业成绩与内化问题水平有所不同：在儿童的学业成绩上，高参与低控制型的儿童学业成绩显著大于低参与低控制型、低参与高控制型、中等参与控制型的儿童，中等参与控制型儿童的学业成绩显著大于低参与高控制型的儿童；在儿童的内化问题上，低参与高控制型的儿童内化问题水平显著大于低参与低控制型的儿童，中等参与控制型的儿童内化问题水平显著大于低参与低控制型的儿童，低参与低控制型、低参与高控制型、中等参与控制型、高参与高控制型的儿童显著大于高参与低控制型的儿童。本研究结果对父母教育参与的质量做出了回应，丰富了实证研究结果，并对父母参与子女教育具有指导性意义。

关键词　父母教育参与，心理控制，学业成绩，内化问题，潜在剖面分析

The combined effect of parental involvement and psychological control on the development of school-age children

Liu Yining[1]　Xing Shufen (corresponding author)[1]

1 Capital Normal University, Beijing, 100048, corresponding author E-mail: xsf2986@163.com

Abstract: Parental involvement has always been a hot topic in the field of education research. Many studies show that parental involvement in education plays a crucial role in children's academic achievement. However, whether a high level of parental involvement always produces desirable outcomes in their children's academic development remains controversial. Most studies also only focus on the role of parental involvement in children's academic development, without simultaneously considering how parents participate (i.e., whether psychological control is high or low) and the relationship between parental involvement and children's internalizing problems. The research on the quality of parental involvement in education is still insufficient, and more empirical research is needed. To address this gap, based on an individual-centered research perspective, this study uses latent profile analysis to explore potential combinations of parental educational involvement and psychological control in school-age children in early adolescence, and to explore the relationship between these combinations and children's academic achievement and internalizing problems. This study recruited 516 early adolescent school-age children from various regions in China, including Beijing, Shandong, and Hebei (average age 12.57 ± 1.43 years, 248 boys). Data collection was conducted through questionnaire surveys and other methods. The results show that: 1) There are five potential combinations of parental involvement and psychological control: low involvement and low control (C1; 18.41%), low involvement and high control (C2; 9.30%), medium involvement and control (C3; 44.38%), high involvement and low control (C4; 18.80%), high involvement and high control (C5; 9.11%). 2) The academic achievement and internalizing problems of school-age children of different combination types is different: for the academic achievement of school-age children, C4 is significantly greater than C3, C2, and C1. C3 is significantly greater than C2; for internalizing problems of school-age children, C2 is significantly higher than C1 and C4; C3 is significantly higher than C1; C1, C2, C3 and C5 is significantly higher than C4. These research findings contribute to the understanding of the quality of parental involvement and have practical implications for guiding parents in their involvement in their children's education.

Keywords: parental involvement, psychological control, academic achievement, internalizing problems, latent profile analysis

父母社会比较对儿童学习动机的影响

潘莱珂[1] 洪佩佩[1] 翟舒怡[1] 何洁[2]

1 浙江大学心理与行为科学系，杭州，310030

2 浙江大学心理与行为科学系，杭州，310030，jiehe@zju.edu.cn

摘 要 在竞争日益激烈的教育环境下，社会比较愈发普遍且不可避免。儿童在主动开展社会比较的同时，也会被动地接受他人的比较。父母社会比较倾向水平与使用的社会比较策略可能会对儿童的学习动机产生影响。基于自我拓展理论和自我决定理论，父母的社会比较行为可能会影响儿童的自我认知和心理需要的满足，进而影响其学习动机。在这个过程中，儿童对父母社会比较的认知评价可能扮演着关键的角色。本研究旨在探讨（1）父母社会比较倾向是否会影响儿童的学习动机，以及儿童的认知评价是否会调节这种影响；（2）父母使用的社会比较策略（上行同化、上行对比、下行同化、下行对比）对儿童学习动机的影响。

研究一采用问卷法对 452 名 4-6 年级学生进行调查。结果发现，父母社会比较倾向与儿童的学习动机以及儿童的认知评价之间没有显著的相关性。儿童的认知评价与儿童的学习动机呈正相关。此外，儿童的认知评价在父母社会比较倾向和儿童的学习动机之间起到了调节作用。对具有高认知评价的儿童而言，父母较高的社会比较倾向会引发其更高的学习动机。

研究二对 742 名 4-6 年级学生进行调查，并采用相关分析和潜在剖面分析方法。结果表明，父母上行同化和下行对比策略与儿童的学习动机呈正相关，而上行对比和下行同化策略与儿童的学习动机呈负相关。此外，根据采用的社会比较策略可以将父母分为积极比较策略组（50.6%）、惯用比较策略组（28.4%）和肯定策略缺乏组（21.0%）

三个异质亚组。其中，积极比较策略组父母更倾向于进行上行同化和下行对比，而较少进行上行对比和下行同化。惯用比较策略组父母高频使用四种策略。这两个亚组的儿童表现出更高的学习动机。相比之下，肯定策略缺乏组的父母更倾向于通过上行同化、上行对比和下行同化激励孩子，而很少使用下行对比肯定孩子，该亚组的儿童学习动机最低。

本研究揭示了父母社会比较对儿童学习动机所产生的正向和负向作用。同时，本研究强调了儿童对父母社会比较的主观认知的重要性。这些发现为父母如何合理运用社会比较教育孩子提供了启示。

关键词 社会比较，学习动机，认知评价，父母教养，潜在剖面分析

Effects of parental social comparison on children's learning motivation

Laike Pan　Peipei Hong　Shuyi Zhai　Jie He

Department of Psychology and Behavioral Sciences, Zhejiang University, Hangzhou, 310030

Abstract: In an increasingly competitive educational environment, social comparison has become more prevalent and unavoidable. Children engage in social comparison actively, while they also being passively exposed to others' comparisons. Parental social comparison tendencies and strategies may have an impact on children's learning motivation. Based on the self-expansion theory and self-determination theory, parental social comparison may affect children's self-awareness and the satisfaction of their psychological needs, which in turn may affect their learning motivation. Children's cognitive appraisal of their parents' social comparison behavior may play a crucial role in this process. This study aims to investigate (1) whether parental social comparison tendencies affect children's learning motivation and whether children's cognitive appraisal moderates this effect, and (2) the impact of parental social comparison strategies (upward identification, upward contrast, downward identification, downward contrast) on children's learning motivation.

In study 1, 452 primary school students in grades 4-6 participated in the questionnaire survey. The results showed that there was no significant correlation between parental social comparison tendencies and children's learning motivation or their cognitive appraisal. However, children's cognitive appraisal was positively related to their learning motivation. Furthermore, children's cognitive appraisal moderated associations between parental social comparison tendencies and children's learning motivation. For children with high cognitive appraisal, higher social comparison tendencies in parents led to higher learning motivation.

Study 2 surveyed 742 students in grades 4-6 and used correlation analysis and latent profile analysis. The results showed that parents' upward identification and downward contrast strategies were positively related to children's learning motivation, while upward contrast and downward identification strategies were negatively related to children's learning motivation. Additionally, parental social comparison strategies could be divided into three heterogeneous subgroups: positive comparison group (50.6%), conventional comparison group (28.4%), and affirmative strategy deficiency group (21.0%). Among them, parents in the positive comparison group tended to use upward identification and downward contrast more, while upward contrast and downward identification less. Parents in the conventional comparison group used the four strategies frequently. Children in these two subgroups showed higher learning motivation. In contrast, parents in the affirmative strategy deficiency group were more likely to use upward identification, upward contrast, and downward identification to motivate their children, while using downward contrast to affirm their children less often. Children in this subgroup had the lowest learning motivation.

This research revealed both positive and negative effects of parental social comparison on children's learning motivation. Additionally, this research emphasized the importance of children's cognitive appraisal about parental social

comparison. These findings provide insights into how parents can use social comparison to educate their children in a reasonable way.

Keywords：social comparison, learning motivation, cognitive appraisal, parenting, latent profile analysis

内外化问题和执行功能的关系：年龄和性别差异

王徐志　生雪梅　张文新　纪林芹（通讯作者）

山东师范大学心理学院，济南，250014，sdjlq@126.com

摘 要　研究表明，内外化问题与执行功能相关联，然而纵向发展过程中它们之间关系的方向缺乏探讨。其一，资源分配假说认为，与内化问题相关的适应不良认知模式（例如，反刍、消极想法）可能会占用认知资源，影响执行功能。研究也表明了外化问题会导致执行功能的表现恶化，然而关于外化问题影响执行功能的研究仍较少。其二，现有研究表明执行功能缺陷可能导致广泛的消极行为产生，如学业、同伴问题和心理问题等，是内外化问题发展的潜在风险因素。其三，基于精神病理学的发展级联模型，内外化问题和执行功能之间的关系可能是双向的。因此，本研究以 285 名儿童（M_{age} = 10.81±0.49 岁，57.9%男性）、267 名青少年（M_{age} = 14.75±0.46 岁，46.8%男性）为研究对象进行间隔半年共 4 次（T1-T4）的追踪研究，考察儿童和青少年两个队列中内外化问题和执行功能之间的关系及性别差异。交叉滞后分析表明，不同年级队列中，内外化问题对执行功能的作用不同，高年级更显著。执行功能、内外化问题均具有显著的自回归（除高年级队列中 T2 抑制至 T3 抑制的路径），T1 抑制可以显著预测 T2 更新，T2 更新显著预测 T3 抑制，更高水平的内化问题显著预测半年后更高水平的外化问题（除低年级队列中 T2 内化到 T3 外化的路径）。低年级队列中，T1 和 T3 的内化显著预测半年后的转换，T1 和 T3 的外化显著预测半年后的抑制、转换和更新（除 T2 外化到 T3 更新的路径），路径大多边缘显著。高年级队列中，内化预测半年后的执行功能（抑制，转移和更新），外化预测半年后的抑制，转换预测半年后的内化，且路径均显著。性别差异表明，低年级队列中，T2 内化到 T3 内化和 T3 内化到 T4 内化的预测作用，女孩更显著；内化到转换的预测作用（除 T2 内化到 T3 转换的路径）以及内化到更新的预测作用（除 T2 内化到 T3 更新的路径），男孩更显著；外化到转换的预测作用和外化到更新的预测作用，女孩更显著。本研究表明了内外化问题和执行功能纵向发展的双向关系，揭示了其年龄和性别差异。

关键词　内外化问题，执行功能，交叉滞后，性别差异

The Relationship Between Internalizing and Externalizing Problems and Executive Function: Age and Gender Differences

Wang Xuzhi　Sheng Xuemei　Zhang Wenxin　Ji Linqin

School of psychology, Shandong Normal University, Jinan 250014

Abstract: Previous studies have revealed that internalizing and externalizing problems are linked to executive function, yet the direction of their relationship during longitudinal development is unexplored. The resource allocation hypothesis suggests that maladaptive cognitive patterns associated with internalizing problems (e.g., rumination, negative thoughts) may take cognitive resources away from executive function. Externalizing problems may lead to deterioration of executive function performance, but studies on the effects of externalizing problems on executive function remains scarce. Studies have suggested that executive function deficits are potential risk factors for the development of internalizing and

externalizing problems, and executive function deficits may lead negative behavioral consequences, such as academic, peer problems, and psychological domains. Based on the developmental cascade model of psychopathology, the relationship between internalizing and externalizing problems and executive function may be bidirectional. Therefore, the present study examined the bidirectional relationship between executive function and internalizing and externalizing problems, and gender differences of the association in two children's and adolescents' cohorts with a Four times every six months (T1-T4) study of 285 children (M = 10.81 ± 0.49, 57.9% male) and 267 adolescents (M = 14.75 ± 0.46, 46.8% male). Cross-lagged analyses showed that internalizing and externalizing problems played different roles on executive function in the different grade cohorts, with older grades being more significant. Executive function, internalizing and externalizing problems were significantly autoregressive (except for the path from T2 inhibit to T3 inhibit in the older cohort), T1 inhibit significantly predicted T2 update, T2 update significantly predicted T3 inhibit, and internalizing problems significantly predicted externalizing problems half a year later (except for the path from T2 internalizing to T3 externalizing in the younger grade cohort). In the younger cohort, T1 and T3 internalization significantly predicted shift half a year later, and T1 and T3 externalization significantly predicted executive function (inhibit, update, and shift) half a year later (except for the pathway from T2 externalization to T3 update), and most of these associations were marginal salience. In the older cohort, internalization predicted executive function (inhibit, shift, and update) half a year later, externalization predicted inhibit half a year later, and shift predicted internalization after half a year, and all of these associations were significant. Gender differences indicated that the predictive effects of T2 internalization to T3 internalization and T3 internalization to T4 internalization were stronger for girls in the younger cohort; the predictive effects of internalization to shift (except for the path from T2 internalization to T3 shift) and internalization to update (except for the path from T2 internalization to T3 update) were stronger for boys; and the predictive effects of externalization to shift and externalization to update were stronger for girls. The present study suggests that individual differences in executive function development (age and gender differences) may be influenced by internalizing and externalizing problems in favor of executive function interventions.
Keywords: internalizing and externalizing problems, executive function, cross-lagged analysis, gender difference

同伴关系、多巴胺系统基因与青少年亲社会行为：基于平行潜变量增长模型的分析

李曦[1]　曹衍淼[1]　王舒冉[1]　纪林芹[1]　张文新[1]（通讯作者）

1 山东师范大学心理学院，山东省学生心理健康发展中心，济南，250014，zhangwenxin@sdnu.edu.cn

摘 要　青少年期是亲社会行为发展的关键阶段，该时期亲社会行为的发展模式不仅与个体环境背景的动态变化有关，并且可能会因青少年期的生理过渡性特点而存在较大的个体差异。研究显示青少年早期个体经历了同伴群体的变化、重组，需要重新确立其在同伴群体中的等级地位，因而会对其亲社会行为发展轨迹产生影响。同时，多巴胺系统基因在调节个体对社会奖赏信息的反应性中发挥重要作用，可能影响个体对同伴关系变化的敏感性。基于此，本研究采用动态发展和多基因研究视角，对 1044 名青少年（初测年龄 13.32 ± 0.48 岁, 50.1%女生）进行为期三年的追踪，考察同伴关系（同伴接纳、同伴拒绝）的发展变化对青少年亲社会行为发展变化的影响，以及多巴胺系统基因的调节作用。分别采用同伴提名和同伴评定测评青少年同伴关系和亲社会行为，采用 *DAT1* 基因 rs27072 多态性、*DRD2* 基因 rs1079598 多态性和 *COMT* 基因 rs4680 多态性作为多巴胺系统基因累加得分指标。结果发现：（1）青少年亲社会行为和同伴拒绝均呈线性增长趋势，但同伴接纳没有显著的下降趋势；（2）同伴关系的初始水平能够影响亲社会行为的初始水平以及增长速度。较高的同伴接纳初始水平和较低的同伴拒绝初始水平均与亲社会行为较高的初始水平以及较低的增长速度有关；（3）同伴关系的发展速度能够影响亲社会行为的增长速度。较高的同伴接纳下降速度与较低的同伴拒绝增长速度均与亲社会行为较高的增长速度有关；（4）多巴胺系统多基因累加得分调节

了同伴拒绝初始水平与亲社会行为初始水平以及发展速度间的关系。具体而言，相较于高分组青少年，低分组青少年同伴拒绝的初始水平越高，其亲社会行为初始水平越低且增长速度越快。本研究为青少年期同伴关系与亲社会行为的动态关联以及亲社会行为的多基因遗传基础提供了新的证据，促进了对亲社会行为个体差异和发生发展机制的理解。

关键词　青少年亲社会行为, 同伴关系, 多巴胺系统基因×环境, 发展轨迹, 平行潜变量增长模型

Peer Relationships, Dopaminergic Genetic Variants, and Adolescents' Prosocial Behavior: Parallel Latent Growth Modeling Analyses

LI Xi, CAO Yanmiao, WANG Shuran, JI Linqin, ZHANG Wenxin
Shandong Normal University, School of Psychology,
Shandong Provincial Institute of Student Development and Mental Health, Jinan 250014

***Abstract*:** As markers of positive social functioning, prosocial behaviors (i.e., actions that are taken with an intention to benefit others such as sharing, comforting, cooperation, and helping) have drawn increasing attention due to their contributions to enhance adaptive outcomes and mitigate maladaptive outcomes. Adolescence is a critical developmental period for internalizing prosocial values, which may be related to the dramatic changes in developmental background and physiology. Considering the changes and restructuring of peer groups in early adolescents, adolescents need to re-establish their peer status, which may influence the development of prosocial behavior. Moreover, adolescents exposed to peer environments vary widely in their susceptibility to prosocial behavior, often as a result of their genetic predispositions. Behavioral genetics and recent molecular genetics evidence indicated that the genes involved in dopamine neurotransmission and metabolism work in an additive manner to influence the sensitivity to the environment. However, there is a lack of exploration regarding the dynamic trajectory of the relationship between peer relationships and prosocial behavior, and whether the dynamic relationship was moderated by the dopaminergic genes in a longitudinal framework. Adopting the multilocus genetic profile score (MGPS) approach, the present study aimed to explore the dynamic trajectory of the relationship between peer relationships and prosocial behavior, and whether the dynamic association was moderated by dopaminergic genes.

Participants were 1044 adolescents who were followed from age 13 to 15 (mean age 13.32 ± 0.48 years old at Time 1, 50.1% females). Adolescents' saliva samples were collected at age 13. Adolescents' prosocial behaviors were assessed by peer-rated and peer relationships were assessed using the within-classroom peer nomination annually. All measures showed good reliability. The MGPS was compiled by *DRD2* gene rs1079598 polymorphism, *DAT1* gene rs27072 polymorphism, and *COMT* gene rs4680 polymorphism, reflecting the additive effects of alleles conferring relatively increased dopamine activity. Genotyping in three dopaminergic genes was performed for each participant in real-time with MassARRAY RT software version 3.0.0.4 and analyzed using the MassARRAY Typer software version 3.4 (Sequenom). The parallel latent growth model and multiple group comparison analyses were used to examine the relationship between the developmental trajectories of peer relationships and prosocial behavior and the moderating role of dopaminergic genes.

The results showed that adolescents' prosocial behavior and peer rejection increased linearly while peer acceptance remained relatively stable during the follow-up period. Higher initial levels of peer rejection and lower levels of peer acceptance were associated with lower initial levels and slower growth of prosocial behavior. The change rates of peer relationships were associated with the developmental change of prosocial behavior, that is, the steeper decrease in peer acceptance and the slower increase in peer rejection were associated with a greater increase in prosocial behavior over time. In addition, the relationships between the initial level of peer rejection and the initial level and growth in prosocial behavior

were moderated by MGPS, with lower MGPS being more sensitive to the initial level of peer rejection. These findings lend support to the dynamic relationship between peer relationships and prosocial behavior and shed light on the complex polygenic underpinnings of prosocial behavior.

***Keywords*:** adolescent prosocial behavior, peer relationships, dopaminergic genes × environment, developmental trajectories, parallel latent growth modeling

累积家庭环境风险与青少年攻击行为的非线性关系：5-羟色胺系统多基因的调节作用

迟晓慧[1]　曹衍淼[1]　宋晓凡[1]　纪林芹[1]　张文新[1]（通讯作者）

山东师范大学心理学院，山东省学生心理健康发展中心，济南，250014，zhangwenxin@sdnu.edu.cn

摘 要　诸多家庭环境风险通常不是独立影响青少年的攻击行为，而是呈现出风险累积效应。累积环境风险与青少年攻击行为的关系模式具有多样性，一些研究发现累积环境风险会线性增加个体攻击行为的风险，但是也有研究发现随着累积环境风险因素的增多，攻击行为的风险呈加速增长模式或者呈现减速增长（高原期）模式。然而，个体对家庭累积环境风险的敏感性或反应性存在较大的差异。特别是，研究发现 5-羟色胺系统基因通过调节杏仁核等环境敏感性脑区功能影响个体对环境的反应模式。因此，本研究关注累积家庭环境风险与青少年攻击行为的线性与非线性作用模式，并深入探讨携带不同 5-羟色胺系统基因的个体对累积环境风险的反应模式差异。本研究以 1088 名青少年(平均年龄 14.32 ± 0.48 岁, 50.1%女生)为被试，采用家庭社会经济地位、亲子冲突、母亲消极教养作为累积环境风险指标，采用 *5-HTR1A* 基因 rs6295 多态性、*5-HTR2A* 基因 rs6311 多态性、*TPH1* 基因 rs1800532 多态性作为基因累加得分指标。结果发现：（1）相比任一环境风险，累积环境风险对青少年攻击行为的预测作用更强；（2）累积环境风险与青少年攻击行为呈 J 型关系，即累积环境风险越高则个体攻击行为风险呈加速增长模式；（3）5-羟色胺系统基因在累积家庭环境风险和攻击行为间发挥调节作用，在携带较多 5-HT 风险基因的青少年中，累积家庭环境风险得分过高或过低的个体均表现出高攻击行为；但是在携带较少 5-HT 风险基因的青少年中，累积环境风险及其二次项均与青少年的攻击行为无显著关联。本研究关注累积家庭不利环境对青少年攻击行为的作用模式，发现随着环境风险因素数量的增多，个体攻击行为的风险不是简单地线性叠加而是呈加速增长模式，这一结果提示在攻击行为的预防和干预中，通过改善家庭不利环境可能达到“事半功倍”的效果。同时，本研究发现不同基因型携带者对家庭不利环境的敏感性存在差异，这也提示青少年的环境敏感性模式存在多样性，并非所有青少年均遵循非线性的环境敏感性模式。

关键词　累积环境风险，5-羟色胺多基因，非线性，攻击行为

The J-shaped Relationship Between Cumulative Family Environmental Risk and Adolescent Aggressive Behavior: The Moderating Role of Serotonin System Genes

CHI Xiaohui; CAO Yanmiao; SONG Xiaofan; JI Linqin; ZHANG Wenxin

Shandong Normal University, School of Psychology,

Shandong Provincial Institute of Student Development and Mental Health, Jinan 250014

***Abstract*:** Numerous studies have indicated that family environmental risks are important etiological factors of adolescent aggressive behavior. However, different family environmental risks do not independently affect adolescent

aggressive behavior, but work in a cumulative way. Inconsistent results were observed regarding the relationship between cumulative environmental risk and adolescent aggressive behavior. Some studies have found that cumulative environmental risk linearly increases the risk of individual aggressive behavior, while other studies have found that with the increase of cumulative environmental risk factors, the risk of aggressive behavior shows an accelerated increase pattern or a deceleration increase (plateau period) pattern. In addition, there are significant differences in the sensitivity or responsiveness of individuals to cumulative family environmental risks. In particular, previous studies found that the 5-hydroxytryptamine system gene affects the individuals' response mode to the environment by regulating the function of brain regions related to environmental sensitivity, such as the amygdala. Therefore, this study focused on the linear and non-linear patterns of cumulative family environmental risks on adolescent aggressive behavior and explored the moderating role of serotonin system genes.

Participants were 1088 adolescents (50.1% females, M_{age} = 14.32 ± 0.48 years). Mother-reported family socio-economic status and negative parenting, adolescent-reported parent-child conflict, and teacher-reported adolescent aggression were collected. The cumulative family environmental risk score was created by family socio-economic status, parent-child conflict, and negative parenting. The MGPS was created by *5-HTR1A* rs6296 polymorphisms, *5-HTR2A* rs6311 polymorphisms, and *TPH1* rs1800532 polymorphisms. DNA was extracted from saliva and genotyping in serotonin system polygene were performed for each participant in real-time with MassARRAY RT software version 3.0.0.4 and analyzed using the MassARRAY Typer software version 3.4 (Sequenom).

The results showed that: (1) Compared to any environmental risk, cumulative environmental risk score has a stronger predictive effect on adolescent aggressive behavior. (2) There was a J-shaped relationship between cumulative family environmental risk score and adolescent aggressive behavior. (3) The relationship between cumulative family environmental risk score and adolescent aggressive behavior was moderated by serotonin system polygene. Specifically, compared to adolescents with lower MGPS, adolescents with higher MGPS exhibited higher levels of aggressive behavior when experiencing higher or lower levels of cumulative family environmental risk.

This study focused on the pattern of the cumulative family adverse environment on adolescent aggressive behavior, which found that with the increase of the number of environmental risk factors, the risk of individual aggressive behavior is not simply a linear superposition but an accelerated growth pattern. These findings suggested that it could yield twice the result with half the effort in the prevention and intervention of aggressive behavior, by improving the family adverse environment. Meanwhile, this study shed light on the complex polygenic underpinnings of adolescent aggressive behavior.

***Keywords*:** cumulative family environmental risk, serotonin system polygene, non-linear, aggressive behavior

气质对青少年内外化问题的影响：亲子亲合与唾液淀粉酶的作用

王玲晓　于晓明　潘腾　纪林芹（通讯作者）
山东师范大学心理学院，济南，250014，sdjlq@126.com

摘 要　气质对青少年内外化问题具有重要影响，但气质“如何”以及“何时”影响青少年内外化问题仍不明晰。气质理论强调儿童气质是亲子关系质量的基础。同时，高亲子亲合的父母不仅能够为子女发展提供有效支持，还能够促使子女愿意与其沟通，这都可能降低子女内外化问题。因此，亲子亲合在气质与内外化问题间可能存在中介作用。此外，交感神经系统可能与气质、亲子亲合共同影响青少年内外化问题。交感神经系统与气质同属于环境反应性的多系统表征，可以交互影响青少年内外化问题，可在一定程度上解释为何相同环境会使部分个体适应良好，而使另外个体出现适应不良。本研究以 505 名五（$M_{年龄}$=10.49±0.54，男生占 56.4%）、七（$M_{年龄}$=12.39±0.51，男生占 64.9%）和九（$M_{年龄}$=14.45±0.59，男生占 39.1%）年级青少年作为被试，进行间隔半年的两次追踪调查，考察不同气质对青少年内外化问题的影响及亲子亲合的中介作用和唾液淀粉酶的调节作用。结果发现：（1）意志控制负向预测外化问题，恐惧正向预测内化问题；（2）亲子亲合在意志控制/易受挫性与外化和内化问题间的中介效应显著，但亲子亲合

在恐惧与外化和内化问题间的中介效应不显著；（3）唾液淀粉酶调节中介的直接路径“意志控制→外化和内化问题”和“易受挫性→外化问题”及中介的后半路径“亲子亲合→内化问题”，具体而言，在高唾液淀粉酶情况下，意志控制负向预测外化和内化问题，易受挫性正向预测外化问题，亲子亲合对内化问题的负向预测作用减弱。结果提示，气质、亲子关系及生理特征共同影响青少年内外化问题行为，因而为降低问题行为需要针对个体差异制定有效预防和干预策略。
关键词：气质，亲子亲合，唾液淀粉酶，内外化问题

Temperament on Adolescents Externalizing and Internalizing Problems: The Role of Parent-Child Cohesion and Salivary Amylase

WANG Lingxiao　Yu Xiaoming　Pan Teng　Ji Linqin
School of Psychology, Shandong Normal University, Jinan 250014

***Abstract*:** Previous studies have revealed that temperament predicted adolescents' externalizing/internalizing problems. However, it was still unclear that "how" and "when" temperament influenced externalizing/internalizing problems. Temperament theory emphasizes that children's temperament is the basis of parent-child relationship quality. Meanwhile, parents with high parent-child cohesion could not only provide effective support for children's development, but also promote children's willingness to communicate with them, which might reduce children's problem behaviors. Thus, parent-child cohesion might play a mediating role between temperament and problem behaviors. Moreover, sympathetic nervous system, temperament, and parent-child cohesion might jointly affect adolescent' problems behaviors. Both the sympathetic nervous system and temperament are multi-system representations of environmental reactivity, which can interactively affect adolescent' problems behaviors. The sympathetic nervous system may partly explain why the same environment makes some individuals well-adjusted and others maladaptation. In this study, 505students of Grade 5 (M_{age} =10.49 ± 0.54 years; 56.4% boys), 7 (M_{age} =12.39 ± 0.51 years; 64.9% boys), and 9 (M_{age} =14.45 ± 0.59 years; 39.1% boys) participated in study and completed two surveys six months apart. This study intends to investigate the longitudinal relationship between temperament and externalizing/internalizing behaviors, and examined the mediating effect of parent-child cohesion and the moderating effects of salivary amylase on the relationship. Results showed that: (1) effortful control negatively predicted externalizing behaviors six months later, fear positively predicted internalizing behavior six months later; (2) parent-child cohesion mediated the associations between effortful control/frustration and externalizing/internalizing behaviors six months later; (3) salivary amylase moderated the association between effortful control and externalizing/internalizing behaviors six months later, the association between frustration and externalizing behaviors six months later, the association between parent-child cohesion and internalizing behaviors six months later. Specifically, effortful control negatively predicted externalizing/internalizing behaviors, frustration positively predicted externalizing behaviors when salivary amylase were high. And the negative effect of parent-child cohesion on internalizing behaviors was smaller under a high salivary amylase. The results reveal the link of temperament, physiological response, parent-child relationship, and externalizing/internalizing behaviors, and suggest that it is necessary to develop effective prevention and intervention measures for individual differences.
Key words: temperament, parent-child cohesion, salivary amylase, externalizing and internalizing problems

FKBP5 基因与同伴侵害对青少年攻击行为的交互作用：基于潜变量增长模型的分析

宋晓凡[1]　曹衍淼[1]　迟晓慧[1]　纪林芹[1]　张文新[1]（通讯作者）

1 山东师范大学心理学院，山东省学生心理健康发展中心，济南，250014，zhangwenxin@sdnu.edu.cn

摘 要　随着全球攻击与暴力问题日趋严重，儿童青少年攻击行为的发展和干预受到研究者的广泛关注。儿童青少年攻击行为的发展主要涉及两个关键问题：一是攻击行为发展的连续性和稳定性，二是攻击行为的个体差异。已有攻击的发展研究主要围绕攻击的发展轨迹展开，但是对于攻击发展轨迹的个体差异，特别是个体的遗传差异及其与环境的交互作用对攻击发展轨迹的研究相对较少。基于此，本研究基于潜变量增长模型，对 1076 名初一青少年（初次测评时 M_{age} = 13.32 岁, SD = 0.49; 女生占 50.2%）进行为期三年的追踪调查。通过建立潜变量增长模型，描述青少年早期攻击行为的发展轨迹，揭示不同类型的同伴侵害（身体侵害、关系侵害）、*FKBP5* 基因以及两者的交互作用对攻击初始水平和发展趋势的影响。采用自我报告测评青少年身体侵害和关系侵害，教师报告测评攻击行为，并通过唾液提取 DNA 样本对 *FKBP5* 基因 rs9470080 多态性进行基因分型。结果发现：（1）在青少年早期（13~15 岁）青少年攻击水平保持稳定，无显著上升趋势，但无论是攻击初始水平还是发展速度均存在明显的个体差异，且攻击初始水平与发展速度间呈显著负相关；（2）关系侵害不仅显著正向预测攻击的初始水平，还能显著正向预测攻击的发展速度，身体侵害仅正向预测攻击的发展速度，但 *FKBP5* 基因对攻击行为初始水平和发展速度的预测作用均不显著；（3）*FKBP5* 基因与关系侵害而非身体侵害交互预测攻击的初始水平和发展速度，具体表现为，相较于携带 CT 基因型的青少年，CC 基因型携带者对关系侵害更为敏感，而表现出更高的攻击初始水平和更大的增长速度。本研究发现青少年早期攻击行为的发展具有高度的稳定性，有助于在理论上深入理解青少年攻击的发展规律。同时，本研究发现具有遗传风险且遭遇更多关系侵害的青少年更可能具有更高的增长速度，这提示青少年期对人际关系具有较高的敏感性，并且攻击是具有明显个体差异性的行为，因而在攻击的预防和干预工作中需考虑个体的环境敏感性差异。

关键词　攻击行为, 同伴侵害, *FKBP5* 基因, 潜变量增长

Associations Between *FKBP5* Gene, Peer Victimization and Adolescent Aggressive Behavior: A Latent Growth Modeling Analysis

SONG Xiaofan　CAO Yanmiao　CHI Xiaohui　JI Linqin　ZHANG Wenxin

Shandong Normal University, School of Psychology, Shandong Provincial Institute of Student Development and Mental Health, Jinan 250014

Abstract: Aggression in adolescents is a major concern for researchers and educators alike. This behavior that deliberately aims to harm others has a long-lasting effect on the psychological and physical health of individuals as well as on the social fabric more broadly. The developmental continuity and change, and the individual difference in aggression are two pivotal issues in aggression research. However, previous studies primarily focused on the general development of adolescent aggressive behavior, and little is known about the individual differences in aggression trajectory, especially the gene-environment interaction mechanism underlying the development of adolescent aggressive behavior. Adopting the latent growth modeling approach, this study aimed to explore the developmental trajectory of aggressive behavior in early adolescence, and whether *FKBP5* rs9470080 polymorphism and peer victimization (physical victimization, relational victimization) interact to influence the development of adolescent aggressive behavior.

Participants were 1076 adolescents who were followed from age 13 to 15 (mean age 13.32 ± 0.49 years old at Time 1, 50.2% females). Adolescents' saliva samples and self-reported peer victimization were collected at age 13. Adolescents' aggressive behaviors were assessed by teacher-reported annually. All measures showed good reliability. Genotyping was performed for each participant in real-time with MassARRAY RT software version 3.0.0.4 and analyzed using the MassARRAY Typer software version 3.4 (Sequenom). Latent growth curve models (LGCM) were conducted to explore the developmental trajectory of aggressive behavior and its gene-environment interaction mechanism.

The results showed that the aggressive behavior remained relatively stable during the follow-up period with significant individual variances in both the initial level and the growth rate of adolescent aggressive behavior. There was a significant negative correlation between the initial level and the growth rate of aggression. Relational victimization significantly positively predicts the initial level and the growth rate of adolescent aggressive behavior, while physical victimization only positively predicts the growth rate of aggression. The main effects of the *FKBP5* gene on the initial level and the growth rate of aggression were not significant. The *FKBP5* gene interacts with relational victimization to influence the initial level and the growth rate of aggression. Specifically, compared to adolescents carrying the CT genotype, CC genotype carriers are more sensitive to relational victimization, exhibiting higher initial levels of aggression and greater growth rates.

These findings supported the high stability of adolescent aggression, and the interaction between the *FKBP5* and relational victimization on the development of aggressive behavior, which shed light on the necessary of considering improving interpersonal relationships and individual differences in environmental sensitivity in the prevention and intervention of aggression.

Keywords: aggressive behavior, peer victimization, *FKBP5* gene, latent growth modeling

多巴胺系统基因与母亲心理控制对学前儿童攻击行为的交互作用：一项多基因研究

帅星宇[1]　邢淑芬[1]（通讯作者）

1 首都师范大学心理学院，北京，100048，通讯作者邮箱：xsf2986@163.com

摘　要　消极的教养方式是儿童青少年攻击行为产生和发展的重要风险因素，心理控制作为一种典型的侵入式教养方式会对个体心理和行为产生影响，并与一系列消极结果有关。近二十年来,基于分子遗传学范式的研究考察了遗传因素对攻击行为的影响,确定了攻击行为的系列风险基因及其基因—环境的交互作用机制，然而,随着系列研究的深入,单基因研究如遗传解释率不足、小效应量、结果的不可重复性等局限性日益凸显,越来越多的研究强调考察攻击行为多基因遗传机制的重要性。因此，本研究基于基因－环境交互作用的研究范式，采取整群抽样的方法，选取 339 名学前儿童（197 名男孩，M_{age} = 5.42 岁）及其母亲、教师进行测查，采用问卷法、实验法和 DNA 分型技术，考察多巴胺系统基因与母亲心理控制对学前儿童攻击行为的交互作用及具体作用形式。结果发现：（1）在控制儿童年龄后，母亲心理控制的直接效应显著，即母亲心理控制正向预测学前儿童的攻击行为。多巴胺系统基因累加得分的直接效应不显著；（2）多巴胺系统基因与母亲心理控制显著交互作用于学前儿童的攻击行为，符合"素质压力模型"，即相比多巴胺系统基因累加得分较低的儿童,得分较高的儿童在经历高母亲心理控制后表现出更多的攻击行为。研究结果有助于从多基因累加得分与家庭环境交互作用的视角揭示儿童攻击行为的产生，并为有效预防与干预学前儿童的攻击行为提供了支持。

关键词　母亲心理控制,多巴胺系统基因，攻击行为，基因×环境交互作用

Interaction between dopamine system genes and maternal psychological control on aggressive behaviour in preschool children: a multigene study

Shuai Xingyu[1] Xing Shufen[1]
[1] Capital Normal University, Beijing, 100048, corresponding author E-mail: xsf2986@163.com

Abstract： Negative parenting styles are important risk factors for the emergence and development of aggressive behaviour in children and adolescents, and psychological control, a typically intrusive parenting style, can have an impact on individual psychology and behaviour and is associated with a range of negative outcomes. In the past two decades, studies based on the molecular genetics paradigm have examined the influence of genetic factors on aggression and identified a series of risk genes for aggression and their gene-environment interaction mechanisms; however, as the series of studies have progressed, the limitations of single-gene studies, such as the insufficient genetic explanatory rate, small effect sizes, and the irreproducibility of the results have become increasingly prominent, and more and more studies have stressed the importance of examining the multigene genetic mechanisms of aggressive behaviour. Therefore, based on the research paradigm of gene-environment interaction, the present study adopted the whole population sampling method to select 339 preschool children (197 boys, Mage = 5.42 years), their mothers, and their teachers, and used questionnaires, experimental methods, and DNA typing techniques to examine the effects of the genes of the dopamine system and the mothers' psychological control on the aggressive behaviours of the preschool children and the specific forms of the effects. interaction and specific forms of action.The results showed that: (1) the direct effect of maternal psychological control was significant after controlling for the age of the child, i.e., maternal psychological control positively predicted preschool children's aggressive behaviour. The direct effect of cumulative dopamine gene scores was not significant; (2) dopamine genes interacted significantly with maternal psychological control on preschool children's aggressive behaviour, in line with the "diathesis stress mode", i.e., children with higher cumulative dopamine scores showed more aggressive behaviour after experiencing high levels of maternal psychological control, compared to those with lower cumulative dopamine gene scores. more aggressive behaviours than children with lower dopamine system gene accrual scores. The results of this study shed light on the development of aggression in children from the perspective of the interaction between polygenic cumulative scores and the family environment, and provide support for the effective prevention and intervention of aggression in preschool children.

Keywords ： maternal psychological control,dopamine system genes,aggressive behaviour,gene x environment interaction

社会角色影响儿童亲社会认知与行为

吴璇[1] 柴乔[1] 何洁[2]
1 浙江大学心理与行为科学系，杭州，310030
2 浙江大学心理与行为科学系，杭州，310030，jiehe@zju.edu.cn

摘 要 受启蒙运动的影响，西方当代的道德理论和道德实践更加强调道德的普遍性和公平性。然而，包括中国在内的许多传统文化则强调角色伦理，认为个体在社会生活中的道德义务在很大程度上由其所承担的社会角色所决定。本研究旨在探究，在社会化的过程中，学前儿童是否已经习得这种内嵌于社会角色的道德行为，并且考察观察学习在其中的作用。研究招募了 128 名年龄为 6 至 7 岁的儿童，给予他们不同的社会角色（自身角色：值日生与非值日生），通过使用独裁者游戏范式考察其分享行为。在做出分享决策之前，他们会观察视频中多名同伴进行慷慨分享（视频角色：值日生与非值日生）。看完视频后，儿童进行自己的分享，并回答一系列关于自身角色分享行为的认知和评价问题。

研究结果表明：（1）儿童的分享行为受自身角色影响，相比于非值日生条件，当儿童被赋予值日生角色时，他们的分享数量更多；（2）儿童对分享行为的义务认知受视频中同伴角色的影响，当儿童观看值日生同伴进行慷慨分享的视频时，他们更倾向于认为慷慨分享是义务之内的；（3）视频角色不仅影响儿童对于非慷慨分享的评价，且与自身角色存在交互影响，当儿童观看值日生的视频后，他们对非慷慨分享的同伴的评价更低，且在自身角色也是值日生时评价最低；（4）在控制角色变量后，儿童的分享行为与义务认知有显著的相关（r 的范围为 0.184 到 0.340），与行为评价也有显著的相关（r 的范围为 0.233 到 0.236）。这些结果说明：学前儿童已经能够通过观察学习习得内嵌于社会角色的道德行为。社会角色通过影响学前儿童的义务认知和道德行为评价，一定程度导致了道德行为的差异。

关键词　社会角色，亲社会行为，亲社会认知，道德发展，观察学习

Social Roles Influence Children's Prosocial Cognition and Behaviors

Xuan Wu　Qiao Chai　Jie He

Department of Psychology and Behavioral Sciences, Zhejiang University, Hangzhou, 310030

Abstract：Under the influence of the Enlightenment, modern moral theory and practice in the West emphasize the universality and fairness of morality. However, in many traditional cultures, including China, the view of role ethics is underlined, proposing that the moral obligations of individuals in social life are largely determined by the social roles they assume. The purpose of this study is to explore whether preschoolers have acquired the moral behavior embedded in social roles in the process of socialization, and to examine the role of observational learning in this process. 128 children aged 6 to 7 years were recruited and assigned different social roles (Self roles: duty vs. non-duty). Using the dictator game paradigm, we examined children's sharing behavior. Before making a sharing decision, children observed multiple peers sharing generously in the same sharing task (Video roles: duty vs. non-duty). After watching the video, children made their own sharing decision and answered a series of cognitive and evaluation questions about sharing behavior of their own roles.

The results showed that: (1) Children's sharing behavior was affected by their own roles. Compared with non-duty roles, children shared more when they were assigned the duty role. (2) The type of children's obligation cognition of sharing behaviors was influenced by the role of peers in the video. When children watched the video of generous sharing by peers on duty, they were more inclined to believe that generous sharing is obligatory. (3) Video roles not only affected children's evaluation of not generously sharing, but also interacted with Self roles. When children watched the videos of peers on duty, their evaluation of not generously sharing was lower, and when their own roles were on duty, their evaluation was the lowest. (4) After controlling for role variables, children's sharing behavior had a significant correlation with obligation cognition (*rs* ranging from 0.184 to 0.340), and also a significant correlation with behavioral evaluation (*rs* ranging from 0.233 to 0.236). These results suggest that preschoolers can acquire the moral behavior embedded in social roles through observational learning. Social roles lead to differences in moral behavior to some extent by influencing preschooler's obligation cognition and evaluation of moral behavior.

Keywords：social roles, prosocial behaviors, prosocial cognition, moral development, observational learning

揭示复杂性：超越整体，青少年抑郁症海马亚区结构的分割及其与认知的关系

张艺馨[1] 刘轩[1] 杨楹[2] 王康程[1]（通讯作者） 张文新[1]

1 山东师范大学心理学院，济南，250014

2 山东省精神卫生中心，济南，250014，wangkangcheng@sdnu.edu.cn

摘 要 背景：青少年处于大脑发育关键时期，罹患抑郁会导致神经解剖及认知发育异常。多项神经影像学研究发现，包括青少年患者在内，重度抑郁症出现海马异常。海马功能可以反映到解剖学定义的海马亚区上。然而，鲜有研究考察青少年重度抑郁症患者海马亚区紊乱的变化趋势及其与认知功能异常的关系。

方法：我们入组了 79 例重度青少年抑郁症患者（男生占 21.5%，年龄=15.54±1.83 岁）和 71 名健康青少年对照组（男生占 32.4%，年龄=16.18±2.85 岁），对被试进行磁共振扫描。采用儿童抑郁量表、自杀和自伤量表、贝克自杀意念量表、自杀风险评估量表以及病程衡量抑郁的严重程度。采用 9 个认知测试测量记忆、认知控制、注意能力。使用 FreeSurfer v6.0 将海马分割为 12 个亚区。采用混合方差分析评估患者和对照组海马亚区体积的差异，并根据严重程度对比严重抑郁患者和轻度抑郁患者在亚区结构上的差异。最后，使用套索回归探索海马亚区与患者认知异常的关联。

结果：方差分析显示，患者组海马的 CA1，CA2/3，CA4，齿状回，海马尾，海马裂和分子层区域表现出严重萎缩。不论自杀、自伤或病程分组，严重抑郁患者的海马亚区都表现出更加广泛的萎缩，主要表现在 CA1-4 到旁下托区域。套索回归结果显示，海马亚区萎缩与患者记忆功能异常关联最强，与认知控制、注意关联较弱，同时海马亚区的齿状回，CA4 所占权重最大。

结论：青少年抑郁患者海马异常表现在主要的亚区结构。随着严重程度，海马亚区的萎缩呈 CA 区域往周围区域扩散趋势。这种趋势是以影响记忆功能为主要发展变化。这些结果确定了罹患抑郁后海马的核心神经标志物，表明了青少年抑郁疾病进展的潜在标记，为临床早期干预提供了新的方向。

关键词 青少年抑郁 海马亚区 记忆 认知控制 注意 方差分析

Revealing Complexity: Beyond the Whole, Segmentation of Hippocampal Subfields and its Relation with Cognition in Adolescents with Depression

Yixin Zhang[1] Xuan Liu[1] Ying Yang[2] Kangcheng Wang[1] Wenxin Zhang[1]

1.Institute of Shandong Normal University Psychology, Jinan

2. Shandong Mental Health Center, Jinan

Abstract ： Background: Adolescents are in a critical period of brain development, and depression can lead to neuroanatomical and cognitive abnormalities. Several neuroimaging studies have found hippocampal abnormalities in major depressive disorder (MDD), including adolescents. The function of hippocampus can be reflected in the anatomically defined hippocampal subfields. However, few studies have investigated the atrophy trend of hippocampal subfields and its relation with cognitive dysfunction in adolescents with MDD.

Methods: We recruited 79 adolescents with MDD (Males 21.5%, Mage = 15.54±1.83) and 71 healthy controls (Males 32.4%,

Mage = 16.18±2.85), all of them completed MRI scans. The severity of depression was measured by the Children Depression Inventory (CDI), Ottawa Self-injury Inventory (OSI), Beck Scale for Suicide Ideation (BSI), Nurses' Global Assessment of Suicide Risk scale (NGASR) and illness duration. Nine cognitive tasks were used to measure the ability of memory, cognitive control and attention. Hippocampus were segmented by Freesurfer v6.0 into twelve subfields. Mixed-method Analysis of Variance (ANOVA) was performed to assess the volume differences of hippocampal subfields between MDD and HC. The volume differences in hippocampal subfields between patients with different depression severity were compared, too. Finally, the Least Absolute Shrinkage and Selection Operator (LASSO) regression was used to explore the association between hippocampal subfields and cognitive abnormalities in patients.

Results: Results of ANOVA showed that there are significant hippocampal subfields atrophy in CA1, CA2/3, CA4, dentate gyrus of MDD patients. Hippocampal subfields of all the high depression group showed more extensive atrophy, mainly in the CA1-4 and parasubiculum. LASSO regression showed that hippocampal atrophy had the strongest association with abnormal memory function, and was weakly associated with cognitive control and attention. Meanwhile, CA4 and dentate gyrus had the biggest weight in the LASSO model.

Conclusions: Hippocampal abnormalities in adolescent MDD patients was discovered in the main subfields. With depression severity deepen, the atrophy of the hippocampal substructures showed a tendency that spread from the CA region to the surrounding subfields. This trend mainly affects memory function of MDD patients. These results identified core neural markers in the hippocampus after depression, indicating potential markers of adolescent depressive disease progression and providing new directions for early clinical intervention.

Keywords：Adolescent Depression, Hippocampal Subfields, Memory, Cognitive Control, Attention, Analysis of Variance

青少年童年创伤经历与抑郁症状、自杀意念的关系：基于潜在剖面分析

贤业敏　胡宇飞　邓会成　陈光辉（通讯作者）

山东师范大学心理学院，济南，250014，chengh2100@126.com

摘 要　童年创伤是青少年抑郁症状和自杀意念的风险因素。以往研究主要关注特定类型创伤对个体心理健康的影响，而忽略了多重创伤。事实上，儿童更多是遭受多种类型的虐待和忽视，这会对其造成更严重、持久的负面影响。采用潜在剖面分析方法（Latent profile analysis, LPA）可以揭示不同创伤类型的叠加效应。本研究旨在探究中国青少年童年创伤经历的潜在类别分布特征，了解童年创伤经历不同亚群组的影响因素及其对抑郁症状和自杀意念的预测作用。采取整群抽样法选取山东、山西、天津、陕西、河南、甘肃、上海七个省市 3 至 12 年级 24323 名青少年（平均年龄 13.95±2.21 岁，女生 12820 名）为被试。采用童年创伤问卷（Childhood Trauma Questionnaire, CTQ）评估被试的童年创伤经历，儿童抑郁量表(Children's Depression Inventory, CDI)和自编的自杀意念问卷评估被试的抑郁情绪及自杀意念。研究结果发现：1）青少年童年创伤经历可分为四种亚群组：严重创伤组(2.3%)、轻度创伤组（3.5%）、严重忽视组（12.4%）和无创伤组（82.8%）。2）以无创伤组为参考，与女性相比，男性更有可能属于轻度创伤组和严重创伤组；与居住在农村的青少年相比，城市青少年更有可能属于无创组；父亲或母亲的受教育水平越高，青少年越有可能属于严重创伤组。3）严重创伤组青少年抑郁水平显著高于严重忽视组、轻度创伤组和无创伤组，严重忽视组和轻度创伤组无显著差异。4）与无创组相比，轻度创伤组、严重创伤组和严重忽视组均能显著正向预测自杀意念。本研究在一个全国性的大样本中确定了青少年童年创伤经历的潜在类别，可以基于此结果制定更具有针对性的干预和治疗方案，进而降低青少年抑郁和自杀意念的风险。

关键词　童年创伤，儿童虐待，潜在剖面分析，抑郁症状，自杀意念

The Association Between Childhood Trauma and Depressive Symptoms, Suicidal Ideation in Adolescents: A Latent Profile Analysis

Yemin Xian, Yufei Hu, Huicheng Deng, Guanghui Chen*
School of Psychology, Shandong Normal University, Jinan 250014

Abstract: Childhood maltreatment is a risk factor for depressive symptoms and suicidal ideation in adolescents. Previous research has predominantly focused on the impact of specific types of maltreatment on individuals' mental health, thereby overlooking the effects of multiple maltreatment. In reality, children who have experienced multiple maltreatment tend to have more severe and enduring negative outcomes. By utilizing latent profile analysis (LPA), the cumulative effects of different subtypes of maltreatment can be revealed. This study aims to explore profiles of childhood maltreatment among Chinese adolescents and identify the influencing factors of different subgroups, as well as the impact of different latent profiles on depression and suicidal ideation. Using a cluster sampling method, a total of 24,323 adolescents (M_{age}= 13.95, *SD*= 2.21; 52.8% females) were selected from seven provinces and cities in China, including Shandong, Shanxi, Tianjin, Shaanxi, Henan, Gansu, and Shanghai, spanning grades 3 to 12. The Childhood Trauma Questionnaire (CTQ) was employed to assess participants' childhood trauma experiences, while the Children's Depression Inventory (CDI) and a self-developed suicidal ideation questionnaire were used to evaluate their depressive mood and suicidal ideation. The results revealed that: 1) LPA identified four subgroups: severe trauma group (2.3%), mild trauma group (3.5%), severe neglect group (12.4%), and non-trauma group (82.8%). 2) Using non-trauma group as reference, males were more likely to be assigned to the mild trauma group and severe trauma group compared to females. Urban adolescents were more likely to be assigned to the non-trauma group compared to rural adolescents. Higher educational attainment of fathers or mothers was associated with a higher likelihood of adolescents belonging to the severe trauma group. 3) The severe trauma group exhibited significantly higher levels of depression compared to the severe neglect group, mild trauma group, and non-trauma group, while no significant differences were observed between the severe neglect group and mild trauma group. 4) In comparison to the non-trauma group, both the mild trauma group and severe trauma group, as well as the severe neglect group, significantly positively predicted suicidal ideation. Overall, this study identifies distinct subgroups of childhood maltreatment among a large national sample of adolescents in China. These findings can contribute to guiding targeted interventions and treatments aimed at reducing the risks of depression and suicidal ideation among adolescents who have experienced childhood maltreatment.

Keywords: childhood maltreatment, childhood trauma, latent profile analysis, depressive symptoms, suicidal ideation

过犹不及——父母直升机教养与学龄儿童内化问题

赵晶晶[1] 王文慧[1] 邢淑芬[1]（通讯作者）
1 首都师范大学，北京，100048，通讯作者 xsf2986@163.com

摘　要 以 285 名学龄儿童（147 名男孩，M_{age} = 11.93 岁）及其父母为研究对象进行为期两年的短期追踪研究，考察 T1 父母直升机教养具体维度与 T2 学龄儿童内化问题间的关系模式，揭示儿童性别和年龄在上述关系中的特异性。结果发现：（1）父母直升机教育的不同维度对学龄儿童内化问题的影响是不同的；（2）父母比较子女的成绩正向预测学龄儿童一年后的内化问题，且两者之间呈线性关系；（3）父母过度情感投入（二次项）与儿童性别的交互

作用显著，过度情感投入与男孩内化问题之间存在 U 型效应，但这种关系在女孩中不显著；（4）父母干扰子女生活与儿童年龄的交互作用显著，小学高年级学生的父母干扰子女生活显著正向预测儿童一年后的内化问题，两者之间呈线性关系，初中阶段学生的父母干扰子女生活与学龄儿童一年后的内化问题之间无显著关联；（5）父母过度重视子女成绩与儿童年龄和性别的三项交互作用显著，在初中年级男孩父母的过度重视子女成绩负向预测学龄儿童一年后的内化问题，两者之间呈线性关系，但这种关系在初中年级女孩、小学高年级男孩和女孩中不显著。本研究结果对于丰富我国文化背景下直升机教养领域的研究有重要的理论意义，对于减少学龄儿童内化问题具有重要的实践意义。

关键词　直升机教养，过度养育，内化问题，学龄儿童，曲线关系

Too much is not enough—Helicopter Parenting and Internalizing Problems in School-Age Children

Zhao Jingjing[1]　Wang Wenhui[1]　Xing Shufen[1] (corresponding author)
1 Capital Normal University, Beijing, 100048, corresponding author xsf2986@163.com

Abstract：A short-term two-year longitudinal study was conducted with 285 school-age children (147 boys, M_{age} = 11.93 years) and their parents as research participants to examine the relationship between specific dimensions of helicopter parenting at T1 and internalizing problems in school-age children at T2, while also exploring the moderating effects of children's gender and age in this relationship. The results revealed the following findings: (1) Different dimensions of helicopter parenting had varying effects on school-age children's internalizing problems; (2) Parental academic comparison positively predicted children's internalizing problems one year later, and this relationship showed a linear effect; (3) The interaction between parents' overinvolvement (quadratic term) and children's gender was significant, indicating a U-shaped effect between overinvolvement and internalizing problems in boys, but this relationship was not significant in girls; (4) The interaction between parents' interference in children's lives and children's age was significant, with parental interference in the lives of upper-grade primary school students positively predicting their internalizing problems one year later in a linear effect, while there was no significant association between parental interference and internalizing problems in middle-grade students; (5) The three-way interaction among parents' excessive emphasis on children's academic performance, children's age, and gender was significant. In middle-grade boys, parental excessive emphasis on academic performance negatively predicted children's internalizing problems in a linear effect, but this relationship was not significant in middle-grade girls, upper-grade primary school boys, and girls. The results of this study carry important theoretical implications for enriching research on helicopter parenting within the cultural context of China and hold practical significance in reducing internalizing problems in school-age children.

Keywords: Helicopter parenting, Overparenting, Internalizing problems, School-age children, Curvilinear relationship

儿童青少年内化问题的症状结构——病理性网络分析的结果

刘晓曦　马建平　纪林芹　张文新（通讯作者）
山东师范大学心理学院，济南，250014，zhangwenxin@sdnu.edu.cn

摘 要　儿童青少年内化问题的共发现象是心理病理学和发展心理学家关注的重点，同时内化问题子类的划分亦存在争议。本研究采用儿童抑郁量表(Children’s Depression Inventory, CDI)、广泛性焦虑自评量表(Generalized Anxiety

Disorder, GAD-7)、Achenbach 青少年行为自评量表(Youth Self-Report, YSR)评估儿童青少年内化问题。以病理性网络分析的方法，对 45866 名小学至高中（职专）样本（四五年级 17874 人，平均年龄 10.64±0.77 岁，男性 52%；六七八年级 21997 人，平均年龄 12.90±0.94 岁，男性 53%；高一高二年级 4119 人，平均年龄 16.21±0.74 岁，男性 50%；职业中专 1876 人，平均年龄 16.17±0.72 岁，男性 54%）进行分析，构建各症状间的关系网络以确定不同年龄段的典型症状、探究内化问题网络是否存在发展的稳定性。结果表明，构建的网络属于密集连接型，症状间存在大量微弱关联。各阶段儿童青少年的代表性症状基本一致，其中焦虑在内化问题症状网络中占据重要位置。不同年龄段的网络对比表明，随年龄增长，普遍的趋势为抑郁症状的中心性下降，焦虑症状的中心性上升。此外，基于 Walktrap 算法的社区发现分析结果表明，各阶段维度划分的界限不清晰；四五年级、六七八年级症状分为 5 个社区、高中及职专症状分为 6 个社区；除躯体化的“疲劳”、“噩梦”症状以及焦虑的“易怒”外，抑郁、躯体化、焦虑症状能够较好的划分至同维度。网络差异分析的结果说明，高中网络结构同四五年级、六七八年级两阶段明显不同，这表明内化问题表现特征与年龄相关。本研究结果揭示了内化症状的核心症状及其相互关联，为内化问题各维度的共发现象提供了证据。

关键词　病理性网络分析，儿童青少年，内化问题，发展心理病理学

The Symptom Structure of Internalizing Problems in Children and Adolescents——Results of a Pathological Network Analysis

LIU Xiaoxi, MA Jianping, JI Linqin, ZHANG Wenxin
School of psychology, Shandong Normal University, Jinan 250014 China

Abstract: The co-occurrence of internalizing problems in children and adolescents is a focus of attention for psychopathologists and developmental psychologists, and there is also controversy over the classification of internalizing problems. This study used the Children’s Depression Inventory (CDI), Generalized Anxiety Disorder 7-item (GAD-7), and Achenbach Youth Self-Report (YSR) to assess internalizing problems in children and adolescents. Using a pathological network analysis approach, we analyzed 45,866 elementary to high school/professional school students (17,874 in grades 4-5, mean age 10.64±0.77 years, 52% male; 21,997 in grades 6-8, mean age 12.90±0.94 years, 53% male; 4,119 in grades 10-11, mean age 16.21±0.74 years, 50% male; and 1,876 professional school students, mean age 16.17±0.72 years, 54% male) to construct a network of relationships between symptoms to identify typical symptoms at different ages and explore whether the network of internalizing problems has developmental stability. The results showed that the estimated network was densely connected and characterized by a multitude of weak associations between symptoms. The representative symptoms of children and adolescents at each stage were basically consistent, with anxiety occupying an important position in the network of internalizing problem symptoms. Comparison of networks at different ages showed that as age increased, the general trend was for the centrality of depressive symptoms to decrease and the centrality of anxiety symptoms to increase. In addition, based on Walktrap community detection results showed that the boundaries between dimensions are weak at each stage; symptoms were divided into 5 communities in grades 4-5 and 6-8, and into 6 communities in high school and professional school; except for individual symptoms, the division of depression, somatization, and anxiety dimensions was relatively accurate. Network difference analysis results showed that the high school network structure was significantly different from those in grades 4-5 and 6-8, indicating that internalizing problems are related to age. The results of this study reveal the core symptoms of internalization and their interrelationships, providing

evidence for the co-occurrence phenomenon of various dimensions of internalizing problems.

Keywords: Pathological Network Analysis, Children and Adolescents, Internalizing Problems, Developmental Psychopathology

跨诊断儿童青少年精神病患者的非自杀性自伤行为与脑结构、功能连接和心理健康的关系

刘轩[1]，张艺馨[1],张文新[1]王康程[1]（通讯作者）

1 山东师范大学心理学院，济南，250358，wangkangcheng@sdnu.edu.cn

摘 要　非自杀性自伤(Non-suicidal self-injury, NSSI)是指在无自杀意图的条件下对身体故意的、自我造成的伤害。它是一种常见的心理健康问题，在儿童和青少年中发病率高，且存在与多种精神疾病中。之前的研究表明，在特定的诊断背景下（如注意力缺陷多动障碍和抑郁症），NSSI 与奖励处理、执行控制和情绪调节相关大脑区域的改变有关。然而，很少有研究探讨儿童和青少年跨诊断队列中与 NSSI 相关的大脑改变。

在本研究中，我们使用了 Healthy Brain Network (HBN) 中的一个跨诊断样本（n = 386，平均年龄= 10.72，从 5.04 到 21.22 岁，诊断障碍包括注意缺陷多动障碍，抑郁，焦虑等）的脑结构（灰质体积），功能连接和 NSSI 之间的关联。我们采用多元回归模型探索与 NSSI 严重程度相关的结构和功能连接的改变。此外，我们也进行了调节分析，以探讨大脑改变在内化和外化问题与自伤行为之间的作用。

我们发现壳核体积的减少与 NSSI 的严重程度显著相关。左侧壳核与双侧颞上回、颞中回与左侧角回之间以及右侧壳核与双侧距状回之间的连接也与 NSSI 行为相关。有趣的是，这些大脑改变在内化和外化问题与自伤行为之间的关系中起着显著的调节作用。

我们的研究结果表明，在各种跨诊断的精神疾病中，NSSI 与壳核的结构改变和功能异常有关，这表明壳核可能是启动 NSSI 行为的共同生物标志物和神经调控治疗的潜在靶点。

关键词　非自杀性自伤，儿童青少年，大脑改变，跨诊断

Non-suicidal self-injury and brain structure, functional connectivity and mental health in transdiagnostic psychiatric patients of children and adolescents

Xuan Liu[1], Yixin Zhang[1], Wenxin Zhang[1] , Kangcheng Wang[1*],

1 School of Psychology, Shandong Normal University, Jinan, 250358, China

Abstract：Non-suicidal self-injury (NSSI) refers to the deliberate, self-inflicted harm to the body without suicidal intent. It is a common mental health problem with a high incidence in children and adolescents, and it presents across disorders. Previous studies have shown it associated with alterations in brain regions, such as reward processing, executive control and emotion regulation, in specific diagnostic disorder, such as ADHD and depression. However, few studies have explored the brain alterations associated with NSSI in a transdiagnostic cohort of children and adolescents.

Here, we examined the associations between brain structure (gray matter volume), functional connectivity and NSSI, in a transdiagnostic sample (n = 386, mean age = 10.72, from 5.04 to 21.22 years old, disorders included ADHD, depression, anxiety, etc.), from the Healthy Brain Network (HBN) study. We conducted a multiple regression model to explore the structural and functional connectivity alterations associated with the severity of NSSI. Also, moderation analyses were

performed to explore the role of brain alterations between internalizing and externalizing problems and NSSI.

We found that decreased putamen volume was significantly associated with the severity of NSSI. Further, our results revealed that connectives between the left putamen and bilateral superior temporal gyrus, middle temporal gyrus and left angular gyrus, and between the right putamen and bilateral calcarine gyrus were also associated with NSSI behavior. Interestingly, these brain alterations played the significant moderating roles in the relationships between internalizing and externalizing problems and NSSI.

Our findings suggest that NSSI is linked to structural alterations and dysfunctions in putamen across various transdiagnostic disorders, highlighting the putamen may server as a common biomarker for initiating NSSI behavior and the potential target for neuromodulation treatments across conditions.

Keywords：Non-suicidal self-injury, children and adolescents, brain alterations, transdiagnostic disorders

亲-子感知协同教养差异模式与青少年情绪相关变量的关系研究

应洁峰[1] 伍新春[1,2]（通讯作者）

1 北京师范大学心理学部, 应用实验心理北京市重点实验室, 心理学国家级实验教学示范中心（北京师范大学），北京 100875，xcwu@bnu.edu.cn；

2 北京师范大学应用心理学院（珠海校区），广东 519087

摘 要 协同教养行为是指承担父母角色的夫妻双方围绕子女教育而相互作用的方式，家庭科学领域的研究表明，不同家庭成员对于同一教养行为的感知可能存在潜在差异，但是目前对于亲-子感知协同教养差异模式的具体类型，以及不同类型在青少年情绪相关变量上的差异性还有待探究。通过方便取样，从北京、广东、山东、湖北、四川、宁夏、内蒙古等地，邀请中小学校在读学生及其父母三方，以家庭为单位参与调查。通过匹配，得到 747 个家庭的亲子成对数据。其中 48.6%的家庭中是男性青少年，青少年的平均年龄为 13.26 岁。本次调查通过在线问卷进行评估，采用以个体为中心的分析视角，主要涉及潜在剖面分析和混合回归模型分析。调查及分析内容包括父-母-子三方的人口学变量、对协同教养行为的感知、情绪调节策略和消极情绪症状。结果表明：（1）亲-子感知消极协同教养差异模式有“一致型”、“孩子同时高于父母型”、“仅母亲高于孩子型”、“仅父亲高于孩子型”4 个亚类；亲-子感知积极协同教养行为差异模式有“一致型”、“父母同时高于孩子型”、“孩子同时高于父母型”3 个亚类；（2）针对消极协同教养的感知差异亚类，“孩子同时高于父母型”在孤独感、焦虑、抑郁水平上显著更高，而针对积极协同教养的感知差异亚类，“父母同时高于孩子型”在孤独感、焦虑、抑郁水平上显著更高；（3）情绪调节策略在感知差异模式亚类和消极情绪症状之间起到中介作用。本研究进一步揭示了中国亲子感知协同教养行为差异模式的多样性，回应了有关亲子感知差异的“三合一”模型，同时也为家庭环境中青少年情绪健康问题的干预和疏导提供了理论支持。

关键词 协同教养，感知差异，潜在剖面分析，情绪调节策略，消极情绪症状

Chinese Parent-Child Discrepancies in Perceived Parental Coparenting: Associations with Adolescent Emotional Outcomes

Jiefeng Ying[1] Xinchun Wu[1,2] (Correspondence)

1 Beijing Key Laboratory of Applied Experimental Psychology, National Demonstration Center for Experimental Psychology Education (Beijing Normal University), Faculty of Psychology, Beijing Normal University, Beijing, 100875, China；

2 School of Applied Psychology, Beijing Normal University at Zhuhai, Guangdong, 519087, China

Abstract：Coparenting behaviors refer to the ways in which couples who are assuming parental roles interact around their children's education. Studies in the field of family science have shown that there may be discrepancies in how different family members perceive the same parenting behaviors. Further research is needed to understand the specifics of the patterns of parent-adolescent discrepancies in perceived parental coparenting, and how they can influence adolescent emotional outcomes. A total of 747 adolescent students (48.6% male; M_{age} = 13.26 years, *SD* = 3.39) and their mothers and fathers participated in this study. To strengthen the diversity of sample sources, the family sample included regions from Beijing, Guangdong, Shandong, Hubei, Sichuan, Ningxia, and Inner Mongolia. This questionnaire survey includes demographic, negative and positive coparenting behaviors, emotion regulation strategies, loneliness, anxiety, and depression symptoms. Latent profile analysis and regression mixture model with the BCH method were conducted. Through a person-centered approach, this study identified distinct patterns of parent-adolescent discrepancies in perceived coparenting and their different associations with adolescent emotional outcomes. Adolescents' more perceptions of negative coparenting relative to parents were associated with more loneliness, anxiety, and depression symptoms, whereas adolescents' fewer perceptions of positive coparenting relative to parents were related to more loneliness, anxiety, and depression symptoms. Emotion regulation strategies mediate the relationship between the patterns of parent-adolescent discrepancies in perceived coparenting and adolescent negative emotional symptoms. This study further reveals the diversity of perceived differences in coparenting behaviors between parents and children in China, responds to the Operation Triad Model, and provides theoretical support for the intervention and guidance of adolescents' emotional health problems in the family environment.

Keywords：Parental coparenting, emotion regulation strategies, loneliness, anxiety, depression

协同教养冲突对父母抑郁症状的影响：一个有调节的主客体互倚中介模型

邹盛奇[1]　伍新春[2]（通讯作者）

1 湖南师范大学教育科学学院心理学系，认知与人类行为湖南省重点实验室，心-脑交叉科学研究中心，长沙 410081；

2 北京师范大学心理学部, 应用实验心理北京市重点实验室，心理学国家级实验教学示范中心（北京师范大学），北京 100875，通讯作者 E-mail: xcwu@bnu.edu.cn

摘 要　协同教养冲突是父母协同教养的核心特征，指父母在共同教养子女过程中的争论、对立、不一致和相互贬低。家庭系统理论指出，父母协同教养冲突在家庭中具有中心地位，发挥核心作用。然而，由于已有研究集中关注父母协同教养冲突对子女心理和行为适应的影响，忽视了其在父母自身心理健康中的作用，因而现有的实证证据不足以支持这一观点。因此，本研究拟考察协同教养冲突对父母抑郁症状的影响及其作用机制，以期为家庭系统理论的这一观点提供新的证据支持。通过方便取样的方法共选取 628 对学前儿童的父亲和母亲参与研究，采用父母协同教养行为问卷、教养能力感问卷、生活满意度问卷、抑郁自评量表和工作家庭冲突问卷进行测量，使用主客体互倚模型进行数据分析，结果显示：（1）父亲冲突和贬低对自身抑郁症状的主体效应显著，仅母亲冲突对自身抑郁症状的主体效应显著，即协同教养冲突对父母抑郁症状的影响呈现主体模式。（2）主客体互倚中介模型结果发现，父亲冲突和贬低通过对教养满意度产生的主体效应对自身抑郁症状起主体中介效应，也对母亲抑郁症状起客体中介效应；母亲冲突通过对教养满意度和生活满意度产生的主体效应对自身抑郁症状起主体中介作用，同时通过对父亲教养满意度产生客体效应起中介作用；母亲贬低通过对生活满意度产生的主体效应对自身抑郁症状起主体中介作用。（3）家庭对工作的冲突通过调节父亲和母亲冲突对生活满意度的主体效应来调节其对自身抑郁症状的主体中介效应，通过调节父亲贬低对教养满意度产生的主体效应来调节其对自身抑郁症状的主体中介效应，进一步通过调节母亲贬低对父亲教养满意度的客体效应来调节其对父亲抑郁症状的客体中介效应。研究结果一定程度上补充了支持协同教

养冲突在家庭中发挥核心作用的支持证据，也阐释了协同教养冲突影响父母抑郁症状的过程及其父母差异，对改善父母的心理健康状况具有一定的启示作用。

关键词　父母协同教养冲突，父母抑郁症状，主客体互倚模型

The Effect of Coparenting Conflict on Parental Depressive Symptoms: A Moderated Mediation Model of Actor-Partner Interdependence Model

Shengqi Zou[1]　Xinchun Wu[2]

1. Center for Mind & Brain Science, Cognition and Human Behavior Key Laboratory of Hunan Province, Department of Psychology, School of Educational Science, Hunan Normal University, Changsha 410081;

2. Beijing Key Laboratory of Applied Experimental Psychology, National Demonstration Center for Experimental Psychology Education (Beijing Normal University), Faculty of Psychology, Beijing Normal University, Beijing 100875

***Abstract*：** Coparenting conflict is a core characteristic of coparenting, referring to the arguments, opposition, inconsistency, and mutual undermining between parents during the process of jointly raising children. Family systems theory suggests that coparenting conflict holds a central position within the family and plays a pivotal role. However, existing research has primarily focused on the impact of coparenting conflict on children's psychological and behavioral adaptation, neglecting its role in parents' own mental well-being. Consequently, there is insufficient empirical evidence to support this viewpoint. Therefore, this study aimed to examine the effect of coparenting conflict on parental depressive symptoms and its underlying mechanisms, in order to provide new evidence supporting this aspect of family systems theory. A convenience sample of 628 pairs of preschool children's fathers and mothers participated in the study. Measurements were conducted using the Co-parenting Behavior Questionnaire, Parenting Self-Efficacy Scale, Life Satisfaction Questionnaire, Self-rating Depression Scale, and Work-Family Conflict Scale. Data analysis was performed using the actor-partner interdependence model. The results showed that: (1) The actor effects of coparenting conflict and undermining on their own depressive symptoms were significant, while only maternal coparenting conflict had a significant actor effect on their own depressive symptoms, indicating that the impact of coparenting conflict on parental depressive symptoms followed an actor-only pattern. (2) The results of the actor-partner interdependence mediation model revealed that paternal coparenting conflict and undermining had an actor mediating effect on their own depressive symptoms through the actor effects on parenting satisfaction, as well as a partner mediating effect on maternal depressive symptoms. Maternal coparenting conflict had an actor mediating effect on their own depressive symptoms through the actor effects on parenting satisfaction and life satisfaction, while also having a partner mediating effect through the actor effect on paternal parenting satisfaction. Maternal coparenting undermining had an actor mediating effect on their own depressive symptoms through the actor effect on life satisfaction. (3) The family-to-work conflict moderated the actor effect of paternal and maternal coparenting conflict on life satisfaction, thereby moderating their respective actor mediating effects on their own depressive symptoms. It also moderated the actor mediating effect of paternal coparenting undermining on parenting satisfaction, further moderating the partner mediating effect on paternal depressive symptoms through the actor effect on maternal parenting satisfaction. The findings of this study to some extent supplemented the supporting evidence for the central role of coparenting conflict within the family and elucidated the process of how coparenting conflict affected parenal depressive symptoms and the parental

differences. These findings had implications for improving parents' mental health.

Keywords：coparenting conflict, parental depressive symptoms, actor-partner interdependence model

父母婚姻质量与协同教养冲突：儿童气质与子女数量的作用

刘畅

北京教育学院学前教育学院，北京，100120

通讯作者 E-mail: liuchang@bjie.ac.cn

摘 要　父母协同教养是父亲与母亲之间的教养联盟，对儿童发展具有重要作用。其中协同教养冲突指父亲和母亲在儿童面前的争论，是研究者关注较多的协同教养指标。研究者发现婚姻质量是协同教养预测因素中最稳定的预测源，并提出亲职易感性用于解释父职与父子关系或母职与母子关系易受婚姻质量影响的现象。目前父职易感性已得到大量研究支持，但相关研究在母职易感性方面的支持仍十分有限。在父职易感性的研究中，研究者同时关注了婚姻质量与父职关系中的中间变量。由于父母的协同教养直接指向儿童，儿童并非被动地受父母教养行为的影响，而是具有塑造协同教养的作用，因此本研究的目的是探讨儿童气质与子女数量在父亲和母亲婚姻质量与协同教养冲突中的多重调节作用，以分析亲职易感性。在 27 个省（市、自治区）采取主试入户与现场集体施测相结合的方式进行抽样调查，共 364 个家庭参与了研究。采用协同教养问卷、婚姻质量问卷、儿童气质问卷对研究的主要变量进行测查。研究发现，父母婚姻质量均负向作用于协同教养冲突，儿童节律性与趋避性在婚姻质量与协同教养冲突的关系中具有调节作用，子女数量与儿童反应强度不存在调节作用；儿童节律性越高，父亲婚姻质量与协同教养冲突的负向关系越弱；儿童趋避性越高，母亲婚姻质量与协同教养冲突的负向关系越弱。本研究的结果提示了父职与母职易感性的保护性因子不同。

关键词　协同教养冲突，婚姻质量，儿童气质，子女数量，亲职易感性

The Relationship of Marital Quality and Coparenting Conflict: The Moderating Role of Child Temperament and Number of Children

Chang Liu

Preschool Academy, Beijing Institute of Education, Beijing 100120, China

Abstract： Coparenting refers to parenting alliance between father and mother that plays an important role in child development. One of the indicators of that has received more attention is coparenting conflict, which refers to arguments between father and mother in the presence of children. Researchers have found marital quality to be the most stable predictor of coparenting and have proposed parenting vulnerability for explaining the vulnerability of fatherhood and father-child relationships or motherhood and mother-child relationships to marital quality. Fathering vulnerability has been supported by a large body of research, but support from related research on mothering vulnerability remains limited. In studies of fathering vulnerability, researchers also have focused on moderator variables. Coparenting is directed to children, who are not passively influenced but have a role in shaping coparenting. The aim of this study was to explore the multiple moderating roles of child temperament and number of children in the associations between marital quality and coparenting in order to explore parenting vulnerability. A total of 364 families participated a sample of 27 provinces, municipalities and autonomous regions, using home visit and on-site measure. The main variables of this study were measured using Coparenting Scale, Marital Inventory and Parent Temperament Questionnaire. It was found that father and mother marital quality had negative

effect on coparenting conflict; Rhythmicity, Approach and withdrawal moderated the associations between marital quality and coparenting conflict; Number of children and Intensity of reaction did not play a moderating role; father marital quality had lower negative relationship with coparenting conflict when child had higher rhythmicity; mother marital quality had lower negative relationship with coparenting conflict when child had higher approach and withdrawal. The results of this study suggest father and mother vulnerability had different protective factors.

Keywords：Coparenting conflict, Marital quality, Child temperament, Number of children; Parenting vulnerability

父母冲突与青少年学校适应：协同教养的中介作用

石佳霖[1]　伍新春[1,2]（通讯作者）

1 北京师范大学心理学部，应用实验心理北京市重点实验室，心理学国家级实验教学示范中心（北京师范大学），北京，100875，xcwu@bnu.edu.cn

2.北京师范大学应用心理学院（珠海校区），广东，519087

摘 要　学校适应是指个体对学校生活的适应性以及在学校中表现出的社会行为结果，包括社会能力和反社会行为两方面，是青少年时期的重要社会化指标。学校适应会影响青少年的身心健康发展，也关系到其成年后的社会适应。以往研究发现，父母冲突是影响青少年适应的风险因子，然而领域内对父母冲突的不同维度带来的影响差异关注较少，且父母冲突可能存在积极作用，因此本研究同时检验了父母冲突的频率、强度和解决程度对青少年的学校适应的不同影响。相关理论和研究表明，父母产生的冲突可能会通过二人的共同的教养行为进而对青少年产生影响，本研究考察了父亲和母亲的协同教养在父母冲突和学校适应间的中介作用。

本研究共有 803 名 10-19 岁青少年参与，平均年龄为 13.65 岁，其中包括 371 名男生，占总体样本的 46.2%。研究采用问卷调查的方法，对青少年感知的父母冲突、父母协同教养和学校适应进行评估，并使用 SPSS 25.0 和 Mplus 8.3 进行数据分析。

研究结果表明：(1)父母冲突的不同维度对青少年学校适应的影响不同：父母冲突强度正向影响青少年反社会行为，冲突解决程度正向影响青少年社会能力；(2)协同教养的中介作用：父母冲突频率通过父亲积极协同教养对青少年的社会能力产生影响；冲突解决程度通过父亲和母亲的积极协同教养对青少年的社会能力产生正向影响；父母冲突频率、强度、解决程度通过父亲消极协同教养对青少年的反社会行为产生影响。理论角度上，本研究的结果揭示了父母冲突的不同维度对青少年学校适应有着消极和积极的影响，父母的协同教养在其中能够起到中介作用，对其机制有了进一步理解。实践角度上，研究结果提示我们，帮助父母提升应对和解决冲突的能力能够让双方在养育行为上更好地配合，从而对青少年的适应发展有着促进作用。

关键词　学校适应，父母冲突，协同教养，青少年

The Relationship Between Interparental Conflict and Adolescents' School Adjustment: The Mediation Role of Co-parenting

Jialin Shi[1]　Xinchun Wu[1,2] (Correspondence)

1 Beijing Key Laboratory of Applied Experimental Psychology, National Demonstration Center for Experimental Psychology Education (Beijing Normal University), Faculty of Psychology, Beijing Normal University, Beijing, 100875, China；

2 School of Applied Psychology, Beijing Normal University at Zhuhai, Guangdong, 519087, China

Abstract：School adjustment refers to the individual's adaptability to school life and the social behavior in school, including social competence and anti-social behavior. School adjustment is an important socialization index of adolescence,

it will not only affect the physical and mental development, but also related to their adult social adjustment. Previous studies have found that interparental conflict is a risk factor for adolescent adjustment, however, there is less attention paid to the impact of different dimensions of parental conflict in the field, which interparental conflict may have a positive effect. Therefore, this study examined the frequency, intensity and resolution of interparental conflict on the different impact of school adjustment of adolescents. According to theories and studies, interparental conflict may affect adolescents through their parents' co-parenting behaviors, this study also examined the mediating effect of both father's and mother's co-parenting between interparental conflict and school adjustment.

A total of 803 adolescents aged 10-19 years old participated in the study. The mean age of adolescents was 13.65 years old (*SD*=2.53),46.2% of the adolescents were boys (n=371). We used questionnaire to assess adolescents' perceptions of interparental conflict, parent's co-parenting behavior, and school adjustment. Data were analyzed in SPSS 25.0 and Mplus 8.3.

The results showed that: (1) Different dimensions of interparental conflict had different effects on adolescents' school adjustment. The intensity of interparental conflict positively affected adolescents' antisocial behavior, and the degree of conflict resolution positively affected adolescents' social competence. (2) The mediating effect of co-parenting: the frequency of interparental conflict has an effect on adolescents' social competence through father's positive co-parenting, the degree of conflict resolution has a positive effect on adolescents' social competence through the positive co-parenting of both parents.The frequency, intensity and resolution of interparental conflict have an impact on adolescents' antisocial behavior through the negative co-parenting of fathers. Theoretically, the results of this study reveal that different dimensions of interparental conflict have both negative and positive impact on adolescents' school adjustment, and co-parenting can play a mediating role as the mechanism. Pratically, the findings suggest that helping parents improve their ability to deal with and resolve conflicts can lead to better cooperation of parenting behaviors, which can promote adaptive development of adolescents.

Keywords：School adjustment, interparental conflict, co-parenting, adolescents

工作-家庭冲突与父母协同教养行为的关系：教养压力的中介作用

张佳捷[1]　邹盛奇[2]（通讯作者）

1 湖南师范大学教育科学学院心理学系，长沙

2 湖南师范大学教育科学学院心理学系，认知与人类行为湖南省重点实验室，心-脑交叉科学研究中心，长沙 410081，

通讯作者 E-mail:，zoushengqi@hunnu.edu.cn

摘　要：为儿童的学前教育创造一个良好的家庭环境，不仅能够促进个体的身心健康，还能引导个体适应社会，为其日后发展打下坚实基础。大量研究表明，工作-家庭冲突会对家庭产生负面影响，但现有研究对家庭功能的考察范围仍然有限。家庭系统理论指出，协同教养子系统是家庭系统的中心，而父母协同教养行为是该子系统的核心特征，指父母在共同承担抚养特定儿童时所表现出来的支持协调或矛盾冲突，是父母教养研究的新趋势。因此，本研究拟考察工作-家庭冲突与父母协同教养行为之间的关系及其作用机制。通过方便取样选取 706 位幼儿园儿童家长进行问卷调查，采用工作-家庭冲突问卷、养育压力量表和协同教养行为问卷作为测量工具，使用结构方程模型进行数据分析。结果发现：（1）家庭对工作冲突负向预测父母协同教养一致行为，正向预测父母协同教养冲突行为。（2）工作对家庭的冲突能够通过负向预测教养压力，进一步负向预测父母协同教养一致行为，正向预测父母协同教养冲突行为。（3）家庭对工作的冲突则通过正向预测教养压力，负向预测父母协同教养一致行为以及正向预测父母协同教养冲突行为，同时家庭对工作的冲突对父母协同教养冲突行为的直接预测作用仍然显著。研究结果不仅扩展了工作-家庭冲突的影响范围，也可以为提升和促进父母协同教养的实践活动提供干预策略，未来研究可进一步探究工作

-家庭冲突对父母协同教养行为的影响及其作用机制的父母性别差异，以提供更有针对性的促进父母协同教养的建议和策略。

关键词　工作-家庭冲突，教养压力，父母协同教养行为

The relationship between work-family conflict and coparenting behavior: the mediating effect of parenting pressure

Jiajie Zhang[1], Shengqi Zou[2] (corresponding author)

1.Department of Psychology, College of Education Science, Hunan Normal University, Changsha, 410006,

2. Center for Mind & Brain Science, Cognition and Human Behavior Key Laboratory of Hunan Province, Department of Psychology, School of Educational Science, Hunan Normal University, Changsha 410081

Abstract：Creating a good family environment for children's preschool education can not only promote individual physical and mental health, but also guide individuals to adapt to society and lay a solid foundation for their future development. Numerous studies have shown that work-family conflict can have a negative impact on families, but the scope of existing research on family function is still limited. Family Systems Theory states that
the coparenting subsystem is the center of the family system, and the coparenting behavior of parents is the core feature of this subsystem. It refers to the support, coordination, or conflicts that parents exhibit when jointly taking on the responsibility of raising a specific child, which is a new trend in parental parenting research. Therefore,
the purpose of this study is to explore the relationship and mechanism between work-family conflict and parental coparenting behavior . 706 parents of kindergarten children were selected for a questionnaire survey through convenient sampling. The work-family conflict questionnaire, parenting stress scale, and collaborative parenting questionnaire were used as measurement tools, and structural equation modeling was used for data analysis. The results showed that: (1) family-work conflict negatively predicts parental coparenting consistent behavior and positively predicts parental coparenting conflict behavior. (2)work-family conflict can negatively predict parenting stress, further negatively predict parental coparenting consistent behavior , and positively predict parental coparenting conflict behavior. (3) family-work conflict can positively predict parenting pressure, negatively predict parental coparenting consistent behavior, and positively predict parental coparenting conflict behavior. At the same time, the direct predictive effect of family-work conflict on parental coparenting conflict behavior is still significant. The research results not only expand the scope of the impact of work-family conflict, but also provide intervention strategies for enhancing and promoting practical activities of parental coparenting. Future research can further explore the impact of work-family conflict on parental coparenting behavior and the gender differences in its mechanisms, in order to provide more targeted suggestions and strategies for promoting parental coparenting.

Keywords：work-family conflict,parenting pressure, parental coparentingt behavior.

父母认知情绪调节与青少年的依恋和抑郁症状的关系：一项潜在剖面分析

余晓晴[1] 刘明宵[1] 刘艾祎[1] 伍新春[1]（通讯作者）任怡臻[1]

[1]北京师范大学心理学部，应用实验心理北京市重点实验室，心理学国家级实验教学示范中心（北京师范大学），北京，100875，xcwu@bnu.cdu.cn

摘 要 基于家庭生态系统理论，父母的认知情绪调节可能会影响亲子关系以及父母和孩子的心理健康。本研究使用潜在剖面分析(Latent Profile Analysis，LPA)来探索父母的认知情绪调节，并考虑父母的年龄、教育程度和工作时间等人口学变量对潜在剖面分析的影响，以及不同父母认知情绪调节对青少年的亲子依恋、三方抑郁症状的影响。在北京、广东和湖北等地，采用认知情绪调节问卷（父母）、亲子依恋量表和抑郁量表等对 700 名青少年（男孩 346 人，女孩 354 人；平均年龄：孩子 14.34 ± 2.419 岁）及其父母进行了调查。结果发现：（1）父母的认知情绪调节可以分为三种潜在类别：低水平组（5.15%），中等水平组（65.09%），高水平组(29.76%) 。（2）较低教育程度的母亲更可能归于认知情绪调节的低水平组，而父母双方的年龄和工作时间和父亲的教育程度对认知父母情绪调节的潜在剖面的关系不显著。（2）在父母的抑郁症状方面，低水平组的父亲和母亲均出现更严重的抑郁症状。（3）高水平组的父子和母子依恋水平显著高于中等水平组和低水平组，而中等水平组和低水平组间的差异不显著。（4）在孩子的抑郁症状方面，低水平组和中等水平组的青少年抑郁症状高于高水平组，而中等水平组和低水平组间的差异不显著。本研究结果表明，父母认知情绪调节的潜在类别体现为能力水平的差异，强调父母认知情绪调节在促进良好的亲子关系和心理健康的重要意义。启示父母应该提高认知情绪调节的学习和使用，以改善自身的心理健康，为建立积极稳定的情绪环境，有助于青少年建立良好的亲子依恋和降低抑郁症状的风险。

关键词 父母情绪调节策略，潜在剖面分析，亲子依恋，抑郁症状

Parental cognitive emotion regulation in relation to attachment and depressive symptoms in adolescents: a latent profile analysis

Xiaoqing Yu[1], Mingxiao Liu[1], Aiyi Liu[1], Xinchun Wu[1*], Yizhen Ren[1]

[1]Beijing Key Laboratory of Applied Experimental Psychology, National Demonstration Center for Experimental Psychology Education (Beijing Normal University), Faculty of Psychology, Beijing Normal University, Beijing 100875, China

Abstract：Based on the family systems theory, parents' cognitive emotional regulation may affect the parent-child relationship as well as the psychological health of both parents and children. This study used the Latent Profile Analysis (LPA) to explore the latent of parental cognitive emotional regulation, considering the effect of demographic variables such as parents' age, educational level, and work hours, and the different patents of cognitive emotional regulation's impact on adolescents' parent-child attachment and depression symptoms. A survey was conducted among 700 adolescents(346 boys, 354 girls; average age: 14.34±2.419 years old) and their parents in Beijing, Guangdong, and Hubei, using the cognitive emotional regulation questionnaire, parent-child attachment scale, and depression scale. The results revealed that: (1) A latent profile analysis was conducted and determined three subtypes of parental cognitive emotional regulation: low-level group (5.15%), medium-level group (65.09%), and high-level group (29.76%). (2) Mothers with lower educational levels were more likely to fall into the low-level

group, whereas the age, work hours, and educational level of parents did not significantly influence the latent profile of parental cognitive emotional regulation. (3) Regarding parental depression symptoms, both fathers and mothers in the low-level group presented more severe depression symptoms. (4) The attachment levels of fathers and mothers in the high-level group were significantly higher than those in the medium and low-level groups, with no significant difference between the medium and low-level groups. (5) In terms of children's depression symptoms, the adolescents in the low and medium-level groups were higher than those in the high-level group, with no significant difference between the low and medium-level groups. The results of this study indicate that the latent category of parental cognitive emotional regulation reflects differences in ability level, emphasizing the importance of parental cognitive emotional regulation in fostering positive parent-child relationships and mental health. It suggests that parents should enhance their learning and use of cognitive emotional regulation to improve their own mental health, to establish a positive and stable emotional environment, which helps adolescents to establish good parent-child attachment and reduce the risk of depression.

Key words: parental emotional regulation strategies, latent profile analysis (LPA) , parent-child attachment, depressive symptoms

家庭功能对留守幼儿外化行为的影响：社会支持的调节作用

李志敏（通讯作者）　何冬丽

新乡学院教育科学学院，河南省新乡市，453000，lizhimin1987@hotmail.com

摘要：家庭功能是影响儿童心理健康的重要因素，并与其行为和情绪问题密切相关。拥有良好家庭功能背景的儿童往往有较低的心理健康问题检出率、较好的学校表现和较少的不良行为；反之，家庭功能失调则易使儿童出现更多适应问题。同伴关系、师幼关系是幼儿社会支持的重要来源。同伴关系是预测儿童行为问题的一个重要因素。如同伴间相互支持、关心和团结的程度越高，外化问题行为就越少。良好的师幼关系对幼儿社会技能的形成和积极社会行为的产生要的促进作用。高师幼冲突性往往会造成幼儿的社会适应不良（如产生攻击行为），而高师幼依赖性会导致幼儿的退缩行为。为了考察社会支持在留守幼儿家庭功能和外化行为之间的调节作用，选取河南省 4 地市的 6 所幼儿园 328 名留守幼儿为研究对象，采用家庭功能问卷，长处与困难问卷（家长版）和师幼关系问卷，并采用同伴提名法测查儿童同伴关系。结果显示，留守幼儿的情绪问题行为与家庭功能水平呈显著正相关，家庭功能水平越低，外化问题行为越多。当同伴拒绝较高时，家庭功能能够正向预测留守幼儿的情绪外化问题。当同伴接纳较高时，家庭功能对留守幼儿的正向预测不显著。当师幼亲密性处于低水平时，幼儿家庭功能对情绪问题行为正向预测作用显著；当师幼冲突性处于中、高水平时，幼儿家庭功能对情绪问题行为起到正向预测作用显著。

关键词：家庭功能，外化行为，社会支持，留守幼儿

The effect of family function on the externalized behavior of left-behind children: the moderating effect of social support

Li zhimin He dongli

Department of Educational and science, Xinxiang University, Henan province, Xinxiang City, 453000

Abstract：Family functioning is an important factor in children's mental health and is closely related to their behavioral and emotional problems. Children with a good family functioning background tend to have lower rates of mental health problems, better school performance, and fewer bad behaviors; Conversely, family dysfunction tend to increase adjustment

problems in children. Peer relationship and teacher-child relationship are important sources of social support for young children. Peer relationships are an important factor in predicting behavioral problems in children. The higher the level of mutual support, concern, and solidarity among peers, the less externalized problem behaviors will be. Good teacher-child relationship plays an important role in promoting the formation of children's social skills and the production of positive social behavior. Conflictuality often leads to social maladjustment (such as aggressive behavior) in young children, while dependence on senior teachers and children can lead to withdrawn behavior. In order to investigate the moderating effect of social support between family function and externalized behavior of left-behind children, 328 left-behind children from 6 kindergartens in 4 cities in Henan Province were selected as research objects, and the family functioning questionnaire, the strengths and difficulties questionnaire (parent version) and the teacher-child relationship questionnaire were used, and the peer nomination method was used to measure the children's peer relationship. The results showed that the emotional problem behavior of left-behind children was significantly positively correlated with the level of family functioning, and the lower the level of family functioning, the more externalized problem behavior. When peer rejection is high, family functioning can positively predict the emotional externalization of left-behind children. When peer acceptance was high, the positive prediction of family functioning on left-behind children was not significant. When the intimacy between teachers and children was at a low level, children's family functioning had a significant positive predictive effect on emotional problem behavior. When the conflict between teachers and children is at a medium or high level, children's family function has a significant positive predictive effect on emotional problem behavior.

Keywords：Family functioning, externalized behavior, social support, left-behind young children

8-12 岁留守儿童羞怯与情绪适应的关系：父母关爱的调节作用及其干预

张嘉琪　刘文 （通讯作者） 刘程成

辽宁师范大学，大连，116029

通讯作者 E-mail：wenliu703@126.com

摘 要　情绪适应指个体在面临内外环境中的压力时表现出的情绪的稳定与平衡状态，是衡量个体心理发展状况的重要指标之一。情绪适应良好与否关系着儿童青少年的健康成长。由于缺乏父母的关爱与陪伴，留守儿童的情绪适应状况堪忧。羞怯作为一种气质特征，对儿童的情绪适应具有消极影响。以往虽有研究关注到了羞怯与儿童情绪适应之间的关系，但大多只简单探讨了羞怯对情绪适应的直接作用，鲜有研究考虑到了其他因素在其中的作用。父母关爱指父母在心理和情感上对孩子的积极关注，是儿童成长过程中的重要支持资源，对儿童的情绪适应状况具有一定的保护作用。本研究采用问卷研究和干预研究相结合的方式，选取 508 名 8–12 岁留守儿童，探究父母关爱在羞怯与留守儿童情绪适应之间的作用机制，并根据研究结果设计相应的干预方案以改善留守儿童的情绪适应状况。结果发现，8–12 岁留守儿童的羞怯和情绪适应之间存在显著相关关系，具体表现为羞怯与留守儿童的社交焦虑、抑郁显著正相关，与主观幸福感显著负相关。结论：父母关爱在羞怯与情绪适应之间起调节作用，且均属于“雪中送炭”调节模式，具体表现为较高的父母关爱水平可以帮助缓解羞怯对留守儿童情绪适应的不利影响。经过为期六周共六次的父母关爱干预，结果发现父母关爱干预方案能显著提高干预组留守儿童的父母关爱得分，改善干预组留守儿童的情绪适应状况。

关键词　留守儿童，情绪适应，羞怯，父母关爱，干预研究

The Relationship between Shyness and Emotional Adjustment in Left-behind Children Aged 8–12 years: The Moderating Effect of Parental Care and its Intervention

Jiaqi Zhang Wen Liu Chengcheng Liu
Liaoning Normal University, Dalian, 116029

Abstract：Emotional adaptation refers to the stable and balanced state of emotions that an individual shows when facing the pressure of internal and external environment. It is one of the important indicators to measure the psychological development of an individual. Whether the emotional adaptation is good or not is related to the healthy growth of children and adolescents. Due to the lack of parental care and companionship, the emotional adaptation of left-behind children is worrying. As a kind of temperament, shyness has a negative effect on children's emotional adaptation. Reviewing the previous studies, although some studies have focused on the relationship between shyness and children's emotional adaptation, most of them only discussed the correlation between the two, and few studies took into account the role of other factors. Parental care refers to parents' active psychological and emotional attention to their children, which is an important support resource for children's growth process and may have a certain protective effect on children's emotional adaptation. This study used a combination of questionnaire research and intervention research of 508 8-12-year-old children to explore the mechanism of parental care between shyness and emotional adjustment of left-behind children, and design the corresponding intervention plan according to the research results to improve the emotional adjustment of left-behind children. Results showed that there was a significant correlation between shyness and emotional adjustment in left-behind children aged 8-12 years old. Specifically, shyness had a significant positive correlation with social anxiety and depression, and a significant negative correlation with subjective well-being. Conclusions: parental care played a regulating role in the relationship between shyness and emotional adjustment, and both of them belong to the regulation mode of "providing help in need". Specifically, a higher level of parental care can help alleviate the adverse effects of shyness on emotional adjustment of left-behind children. After six times of parental care intervention for six weeks, the results shows that the parental care intervention program can significantly improve the scores of parental care of left-behind children in the experimental group, and improve the emotional adaptation of left-behind children in the experimental group.

Keywords：Left-behind children, Emotional adaptation, Shyness, Parental care, Intervention study

学校心理环境与留守初中生社会适应：同伴侵害的中介作用与心理资本的调节作用

梁琳琳 刘文（通讯作者）
辽宁师范大学心理学院，大连，116029，wenliu703@126.com

摘要：社会适应是指个体在与社会环境的交互作用过程中,主动地顺应环境,调控和改变环境,最终达到与社会环境保持和谐关系和平衡状态。研究发现，留守儿童由于长期缺少父母关爱及有效的教育、引导和管理，与非留守儿童相比，社会适应问题较多。根据生态系统理论，学校是除家庭以外对学生发展影响最大的微观系统，学校氛围(如学校心理环境)与青少年社会适应的发展有着密切联系。然而，以往较少探讨学校心理环境影响青少年社会适应的内在作

用机制，且忽略了对留守儿童这一类处境不利儿童的考察。本研究基于生态系统理论和社会背景论探究了学校心理环境对留守初中生社会适应的影响，并旨在厘清该影响背后的心理机制。方法：采用学校积极心理环境问卷、积极心理资本问卷、多维同伴侵害量表以及儿童青少年社会适应问卷对农村儿童进行问卷调查，1 年后实施追踪，以前后测中一直处于留守状态的 482 名初中生（254 名男生，228 名女生；M_{age}=12.81，*SD*=0.75）作为研究对象，结果发现：(1)同伴侵害在学校心理环境与留守初中生社会适应的纵向关系中起到完全中介作用。(2)学校心理环境影响留守初中生社会适应的间接效应受到心理资本的调节。具体来说，学校心理环境能够通过减少同伴侵害进而促进留守初中生社会适应水平，心理资本可以缓冲不良学校心理环境对同伴侵害的消极影响，也能够降低同伴侵害对社会适应的负面影响。这启示我们促进留守初中生的社会适应水平，可从改进学校环境的角度入手，并且注重提升留守初中生的积极心理资本。
关键词：留守初中生，社会适应，学校心理环境，同伴侵害，心理资本

School Psychological Environment and Social Adjustment of Left -Behind Children: The Mediating Role of Peer Aggression and the Moderating Role of Psychological Capital

Linlin Liang, Wen Liu(corresponding author)
School of Psychology, Liaoning Normal University, Dalian 116029, China
wenliu703@126.com

***Abstract*:** Social adjustment refers to the process of interaction between individual and the social environment, actively conforming to the environment, regulating and changing the environment, and ultimately achieving a harmonious relationship and a balanced state with the social environment. It is found that left-behind children have more social adjustment problems than non-left-behind children due to the long-term lack of parental care and effective education, guidance and management. According to the ecosystem theory, school is the micro-system that has the greatest influence on students' development besides the family, and the school climate (e.g., the school psychological environment) is closely related to the development of adolescents' social adjustment. However, in the past, the intrinsic mechanisms by which the school psychological environment affects adolescents' social adjustment have been less explored, and the examination of disadvantaged children, such as left-behind children, has been neglected. The present study explored the influence of school psychological environment on the social adjustment of left-behind junior high school students based on the ecosystem theory and social context theory, and aimed to clarify the psychological mechanisms behind this influence. Methods: The School Positive Psychological Environment Questionnaire, the Positive Psychological Capital Questionnaire, the Multidimensional Peer Victimization Scale, and the Social Adjustment Questionnaire for Children and Adolescents were administered to rural children, and follow-up was implemented 1 year later, with 482 junior high school students (254 boys, 228 girls; *M*age=12.81, *SD*=0.75), who were consistently left behind in the pre and posttests, as the subjects of the study. The results found that (1)Peer victimization played a fully mediating role in the longitudinal relationship between school psychological environment and social adjustment of left-behind children. (2) The indirect effect of the school psychological environment influencing the social adjustment of left-behind children was moderated by psychological capital. Specifically, the school psychological environment can promote the social adjustment level of left-behind children by reducing peer victimization, and psychological capital can buffer the negative effects of poor school psychological environment on peer victimization and also reduce the negative effects of peer aggression on social adjustment. This suggests that we can start from the perspective

of improving the school environment to promote the social adjustment of left-behind children, and focus on improving the positive psychological capital of left-behind children.
***Keywords*:** Left-behind children, Social adjustment, School psychological environment, Peer victimization, Psychological capital

学校心理环境对留守初中生学习适应行为的影响：链式中介效应

李明鑫　刘文（通讯作者）
辽宁师范大学，大连，116012，wenliu703@126.com

摘要:随着我国城镇化进程的快速发展和农村劳动力向城镇转移，近年来留守儿童的数量逐年增多。家庭监护教育功能不足以及情感支持的缺乏使得留守儿童在学业表现、人际关系、情绪行为等方面都表现出了不同程度的适应不良。而学业的适应与成就是留守儿童寻求更好发展的关键途径，为促进留守儿童积极发展，应关注留守儿童学业适应问题。学习适应行为是学业适应的具体表现，反应了个体学习适应的过程和行为特点。学校是学生生活的主要场所，对学生的学习适应行为产生重要影响，学校氛围（学校心理环境）对家庭结构缺失的留守儿童的影响更为明显。然而，以往较少探讨学校心理环境对青少年学习适应行为的内在作用机制，且忽略了对留守儿童这一类处境不利儿童的考察。本研究基于自我决定理论探讨学校心理环境对留守初中生学习适应行为的影响及其内部心理机制。采用学校心理环境问卷、学习适应行为问卷、成长型思维问卷和心理资本问卷对 7~9 年级 1172 名留守初中生进行调查。研究结果发现：（1）学校心理环境对留守初中生学习适应行为有显著正向影响；（2）心理资本在学校心理环境和留守初中生学习适应行为之间起单独的中介作用；（3）成长型思维与心理资本起链式中介作用。研究表明良好的学校心理环境有利于提高留守初中生的心理资本，从而促进学习适应行为的增加。

关键词 学校心理环境，学习适应行为，成长型思维，心理资本，留守初中生

The Effect of School Psychology Environment on Left-behind Middle School Students' Academic Adaptive Behavior: The Chain Mediating Effect

Mingxin Li , Wen Liu (corresponding author)
School of Psychology, Liaoning Normal University, Dalian 116029, China
wenliu703@126.com

***Abstract*:** With the rapid development of China's urbanization process and the transfer of rural labour to the cities and towns, the number of left-behind children has been increasing year by year in recent years. Due to the insufficient function of family guardianship and education as well as the lack of emotional support, left-behind children show different degrees of maladjustment in academic performance, interpersonal relationships, emotional behavior, and other aspects. Academic adaptation and achievement are the key ways for left-behind children to seek better development. In order to promote the positive development of left-behind children, attention should be paid to the problem of academic adaptation. Academic adaptive behavior is the specific performance of academic adaptation, which reflects the process and behavioral characteristics of individual learning adaptation. School is the main place of students' lives, which has an important influence on students' academic adaptive behaviors, and the school atmosphere (school psychology environment) has an obvious

influence on left-behind children whose family structure is missing. However, the intrinsic mechanisms of the school psychological environment on adolescents' adaptive behaviors have been less explored in the past, and the examination of left-behind children, a category of disadvantaged children, has been neglected. Based on self-determination theory, explore the effect of perception of the school psychology environment on the academic adaptive behavior of left-behind middle school students and its underlying mechanisms. The Psychology Environment at School Questionnaire, Scale of Adaptive Behavior for Adolesents, Growth Mindset Scale, and Psychological Capital Questionnaire were administered to 1172 left-behind middle school students from grades 7 to 9. The results showed that: (1) the school psychological environment had a significant negative effect on left-behind middle school students' academic adaptive behavior; (2) psychological capital played a significant mediating role between the school psychological environment and left-behind middle school students' academic adaptive behavior, growth mindset, and psychological capital. The study suggests that a positive school psychology environment is conducive to increasing the psychological capital of left-behind middle school students, thus promoting academic adaptive behavior.
Keywords**:** School psychological environment, Academic adaptive behavior, Growth mindset, Psychological capital, Left-behind middle school students

生命早期环境不可预测性与青少年执行功能的关系：有调节的中介模型

徐旻昱　黎志华（通讯作者）
湖南科技大学教育学院，湖南省，湘潭市，411201，通讯作者 E-mail：lzhua1018@163.com

摘 要：基于进化生物学领域的生命史理论，生命早期不可预测的发育环境与执行功能较差存在一定联系，前人研究发现了生命早期环境不可预测性对执行功能的负面影响，但很少探讨其相关的作用机制。为了进一步明确生命早期环境不可预测性与青少年执行功能的关系及相关作用机制，研究采用生命早期环境不可预测性问卷、控制感量表、青少年执行功能问卷、首要次级控制优化量表对 570 名初高中生（M_{age}=14.9）进行调查。有调节的中介结果表明，（1）生命早期环境不可预测性显著负向预测青少年执行功能；（2）青少年早期的不可预测性越高，所感受到的控制感越低，执行功能也越差；（3）控制感的中介作用受到最优化策略的调节。研究有助于揭示生命早期环境不可预测性对青少年执行功能影响的作用机制，为未来执行功能的干预研究奠定基础。

关键字：青少年执行功能，生命早期环境不可预测性，控制感，最优化策略

The relationship between environmental unpredictability in early life and adolescent executive functioning: a mediated model with moderation

XU Minyu　LI Zhihua
College of education, Hunan University of Science & Technology, Xiangtan, 411201, Hunan Province

Abstract: Based on life history theories in the field of evolutionary biology, unpredictable developmental environments early in life are associated with poorer executive functioning. Previous studies have identified the negative effects of environmental unpredictability early in life on executive functioning, but have rarely explored the related mechanisms of action. To further clarify the relationship between early life environmental unpredictability and adolescents' executive functioning and the related mechanisms of action, the study was conducted with 570 junior and senior high school students (Mage = 14.9) using the Early Life Environmental Unpredictability Questionnaire, the Sense of Control Scale, the

Adolescent Executive Functioning Questionnaire, and the Optimization in primary and secondary control Scale. Moderated mediation results indicated that (1) early life environmental unpredictability significantly and negatively predicted adolescent executive functioning; (2) the higher the early adolescent unpredictability, the lower the perceived sense of control and the poorer the executive functioning; and (3) the mediating role of the sense of control was moderated by the optimisation strategy. The study helps to reveal the mechanism of action of environmental unpredictability in early life on adolescents' executive functioning and lays the foundation for future intervention studies on executive functioning.

Keywords: adolescent executive function, early life environmental unpredictability, sense of control, optimisation strategies

流动儿童相对剥夺感对学业倦怠的影响：公正世界信念的中介和逆境信念的调节作用

蔡滢[1] 孙天义[2]（通讯作者）

1 河南机电职业学院，郑州，451191

2 信阳师范大学，信阳，464000，sty543@126.com

摘 要 随着我国城镇化进程的快速发展和农村适龄劳动力向城镇转移，近年来，流动人口的“家庭化趋势”已经成为近十年人口流动的新趋势。如何保障流动儿童的心理健康和学业发展，是心理学和教育学工作者共同关注的重要问题。然而，许多从农村来到城市生活和学习的流动儿童因为种种原因无法适应学校紧张的学习氛围和高负荷的学业压力，出现了学业倦怠的现象，这对于青少年的学业表现和身心发展都是十分不利的，也有悖于我国教育强国的发展规划。以往研究发现，相对剥夺感会对流动儿童的偏差行为（如网络成瘾）和逃避行为（如职业倦怠）等产生影响，但少有研究探讨相对剥夺感对流动儿童学业倦怠的影响。本研究构建了一个有调节的中介模型来探究相对剥夺感对学业倦怠的影响，并研究公正世界信念和逆境信念在其中的作用机制。本研究采用相对剥夺感量表、学业倦怠量表、公正世界信念量表和逆境信念量表对 627 名流动儿童进行问卷调查研究，并从中选取高学业倦怠水平的个体进行焦点解决取向的干预研究，以证明本文构建的模型。结果显示：相对剥夺感对学业倦怠会产生影响，在这条影响路径上，公正世界信念能够起到中介作用，而逆境信念会对这种间接影响的后半段路径起调节作用。通过对流动儿童的相对剥夺感进行干预，我们发现流动儿童的相对剥夺感水平和学业倦怠水平显著下降，公正世界信念水平显著提高。综上所述，流动儿童的相对剥夺感能够通过公正世界信念的中介作用影响其学业倦怠，并且逆境信念在这一路径的后半段起到调节作用；以相对剥夺感为主题的团体心理辅导能够降低流动儿童的学业倦怠，具有可操作性。

关键词 相对剥夺感，学业倦怠，公正世界信念，逆境信念，流动儿童

The Effects of Migrant Children's Relative Deprivation on Academic Burnout: The Mediation of Belief in a Just World and The Regulation of Belief about Adversity

Cai Ying[1] Sun Tianyi[2]

1 Henan Mechanical & Electrical Vocational College, Zhengzhou, 451191

2 Xinyang Normal University, Xinyang, 464000, sty543@126.com

Abstract: With the rapid development of China's economy and the acceleration of the transfer of rural labor force, the "family trend" of migrant population has become a new trend of population mobility in the past decade. How to ensure the

mental health and academic development of migrant children is an important issue of common concern for psychologists and educators. However, many migrant children who come from rural areas cannot adapt to the tense learning atmosphere and high academic pressure for various reasons. The develop academic burnout, which has a bad influence to the academic performance and physical and mental development. It also runs counter to the development plan of China's education. Previous studies have found that the feeling of relative deprivation may have an impact on the biased behavior (such as Internet addiction) and avoidance behavior (such as burnout) in migrant children, but few studies have noticed the effect of relative deprivation on the academic burnout of migrant children. Therefore, this study constructs a moderated mediation model to explore the effects of relative deprivation on academic burnout, and to discuss the mechanisms of the belief in a just world and the beliefs about adversity. In this study, a questionnaire survey was conducted on 627 migrant children using the Relative Deprivation Scale, the School Burnout Scale, the Belief in a just world Scale, and the Beliefs about adversity Scale. Then we selected individuals with higher levels of academic burnout for intervention.

The results showed that the relative deprivation have an impact on academic burnout. In this path, the belief in a just world can play a mediating role, while the belief of adversity will regulate the second half of this indirect impact path. By intervening on migrant children's sense of relative deprivation, we found that migrant children's levels of relative deprivation and academic burnout decreased significantly and their levels of beliefs in a just world increased significantly.In summary, we conclude that migrant children's relative deprivation can influence their academic burnout through the mediating role of beliefs in a just world, and that beliefs about adversity play a moderating role in the second half of this pathway. Group counseling on the theme of relative deprivation can reduce academic burnout in migrant children and it's available.

Keywords: Relative Deprivation, School Burnout, Belief in a Just World, Beliefs about adversity, Migrant Children

父亲育儿参与在孤独症儿童语言发展中的作用

华子慧[1]，王筝[2]，李天碧[1]，李智[1]，易莉[1,3]

1 北京大学心理与认知科学学院/北京行为与心理健康重点实验室

2 北京市应用实验心理学重点实验室，实验心理学教育国家示范中心（北京师范大学），北京师范大学心理学院

3 北京大学 IDG 麦戈文脑科学研究所

摘 要 背景：过往针对孤独症儿童家庭的研究主要以母亲为参与者，且多关注母亲的作用和经历，较少关注父亲。现有的涉及孤独症儿童父亲的研究侧重于他们自我报告的生活经历，并研究了诸如亲职压力、心理健康和社会支持需求等问题（e.g., Rudelli et al., 2021）。很少有研究探究父亲在孤独症儿童发展中的作用。然而，根据以往在典型发育儿童家庭的研究，父亲对儿童的发展可能也扮演着重要且独特的角色。了解父亲的角色有助于更好地为孤独症儿童家庭提供支持，促进家庭干预的发展。

目标：本研究旨在调查孤独症儿童的父亲的育儿参与状况，并探究父亲育儿参与和孤独症儿童语言发展的关系，以及父亲育儿参与如何解释孤独症儿童与典型发展儿童在语言发展上的差异。

方法：本研究纳入了 83 名被诊断为孤独症谱系障碍（ASD）的 3 至 8 岁儿童（其中女孩 12 人，平均年龄为 5.39 岁，标准差为 1.09 岁）和 82 名年龄性别匹配的典型儿童（其中女孩 19 人，平均年龄为 5.66 岁，标准差为 0.82 岁）。儿童完成了韦氏学前和初等智力测验第四版（WPPSI-IV；Wechsler，2012），其语言发展由该测试的言语理解指数（VCI）进行测量。陪同儿童进行测试的照顾者通过问卷填写报告儿童的主要照顾者情况和家庭社会经济状况（SES）。

结果：孤独症儿童父亲的育儿参与率（32.5%）显著低于典型发展儿童父亲的育儿参与率（69.5%），$p < .001$。父亲

育儿参与与孤独症儿童的 VCI 显著相关，p = .004，并且在典型儿童中也显著相关，p = .002。父亲对 VCI 的影响不受其他照顾者的参与或任何家庭 SES 变量的中介。中介分析结果显示，父亲的育儿参与在 ASD 诊断与 VCI 之间起到部分中介作用，p < .001。

结论：我们发现孤独症儿童的父亲育儿参与率低于典型儿童父亲。父亲作为主要照顾者的孤独症儿童语言发展好于父亲不作为主要照顾者的孤独症儿童。父亲的育儿参与可能对于孤独症儿童的语言困难起到保护作用。我们的研究突出了父亲在孤独症儿童发展中的重要角色，并为涉及孤独症儿童家庭的干预提供了启示。

Unique association between increased father-child interaction and reduced pragmatic difficulties in autistic children: The mediating role of joint reading

Zihui Hua, Zhi Li, & Li Yi

Abstract: Background: Fathers have been underrepresented in research on families of autistic children (Rankin et al., 2019), and research on fathers' role in the language development of autistic children is limited. However, extensive research on neurotypical children has highlighted the importance of fathers in language development (e.g., Cabrera et al., 2017), necessitating investigation in the context of autistic children. Understanding fathers' role can inform parent-mediated interventions targeting language difficulties of autistic children.

Objectives: This study aimed to investigate the association between father-child interaction and autistic children's language development, specifically focusing on pragmatic difficulties. Our objectives were to a) examine the association between overall level of father-child interaction and pragmatic difficulties compared to mother-child interaction, and b) compare four types of father-child interactive activities (joint reading, chatting, video watching, game playing) in their associations with autistic children's pragmatic difficulties and identify the most influential activity.

Method: Thirty-one dyads of parents raising autistic children participated in this study (child age: M = 6.25, SD = 1.09; father age: M = 37.32, SD = 5.01; mother age: M = 36.45, SD = 4.53). Fathers and mothers completed online questionnaires. Fathers reported their overall interaction levels with their child using the Interaction subscale of the Father Involvement Questionnaire (Wu et al., 2015). For comparison purpose, mothers reported mother-child overall interaction levels using the same scale. Besides, parents reported how often they engage in the following interactive activities with their child: joint reading, chatting, video watching, and game playing. Autistic children's pragmatic difficulties were reported by mothers using the communication subscale of the Autism Spectrum Quotient—Children's Version (AQ-Child; Auyeung et al., 2008), with higher scores indicating increased pragmatic difficulties. Both parents reported their education, job, and income, which were synthesized to indicate the family's overall socioeconomic status (SES).

Result: Linear regression showed that after controlling for child's age and overall family SES, greater father-child overall interaction was associated with lower AQ communication scores of autistic children (β = -2.33, p = .009), whereas no significant association was found for mother-child overall interaction (p = .926). The association between father-child overall interaction and AQ communication scores remained significant after controlling for mother-child overall interaction (β = -2.34, p = .010). Among the four types of father-child interactive activities, joint reading was the only factor significantly

linked to AQ communication scores (β = -1.76, p = .032; see Table 1). Mediation analysis further revealed a significant indirect effect of father-child overall interaction on AQ communication scores through joint reading (indirect effect = -2.09, p = .011, indirect/total effect = 0.89; see Figure 1).

Discussion: This study revealed a unique association between father-child interaction and autistic children's pragmatic difficulties. Increased father-child overall interaction was associated with reduced pragmatic difficulties, independent of mother-child overall interaction and family SES. Furthermore, joint reading emerged as a critical activity in autistic children's pragmatic development, accounting for the effect of father-child interaction on autistic children's pragmatic difficulties. Our findings highlight the importance of father-child joint reading in autistic children's pragmatic development and provide implications for psychoeducation and intervention programs that involve families of autistic children.

Table 1

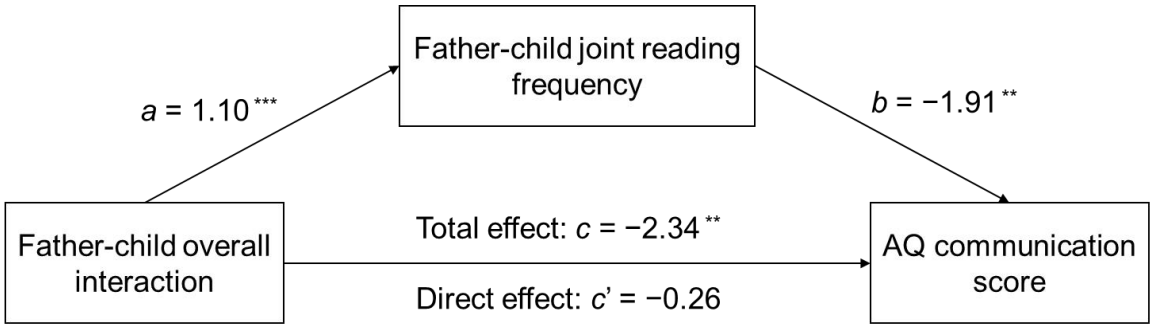
Linear Regression Analysis: Examining the Effects of Various Father-Child Interactive Activities on AQ Communication Scores in Autistic Children

Variable	B	p	95%CI
Father-child joint reading	-1.76	.032	[-3.36, -0.16]
Father-child chatting	1.12	.088	[-0.18, 2.42]
Father-child video watching	-0.12	.853	[-1.49, 1.25]
Father-child game playing	-0.79	.445	[-2.89, 1.31]

Note. Child's age, family's overall SES, and mother-child overall interaction were added in the regression model as covariates. AQ = Autism Spectrum Quotient; CI = confidence interval.

Figure 1

Mediation Model: Father-Child Joint Reading Frequency as a Full Mediator between Father-Child Overall Interaction and AQ Communication Scores in Autistic Children



Note. Child's age, family's overall SES, and mother-child overall interaction were added in all regression models as covariates. AQ = Autism Spectrum Quotient.

** p < .01. *** p < .001.

学龄期家长的教养焦虑体验及量表修订

李洁[1]（通讯作者） 王媛媛[1]
1 中国人民大学心理学系，北京，100182
通讯作者 E-mail（lijie2013@ruc.edu.cn）

摘 要 焦虑情绪在家长中普遍存在。在对孩子的教育及养育过程中产生的焦虑是其主要来源。教育焦虑是指家长在对子女实施教育的过程中因承受教育压力、面临不易解决的教育问题和对教育结果的不确定性所诱发的一系列不愉快情绪状态。养育焦虑是指父母抚养子女的过程中对于健康、安全、竞争压力等因素所产生的过度担忧、恐惧以及不安的情绪。而教养焦虑则是二者的整合。本研究旨在系统了解学龄孩子家长的教养焦虑情况，并为将来的研究提供测量工具。研究一对 15 名学龄期孩子家长的教养焦虑体验进行了深度访谈。对质性数据的分析发现，家长的教养焦虑主要是关于孩子的性格品质、学习问题，行为习惯、待人处事、身心健康，未来前途，以及自身的教育方式、情绪传染、隔代育儿所带来的不良影响等 9。焦虑对家庭关系、工作和身心健康都存在负面影响。家长对焦虑的应对既有积极也有消极的方式。配偶的不协助、与同龄的对比以及对未知的低容忍加剧了教养焦虑。研究二在访谈内容的基础上结合以往量表形成了《学龄孩子家长教养焦虑量表》原始条目，并收集了 510 名家长的问卷调查数据对该量表进行修订和信效度检验。最终量表包含 32 个条目，分为 8 个维度：教育方式、身心健康、性格品质、行为习惯、学习问题、未来前途、情绪传染及隔代育儿。验证性因素分析及内部一致性分析显示问卷信效度良好，可为将来相关调查研究使用。

关键词 教养焦虑 质性研究 量表修订

The experience of parenting anxiety and scale validation

Jie Li, Yuanyuan Wang
Department of Psychology, Renmin University of China

***Abstract*:**

Anxiety is commonly experienced among Chinese parents of school-age children. The anxiety includes two main aspects. One is related to education, which involves stress, competition uncertainty and difficulties encountered in school. The other is related to the growing up experience, which involves psychological and physical health, interacting with the society and entering adulthood. Parenting anxiety includes both of these aspects, indicating the negative emotional experience, such as worry, upset, fear and so on, related to acting the role as a parent when raising the child. The connotation of parenting anxiety is unique in Chinese society, giving the merged self between parent and the child, as well as the traditional cultural expectation on offspring in achievement so that to bring glory to the family. Study one adopted an semi-structured in-depth interview among 15 parents of school-aged children, so that to understand their experience of parenting anxiety. The interpretative phenomenological analysis (IPA) was adopted to analyze the qualitative data, and identified several themes. Parents anxiety was about children's characteristic traits, study problems, behavioral conducts, social interactions, mental health, future development, and the impacts of their parenting style, emotional contagion and problems involving with intergenerational parenting. The anxiety elicited from parenting process yield negative influence on their work, health and family relationships. Parents reported various ways to deal with their anxiety, involving both positive and negative coping strategies. They also reported factors which they perceived to deteriorate their anxiety, such as the lack of assistance from the spouse, the upward comparison with others, and the

difficulty in tolerating uncertainties in children's development. Study two generated original items pool for the 《Parenting anxiety scale》based on the qualitative data, as well as items from existing relevant scales. Then a questionnaires survey was conducted among 510 parents for item analysis and validating the new sale. The confirmatory factor analysis indicated that the measure contained eight sub-domains of their worry, namely parenting style, psychological and physical health, characteristic trait, behavior conduct, study problem, future development, emotion contagion and intergenerational parenting. The measure has been proved to show good validity and reliability and is a suitable tool for studies which explore parenting anxiety in the future.

Keywords：parenting anxiety, qualitative data analysis, scale development

亲子脑间同步的行为学意义：情境依赖的视角

亲子脑间同步是亲子在互动过程中双方大脑活动的协调一致性，反映了亲子互动中情感与行为的相互传递和共同调节，同时也是亲子在神经层面建立情感联结的重要标志。随着认知神经科学超扫描技术的发展，研究者们开始采用功能性近红外光学成像等手段来测量亲子在前额叶、颞顶联合区等脑区的脑间同步。不少研究者指出，脑间同步是进行亲子互动、塑造亲子关系的生物基础；认为高水平的脑间同步反映了亲密、稳定的关系质量。然而，目前的实证研究并未得出一致结论。同步性作用的情境观认为，亲子同步性只是一个客观的生理指标，本身并没有"好坏"之分，其行为学意义需要结合互动中的情感环境来探讨。本研究基于同步性作用的情境观，检验脑间同步与亲子关系质量间的关系是否依赖于亲子互动中情感环境。88 对亲子（儿童平均年龄 8.07 岁，51 名男孩）来到实验室进行一个 5 分钟的合作绘画任务。在任务过程中，采用 16 导 Nirsport2 分别记录家长和孩子背外侧前额叶和颞顶联合区的大脑活动，采用行为编码的方式评估亲子在任务中的互动情感环境。亲子关系质量采用两种方式衡量：互动任务中的行为编码以及儿童汇报的亲子依恋水平。互动中的脑间同步采用基于从聚置换检验（cluster-based permutation）的小波相干分析（wavelet coherence analysis）。结果发现，在合作绘画任务中，亲子在左右侧颞顶联合区存在对应脑区的脑间同步。进一步地，互动情感环境调节了亲子在左侧颞顶联合区脑间同步与亲子关系质量间的关系。具体来说，在支持型情感环境中（父母对孩子有较高的情绪敏感性），脑间同步水平越高，亲子关系质量越高；然而，在非支持型情感环境中（父母对孩子的情感需要缺乏支持），脑间同步水平越高，亲子关系质量越差。本研究发现了左侧颞顶联合区在亲子互动中的重要作用，并首次在大脑活动层面为同步性作用的情境观提供了实证支持，证明了亲子脑间同步的情境依赖性。未来脑间同步研究需要关注同步行产生的情境，在特定情境中解释脑间同步的行为学意义。

Abstract

Theory suggests that parent-child interbrain synchrony (IBS; i.e., concordance between regions of brain activation) is fundamental to human attachment. However, empirical support is mixed regarding this relation. With the functional near-infrared spectroscopy (fNIRS) hyperscanning methodology, the present study considers parent emotional support during an interaction with their child as a moderator of parent-child IBS and relationship quality (via behavioral observation and child report). Eighty-eight parent-child dyads (Mage = 39.03 years, SD = 3.54 years for parents; Mage = 8.07 years, SD = 1.16 years for children; N = 176) participated in the study and their brain activity was assessed during a dyadic cooperation task. Cluster-based permutation tests indicated the above-chance parent-child IBS at the left and right temporoparietal junction (TPJ). Results showed that IBS at the left TPJ was related to better relationship quality in the context of high parent emotional support whereas the association was diminished and negative in the midst of low parent emotional support, depending on the indicator of relationship quality. Findings contribute to a more nuanced understanding of the relation between parent-child IBS and relationship quality and underscore the need to assess the degree of parent emotional support that is occurring when IBS is captured.

母亲安抚婴儿时的生理动态受到母亲参与度和新生儿特征的影响

高梦宇 北京师范大学

安抚婴儿是育儿过程中的一项常见又费体力的挑战，因此那些能够有效调节自身生理机能的父母更能为婴儿提供积极的照顾，例如对婴儿的需求更加敏感（Moore 等，2009 ）。然而，并不是所有的父母都会因为婴儿的哭闹而感到不安（Jones-Mason 等，2018 ），存在着较大的个体差异，但鲜有研究对此进行探究。本研究运用动态系统的分析方法，在婴儿“平静”和“不安”两种情境下，考察母亲对婴儿投入是否会影响其生理指标的失调。此外，还将考察新生儿注意力（一项个体与生俱来的持续警觉性的特征）是否可以调节母亲参与度与其生理动态之间的关联。

数据来自 155 名新生儿（77 名男性，占 47.5%）及产后 7 个月的母亲。婴儿出生后不久即施测《新生儿重症监护室网络神经行为量表》（Lester 和 Tronick，2004 ）中的注意力分量表，该量表可反映婴儿对听觉和视觉刺激的注意和反应能力。产后 7 个月，母亲和婴儿回到实验室，完成静止脸范式（Haley 和 Stansbury, 2003），这是一种常用的诱发婴儿不安的范式。在最初的自由玩耍期（即 "玩耍期"）后，母亲被要求在两分钟内不对孩子做任何回应，然后再与婴儿继续互动两分钟（即 "团聚期"）。母亲的生理反应和调节的指标将由呼吸窦性心律失常（RSA）表征，这是一项测量副交感神经对心脏唤醒的调节能力的指标。此外，母亲在 "玩耍 "和 "团聚 "过程中与婴儿的积极互动被逐秒编码。

通过对母亲 RSA 进行非线性动态系统模型拟合确定平衡点（即母亲 RSA 的典型水平）和恢复强度（即母亲 RSA 在受到干扰后恢复平衡的速度）。从 "玩耍 "到 "团聚 "期间，母亲的 RSA 恢复强度越来越弱，这表明母亲的 RSA 恢复到平衡点的速度越来越慢，因此副交感神经的调节受到了更大的干扰。有趣的是，与参与度较低的母亲相比，在 "游戏 "过程中参与度较高的母亲表现出更多的生理紊乱。然而，在 "团聚 "过程中，母亲的积极投入并没有显示出同样的效果。此外，婴儿出生时注意力更集中的母亲的 RSA 返回强度下降幅度更大。然而，新生儿的注意力和母亲的参与并不会相互影响母亲的 RSA 返回强度。我们将讨论早期护理的生理基础的启示作用。

Mothers’ Physiological Dynamics While Soothing a Distressed Infant

Soothing a distressed infant is a common parenting challenge, and a physiologically taxing one. Parents who regulate their own physiology effectively are more likely to provide positive caregiving, such as greater sensitivity to the infant needs (Moore et al., 2009). However, not all parents are equally disturbed by a distressed infant (Jones-Mason et al., 2018), and there have been few efforts devoted to understanding the contributing factors. Applying dynamic systems analyses, the present study investigated whether maternal engagement during *distressing* and *non-distressing* situations with the infant would be differentially associated with mothers’ physiological dysregulation. Moreover, we tested whether newborn attention, an innate infant characteristic of sustained alertness, moderated the link between maternal engagement and maternal physiological dynamics.

Data for the present study were from 155 newborn infants (77 males, 47.5%) and their mothers at 7 months postpartum. The attention subscale of the NICU Network Neurobehavioral Scale (Lester & Tronick, 2004), administered shortly after birth, was used as the index of infant characteristics. This scale captures infants’ ability to attend and respond to auditory and visual simulation. Mothers and their 7-month-old infants returned to the laboratory and completed the

still-face paradigm (Haley & Stansbury, 2003), a commonly used paradigm to elicit infant distress. After an initial free play period (i.e., Play episode), mothers were instructed to maintain a flat affect for two minutes and then resume their interactions with the baby for another two minutes (i.e., the Reunion episode). Mothers' respiratory sinus arrhythmia (RSA)—a measure of parasympathetic regulation of cardiac arousal—were used as the index of physiological reactivity and regulation. Moreover, mothers' positive engagement with the infant during the Play, as well as the Reunion episode, was coded second-by-second.

Nonlinear dynamic systems models were fitted for maternal RSA, with discrete changes as outcomes. The homeostatic point (i.e., typical levels of a mother's RSA) and return strength (i.e., the rate at which maternal RSA return to homeostasis after being perturbed) were identified by these models. Results showed that mothers' RSA return strength became weaker from Play to Reunion, indicating a slower return to the homeostatic point, therefore a more disturbed parasympathetic regulation. Interestingly, mothers who were more positively engaged during Play showed more physiological disturbance, compared to the less engaged. Mothers' positive engagement during Reunion, however, did not show the same effect. Additionally, mothers of infants who are more attentive at birth showed a larger decrease in RSA return strength. However, newborn attention and maternal engagement did not interact to influence maternal RSA return strength. Implications for the physiological foundations of early caregiving will be discussed.

不同社会经济地位的父母"将心比心"如何影响儿童共情与心理理论

徐丞谊　伍珍 (通讯作者)
清华大学心理学系，北京，100084，zhen-wu@mail.tsinghua.edu.cn

摘 要　"将心比心"（mind-mindedness）指养育者将孩子作为有自己的情感、思想和愿望的独立心理个体来对待的认知倾向 (Meins et al., 2002)，是形成安全型亲子依恋、促进儿童发展的重要因素。过往的研究着重探讨了"将心比心"与西方国家儿童心理发展相关，忽视了生活在非西方国家社会经济地位较低的家庭，而对"将心比心"的编码也较多地忽略了不同效价描述可能存在的影响。本研究包括两部分，旨在揭示"将心比心"对中国学前儿童共情与心理理论发展的作用机制。家长参与者皆被要求自由描述自己的孩子，继而对其五分钟语音样本进行记录和编码：(i)"将心比心" (以儿童为主的描述中，关于其心理描述而非行为、生理或一般性描述的比例）和 (ii) 积极评价 (以儿童为主的描述中，对其积极描述而非中立或消极描述的比例)。研究一 (*n*=117; 50 名男孩，平均年龄 4.84 岁) 采用情绪情境故事测试方法测量儿童参与者的共情能力，结果发现在控制了人口统计和社会经济地位的个体差异之后，"将心比心"和学前儿童共情能力正相关，然而父母的积极评价与儿童共情能力无显著相关。研究二 (*n*=291; 149 名男孩，平均年龄 5.29 岁) 采用错误信念任务测量儿童参与者的心理理论，结果发现在控制了人口统计和语言能力的个体差异之后,"将心比心"在不同社会经济地位影响儿童心理理论能力之间起部分中介作用；相反地，积极评价却不能中介社会经济地位与儿童心理理论之间的关系。总之，本研究初步证实了父母"将心比心"能力对于中国学前期儿童共情与心理理论发展的重要性；父母"将心比心"可能部分解释不同社会经济地位儿童心理理论能力发展的差异。

关键词　将心比心，共情，心理理论，社会经济地位

Does mind-mindedness account for socioeconomic differences in Chinese preschool children's cognitive and affective aspects of perspective-taking?

Chengyi Xu and Zhen Wu*
Department of Psychology, Tsinghua University, Beijing 100084, China

***Abstract*:** Parental mind-mindedness, defined as the proclivity to view one's child as a mental agent with independent thoughts, feelings and desires (Meins et al., 2002), robustly correlates with theory of mind (ToM) in preschoolers living in Western countries, but has been little studied in much more populous areas of the world, such as mainland China. Although ToM and empathy are often intertwined and contribute to cognitive and affective aspects of perspective-taking respectively, the link between parental mind-mindedness and children's empathy has been largely overlooked (for an exception, see Centifanti et al, 2016). Addressing these gaps, we conducted two studies on parental mind-mindedness as a potential mechanism underlying socioeconomic gradients in Chinese 4- to 6-year-olds' perspective-taking abilities.

Participating parents in both studies are asked to talk about their children, enabling transcripts of parents' 5-min speech samples to be coded for (i) mind-mindedness (indexed by the proportion of child-focused descriptions that are mental rather than behavioral, physical, or general) and (ii) positivity (indexed by the proportion of child-focused descriptions that are positive rather than neutral or negative). Study 1 involved 103 parent-child dyads (50 boys; child M_{age} = 4.84 years, SD = 0.57), with each child completing a story-telling task to assess trait empathy. Study 2 involved 291 parent-child dyads (149 boys; child M_{age} = 5.29 years, SD = 0.67), with each child completing a 3-task battery to assess ToM development. Study 1 indicated a moderate association between parental mind-mindedness and Chinese preschoolers' empathy (affective perspective-taking) that persisted even when individual differences in child demographics and socioeconomic status were taken into account. Study 2 indicated that parental mind-mindedness (rather than positivity) partially accounted for the association between socioeconomic status and ToM (cognitive perspective-taking).

Overall, Study 1 provides an opportunity to examine whether there is a meaningful correlation between Chinese mothers' mind-mindedness and their children's empathy. Study 2 provides evidence for the promise of mind-mindedness in explaining socioeconomic related contrasts in ToM. Taken together, our findings confirm the importance of parental mind-mindedness for preschool-aged children's ToM and empathy, even in Confucian cultures where mind-minded parenting is not particularly prominent.

***Keywords*:** mind-mindedness, empathy, theory of mind

社交媒体分享奢侈消费：动机推理和下行结果

王彦[1]（通讯作者） 刘琳[1] 刘冰洁[1]
1 华东师范大学心理与认知科学学院，上海，200062，wangyan@psy.ecnu.edu.cn

摘 要　人们越来越多地在社交媒体平台上分享他们的消费活动。然而，人们根据消费帖子所做出的推理却未得到充分研究。本研究假设，当观察者看到他人在社交媒体上发布奢侈品（与发布非奢侈品相比）消费时，他们会推断出更多的自我展示动机和更少的自我表达动机。并且，更多的自我展示动机和更少的自我表达动机导致观察者认为发帖者不太真实，以及削弱观察者对发帖者的人际兴趣。研究 1 使用微信朋友圈中的奢侈实物材料，确定了分享奢侈品消费对自我展示动机和自我表达动机推断的基本影响。研究 2 通过微博中的奢侈体验材料重复了这一动机推理效应，并进一步表明，分享奢侈品消费的人被认为不那么真实，并且人们对他们不那么感兴趣。此外，自我展示和自我表达动机推断在分享奢侈品消费对感知真实性和人际兴趣的影响中起中介作用。研究 3 显示，当帖子强调与奢侈品消费相关的能力（与强调财富相比）时，发布奢侈消费的负面效应会减弱。研究在理论上贡献于社交媒体信号传递、动机推理和不同形式奢侈消费方面的研究。研究发现对社交媒体用户和从业人员具有实践意义。未来研究可以分析社会媒体的真实访问数据、整合发帖者与观察者视角、考虑其他非传统形式的奢侈消费，以及检验观察者特征的调节作用。

关键词　真实，人际兴趣，奢侈消费，自我表达动机，自我展示动机

Sharing Luxury Consumption on Social Media Platforms: Motive Inferences and Downstream Consequences

Yan Wang, Lin Liu, Bingjie Liu
School of Psychology and Cognitive Science, East China Normal University, Shanghai, China

***Abstract*：** Individuals are increasingly sharing their consumption activities on social media platforms. However, the inferences people draw from consumption posts are understudied. Three studies show that observers infer greater self-presentational motives and less self-expressive motives when they see others post luxury (vs. nonluxury) consumption on social media. The attributions of more self-presentational motives and less self-expressive motives lead observers to perceive the poster as less authentic and undermine observers' interpersonal interest toward the poster. The negative effects of posting luxury consumption are attenuated when the post content emphasizes competencies (vs. wealth). This work contributes theoretically to research on signaling and motive inferences. The current findings have practical implications for social media users and practitioners.

***Keywords*：** authenticity, interpersonal interest, luxury consumption, self-expressive motives, self-presentational motives

神经质对青少年抑郁的影响：人际情绪调节与消极偏向有调节的中介作用

王依宁 苏彦捷（通讯作者）
北京大学心理与认知科学学院行为与心理健康北京市重点实验室，北京，100871，yjsu@pku.edu.cn

摘 要　青少年抑郁是全球性的问题。以往研究发现高神经质人格个体具有较高的抑郁风险，而消极偏向是个体抑郁症状的重要认知机制，但消极偏向发挥作用的机制及其条件还有待深入探讨。为探索青少年抑郁的影响因素及相关干预途径，探讨神经质对青少年抑郁的影响以及人际情绪调节与消极偏向有调节

的中介作用。招募 167 名青少年，采用以双字词为材料的效价偏向范式测量消极偏向，用大五人格问卷中神经质分量表、人际情绪调节问卷、流调用抑郁量表分别测量青少年的神经质、人际情绪调节与抑郁症状。结果发现：（1）消极偏向与青少年的抑郁症状呈现显著正相关。（2）消极偏向在神经质对青少年抑郁症状的影响中具有完全中介作用；（3）青少年神经质通过消极偏向影响抑郁症状的中介过程受到人际情绪调节的影响：只有当人际情绪调节水平较低时，青少年神经质通过消极偏向影响了其抑郁症状。研究结果揭示了消极偏向是神经质人格影响青少年抑郁症状的重要认知机制，神经质水平较高的青少年形成了较为消极的认知偏向，即将歧义信息更多地判断为消极的，因此有较高的抑郁风险。人际情绪调节能够使个体在产生消极情绪时能够通过人际交互的方式进行情绪调节，由此降低消极情绪的强度与频率从而降低抑郁的风险。研究结果为通过消极偏向和人际情绪调节改善青少年抑郁的预防与干预研究提供了重要参考。

关键词　青少年抑郁，消极偏向，神经质，人际情绪调节

How Neuroticism Influence Depression in Adolescence: Moderated Mediating Effect of Interpersonal Emotion Regulation and Negative Bias

Yining Wang; Yanjie Su
（School of Psychological and Cognitive Sciences, Beijing Key Laboratory of Behavior and Mental Health, Peking University, Beijing 100871）

Abstract：Adolescent depression is a global issue. Previous studies have found that individuals with high level of neuroticism have a higher risk of depression and the negative bias is an important cognitive mechanism of depressive symptoms in individuals, but the mechanism and conditions of negative bias are still to be further explored. To explore the influencing factors and related intervention ways of adolescent depression, we explored the influence of neuroticism on adolescent depression and the roles of interpersonal emotion regulation and negative bias. A total of 167 adolescents were recruited and negative bias was measured using the two-word Valence Bias paradigm. Neuroticism, interpersonal emotion regulation and depressive symptoms were measured by the neuroticism subscale of the Big Five Personality Questionnaire, the Interpersonal Emotion Regulation Questionnaire, and the Center for Epidemiologic Studies Depression Scale. The results showed that: (1) There was a significant positive correlation between negative bias and depressive symptoms in adolescents. (2) Negative bias plays a complete mediating role in the influence of neuroticism on depressive symptoms in adolescents; (3) The mediating process of adolescent neuroticism affecting depressive symptoms through negative bias is influenced by interpersonal emotion regulation: only when the level of interpersonal emotion regulation is low, adolescent neuroticism affects depressive symptoms through negative bias. The results of the study revealed that negative bias is an important cognitive mechanism of neuroticism personality affecting depressive symptoms in adolescents. Adolescents with higher levels of neuroticism might formed a more negative cognitive bias, that categorizing ambiguous information as more negative, so they have a higher risk of depression. Interpersonal emotional regulation can reduce the risk of depression in adolescents with high neuroticism and enable them to regulate their negative emotions through interpersonal interaction. The results of this study provide important reference for the

prevention and intervention of adolescent depression through the adjustment of negative bias and interpersonal emotion regulation.

Keywords：adolescent depression, negative bias, neuroticism, interpersonal emotion regulation

肥胖对儿童学业成绩的影响：工作记忆和污名化感知的作用

吴南[1,2]（通讯作者） 刘丽丝[1] 郭消然[2]

1 北京联合大学师范学院心理学系，北京，100011

2 北京联合大学儿童及青少年学习与心理发展研究所，北京，100011

通讯作者邮箱: wunantom@126.com

摘 要: 近十年，青少年肥胖的发生率呈现明显上升的趋势和低龄化趋向，越来越多的小学生备受肥胖问题的困扰。童年期的超重和肥胖问题不仅会给儿童的生理带来很多不利的影响，还易造成小学生的心理损害和学业劣势 。研究显示，儿童的肥胖程度就已显示出与其执行功能和语言方面认知能力的显著相关性，引起数学学习困难。明晰导致肥胖儿童学业劣势的认知因素和社会化因素是一个重要的科学问题。本研究通过两个研究探查了肥胖儿童学业成绩的表现及其背后可能的认识因素（工作记忆）和社会化因素（污名化感知）。研究一通过实验法考察了 227 名 10-13 岁儿童工作记忆和学业成绩的关系，发现肥胖儿童的学业成绩显著低于正常体重儿童，且肥胖儿童的一般工作记忆可以部分解释其学业成绩上的弱势。但进一步分析发现肥胖儿童在有食物线索上的工作记忆成绩却显著高于正常体重儿童。提示肥胖儿童工作记忆缺陷可能是领域特殊的。研究二 进一步考察了肥胖儿童在社会化过程中可能产生的污名化对儿童学业成绩的影响，选取北京市小学 8~11 岁儿童共 246 人，研究工具包括《中国学龄儿童青少年超重、肥胖筛查体重指数值分类标准》、《感知嘲笑量表》以及人口学变量。结果发现，肥胖儿童学业成绩显著低于正常体重儿童，肥胖儿童受到嘲笑的频率和被嘲笑后的沮丧程度均显著高于体重正常儿童。污名化感知在 BMI 指数和学业成绩中起到完全中介的作用。

关键词：学业成绩，肥胖儿童，工作记忆，污名化感知

How Obesity Influence Academic Performance：The Role of Working Memory and Stigma Perception

Nan Wu[1,2] Lisi Liu[1] Xiaoran Guo[1]

1 Teachers College of Beijing Union University, Beijing, 100011

2 Learning and Psychological Development Institution for Children and Adolescents，Beijing Union University, Beijing 100101

Abstract: The prevalence of childhood obesity in China has tripled extended into a smaller age in the past 10 years. Childhood obesity and overweight are associated with several physical illness as well as psychosocial issues, for example, overweight and obese children are more likely to have poor academic performance. The present study aimed to explore the underlying cognitive and social factors of the poor academic achievement for those obese children. In study 1, a total of 227 primary school students aged 10 to 13 years were analyzed for weight and height, filled out questionnaires on school performance and demographic variables. All subjects received three kinds of working memory materials based on the digit memory task.

Study 1 showed normal-weight children scoring higher than overweight and obese children. A mediation model revealed a partial indirect effect of working memory in the relationship between obesity and academic performance. Although the performance of obese children in basic working memory tests was poorer than that of normal-weight children, they recalled more items than normal-weight children in working memory tasks involving with food/drink. Study 2 explored the relationship between stigma perception and academic performance of 8-11 years old primary school students. A total of 246 primary school students were selected using the BSQ-8C. Study 2 found that the scores of stigma perception of the obesity group were significantly higher than those of the normal weight group, and the degree of being laughed at plays a completely intermediary role in BMI and academic performance.

Key Words：Academic performance, obese children, working memory, stigma perception

亲子触觉互动与小学生负性情绪的关系

张文庆[1]　苏金龙[2]（通讯作者）

1 常州市新北区三井实验小学,常州，213022

2 南京师范大学心理学院，南京，210024，jlsu@njnu.edu.cn

摘 要　虽然较少被关注，触觉在儿童的发展过程中可能起到独特的作用。已有研究显示，早期亲子触觉接触会影响婴幼儿的生理发育、认知发展和亲子关系的建立。然而，关于亲子触觉接触与儿童负性情绪的联系，却较少被探讨。小学高年级是负性情绪开始逐渐增多的过渡阶段，该阶段负性情绪影响因素的探究对儿童情绪问题的预防及干预有着重要意义。基于此，研究拟考察亲子触觉接触与小学高年级儿童负性情绪的关系及背后机制。

研究招募江苏省某小学四、五、六年级学生 385 人，以及其中部分学生的母亲 226 人。儿童分别完成亲子触觉互动量表、亲子依恋量表、抑郁—焦虑—压力量表、小学生情绪调节自我效能感问卷；母亲完成儿童行为量表。数据分析结果显示，总体而言，小学生负性情绪水平较低，但存在年级差异——六年级负性情绪得分显著高于五年级、四年级。另外，学生报告的负性情绪与其母亲报告的问题行为呈显著正相关，提示负性情绪会对儿童在校期间的行为表现产生影响。

相关分析显示，亲子触觉接触与儿童抑郁（r = -.25）、焦虑（r = -.17）、压力（r = -.17）均呈显著负相关。在控制了年龄、性别等人口统计学变量后，亲子触觉接触可以显著负向预测儿童的负性情绪。进一步的，考察亲子依恋及情绪调节自我效能感在上述预测中的作用，发现二者均起到完全中介作用。链式中介分析显示，亲子触觉接触可以正向预测亲子依恋，亲子依恋正向预测亲子调节自我效能感，而情绪调节自我效能感负向预测负性情绪。

关键词　亲子触觉经验，小学生，负性情绪，情绪调节，亲子依恋

The Relation Between Maternal Touch and Negative Emotion in Primary School Children

Wenqing Zhang[1], Jinlong Su[2]

Changzhou Xinbei Sanjing Experimental Primary School, Changzhou, Jiangsu Province

School of Psychology, Nanjing Normal University, Nanjing, Jiangsu Province

Abstract: Although it has received less attention, tactile experience may play a unique role in the development of children. Previous research has shown that early maternal touch can affect the physiological development, cognitive development, and establishment of parent-child relationships of infants and young children. However, there is relatively little exploration of the connection between maternal touch and children's negative emotions. The upper elementary grades are a transitional period during which negative emotions begin to gradually increase. Exploring the factors that influence negative emotions during this period is important for preventing and intervening in children's emotional problems. Based on this, the study aimed to examine the relationship between early maternal touch and child negative emotions in elementary school and the underlying mechanisms.

A total of 385 students from fourth, fifth, and sixth grades and 226 mothers of some of the students were recruited from a primary school in Jiangsu Province. The children completed the Parent-Child Tactile Interaction Scale, Parent-Child Attachment Scale, Depression-Anxiety-Stress Scale-Short Form, and Self-Efficacy Questionnaire for Regulating Emotions; the mothers completed the Child Behavior Scale. Results of data analyses showed that, overall, the level of negative emotions in elementary school students was relatively low, but there were significant differences among children in different grades. Children in grade sixth had significantly higher scores on negative emotions than fifth graders and fourth graders. In addition, there was a significant positive correlation between students' reports of negative emotions and their mothers' reports of problem behaviors, indicating that negative emotions can have an impact on children's behavior in school.

Correlation analyses showed that maternal touch was negatively correlated to child depression (r = -.25), anxiety (r = -.17), and stress (r = -.17). After controlling for demographic variables such as age and gender, maternal touch significantly negatively predicted children's negative emotions. Furthermore, the mediating roles of parent-child attachment and emotional regulation self-efficacy in this above relation were examined, and it was found that both of them fully mediated the relation between maternal touch and child negative emotion. Results of the chain mediation analysis showed that early maternal touch positively predicted mother-child attachment, mother-child attachment positively predicted children’s emotional regulation self-efficacy, and children’s emotional regulation self-efficacy negatively predicted negative emotions.

父母监控、交往不良同伴和青少年的网络受欺凌：在个体内水平上的纵向关系

王兴超[1]（通讯作者） 王诗茵[1]

1 山西大学教育科学学院，太原，030006, wangxch9@126.com

摘 要　网络受欺凌是严重的世界公共卫生问题。以往研究发现父母监控作为保护因素可以降低青少年的网络受欺凌，但关注二者之间的双向关系及中介机制的研究较少，且未区分个体间效应和个体内效应。基于此，本研究以来自山西省 7 所中学的 2407 名青少年为被试(50.23%为女生，M_{age} = 12.75，*SD* = .58)，进行为期 3 年共 3 次、间隔一年的追踪调查，通过潜增长模型和随机截距交叉滞后模型探究父母监控、交往不良同伴和网络受欺凌的发展轨迹的相互影响及三者之间的动态联系。潜增长模型结果表明：父母监控的初始水平和交往不良同伴及网络受欺凌的初始水平呈显著负相关，交往不良同伴和网络受欺凌的初始水平呈显著正相关；父母监控的变化速率和交往不良同伴及网络受欺凌的变化速率呈显著负相关，交往不良同伴和网络受欺凌的变化速率呈显著正相关；交往不良同伴的初始水平在父母监控的初始水平与网络受欺凌的初始水平之间起到中介作用，交往不良同伴的变化速率在父母监控的变化速率与网络受欺凌的变化速率之间起到中介作用。随机截距交叉滞后结果表明：在个体间水平，父母监控、交往不良同伴和网络受欺凌之间存在显著相关；在个体内水平，父母监控、交往不良同伴和网络受欺凌之间存在双向关系，交往不良同伴在父母监控和网络受欺凌之间起到纵向中介作用。多群组分析发现在父母监控，交往不良同伴和网络受欺凌的双向关系间存在性别差异。本研究结果为从发展的视角理解父母监控、不良同伴交往和网络受欺负之间的动态相互关系提供了有价值的信息，同时也为青少年网络受欺凌预防保护计划提供建议。

关键词　父母监控，交往不良同伴，网络受欺凌，性别

Parental Monitoring, Deviant Peer Affiliation, and Adolescents' Cybervictimization: Prospective Within-person Associations

Xingchao Wang*, Shiyin Wang
School of Educational Science, Shanxi University, No. 92 Wucheng Road, Taiyuan 030006, China

Abstract：Cybervictimization is a serious public health problem. Parental monitoring as a protective factor reduces adolescents' cybervictimization. However, few studies have clarified the directionality and potential mediating of this link, let along disaggregating within- from between-person effects. To address these gaps, the current study followed 2,407 Chinese adolescents (50.23% girl, M_{age} = 12.75, *SD* = .58 at baseline) from seven schools at 3-time points with 1-year intervals and tested the process of influence and dynamic relationships among parental monitoring, deviant peer affiliation, and cybervictimization by the latent growth models and the random intercept cross-lagged models. Results showed that initial levels and changes of parental monitoring were negatively and directly associated with initial levels and changes of deviant peer affiliation and initial levels and changes of cybervictimization, respectively. Initial levels and changes of deviant peer affiliation were positively and directly associated with initial levels and changes of cybervictimization, respectively. Initial levels and changes of deviant peer affiliation mediated the relationship between initial levels and changes of parental monitoring and initial levels and changes of cybervictimization, respectively. At the between-person level, there were significant associations among parental monitoring, deviant peer affiliation, and cybervictimization. At the within-person level, parental monitoring, deviant peer affiliation, and cybervictimization were reciprocally predictable. Parental monitoring indirectly predicted cybervictimization via deviant peer affiliation. The longitudinal associations were different in sex. The present study would provide valuable information about the relationships among parental monitoring, deviant peer affiliation, and cybervictimization from a developmental perspective, and provide a new scientific basis for adolescents' cybervictimization prevention/protection programs.

Keywords：Parental monitoring, deviant peer affiliation, cybervictimization, sex

母亲男孩偏好与青少年早期抑郁的关系：亲子依恋、学校联结和性别的作用

王银格　李煜丹　吴昊蒙　吕俐颖　张慧芳 赵凤青（通讯作者）
郑州大学教育学院，郑州，450001，susanfair@163.com

摘 要：家庭和学校是青少年最重要的生活和学习场所，在青少年的身心健康发展中发挥着不可或缺的作用。以往研究表明，母亲男孩偏好与青少年的抑郁症状之间存在显著关系，但其中的作用机制如何尚不清楚。本研究基于家庭系统理论、依恋的内部工作模式和生态系统理论，采用母亲男孩偏好量表、亲子依恋量表、学校联结量表以及抑郁-焦虑-压力量表对西安市某中学的1093名初中生进行问卷调查（平均年龄12.96±0.42，其中女生占比42.26%），探讨母亲男孩偏好与中国早期青少年抑郁的关系以及亲子依恋、学校联结和性别在其中的作用机制。结果显示：（1）在女性青少年中，母亲男孩偏好与抑郁呈显著正相关（r=0.20，p＜0.001）；在男性青少年中，母亲男孩偏好与抑郁相关不显著（r=0.02，p＞0.05）；（2）母子依恋和父子依恋在母亲男孩偏好与女性青少年的抑郁症状之间存在着部分中介作用。母子依恋的间接效应值为0.058，Bootstrap的95%置信区间为[0.013，0.118]；父子依恋的间接效应值为0.053，Bootstrap的95%置信区间为[0.014，0.103]；（3）学校联结调节了母亲男孩偏好与女性青少年抑郁症状之间的关系。具体来说，低学校联结（小于或等于-0.04标准差），母亲男孩偏好与女性抑郁症状呈显著正相关，而高学校联结（大于或等于0.90标准差），母亲男孩偏好与抑郁症状呈显著负相关。本研究有助于增强对男孩偏好这一文化现象的认识，并提醒我们在强调男女平等的背景下，男孩偏好依旧值得重视并需要着力改善。

关键词：母亲男孩偏好，亲子依恋，学校联结，抑郁症状，性别

Mother boy preference and depressive symptoms among Chinese early adolescents: The roles of parent-child attachment, school connectedness, and gender

Wang Yinge, Li Yudan, Wu Haomeng, Lv Liying, Zhang Huifang, Zhao Fengqing (Corresponding author)
School of Education, Zhengzhou University, Zhengzhou, China, susanfair@163.com

Abstract: Family and school are the most important places for adolescents to live and learn, which play an indispensable role in the development of their physical and mental health. Previous studies have shown that there is a significant relationship between mother boy preference and depressive symptoms in adolescents, but the mechanism is still unclear. Based on family system theory, internal work model of attachment and ecological system theory, this study investigated 1093 junior high school students from a middle school in Xi'an city, China (Mage=12.96±0.42, 42.26% are girls). Using mother boy preference scale, mother-child attachment scale, father-child attachment scale, school connectedness scale and depression-anxiety-stress scale to explore the relationship between mother boy preference and depressive symptoms among Chinese early adolescents, as well as the roles of mother-child attachment, father-child attachment, school connectedness and gender. The results showed that: (1) Mother boy preference had a significant positive correlation with depressive symptoms among female adolescents (r=0.20, p<0.001), while the association was not significant among male adolescents (r=0.02,

p>0.05); (2) Mediation analysis showed that mother-child attachment and father-child attachment partially mediated the association between mother boy preference and female adolescents' depressive symptoms. The indirect effect value of mother-child attachment is 0.058 and 95% confidence interval of Bootstrap is [0.013,0.118]. The indirect effect value of father-child attachment is 0.053 and 95% confidence interval of Bootstrap is [0.014,0.103]. (3) School connectedness moderated the association between mother boy preference and female adolescents' depressive symptoms. Specifically, low school connectedness (less than or equal to -0.04 standard deviation) was positively correlated with depressive symptoms, while high school connectedness (greater than or equal to 0.90 standard deviation) was negatively correlated with depressive symptoms. This study helps to enhance people's understanding of the cultural phenomenon of boy preference, and reminds us that boy preference still deserves attention and needs to be improved in the context emphasizing gender equality.
***Keywords*:** mother boy preference, parent-child attachment, school connectedness, depressive symptoms, gender

父母低头、青少年低头与青少年适应性问题：基于交叉滞后网络分析模型

童薇[1]　贾继超[2]　王鹏程[3]（通讯作者）　贺雯[1]

1 上海师范大学心理系，上海，200234

2 北京师范大学心理学部，北京，100875，

3 上海交通大学传媒学院，上海，通讯作者 E-mail（小五号宋体）

摘 要　根据《第 51 次中国互联网络发展状况统计报告》，截止 2022 年 12 月，我国我国网民规模达 10.67 亿，其中 99.8%的网民使用手机上网，远超台式电脑、笔记本、平板电脑等终端设备。尽管手机上网在打破沟通的时空限制，提高沟通频率和沟通便利性的同时，但也可能对线下的交流互动产生消极影响。青春期是适应性问题的高发期。这一时期青少年面临着身心的巨变以及亲子关系的重塑与协调，这增加了青少年出现适应性问题的风险。而伴随手机使用出现的新的亲子互动问题——低头，无疑加剧了这一时期的适应性问题风险，因而成为当前领域的热点问题。但现有研究主要考察父母一方低头对青少年适应性问题的影响，忽视家庭视角下的低头在亲子之间具有传染性，即父、母、子三者的低头可能会相互影响。也就是说，在家庭层面上，父亲低头、母亲低头和青少年低头相互作用，形成了一个复杂的低头网络。因此，本研究将家庭低头概念化为一个多维概念，基于 1447 名青少年（60.5%为女性）的两批次纵向数据，采用横断网络分析与交叉滞后纵向网络分析，探索家庭低头网络特点及其与青少年适应性问题的关系。结果显示，（1）在父母低头上，父亲低头的各节点与母亲低头的相应节点均呈现高度相关，表明低头在父母之间的传染效应；（2）在父母与青少年低头上，父母忽视和青少年自我隔离是亲子低头行为相互强化的主要路径；（3）在家庭低头和青少年适应性问题上，学业倦怠更可能引发父母和青少年的低头行为。上述结果为我们预防和干预家庭低头及青少年心理健康问题有重要启示。

关键词　低头，青少年，适应性问题，交叉滞后网络分析

The associations between parental phubbing, adolescent phubbing, and adolescents' adjustment problems: A cross-lagged panel network analysis

Wei Tong[1] Jichao Jia[2] Pengcheng Wang[3] Wen He[1]
[1] Department of Psychology, Shanghai Normal University, China
[2]Institute of Developmental Psychology, Beijing Normal University, China
[3]School of Media and Communication, Shanghai Jiao Tong University, China

Abstract：Network analyses have been increasingly used in cyberpsychology in the last few years. However, no existing research has examined the relationships between phubbing and adolescent adjustment problems from a network perspective. Our study is the first to conceptualize family phubbing as a multidimensional variable that includes maternal, paternal (i.e., perceived norms, feeling ignored, and interpersonal conflict), and adolescent phubbing (i.e., nomophobia, interpersonal conflict, self-isolation, and problem acknowledgement), and estimate networks for family pubbing and for the interplay between family phubbing and adolescents' adjustment problems (i.e., depression, anxiety, loneliness, and academic burnout in this study). Participants were 1,447 students (60.5% females) in China. The results indicate that parental phubbing, maternal phubbing, and adolescent phubbing mutually reinforced each other in contemporaneous networks at Time 1 and Time 2. Moreover, among the phubbing nodes, adolescents' problem acknowledgement was most directly related to academic burnoout. Besides, A cross-lagged panel network analysis indicated that child-driven effects rather than parent-driven effects may better characterize how phubbing is related to adolescent's adjustment problems over time.
Keywords：phubbing; adjustment problems; cross-lagged panel network analyses; adolescents

正念教养和感恩对青少年生命意义感的积极作用：一项纵向研究

张慧芳 [1] 李煜丹 [1] 吴昊蒙 [1] 赵凤青 [1]（通讯作者）
1 郑州大学教育学院，郑州，450001，susanfair@163.com

摘 要 幸福和意义是衡量人类美好生活的两个主要指标。以往研究表明，正念教养促进了青少年的主观幸福感和其他积极结果。但是，正念教养和青少年生命意义感的因果关系还不清楚。探究正念教养对青少年生命意义感的作用及其机制，可为提升青少年的生命意义感提供针对性指导。因此，本研究检验了正念教养是否促进了青少年的生命意义感（包括人生意义体验和人生意义寻求两方面），感恩是否在正念教养和生命意义感之间起中介作用，同时考虑这种作用机制是否因性别而异。采用纵向设计，使用青少年报告版正念教养量表、生命意义感量表以及感恩量表，间隔 8 个月对 293 名青少年（Mage = 13.87±0.50 岁）施测 2 次，数据收集时间分别为 2022 年 6 月和 2023 年 2 月。结果表明，正念教养预测了 8 个月后青少年人生意义寻求的提升，但是正念教养不能显著预测 8 个月后青少年的人生意义体验。感恩在正念教养和人生意义寻求之间的纵向关系中起中介作用。感恩的中介效应存在性别差异。对男孩来说，感恩不能中介正念教养和男孩人生意义寻求之间的关系。对女孩来说，正念教养通过促进女孩感恩，进而提升了她们 8 个月后的人生意义寻求。本研究首次提供了正念教养和青少年生命意义感之间因果关系的证据。家庭和学校可以通过正念教养和感恩干预有针对地提升不同性别的青少年对人生意义的寻求。
关键词 正念教养，生命意义感，感恩，性别差异，青少年

The beneficial effects of mindful parenting and gratitude on adolescents' meaning in life in China: A longitudinal study

Zhang Huifang [1], Li Yudan[1] Wu Haomeng [1], Zhao Fengqing [1] (Corresponding author)
1 School of Education, Zhengzhou University, Zhengzhou, China, susanfair@163.com

***Abstract*:** Happiness and meaning are the two main indicators of a good life. Previous studies have shown that mindful parenting benefits adolescents' subjective well-being and other positive developmental outcomes. However, the causal relationship between mindful parenting and adolescents' meaning in life remains unclear. Exploring the relationship and mechanism of mindful parenting on adolescents' meaning in life can provide targeted guidance for improving adolescents' meaning in life. Therefore, this study examined whether mindful parenting promotes adolescents' meaning in life (including presence of meaning in life and search for meaning in life), whether gratitude plays a mediating role between mindful parenting and meaning in life, and whether this mechanism varies with gender. A longitudinal design was adopted, and 293 adolescents (Mage = 13.87±0.50 years old) were tested twice at 8-month interval, with data collected in June 2022 and February 2023, respectively. Results showed that mindful parenting significantly positively predicted adolescent search for meaning in life after 8 months, but mindful parenting did not significantly predict adolescents' presence of meaning in life after 8 months. Gratitude played a mediating role in the longitudinal relationship between mindful parenting and search for meaning in life. Gender differences were found in the mediating effect of gratitude. For boys, gratitude did not mediate the relationship between mindful parenting and search for meaning in life. For girls, mindful parenting enhanced their search for meaning in life after 8 months by fostering gratitude. Results provide the first evidence of causality between mindful parenting and adolescents' meaning in life. Families and schools can improve adolescent search for meaning in life through mindful parenting and gratitude interventions, taking into account the gender of the adolescents.
Keywords: Mindful parenting, Meaning in life, Gratitude, Gender differences, Adolescents

父母心理虐待一致性和青少年抑郁的关系：社会支持的作用

巩宁宁[1]　林一瑾[1]　张佳静[1]　尤若男[1]　李森[1]（通讯作者）
1 河北大学教育学院，保定，071000，1447123652@qq.com

摘 要　**背景** 童年期心理虐待是青少年抑郁的重要风险因素。虽然父亲心理虐待和母亲心理虐待与青少年抑郁皆存在显著相关，但尚不明晰二者是如何共同影响青少年抑郁的。基于此，本研究采用多项式回归与响应面分析的方法，旨在探讨父母心理虐待一致性和不一致性对青少年抑郁的影响，以及社会支持的调节作用。**方法** 对河北省某地级市 1639 名初高中学生进行问卷调查。调查工具包括一般人口学调查表、父母心理虐待量表（CTS-PC）、青少年抑郁量表（CES-D）、社会支持量表（PSSS）。使用 SPSS26.0 进行数据录入和调节效应分析，使用 Mplus8.0 进行多项式回归和响应面分析。**结果** （1）父母心理虐待一致性对抑郁有正向预测作用（CS = 0.147, $p < 0.001$），中等程度的心理虐待更能预测抑郁的发生（CC = -0.025，$p < 0.001$）；（2）父母心理虐待不一致时，父母心理虐待差异性越大则青少年抑郁程度越高（IC = 0.013，$p < 0.05$），父亲心理虐待高于母亲与母亲心理虐待水平高于父亲两种情况对青少年抑郁的影响没有显著差异（IS = 0.019，$p > 0.1$）；（3）社会支持在父母心理虐待与青少年抑郁关系中具有显著调节作用。低社会支持时，父母心理虐待一致性与青少年抑郁具有显著正相关；高社会支持时，父母心理虐待一致性与青少年抑郁相关不显著。**结论** 父母心理虐待一致性与青少年抑郁显著相关，社会支持可以在一定程度上缓解父母心理虐待的不利影响。这些发现为青少年抑郁的预防和干预工作提供了新的科学依据。
关键词　父母心理虐待，青少年抑郁，社会支持，多项式回归，响应面分析

Paternal-maternal congruence in emotional abuse and adolescent depression: Role of social support

Ningning Gong[1] Yijin Lin[1] Jiajing Zhang[1] Ruonan You[1] Sen Li[1*]

1 School of Education, Hebei University, No. 180 Wusi Dong Road, Lian Chi District, Baoding City, Hebei Province, China, 071002, Email: 1447123652@qq.com

Abstract： *Background:* Childhood emotional abuse is a significant risk factor for adolescent depression. However, little is known how paternal and maternal emotional abuse work together to affect adolescent depression. The current study aimed to explore the unique and joint impacts of paternal and maternal emotional abuse on adolescent depression. *Method:* A total of 1639 adolescents (M_{age} = 14.49 years, *SD* = 1.11) completed questionnaires regarding demographics, parental emotional abuse, depression, and social support. The data were analyzed with polynomial regressions and response surface analyses. *Results:* The consistency between paternal-maternal emotional abuse was positively related to adolescent depression (CS=0.147, p<0.001), and moderate levels of emotional abuse were stronger predictors of adolescent depression (CC=-0.025, p<0.001). In addition, the discrepancy between paternal and maternal emotional abuse was positively related to adolescent depression (IC=0.013, p < 0.05), and there was no significant differences in adolescent depression when paternal emotional abuse is higher than maternal emotional abuse or vice versa (IS=0.019, p>0.1). Furthermore, social support moderated the congruence and incongruence effects of paternal-maternal emotional abuse on adolescent depression. *Conclusions:* The congruence between paternal-maternal emotional abuse is positively related to adolescent depression, and it is moderated by social support.

Keywords ： Paternal-maternal emotional abuse, Depression, Social support, Polynomial regressions, Response surface analyses

父母低头行为与数字自我伤害的关系：有调节的中介效应分析

汤玉玲 段蓉蓉 谢笑春（通讯作者）

东北师范大学心理学院，长春，130024，xiexc713@nenu.edu.cn

摘 要 数字自我伤害是指在网络上匿名发布、发送或以其他方式分享关于自己的伤害性内容。根据人际关系理论，父母低头行为作为一种人际风险因素，可能会增加青少年的数字自我伤害的频率。前人研究表明，拥有更多负面情绪的青少年倾向于实施数字自我伤害行为。结合体验回避模型，焦虑可能在父母低头行为与数字自我伤害的关系中起中介作用。另外，根据素质-压力模型，个体特征（如自我概念清晰性）可以调节压力环境（如父母低头行为）与个人心理或行为结果（如数字自我伤害）之间的关系。本研究旨在探究父母低头行为与青少年的数字自我伤害的关系，并揭示焦虑的中介作用，以及自我概念清晰性的调节作用。本研究采用问卷法对 1055 名初高中生（平均年龄 15.05 ± 1.63 岁，女生占 50.90%）的父母低头行为、数字自我伤害、焦虑、自我概念清晰性进行调查。结果发现：（1）父母低头行为正向预测青少年的数字自我伤害；（2）焦虑在父母低头行为与数字自我伤害的关系中起完全中介作用，间接效应值为.13，95%置信区间（*CI*）为[.09, .18]；（3）自我概念清晰性在该中介模型的前半段和中介效应中起调节作用，简单斜率分析发现，当自我概念清晰性水平较低(*M* - *SD*)时，焦虑的中介作用显著，中介效应值为.07，95% *CI* 为[.03, .13]，父母低头行为的直接作用显著，直接效应值为.17，95% *CI* 为[.01, .34]；当自我概念清晰性水平

较高($M + SD$)时，焦虑的中介作用和父母低头行为的直接作用都不显著。结果表明，父母低头行为是数字自我伤害的风险因素，父母低头行为主要是通过影响青少年的焦虑水平，进而影响青少年的数字自我伤害；随着个体自我概念清晰性水平的提高，父母低头行为对焦虑、数字自我伤害的预测作用都呈逐渐降低趋势。本研究在理论上丰富了关于数字自我伤害的风险因素的实证研究；在实践上建议父母合理使用手机，这对青少年，尤其是自我概念清晰性水平较低的青少年，形成良好的情绪和行为具有重要意义。
关键词　父母低头行为，数字自我伤害，焦虑，自我概念清晰性，青少年

Parental Phubbing and Digital Self-harm: Analysis of a Moderated Mediation Model

Yuling Tang, Rongrong Duan, Xiaochun Xie (Corresponding author)
School of Psychology, Northeast Normal University, Changchun 130024, China,
xiexc713@nenu.edu.cn

Abstract： Digital self-harm is the anonymous online posting, sending, or otherwise sharing of hurtful content about oneself. According to interpersonal theory, parental phubbing as an interpersonal risk factor may increase the frequency of digital self-harm in adolescents. Previous research has shown that adolescents who possess more negative emotions tend to commit digital self-harm behaviors. Combined with the experiential avoidance model, anxiety may play a mediating role in the relationship between parental phubbing and digital self-harm. Furthermore, according to the diathesis-stress model, individual characteristics (e.g., self-concept clarity) may mediate the relationship between stressful environments (e.g., parental phubbing) and individual psychological or behavioral outcomes (e.g., digital self-harm). This study aimed to investigate the relationship between parental phubbing and adolescents' digital self-harm and to reveal the mediating role of anxiety and the moderating role of self-concept clarity. This study used a questionnaire method to investigate parental phubbing, digital self-harm, anxiety, and self-concept clarity in 1055 middle and high school students (mean age 15.05 ± 1.63 years, 50.90% girls). The results found that (1) parental phubbing positively predicted digital self-harm in adolescents; (2) anxiety played a fully mediated role in the relationship between parental phubbing and digital self-harm with an indirect effect value of .13 and 95% confidence interval (*CI*) of [.09, .18]; (3) self-concept clarity played a moderating role in the first half of this mediated model and in the mediated effect, and a simple slope analysis found that when the level of self-concept clarity was low (M - SD), the mediating effect of anxiety was significant, with a mediating effect value of .07, 95% *CI* of [.03, .13], and the direct effect of parental phubbing was significant, with a direct effect value of .17, 95% *CI* of [.01, .34]; when the level of self-concept clarity was high ($M + SD$), the mediating effect of anxiety and the direct effect of parental phubbing were not significant. The results suggest that parental phubbing is a risk factor for digital self-harm, and parental phubbing affects adolescents' digital self-harm mainly through influencing their anxiety levels; the predictive effects of parental phubbing on both anxiety and digital self-harm tended to decrease gradually as the level of individual self-concept clarity increased. This study theoretically enriches the empirical research on the risk factors of digital self-harm; practically, it suggests that parents' reasonable use of cell phones is important for adolescents, especially those with low levels of self-concept clarity, to develop good emotions and behaviors.

Keywords： parental phubbing, digital self-harm, anxiety, self-concept clarity, adolescent

第三方惩罚中的群体偏差的发展：基于强化学习计算模型

郭子妍，于佳露，王文心，伍珍
清华大学心理学系，北京，100084
E-mail: zhen-wu@tsinghua.edu.cn

摘 要 第三方惩罚是指作为不相关的第三方去惩罚违反社会规范的行为，是一种有利于维护社会规范的亲社会行为。研究发现，第三方惩罚常表现出群体偏差，即对外群成员的惩罚力度大于内群。然而，该行为如何受到社会与文化规范的影响，以及这一群体偏差的学习机制及发展规律仍不甚明晰。围绕以上问题，本研究采用经济决策范式，对中西方文化下从儿童到成人的不同发展阶段的参与者进行了测试：参与者观看内群或外群分配者对接受者实施的不公平分配，然后决定是否以及如何进行第三方惩罚；之后参与者将收到来自另外旁观玩家的评价。研究采用强化学习计算模型探讨参与者如何根据他人的反馈动态调整其决策过程。

主要结果如下：1）显著的文化差异：中国与西方成年被试在惩罚行为上均表现出内群偏好，惩罚内群少于外群；但是当被要求仔细思考后再决策时，西方成人的内群偏好显著减少，而中国成人的内群偏好仍旧保持。此外，计算建模结果显示，在学习外部反馈以调整惩罚行为的过程中，中国成人对惩罚内群这一规范的学习速度显著低于惩罚外群的规范，而美国成人对内外群惩罚规范的学习速度差异不显著，表明中国文化下对内群和外群的惩罚行为可能存在两种分离的不同学习机制。2）进一步探究中国文化下内群偏好的发展轨迹，发现中国参与者对内群的惩罚随年龄增长显著下降，并且对惩罚内群这一规范的学习速度也随着年龄增长显著下降；相反地，对惩罚外群的学习速度随年龄增长保持不变，表明中国参与者在社会化中逐渐发展出对内群更稳定的内在价值。

研究结果显示了社会文化规范对第三方惩罚和群体偏差的影响，有助于揭示这一影响背后的动态学习机制及发展规律，也为制定相关政策以营造良好的社会与教育环境提供理论依据。

关键词 第三方惩罚，群体偏差，强化学习，社会文化规范

Development of Group Bias in Third-Party Punishment: A Computational Model Based on Reinforcement Learning

Ziyan Guo, Jialu Yu, Wenxin Wang, Zhen Wu

Department of Psychology, Tsinghua University, Beijing, 100084

Email: zhen-wu@tsinghua.edu.cn

Abstract: Third-party punishment refers to the behavior of unaffected bystanders who penalize norm violations, representing a prosocial act that upholds social norms. Group bias has been observed in previous studies, wherein out-group members receive more severe punishments than in-group members. However, the impact of social and cultural norms on this behavior, as well as the learning mechanisms and developmental patterns of group bias, remain unclear. To address these questions, we employed an economic decision-making paradigm to investigate third-party punishment across different developmental stages, encompassing children to adults, in Eastern and

Western cultures. Participants observed unfair allocations by either in-group or out-group allocators towards recipients and then decided whether and how to engage in third-party punishment. Subsequently, participants received evaluations from observers. By utilizing a reinforcement learning computational model, we explored how participants dynamically adjusted their decision-making processes based on received feedback.

The main findings are as follows: 1) Substantial cultural differences were identified, as both Chinese and Western adult participants exhibited an in-group preference in their punishment behavior, meting out lesser punishment to the in-group compared to the out-group. However, when participants were required to reflect carefully before making decisions, the in-group preference significantly decreased among Western adults, while it remained stable among Chinese adults. Furthermore, computational modeling results demonstrated that, during the process of adjusting punishment behavior based on external feedback, Chinese adults exhibited a significantly lower learning rate for punishing in-group norm violations compared to punishing out-group norm violations. Conversely, the learning rate difference between in-group and out-group punishment norms was not significant for American adults. These findings suggest the existence of two distinct learning mechanisms for punishing the in-group and out-group within Chinese culture. 2) Further investigation of the developmental trajectory of in-group preference in Chinese culture revealed a significant decrease in punishment towards the in-group as participants matured. Additionally, the learning rate for punishing in-group norm violations also significantly decreased with age. In contrast, the learning rate for punishing out-group norm violations remained constant with age, indicating a gradual development of a more stable intrinsic value towards the in-group among Chinese participants during socialization.

The research findings illuminate the influence of social and cultural norms on third-party punishment and group bias. They contribute to a deeper understanding of the dynamic learning mechanisms and developmental patterns underlying this influence. Moreover, they hold implications for formulating relevant policies aimed at cultivating a positive social and educational environment.

Keywords: Third-party punishment, group bias, reinforcement learning, social and cultural norms.

青少年在复杂情境中的资源分配及其与心理理论和共情的关系

陈雨露[1,2]（通讯作者） 赵明悦[1] 张浩颖[1] 李冉芃[1]

1 北京联合大学师范学院心理学系，北京，100011

2 北京联合大学儿童及青少年学习与心理发展研究所，北京，100011

通讯作者邮箱 chenyulu@buu.edu.cn

摘 要 通过两部分研究、4 个子实验、共 702 人次的数据考察 13-16 岁青少年在同时存在外内群体与贡献量差异的复杂资源分配情境中的行为表现（是否会表现出内群体偏爱和按劳分配倾向），以及心理理论和共情在其中的影响机制。

研究一包括实验 1a、1b、1c 三个子实验，旨在揭示青少年在同时涉及内外群体差异和贡献量差异的复杂情境中的资源分配的表现特点。其中，实验 1a 选取了 303 名青少年被试，完成内外群体成员的贡献量存在差异的复杂情境资源分配故事任务，包括内群体偏爱因素和按劳分配因素一致、不一致的两种情境，以及不涉及内外群体的控制情境。综合三种情境的统计分析表明，青少年会根据内、外群体成员贡献量的情况使用不同的分配原则，其内群体偏爱和按劳分配倾向同时存在，但按劳分配的倾向程度会更加明显。LPA

分析得到三种类型被试，按劳分配型（91.1%）、内群体偏爱型（5.6%）、均分型（3.3%）。实验 1b 选取以 49 名青少年为有效被试，采用追踪研究，考察资源分配决策前后间隔一个月的稳定。结果发现，青少年的资源分配群体均值在三种情境中都能够稳定。实验 1c 在实验 1a 基础上，额外招募 100 名大学生作为成年对照组，结果发现，青少年的内群体偏爱程度更大，而成年人的按劳分配倾向更明显。

研究二包括实验 2，旨在考察心理理论和共情对青少年基于内群体偏爱和贡献量差异的资源分配的影响。选取 201 名青少年为被试，测量了其在同时存在内外群体差异和贡献量差异的复杂情境中的资源分配行为决策，以及心理理论（心理理论故事任务）、共情（人际反应指数量表）。结果发现，青少年的心理理论总分、共情中的移情关注和个人忧伤水平越高，其在进行资源分配时内群体偏爱越大，按劳分配倾向越低。

本研究从理论上一定程度上填补和完善了关于同时存在内群体偏爱和贡献量差异的复杂资源分配行为决策的研究的体系框图，也还在一定程度上为青少年资源分配的稳定性研究、青少年与成年人在资源分配方面的发展比较方面提供了支撑。

关键词　第三方资源分配，内群体偏爱，按劳分配，心理理论，共情

Adolescents' resource allocation in complex situations and its relationship with theory of mind and empathy

Yulu Chen[1,2,*], Mingyue Zhao[1], Haoying Zhang[1], Ranpeng Li[1]

1 Department of Psychology, Teachers College, Beijing Union University, Beijing, 100011

2 Institute of Child and Adolescent Learning and Psychological Development, Beijing Union University, Beijing, 100011

*Corresponding author: chenyulu@buu.edu.cn

Abstract：The current study, composed of two sub studies with four experiments as well as a total of 702 person-time participants, investigated how adolescents make decisions as well as the relative factors when they are faced with complex resource allocation situations where in-group and out-group members are in differed contribution situations.

Study 1, including experiment 1a to 3c, aimed to reveal the characteristics of adolescents' performance in resource allocation in complex situations involving both in/out-group differences and labor contribution differences. Specifically, in experiment 1a, 303 adolescents were selected to complete a resource allocation story task with differences in the amount of contribution of in- and out-group members, including two contexts in which the in-group preference factor and the pay-to-play factor were congruent and incongruent, and an additional control context which did not involve the in- and out-group. Statistical analysis of the three contexts combined showed that adolescents use different allocation principles depending on the amount of contribution of in- and out-group members, and that their in-group preference and work-based allocation tendencies coexist. In experiment 1b, 49 adolescents were selected as valid subjects and a follow-up test was conducted to examine the stability of adolescents' resource allocation decisions over a one-month interval. The results showed that adolescents' resource allocation decisions remained stable over time in consistent, inconsistent and control situations. In experiment 1c, which recruited an additional 100 university students as adult control group subjects, compared adolescents' and adults' decisions in a complex resource allocation task involving both in-group preference and work-based allocation, and found that adolescents had greater in-group preference and adults had more pronounced work-based allocation tendencies.

Study 2, including experiment 2, aimed to examine the patterns of influence of theory of mind and empathy

on adolescents' resource allocation based on in-group preference and differences in contribution amount. 201 adolescents were recruited to measured decisions on resource allocation in complex situations with both in-group differences and contribution amount difference, as well as theory of mind (theory of mind story task), and empathy (Interpersonal Response Index scale). The results revealed that the higher the adolescents' levels of total psychological theory scores, empathic concern in empathy, and personal sadness, the higher their tendency to in-group bias and the lower their tendency to apportion resources according to their work.

The current study theoretically fills in and complete to a certain extent the framework of research on complex resource allocation decisions in the presence of both in-group bias and differences in the amount of contribution, and also provide some support for research on the stability of resource allocation among adolescents and the developmental comparison between adolescents and adults in terms of resource allocation.

Keywords：third-person resource allocation, in-group bias, distribution according to work, theory of mind, empathy

青少年的不作为偏差：对道德、意图和因果的感知

王研维[1] 苏彦捷[1*]

1 北京大学心理与认知科学学院，行为与心理健康北京市重点实验室，北京，100871

[*]通讯作者 E-mail：yjsu@pku.edu.cn

摘 要 当行为所造成的消极结果相同时，人们更能容忍不作为行为，这种现象被称之为不作为偏差。成年人在多种道德情境下均倾向于认为作为比不作为更不道德，然而目前关于青少年不作为偏差发展的研究结果尚不一致，这可能是因为青少年在整合道德情境中的意图和因果信息时存在困难。本研究考察了 677 名 13-25 岁的被试（青少年中期 210 人，平均年龄为 13.31±0.60，女性 99 人；青少年后期 267 人，平均年龄为 16.63±0.64，女性 146 人；成年早期 200 人，平均年龄为 21.31±1.80，女性 136 人）对作为和不作为的道德判断、意图性判断和因果性判断。结果显示，对于因果性判断，所有年龄段的个体均认为作为与行为结果之间的因果关系显著强于不作为与行为结果之间的因果关系；对于意图性判断，只有青少年后期的个体认为作为的行为主体相比于不作为的行为主体是更有意造成消极结果的，而青少年中期和成年早期的个体则没有表现出这一倾向；而对于道德判断，青少年后期和成年早期的个体认为作为行为显著比不作为行为更不道德，而青少年中期的个体则没有表现出这一倾向。研究结果提示青少年后期可能是不作为偏差发展的重要时期，这一时期的个体对意图信息和因果信息的整合相比于青少年中期更加成熟。成年早期个体的意图性不作为偏差减弱可能反映了整合意图和因果信息能力的进一步发展，说明成年早期个体能够在考虑行为信息的同时推断出作为和不作为背后相同的伤害他人的意图。

关键词 不作为偏差，青少年，道德判断，意图，因果

Omission Bias in Adolescence:

Perception of Morality, Intention and Causality

Yanwei Wang[1], Yanjie Su[1*]

1 School of Psychological and Cognitive Sciences, Beijing Key Laboratory of Behavior and Mental Health, Peking University, Beijing, 100871

[*]Corresponding author, E-mail: yjsu@pku.edu.cn

Abstract： People are more tolerant of omission than commission when both behaviors cause similar negative outcomes, which is defined as omission bias. Adults steadily consider commission as more immoral than omission in various moral contexts. However, the evidence regarding how omission bias develops in adolescence is still inconsistent, which may be due to the difficulty in integrating intentional and causal information. The present study examined moral judgment, intention judgment, and causality judgment regarding commission and omission behavior based on the data from 677 participants aged 13 to 25 (210 middle adolescents, M_{age} = 13.31 ± 0.60, 99 females; 267 late adolescents, M_{age} = 16.63 ± 0.64, 146 females; 200 young adults, M_{age} = 21.31 ± 1.80, 136 females). All age groups considered commission to have more causal links to the outcome than omission. Only late adolescents regarded commission as more intentional than omission, while middle adolescents and young adults did not. Late adolescents and young adults regarded commission as more immoral, while middle adolescents did not. These findings suggest that late adolescence might be a crucial period for the development of omission bias. The ability to integrate intentional and causal information may be more mature in late adolescence compared to middle adolescence. The diminished intentional omission bias in young adults may reflect further development in the ability to integrate intentional and causal information, indicating that young adults are able to infer the same intent to harm others behind omission and commission.

Keywords： omission bias, adolescent, moral judgment, intention, causality

被提名为帮助者或分享者可促进 5 岁儿童的帮助或分享行为

张真 [1,2]（通讯作者） 王欣 [1,2] 宗语飞 [1,2]

1 中国科学院心理研究所行为科学重点实验室，北京，100101

2 中国科学院大学心理学系，北京 100049，通讯作者 E-mail（zhangzhen@psych.ac.cn）

摘 要 儿童不满 2 岁，就开始做出使他人获益的亲社会行为。随着年龄的增长，到 5 岁时，儿童做出亲社会行为背后的动机变得复杂起来，开始具有策略性，即他们会为了让自己受益而做出有益于他人的行为。对儿童来说，建立亲社会声誉是促使他们做出亲社会行为的一种典型的策略性动机。那么，如果儿童已经获得了亲社会声誉，5 岁儿童是否也会为了维护自己的亲社会声誉而策略性地做出亲社会行为呢？本研究通过 2 个实验考察了这个问题。研究选取儿童中最常见的两种不同类型的亲社会行为，分享和帮助行为，考察当 5 岁儿童知道自己在同伴眼中是一个“爱助人”或“爱分享”的个体后，会不会出于对自己“爱助人”或“爱分享”这样亲社会声誉的维护，更多地做出助人或分享行为。实验 1（N = 90）发现，当告诉儿童同伴提名他们爱助人时（被赋予助人声誉），相比于被赋予分享声誉或没有被赋予任何声誉两种条件，他们更迅速地做出帮助他人的行为；实验 2（N = 90）发现，当告诉儿童同伴提名他们爱分享时（被赋予分享声誉），相比于被赋予助人声誉或没有被赋予任何声誉两种条件，他们表现出更多的分享行为。结果表明，5 岁儿童会为了维护自己特定类别的亲社会声誉而策略性地做出相应的亲社会行为。该研究发现在理论上拓展了我们对 5 岁儿童声誉管理能力及其亲社会行为动机的理解,在实践上可以为促进儿童的亲社会行为表现提供指导。

关键词 亲社会声誉，亲社会行为，助人行为，分享行为，幼儿

Being named as a helper or a sharer promotes 5-year-olds' helping or sharing behavior

Zhen Zhang [1,2], Xin Wang [1,2], and Yufei Zong [1,2]

[1] CAS Key Laboratory of Behavioral Science, Institute of Psychology, Chinese Academy of Sciences, Beijing, 100101, China;

[2] Department of Psychology, University of Chinese Academy of Sciences, Beijing, 100049, China.

Abstract：Children start to engage in prosocial behaviors that benefit others in their second year of life. As children get older, by age 5, the motivation behind their prosocial behavior becomes complex and strategic: they engage in behaviors that benefit others in order to benefit themselves. Among these strategical prosocial behaviors, acquiring a good reputation is evidenced as a main concern. So, if children have already acquired a prosocial reputation, are 5-year-old motived to maintain their reputation by engaging in prosocial behaviors? The current study examined this question in 2 experiments. To answer this question, we selected two of the most common and distinct types of prosocial behaviors in young children, namely helping and sharing. We examined whether 5-year-old children, knowing that they are perceived as "helpful" or "sharing" children in the eyes of their peers, will engage in more helping or sharing behaviors to maintain these existing prosocial reputation. Experiment 1 (N = 90) found that when children were told that their peers had nominated them as kids who like to help (assigned a helpful reputation), they exhibited helping behaviors more quickly compared to when they were assigned a sharing reputation or no reputation at all. Experiment 2 (N = 90) found that when children were told that their peers had nominated them as kids who like to share (assigned a sharing reputation), they shared more compared to when they were assigned a helpful reputation or no reputation at all. These results suggest that 5-year-old children behave prosocially in order to maintain their existing prosocial reputation. These findings extend our understanding of young children's reputation management competence as well as the underlying motivation of their prosocial behavior, and might provide insight into ways of promoting children's prosociality in practice.

Keywords：prosocial reputation, prosocial behavior, helping; sharing, young children.

合作/竞争情境下幼儿承诺与说谎的关系

——心理理论和执行功能的作用

王异芳[1]　尚博文[1]　张娜[1]

1 首都师范大学学前教育学院，北京，100089

摘 要　诚信是中华民族的传承之美，是我国道德教育的重要组成。已有研究关注了幼儿的承诺和说谎行为，旨在发现其发展特点和影响因素，但承诺和说谎之间存在何种关系尚无明确定论。因此，本研究通过情境实验探讨 4-6 岁幼儿在合作和竞争情境下是否违背承诺及说谎，分析承诺与说谎的关系，以及心理理论和执行功能在其中的作用。研究采用改编的“抵制诱惑”实验范式，分别考察幼儿在合作或竞争情境中许下承诺后是否会违规和说谎。合作情境以 92 名 4-6 岁幼儿为研究对象，竞争情境以 95 名 4-6 岁幼儿为研究对象，同时以意外地点任务和意外内容任务考察幼儿心理理论发展水平，执行功能任务包括：抑制控制-Go/No Go 实验，工作记忆-倒背数字广度任务，认知灵活性-维度卡片分类任务。结果表明：**在合作任务中，**79.3%的幼儿违规，幼儿违规行为存在显著年龄差异；5 岁组幼儿违背承诺的人数比例显著高于 4 岁组，年龄和工作记忆显著正向预测幼儿的违规行为；幼儿说谎人数显著少于没说谎人数；承诺能够正向预测幼儿的说谎行为。在竞争任务中，76.8%幼儿违规；幼儿违规行为存在显著年龄和承诺组/控制组的差异，5 岁组幼儿违背承诺的人数比例显著高于 4 岁组，控制组违背承诺的人数比例显著高于承诺组；幼儿说谎人数显著少

于不说谎人数；认知灵活性与幼儿为自己说谎呈显著负相关，心理理论与幼儿为同伴说谎成显著负相关，工作记忆能够显著负向预测幼儿为同伴说谎行为；承诺能够负向预测幼儿的违规行为。

关键词　幼儿，合作，竞争，承诺，说谎

The relationship between promise and lying in young children in cooperative/competitive contexts: the role of theory of mind and executive function

Yifang Wang[1]　Bowen Shang[1]　Na Zhang[1]

1 Capital Normal University, College of Preschool Education, Beijing, 100089

Abstract： Integrity is the beauty of inheritance in Chinese culture and an important component of moral education in China. Existing studies have focused on preschoolers' promise making and lying behaviors, aiming to discover their developmental characteristics and influencing factors. However, the relationship between promise making and lying remains inconclusive. Therefore, this study explored whether 4-6-year-old preschoolers would break promises and lie in cooperative and competitive contexts through scenario experiments. It also analyzed the relationship between promise breaking and lying, as well as the roles of theory of mind and executive function. The study adopted a modified "resisting temptation" experimental paradigm to examine whether preschoolers would break rules and lie after making promises in cooperative or competitive contexts. The cooperative context included 92 4-6-year-old preschoolers, while the competitive context had 95 4-6-year-olds. Preschoolers' theory of mind development was measured using unexpected location and unexpected content tasks. Executive function tasks included inhibition control (Go/No-Go), working memory (backward digit span), and cognitive flexibility (Dimensional Change Card Sort). Results showed that 79.3% of preschoolers broke rules in the cooperative task, with significant age differences. The percentage of 5-year-olds breaking promises was markedly higher than 4-year-olds. Age and working memory significantly predicted preschoolers' rule breaking positively. The number of preschoolers who lied was significantly lower than those who did not. Lying was related to promise making, with more lying in the experimental group. Promise making positively predicted preschoolers' lying. In the competitive task, 76.8% of preschoolers broke rules. Rule breaking differed significantly by age and experimental/control groups. More 5-year-olds broke promises than 4-year-olds, and more control group children broke promises than the experimental group. The percentage of lying was significantly lower than not lying. Cognitive flexibility was significantly negatively correlated with lying for self, while theory of mind was significantly negatively related to lying for partners. Working memory significantly negatively predicted lying for partners. Promise making negatively predicted rule breaking.

Keywords：Children，Cooperation，Competition，Promise，Lie

情感补偿效应：偶然情绪和共情影响亲社会行为的调节中介模型

郭睿[1、2]　伍珍（通讯作者）[2]

1 北京师范大学马克思主义学院，北京，100875

2 清华大学心理学系，北京，100084，通讯作者 E-mail：zhen-wu@tsinghua.edu.cn

摘 要　亲社会行为有助于个人发展和社会和谐，如何促进个体的亲社会行为兼具理论和实践意义。过往指出与亲社会目标有关的整合情绪是影响亲社会行为的重要因素，然而与目标无关的偶然情绪的作用尚不明晰。本研究采用多种方法，探讨了偶然情绪对个体亲社会行为的影响，以及特质共情及状态共情在这一过程中的作用。研究一采用问卷测量与建模(N = 503)，探讨特质性积极消极情绪和亲社会行为倾向的关系；研究二采用日记法（N = 69）,探讨个体的积极、消极情绪对接下来一周日常亲社会行为的影响；研究三采用实验法（N = 466），通过视频诱发个体的积极、消极或中性情绪，探讨其对状态共情以及接下来的公益捐赠和志愿行为的影响。同时，三个研究中均测量了个体的特质共情，分析这一重要的个体差异如何影响上述情绪作用。研究结果主要发现:(1)以快乐为主的积极情绪和以悲伤为主的消极情绪促进成人亲社会行为;(2)这种促进作用受到特质共情的调节：低共情者受到情绪的促进更强，而高共情者保持相对稳定较高的亲社会行为，较少受到情绪影响；（3）积极情绪和消极情绪虽然促进低共情者的亲社会行为，但通过不同类型的状态共情中介而发挥作用。上述结果说明了一种情感补偿效应：情绪可以促进低共情者亲社会水平，从而弥补共情带来的差距，就像补偿了低共情者的亲社会行为缺陷。在理论上，本研究有助于我们理解从相对稳定到即时诱发的偶然情绪如何影响不同特质共情水平个体的亲社会行为；在实践上，有助于客观理性和看待情绪，针对性促进亲社会行为，助力个体心理健康和社会良性互动。
关键词: 情绪，亲社会行为，特质共情，状态共情

Affect as compensation: The moderated mediation model of how incidental emotions and empathy influence prosocial behavior

Rui Guo[a b], Zhen Wu[b*]

[a]School of Marxism, Beijing Normal University, Beijing, 100875

[b]Department of Psychology, Tsinghua University, Beijing, 100084; Email: zhen-wu@tsinghua.edu.cn

***Abstract*：** Prosocial behavior contributes to individual development and social harmony; therefore, how to promote prosocial behavior has both theoretical and practical significance. Integrative emotions that are related to prosocial targets play an essential role in prosocial behaviors, yet it remains unclear about the role of incidental emotions that are unrelated to prosocial targets. Employing diverse methods, the current study explored the impact of incidental emotions on adults' prosocial behaviors, as well as the role of trait empathy and state empathy in such a process. Study 1 (N = 503) investigated the association between trait positive and negative affect and prosocial behavioral tendency using questionnaires and modeling. Study 2 (N = 69) used a diary method to explore the influence of positive and negative emotions on daily prosocial behaviors in the following week. Study 3 (N = 466) conducted an experiment, where we elicited positive, negative, or neutral emotions through videos and explored their effects on state empathy and subsequent charitable giving and volunteering behaviors. At the same time, we measured participants' trait empathy in all three studies to analyze how this significant individual difference affected the emotional effects. The main findings were as follows: (1) positive emotions (represented by happiness) and negative emotions (represented by sadness) both promoted adult prosocial behaviors; (2) The promoting effect was moderated by trait empathy: it was more substantial in participants with lower trait empathy, while those with higher empathy maintained stable and high level of prosocial behaviors and were less affected by emotions; (3) Although positive and negative emotions both promoted prosocial behaviors of people with lower trait empathy, their effects are mediated by different types of state empathy. The above results illustrate an *Affect as compensation effect:* emotions promote prosocial behaviors of those with lower empathy, thus bridging the prosocial gap between those with higher trait empathy; thus, emotions seem to compensate for prosociality deficits

brought by low trait empathy. Theoretically, this study contributes to our understanding of how incidental emotions, stable or instant, influence the prosocial behaviors of individuals with different levels of trait empathy. In practice, it helps us objectively and rationally treat emotions, and adequately use them to promote prosocial behaviors, thus facilitating individual mental health and harmonious social interaction.

Keywords：emotion, prosocial behavior, trait empathy, state empathy

相似客体化经历对个体评价他人被性客体化的影响：认知共情和情绪共情的作用

叶芸伶[1] 杨琬婷[1] 廖宗卿[1](通讯作者)
1 四川师范大学心理学院，成都，610066

摘 要 过去大量的研究已经证明，性客体化改变了人们对女性的认知——更多地将她们视为物品而非人类。这导致遭遇性客体化的女性受害者们难以获得他人（包括女性同胞）的同情和理解，从而陷入孤立无援的困境中。然而，很少有研究进一步探讨女性群体彼此理解的条件和机制，以及相似的性客体化经历在其中扮演的角色。我们预测，在情感上，相似的性客体化经历调节了女性对其他受害者的共情路径；在认知上，相似的性客体化经历调节了女性对其他受害者的担责判断。同时，我们拓宽了相似性客体化经历的时间范畴，探究过去的经历（实验一，回忆启发）以及当下的经历（实验二，视频启发）调节机制的异同。实验一招募了 80 名女性，参与者被要求回忆某个特定事件（被性客体化事件或者无关事件），并在此之后评估拥有相似遭遇的女性受害者的难过程度以及做出担责判断，最后测量被试的两种特质共情能力。结果显示，相似性客体化经历对个体情绪共情能力到识别他人难过的调节作用不显著。但相似性客体化经历对个体认知共情能力到判断他人担责程度的调节作用显著，回忆相似性客体化遭遇的女性，她们的认知共情能力越高，则认为处于相似情景中女性受害者需要的担责程度越低；而回忆其他事件的女性身上并未发现类似结果。实验二同样招募了 80 名女性，与实验一不同的是，参与者被要求观看以第一视角拍摄的被他人性客体化或者正常对待的视频。其余流程与实验一保持一致。结果显示，相似性客体化经历对个体情绪共情能力到识别他人难过的调节作用显著，当女性没有被性客体化时，她们对相似情境中的受害者感知到的难过程度随其情绪共情能力的增加而增加；而当女性被性客体化之后，这种效应就消失了。而其认知共情与担责程度判断的关系则重复验证了实验一的结果。

关键词 性客体化，情绪共情，认知共情，调节作用

The influence of similar experiences of objectification on individuals' assessment of others' sexual objectification: The role of cognitive and emotional empathy

Yunling Ye[1] Zongqing Liao[1]
College of Psychology, Sichuan Normal University, Chengdu, Sichuan 610068, China

***Abstract*：** Numerous past studies have shown that sexual objectification changes how women are perceived—more as objects than human beings. This makes it difficult for female victims of sexual objectification to gain sympathy and understanding from others (including female compatriots), and thus fall into a predicament of isolation. However, little research has further explored the conditions and mechanisms by which groups of women understand each other, and the role that similar experiences of sexual objectification play in this. We predict that emotionally, similar experiences of sexual objectification moderated women's empathic pathways toward other victims; Cognitively, similar experiences of sexual objectification moderated women's judgments of responsibility towards other victims. At the same time, we broaden the temporal scope of similar objectified experiences and explore the differences and similarities between the regulatory mechanisms of past experiences (Study 1, recollection) and present experiences (Study 2, video watching). In Study 1, 80 women were asked to recall a specific event (sexually objectifying or unrelated), assess how sad a female victim of a similar experience felt, and assess what extent she's responsible for all of being sexually objectified. Finally measure two traits of empathy. The results showed that the moderating effect of similar experiences of sexual objectification on individual emotional empathy to the recognition of others' sadness was not significant. However, similarity objectification experience has a significant moderating effect on individual cognitive empathy ability to judge the degree of responsibility of others. Women who recall similar objectification experience, the higher their cognitive empathy ability, the lower the degree of responsibility that female victims in similar situations need; No similar results were found for women who recalled other events. In Study 2, which also recruited 80 women, participants were asked to watch a first-view video of either being objectified by another person or being treated normally. Other procedures are consistent with Study 1. The results showed that similar objectification experiences significantly moderated individual emotional empathy and ability to recognize other people's sadness. When women were not sexually objectified, their perceived sadness to victims in similar situations increased with the increase of their emotional empathy ability. However, when women were sexually objectified, this effect disappears. The relationship between cognitive empathy and the degree of responsibility was repeated to verify the results of Study 1.

***Keywords*：** sexual objectification, emotional empathy, cognitive empathy, moderation

人们何时对机器人共情？

机器人身份未知时儿童和成人会对其产生共情

陈敏[1] 周可[1] 颜志强[1,2]（通讯作者）

1 湖南师范大学教育科学学院心理学系，长沙，410081，yanzhiqiangpsy@hunnu.edu.cn

2 湖南师范大学认知与人类行为湖南省重点实验室，长沙，410081

摘 要 **目的：**随着科技的进步，机器人外形拟人化不断发展，机器人与人类外形的边界日益模糊，这影响着人们在人机交互中的认知与情绪反应，例如共情。本研究旨在探讨外形拟人化和机器人的机器身份对儿童和成人疼痛共情的差异性影响。**方法：**实验采用 2（年龄组：儿童 vs. 成人）×2（机器身份组别：机器身份未知 vs. 机器身份已知）×2（图片类型：非疼痛 vs. 疼痛）×4（对象类型：椅子 vs. 低拟人机器人 vs. 高拟人机器人 vs. 人类）的四因素混合实验设计。采用疼痛评价范式，要求被试分别对图片中的对象进行疼痛评分，其中被试被随机划分为机器身份未知组（儿童：$n = 26$；成人：$n = 24$）和已知组（儿童：$n = 26$；成人：$n = 24$）。**结果：**1.年龄组、机器身份组别、对象类型和图片类型的四重交互作用不显著($F(3,282) = 2.35$, $p = 0.072$, $\eta_p^2 = 0.02$)。2.年龄组、机器身份组别和对象类型的三重交互作用显著($F(3,282) = 3.66$, $p = 0.013$, $\eta_p^2 = 0.04$)，仅在成人组发现机器身份未知组对高拟人机器人的疼痛共情更高。3.机器身份组别和对象类型的交互作用显著($F(3,282) = 10.90$, $p < 0.001$, $\eta_p^2 = 0.10$)，仅在高拟人机器人上，机器身份未知组的疼痛共情更高。4.年龄组和机器身份组别交互作用显著($F(1,94) = 8.3$, $p = 0.005$, $\eta_p^2 = 0.08$)，仅在成人组发现，机器身份未知组的疼痛共情更高。5.年龄组和对象类型的交互作用显著($F(3,282) = 9.29$, $p < 0.001$, $\eta_p^2 = 0.09$)，儿童对低拟人机器人的疼痛共情更高。但仅在成人组发现对人类的疼痛共情高于高拟人机器人，高拟人机器人高于低拟人机器人。**结论：**本研究发现，在未知机器人机器身份的情况下，儿童和成人均会混淆高拟人机器人与人，表现出更高的疼痛共情。而告知机器人机器身份仅能够帮助成人区分高拟人机器人和人，降低成人的疼痛共情，儿童不受影响。同时，与成人相比，儿童更容易受到机器人外形拟人化的影响，表现出更高的疼痛共情。

关键词 疼痛共情，机器人，拟人化，儿童，成人

When do people empathise with robots?

Children and adults empathise with robots when their machine identity is unknown

Chen Min[1], Zhou Ke[1], Yan Zhiqiang[1,2*]

Department of Psychology, College of Education Science, Hunan Normal University, Changsha 410081, China

Cognition and Human Behavior Key Laboratory of Hunan Province, Hunan Normal University

***Abstract*: objective:** As technology advances, the anthropomorphization of robot appearance continues to develop. The increasingly blurred boundary between robot and human appearance affects people's cognitive and emotional responses in human-robot interaction, such as empathy. The aim of this study was to investigate the differential effects of appearance anthropomorphism and the robot's machine identity on pain empathy in children and adults.

Methods: The experiment adopts a 2 (age group: children vs. adults) x 2 (machine identity group: machine identity unknown vs. machine identity known) x 2 (picture type: non-pain vs. pain) x 4 (object type: chair vs. low anthropomorphic robot vs. high anthropomorphic robot vs. human) four-factor mixed design. Using a pain rating paradigm, participants were asked to rate the pain of the objects in the pictures separately, where participants were randomly divided into a machine identity unknown group (children: n = 26; adults: n = 24) and a known group (children: n = 26; adults: n = 24). **Results:** 1. The quadruple interaction of age group, machine identity group, object type and picture type was not significant ($F(3,282) = 2.35$, $p = 0.072$, $\eta_p^2 = 0.02$). 2. The triple interaction of age group, machine identity group and object type was significant ($F(3,282) = 3.66$, $p = 0.013$, $\eta_p^2 = 0.04$). Pain empathy for the highly anthropomorphic robot was found to be higher in the machine identity unknown group than in the known group only in the adult group. 3. The machine identity group and object type interaction effect was significant($F(3,282) = 10.90$, $p < 0.001$, $\eta_p^2 = 0.10$). Pain empathy was higher in the machine-identity unknown group than in the known group only on the highly anthropomorphic robot. 4. The age group and machine-identity group interaction effect was significant($F(1,94) = 8.3$, $p = 0.005$, $\eta_p^2 = 0.08$). Pain empathy was higher in the machine identity unknown group than in the known group only in the adult group. 5. The age group and object type interaction effect was significant ($F(3,282) = 9.29$, $p < 0.001$, $\eta_p^2 = 0.09$). Children showed higher pain empathy for the low anthropomorphic robot than adults. However, pain empathy was found to be higher for humans than for high anthropomorphic robots and higher for high anthropomorphic robots than for low anthropomorphic robots only in the adult group. **Conclusion:** This study shows that both children and adults confused highly anthropomorphic robots with humans and thus showed higher pain empathy when the robot's machine identity was unknown. Whereas informing the robot machine identity helped adults to distinguish between a highly anthropomorphic robot and a human, thereby reducing pain empathy for the highly anthropomorphic robot in adults, children were not affected by the machine identity. At the same time, children were more likely to be influenced by the anthropomorphic of the robot's appearance and showed higher pain empathy compared to adults.

Keywords：Pain empathy, robot, anthropomorphism, children, adults

共情和人际距离在青少年调节他人情绪中的作用及其神经基础

王启忱[1] 苏彦捷[1]（通讯作者）

[1] 北京大学心理与认知科学学院和行为与心理健康北京市重点实验室，北京， 100871，

yjsu@pku.edu.cn

摘 要 个体对他人的情绪调节是指个体通过某些策略调整或改变他人情绪状态的过程，同时涉及调节者和被调节者双方。青少年经历着强烈生理和心理变化，对于情绪线索的敏感性较强，已有研究发现青少年阶段同龄人帮助调节情绪比仅自我调节更为有效。而在这一过程中，反映个体社会认知能力的共情和表征个体间关系的人际距离的作用仍有待探究。研究一从行为基础角度探究上述因素的作用，在人际距离较近条件下招募 212 对朋友关系的青少年，人际距离较远条件下招募 208 对陌生关系的青少年。实验要求调节者针对特定情境写出调节策略，被调节者在查看策略前后分别进行情绪评价，将其差异作为调节有效性的评分标准。结果表明，调节者和被调节者的情绪共情能够分别显著正向预测调节意愿、策略整体使用倾向和调节效果感知程度。而认知共情与调节意愿程度和有效性感知的关系均受到人际距离的调节，在人际距离较近的情况下，认知共情的作用显著。同时，有调节的中介模型分析表明，仅在人际距离较近条件下，调节者的认知共情通过正向作用于其对被调节者情绪判断的准确性，进而正向预测客观调节效果，这在一定程度上揭示了共情与人际距离共同作用的行为基础。研究二使用生态效度更高的范式，探究上述因

素产生作用的神经基础。对较近人际距离条件下的 34 对青少年，较远人际距离条件下的 30 对青少年，采用近红外光谱成像超扫描技术，在被调节者自由讲述负性经历阶段和调节者调节对方情绪阶段记录双方与共情相关脑区的神经同步性。结果表明，人际距离较近条件下的青少年双方在认知共情相关脑区（背外侧前额皮层）对应通道对上的神经同步性显著高于人际距离较远的青少年。同时，仅在朋友配对条件下，调节效果对于背外侧前额皮层脑区对应通道对上的神经同步性的正向预测作用显著，提示神经同步性是解释共情和人际距离共同作用于调节他人情绪过程的神经基础。研究有助于深入认识调节他人情绪的过程理论，同时为青少年人际间的情绪调节相关干预实践提供指导。

关键词　调节他人情绪，共情，人际距离，青少年

The role of empathy and interpersonal distance in adolescents' interpersonal emotion regulation and its neural basis

Wang Qichen[1], Su Yanjie[1]

[1] School of Psychological and Cognitive Sciences and Beijing Key Laboratory of Behavior and Mental Health, Peking University, Wangkezhen Building, Haidian Road, Beijing, 100871

Abstract：Interpersonal emotion regulation of others refers to the process by which an individual adjusts or alters another person's emotional state through certain strategies, involving both the regulator and the regulated. Considering the intense physiological and psychological changes, adolescents are more sensitive to emotional cues, and it has been found that interpersonal emotion regulation among peers during adolescence is more effective than self-regulation alone. The roles of empathy, which reflects individual's social cognitive ability, and social distance, which characterizes inter-individual relationships, remain to be unexplored in this process. Study 1 explores the role of the above factors from the perspective of behavioral basis. Two hundred and twelve pairs of adolescent-friends were recruited in the proximate social distance condition, and 208 pairs of adolescent-strangers were recruited in the remote social distance condition. The regulators were required to write regulation strategies for a specific situation, and the regulated rated their emotions before and after viewing the strategies respectively, and the rating difference was used as an index for the regulation effectiveness. The results indicated that affective empathy of the regulator and the regulated significantly and positively predicted willingness to regulate, overall tendency to use regulation strategies, and the degree of perceived effectiveness of regulation, respectively. Whereas the relationship between cognitive empathy and both the degree of willingness to regulate and the perceived effectiveness were moderated by social distance, the role of cognitive empathy was significant under proximate social distances only. At the same time, moderated mediation model showed that only under conditions of proximate social distance, the regulators' cognitive empathy positively predicted the objective regulation effectiveness by positively affecting the accuracy of their judgment of the regulated persons' emotions, which, to some extent, revealed the behavioral basis for the interrelated role of empathy and social distance. Using a paradigm of greater ecological validity and the fNIRS-based hyperscanning, study 2 focused on the neural basis by recruiting 34 pairs of adolescents in the proximate social distance condition and 30 pairs of adolescents in the remote social distance condition. Interpersonal neural synchronization (INS) in empathy-related brain regions were recorded during the stages in which the regulated person freely narrated their negative experience, and the regulator regulated the other person's negative emotion. The results showed that INS on corresponding channel pairs in cognitive empathy-related brain regions (dorsolateral prefrontal cortex, dlPFC) was significantly higher under the condition of proximate social distance. Meanwhile, the positive prediction of the regulation effect for

INS on corresponding channel pairs in dlPFC was significant only under the friend-pairing condition, suggesting that INS is the neural basis for explaining the interrelated role of empathy and social distance in the process of interpersonal emotion regulation. Current study, on one hand, contributes to a deeper understanding of extended process model of interpersonal emotion regulation, on the other hand, it provides guidance for intervention practices for emotion regulation in adolescents.

Keywords：interpersonal emotion regulation, empathy, social distance, adolescent

童年逆境对在线学习的影响：共情能力的个体差异视角

何子静（中山大学心理系，广州，510275）
通讯作者：hezij2@mail.sysu.edu.cn

摘要：童年逆境指个体从婴儿期到青春期经历过的创伤事件，如父母分离或离婚、虐待和忽视、父母药物滥用、家庭精神疾病等(Horn et al., 2019。影响个体发展的童年逆境通常包括两个方面：环境严峻性和不可预测性(Ellis, Figueredo, Brumbach, & Schlomer, 2009)。严峻性指导致人群的发病率和死亡率的一般物理压力，包括资源稀缺、极端气候、传染病等，常以社会经济地位来衡量。而不可预测性指行为结果的不可预测程度，体现在时间、空间上波动程度，常以家庭生态变化来衡量，如居住地、父母工作、家庭结构变动等。许多社会政策及干预措施基于缺陷模型应运而生，希望通过降低造成缺陷的风险和弥补缺陷，提高经历童年逆境的个体的认知和社交表现(Reynolds, Ou, Mondi, & Giovanelli, 2019)。缺陷模型主要关注缺陷和劣势，忽视个体具有调整自身认知以适应环境压力的潜能。这种不平衡的认识会带来歧视，造成其心理痛苦(Ellis et al., 2022)。隐性才能模型全面探究童年逆境对个体认知的影响。人类认知是为应对特异的环境挑战不断进化的信息加工机制(Young, & Ellis, 2020)。不利环境也会提高个体解决环境相关问题的专门技能，塑造特定隐性才能(Frankenhuis & Nettle, 2020)。近年来在线学习成为边远地区或乡村学生获得教育机会的重要途径。为了评估童年逆境对于学生在线学习表现的影响，本研究通过三个系列实验，从进化与发展的角度进行探究。具体分析童年逆境如何适应性地塑造个体认知，并影响学生在线学习时的行为与心理表现。实验一和实验二考查童年逆境对在线课程中的学习成绩和学习疲劳的影响。结果发现童年逆境的影响受在线课程形式的调节，当课程形式匹配童年逆境所塑造的认知特点时，童年逆境产生积极的影响。实验三考查童年逆境情境的启动对学生在线课程中表现的影响。根据情境认知理论，童年逆境的影响与当前的背景有关，当启动他人的童年逆境时，也可以产生相似的影响，并且启动效应与个体的共情能力有关。本研究对面向贫困地区或弱势人群以远程在线课程开展教育有启示意义。在扶贫实践中扶智应该顺应人群特征以合乎其认知特点的课程形式变弱势为优势。

关键词：童年逆境，隐性能模型，在线学习，共情

The influences of childhood adversity on online learning: individual differences in empathy

Zijing He

Psychological department，Sun Yat-sen University, Guangzhou, 510275

Abstract: Childhood adversity refers to traumatic events experienced by individuals from infancy to adolescence, such as parental separation or divorce, abuse and neglect, parental drug abuse, and family mental illness (Horn et al., 2019）. Childhood adversity that affects individual development typically includes two dimensions: harshness and unpredictability (Ellis, Figueredo, Brumbach &Schlomer, 2009). Harshness is the general physical pressure causing mortality, including resource scarcity, extreme climate, infectious diseases, etc. It is often measured by socioeconomic status. The unpredictability refers to the unpredictability of behavior outcomes, which is reflected in the fluctuation degree in time and space, and is often measured by the changes in family ecology, such as residence, parents' work, changes in family structure, etc. Based on the deficit model, many social policies and interventions have emerged, aiming to improve the cognitive and social performance of individuals experiencing childhood adversity by reducing the risk of deficit (Reynolds, Ou, Mondi,& Giovanelli, 2019). The deficit model mainly focuses on disadvantage and weaknesses, neglecting the individual's potential to adjust their own cognition to adapt to environmental pressure. This imbalanced understanding can lead to discrimination and psychological pain (Ellis et al., 2022). The hidden talent model comprehensively explores the impact of childhood adversity on individual cognition. Human cognition is an evolved information processing mechanism that responds to specific environmental challenges (Young & llis, 2020). Adverse environments can also enhance individuals' specialized skills in solving environmental related problems, shaping specific implicit talents (Frankenhuis Nettle, 2020). In recent years, online learning has become an important way for students in remote areas or rural areas to access educational opportunities. In order to evaluate the impact of childhood adversity on students' online learning performance, this study conducted a series of three experiments from the evolutionary and developmental perspective. We analyze how childhood adversity adaptively shapes individual cognition and affects students' behavior and psychological performance during online learning. Experiment 1 and Experiment 2 examined the impact of childhood adversity on learning performance and fatigue in online courses. The results showed that the impact of childhood adversity was moderated by the online course format. When the course format matched the cognitive characteristics shaped by childhood adversity, childhood adversity had a positive impact. Experiment 3 examines the impact of priming childhood adversity situations on students' performance in online courses. Experiment 3 examines the impact of childhood adversity situations on students' performance in online courses. According to the theory of situational cognition, the impact of childhood adversity is related to the current context. When priming others' childhood adversity, similar effects can also occur, and the priming effect is related to an individual's empathy ability. This study has implications for developing education program s through remote online courses targeting impoverished or disadvantaged areas. In poverty alleviation practice, supporting intelligence should adapt to the characteristics of the population and transform weaknesses into advantages in the form of courses that conform to their cognitive characteristics.

Key words: childhood adversity, hidden talent model, online learning, empathy

3-6 岁幼儿执行功能和社会退缩关系的追踪研究：共情的中介作用

黄嚞青 马艺煊 吕晋晋

首都师范大学学前教育学院，北京，100089，通讯作者 Email（aivita@126.com）

摘 要　社会退缩指个体独自游戏、消磨时光的孤单行为，具有跨情境、跨时间的一致性。不同亚型社会退缩幼儿具有不同特点：沉默害羞型幼儿对社会交往表现出严重焦虑和恐惧，同时具有高社交趋近和高社交回避动机的特征；主动退缩型幼儿缺乏交往愿望，具有低社交趋近动机和高回避动机；被动退缩型幼儿有同伴互动的愿望，但缺乏交往能力而常常被同伴拒绝。执行功能广泛参与到社会适应的各个环节中，已有纵向研究指出执行功能对三种不同类型的社会退缩行为均具有保护性作用。共情在个体的社会交往中发挥重要作用，共情中包括指向他人的成分（other-oriented empathy）和指向自我的成分（self-oriented empathy）。在执行功能影响社会退缩的通路中，共情不同成分可能具有不同作用。为了验证抑制控制对社会退缩的保护性作用，并考察共情不同成分是否在其中发挥中介作用，本研究，以 123 名小班幼儿为对象（M 年龄=3.67，SD 年龄=0.87），使用了 18 个月的三波纵向研究设计通过《执行功能量表》（CHEXI）考察幼儿执行功能的发展状况（T1），通过《早期儿童共情量表》（EmQue）考察幼儿共情指向自我和指向他人的成分（T2），使用《社会退缩问卷（教师版）》考察幼儿三种社会退缩程度（T3）。使用 SPSS 及其 process 插件、Mplus 进行数据处理分析。研究结果表明，执行功能对主动退缩和被动退缩的预测会受到指向他人共情成分的正向中介；执行功能对沉默害羞的预测受到共情中情绪感染维度的负向中介。本研究进一步探讨了执行功能影响社会退缩的作用机制，对学前儿童社会退缩的预防和干预有积极的意义。

关键词　社会退缩，共情，执行功能，幼儿

A Three-Wave Longitudinal Research to the Effect of Executive Function on Social Withdraw: A Mediation Effect of Empathy

Heqing Huang, Yixuan Ma, and Jinjin Lv

College of Preschool Education, Capital Normal University, Beijing, 100089, China.

Abstract：Social withdrawal, the lonely behavior of individuals, was stable across situations and time. Children of different subtypes of social withdrawal perform different characteristics: children of the shy withdrawal type typically exhibit severe anxiety and fear about social interactions, children of the active withdrawal type of children usually lack social motivation and have the conflict of social approach and social avoidance, and the children of the passive withdrawal type lack communication skills and are often rejected by peers. Executive function has complicated relationships with individuals' social adaption and was proven to play a protective role against all three subtypes of social withdrawal. Empathy, which contains the self-orient component and other-oriented component, also plays a critical role in individuals' social life. Using a three-wave longitude design, This research aims to examine the protective role of executive function and the mediating effects of the two different empathy components. The initial sample is 123 children in the first grade in the preschool, the Childhood Executive Functioning Inventory (2018) was used to measure children's executive function (T1), Empathy Questionnaire was used to measure children's self-oriented and other-oriented empathy (T2), and the Social Withdrawal Questionnaire (teacher-report version) was used to measure the children's three subtypes of social withdrawal (T3). The result indicated that, the predictions of executive function for active and passive withdrawal were positively mediated by the other-oriented empathy, while the prediction of executive function for shy withdrawal was negatively mediated by the other-oriented empathy. This study further discussd the mechanism of executive function affecting social withdrawal, which has positive implications for the prevention and intervention of social withdrawal in young children.

Keywords：social withdrawal, executive function, empathy, young children.

自发性知觉经络反应中个体情绪体验出现差异的原因

王协顺（通讯作者）
山东师范大学心理学院，济南，250014
通讯作者 E-mail: wangxs1036@126.com

摘 要　自发性知觉经络反应（autonomous sensory meridian response, ASMR）是指在特定视听刺激下，一些人（ASMR 敏感者）在头皮后部或颈部体验到电流般、令人愉悦和放松的刺麻感的现象。借助 ASMR 这一特殊现象，将为深入理解情感认知的机制提供新的突破口。已有研究普遍认为，ASMR 视听刺激会诱发积极情绪，然而越来越多证据表明，ASMR 视听刺激下人们的情绪体验存在明显差异，有的产生积极情绪（典型敏感者），有的产生消极情绪（非典型敏感者），也有的无情绪变化（不敏感者）。为揭示 ASMR 视听刺激下个体情绪体验出现差异的原因，本研究首先通过 K-means 聚类的方式，识别出 36 名典型敏感者（29 女）、21 名非典型敏感者（14 女）和 37 名不敏感者（28 女）。然后，要求所有被试依次接受三种不同的实验处理，分别是无视频刺激条件、ASMR 视频刺激条件和中性视频刺激条件。在每个实验处理之后，被试均需要完成积极情感和消极情感量表（PANAS）和情绪线索 Go/Nogo 任务。结果显示，ASMR 视频刺激可以降低典型敏感者在情绪线索 Go/Nogo 任务上的表现，但可以增强非典型敏感者在 PANAS 消极情感维度上的评分。这表明，在接受 ASMR 视听刺激后，不同类型敏感者在情绪体验上的差异可能与他们在情绪控制和情绪唤起方面的独特性有关。具体是，在 ASMR 视听刺激下，之所以个体会出现积极情绪，是因其情绪控制受到暂时抑制，导致积极情绪表征过度表达；之所以出现消极情绪，是因个体对视听刺激中的情感信息做出较多负性评估，导致消极情绪过度唤起。

关键词　ASMR, 情绪唤起, 情绪控制, 个体差异

Why ASMR Responders Show Different Emotional Experiences during ASMR Episodes

WANG Xieshun
School of Psychology, Shandong Normal University, Jinan 250358, China

Abstract: The autonomous sensory meridian response (ASMR) is a unique sensory phenomenon in which some individuals (ASMR responders) experience a static-like tingling sensation in the scalp in response to certain auditory/visual stimuli (ASMR triggers). The ASMR phenomenon will provide a new breakthrough to deeply understand the mechanism of affective cognition. Increasing evidence shows that some ASMR responders experience positive emotions after receiving ASMR triggers (typical responders), but some experience negative emotions (atypical responders). The present study aims to investigate why people experience different emotions after being stimulated by ASMR triggers. We first identified the typical responders (7 males, 29 females), atypical responders (7 males, 14 females), and non-responders (9 males, 28 females) by a K-means clustering approach. Then, all participants were asked to experience three different treatment conditions in sequence (Non-trigger, ASMR-trigger, and Neutral-trigger). After each treatment, participants were instructed to complete the Positive Affect and Negative Affect Scale (PANAS) and an emotional Go/Nogo task. The results showed that the ASMR triggers could weaken the performance of emotional Go/Nogo task in typical responders but elevated the ratings of the Negative Affect subscale of PANAS in atypical responders. We interpreted these findings in terms of the

specificities of emotional arousal and emotional control among the different types of responders. Septically, after being stimulated by ASMR triggers, the processing of emotional control in typical responders was temporarily suppressed, resulting in the overexpression of positive emotional representations and, thus, experiencing stronger positive emotions; however, the atypical responders tended to make more negative evaluations of the emotional information in ASMR triggers, resulting in excessive arousal of negative emotions.

***Keywords*:** ASMR, emotional arousal, emotional control, individual difference

情绪性注意瞬脱在青少年时期的发展

林悦 谢宇航 苏彦捷（通讯作者）

北京大学心理与认知科学学院，行为与健康北京市重点实验室，北京，100871

E-mail: yjsu@pku.edu.cn

摘 要 青少年对社会情绪线索敏感，在空间维度上表现出对情绪刺激的注意偏向。注意是随时间变化的动态过程，以往研究发现时间维度的情绪注意偏向比空间维度的测量更加直接并且具有更高的信效度。探究青少年对情绪刺激注意偏向的时间动态过程将有助于理解青少年的情绪症状的发生和发展。情绪性注意瞬脱任务可用以测量情绪性目标对注意的保持时间。该任务在快速序列视觉呈现刺激流中插入情绪刺激作为目标 1，中性刺激作为目标 2，在目标 1 和目标 2 之间填充干扰刺激以操控两个目标之间的时间间隔，当目标 1 和目标 2 间隔时间很短时（通常为 200-500ms），正确识别目标 1 后注意资源来不及释放并分配到目标 2，即发生注意瞬脱现象。相比于中性刺激，情绪性刺激更容易保持注意，会诱发更大更长时间的注意瞬脱。本研究设计了适用于青少年的情绪性注意瞬脱的范式，并探究情绪性注意瞬脱在青少年时期的发展特点。共 138 名 10~25 岁的青少年完成了情绪性注意瞬脱任务。结果发现不同情绪面孔诱发的注意瞬脱时间窗口显示出不同的发展轨迹：恐惧面孔诱发的注意瞬脱时间窗口呈 U 型发展轨迹，早期青少年和早期成人的时间窗口比中晚期青少年长；愉悦面孔诱发的注意瞬脱时间窗口呈倒 U 型发展轨迹，早期青少年和早期成人的时间窗口比中晚期青少年短；中性面孔诱发的注意瞬脱时间窗口呈线性发展轨迹，早期青少年的时间窗口比中晚期青少年及成人长。这些结果表明在时间维度上，中晚期青少年相比于早期青少年和早期成人表现出独特的情绪性注意偏向模式：对威胁性刺激的注意保持时间更短，对愉悦刺激的注意保持时间更长。这些发现从情绪性注意的时间维度为社会情绪系统在青少年时期的非线性发展理论提供了证据。青少年情绪性注意瞬脱的发展特点与青少年情绪症状发生和发展的关系还有待未来研究进一步探讨。

关键词 情绪性注意瞬脱 注意偏向 青少年

The Development of Emotional Attentional Blink in Adolescence

Yue Lin, Yuhang Xie, Yanjie Su

School of Psychological and Cognitive Sciences and Beijing Key Laboratory of Behavior and Mental Health, Peking University, Beijing 100871, China.

***Abstract*：** Adolescents are sensitive to social-emotional cues and show an attentional bias toward emotional stimuli in the spatial dimension. Attention is a dynamic process that changes over time. Previous research has found that the temporal dimension measures of emotion-biased attention is more direct and shows higher reliability than spatial dimension measures. Exploring the temporal dynamics of attentional bias toward emotional stimuli will contribute to understanding the onset and development of emotional symptoms in adolescents. The emotional attentional blink task provides a measure of how long attention is retained on emotional targets. The task inserts an emotional stimulus as target 1 and a neutral stimulus as target 2 in a stream of rapid serial visual presentation, and fills in a specific number of distractors between target 1 and target 2 to manipulate the time interval between the two targets. When target 1 and target 2 occur with a short interval between them (usually 200-500ms), attentional resources are too late to be released and allocated to target 2 after correctly identifying target 1(i.e., attentional blink phenomenon). Compared with neutral stimuli, emotional stimuli are more likely to maintain attention and induce a larger and longer attentional blink. The current study designed a paradigm to explore the developmental characteristics of the emotional attentional blink during adolescence. A total of 138 adolescents between the ages of 10 and 25 completed an emotional attentional blink task. The results revealed that the time windows of attentional blink elicited by different emotional faces showed different developmental trajectories. The time windows of attentional blink elicited by fearful faces showed a U-shaped developmental trajectory, and were longer in early adolescents and early adults than in middle- to late-adolescents; the time windows of attentional blink elicited by happy faces showed an inverted U-shaped developmental trajectory, and were shorter in early adolescents and early adults than in middle- to late-adolescents; and the time windows of attentional blink elicited by neutral faces showed a linear developmental trajectory, and were longer in early adolescents than in middle- to late-adolescents and in adults. These findings suggest that on the temporal dimension, mid- to late-adolescents show a unique pattern of emotional attention bias compared to early adolescents and early adults, with shorter retention of attention to threatening stimuli and longer retention of attention to pleasant stimuli. These findings provide evidence for theories of the nonlinear development of the social-emotional system during adolescence in terms of the temporal attention. The relationship between the developmental characteristics of emotional attention blink and the onset and development of adolescent emotional symptoms remains to be further explored in future studies.

***Keywords*:** emotional attentional blink, attentional bias, adolescents

框架效应对不同记忆能力群体认知负载转移偏差的影响

王雅楠　刘岩（通讯作者）

辽宁师范大学心理学院，大连，116029，psysabrina@126.com

摘 要　在生活中人们常常将信息存储在外部媒介上，从而减少大脑的认知负荷，也就是进行认知负载转移。比如在平板电脑上记录课堂笔记，或者在手机上设置重要事项的提醒等等。然而许多研究表明人们在进行认知负载转移时往往没有做出最优选择，而是过多或过少地使用了这一策略，也就是出现了认知负载转移偏差。本研究试图探讨对于不同记忆能力的群体，面对收益和损失框架时其认知负载转移偏差是否有所不同。研究使用 2（框架：收益框架、损失框架）×2（记忆水平：低水平、高水平）的混合实验设计，最终将 50 名参与者的数据纳入分析。结果发现框架和记忆水平都对认知负载转移偏差有显著的影响。整体而言，被试在收益框架下会比在损失框架下更倾向于使用认知负载转移，同时高记忆水平的被试会比低水平被试更加倾向于使用认知负载转移。将不同群体在收益和损失框架下的表现分别与最优策略作比较，

结果显示，收益框架下低记忆水平群体没有出现认知负载转移偏差，而高水平群体过多地使用了认知负载转移。损失框架下情况有所不同，低水平群体过少地使用认知负载转移，而此时高水平群体则没有认知负载转移偏差。以上结果说明，框架效应对于不同记忆能力群体认知负载转移偏差的影响是不同的：对于记忆能力高的群体而言，在传统的收益框架下会有过度使用认知负载转移的倾向，而在损失框架下这种倾向被消除了。但对于记忆能力低的群体来说，从收益框架转为损失框架反而带来了更多了认知负载转移偏差。本研究以个体差异为切入点，为认知负载转移偏差的产生机制提供了新的研究视角。

关键词　认知负载转移，记忆能力，框架效应

The Influence of Framing Effect on Cognitive Offloading Bias in Groups with Different Memory Abilities

Yanan Wang　Yan Liu
School of Psychology, Liaoning Normal University, Dalian

Abstract：In daily life, people often store information in external storage, thereby reducing the cognitive load of the brain, which is cognitive offloading. Such as taking notes in class on a tablet, or setting reminders of important things on your phone. However, many studies have shown that people often do not make the optimal choice when carrying out cognitive offloading, but use this strategy too much or too little, that is, there is a cognitive offloading bias. This study attempted to explore whether the cognitive offloading bias differs for groups with different memory abilities when faced with a gain and loss framing. The study used a mixed experimental design of 2 (framing: gain framing, loss framing) ×2 (memory level: low level, high level), and finally included data from 50 participants in the analysis. The results showed that both framing and memory level had significant effects on cognitive offloading bias. Overall, participants were more inclined to use cognitive offloading in the gain farming than in the loss farming. Participants with high memory levels were also more inclined to use cognitive offloading than those with low memory levels. Comparing the performance of different groups in the gain and loss framing with the optimal strategy, the results show that, under the gain framing, there was no cognitive offloading bias in the group with low memory level, while the group with high memory level used cognitive offloading excessively. The situation was different in the loss framing. The low memory group used cognitive offloading too little, while the high memory group had no cognitive offloading bias. These results indicate that the framing effect has different effects on cognitive offloading bias in different memory ability groups. For the group with high memory ability, there is a tendency to overuse cognitive offloading under the traditional gain framing, but this tendency is eliminated under the loss framing. However, for the group with low memory ability, the shift from gain framing to loss framing resulted in more cognitive offloading bias. This study provides a new perspective on the mechanism of cognitive offloading bias by taking individual differences as the starting point.

Keywords：Cognitive offloading, Memory ability, Framing effect

社会性奖励与非社会性奖励对儿童期认知控制的影响

金晓雨[1] (通讯作者)　Nicolas Chevalier[2]
1 北京语言大学心理学院，北京，100083，xiaoyu.jin@blcu.edu.cn
2 爱丁堡大学心理学系，英国，EH9 7YJ

摘 要　奖励对于认知控制过程的影响一直备受关注，然而对于社会性奖励与非社会性奖励间的对比研究却较为少见，特别是学龄前阶段。已有证据表明，非社会性奖励（如，金钱）可以在学龄前儿童、学龄儿童和成人中稳定地提升认知控制表现，促进“未雨绸缪”式的前摄控制模式，而社会性奖励的作用则更不明显或相对更弱。然而，值得注意的是，已有研究对于奖励的社会性维度的考察经常与奖励的其他重要维度（如，可数性）相混淆，从而很可能低估了社会性奖励的潜在作用。因此，社会性奖励的作用仍有待进一步探究：随着个体对于社会性信息敏感度的逐渐发展变化，尤其是对于社会性信息更敏感的学龄前阶段，社会性奖励与非社会性奖励发挥着怎样的作用？本研究旨在关注奖励的社会性维度，重新检验社会性奖励与非社会性奖励对儿童期认知控制的影响。在尽可能匹配奖励的其他维度的情况下，研究采用线上版本的AX-Continuous Performance Task（AX-CPT）任务，考察了 30 名 5-6 岁学龄前儿童和 30 名 9-10 岁学龄儿童在社会性奖励、非社会性奖励和无奖励（控制）条件下的认知控制表现，以及对前摄和反应控制模式的偏好情况。结果表明，学龄前儿童和学龄儿童的认知控制表现仅在社会性奖励条件下有所提升，表现为更高的任务准确率；然而，并没有观察到其对认知控制模式偏好（前摄控制或反应控制）的影响。两组儿童的认知控制并未在非社会性（金钱）奖励条件下表现出差异。相比于非社会性奖励，社会性奖励能够更显著地促进儿童期的认知控制。本研究不仅为儿童认知过程中奖励动机的作用研究提供了更多数据，同时也为相关教育实践提供了科学建议和实证依据。

关键词　社会性奖励，非社会性奖励，认知控制，儿童期

Influences of social and non-social rewards on cognitive control in childhood

Xiaoyu Jin[1], Nicolas Chevalier[2]
1 School of Psychology, Beijing Language and Culture University, Beijing, 100083
Xiaoyu.Jin@blcu.edu.cn
2 Department of Psychology, The University of Edinburgh, UK, EH9 7YJ

Abstract： The modulation of cognitive control by rewards has long been discussed, but there is scarce evidence of how social and non-social rewards influence cognitive control in childhood, especially in the preschool years. It has been shown that non-social rewards could improve cognitive control performance and promote proactive mode of control, while the effect of social rewards was found inconsistent. Critically, sociality has often been confounded with other important reward dimensions (e.g., tangibility) in these previous studies, hence potentially misestimating the effect of social rewards. Given this, the influence of social rewards on cognitive control remains to be further explored: With the developmental change of sensitivity to social information, how social and non-social rewards influence cognitive control during childhood, specially in the preschool years, which are more sensitive to social information. Thus, the present study re-examined the effects of social and non-social rewards on cognitive control, particularly on proactive and reactive control engagement during childhood. Thirty 5- to 6-year-olds and thirty 9- to 10-year-olds

completed an AX-Continuous Performance Task (AX-CPT) during an online session in three conditions: control, social reward, and non-social (i.e., monetary) reward conditions. Social rewards increased younger and older children's response accuracy, suggesting greater cognitive control. However, no influence on how children engage cognitive control (i.e., proactively or reactively) was observed. The provision of non-social rewards did not influence performance in either group of children. Social rewards, but not non-social rewards, can promote cognitive control performance in childhood. These findings not only shed light on the effect of reward incentives on children's cognitive processes, but also have important implications for educational fields.

Keywords：Social reward, non-social reward, cognitive control, childhood

7 到 10 岁儿童离散与连续形式下的直觉性统计推断

刘思燚[1] 苏彦捷[1*]

1 北京大学心理与认知科学学院，行为与心理健康北京市重点实验室，北京，100871

*通讯作者 E-mail：yjsu@pku.edu.cn

摘 要 直觉性统计推断是基于有限的统计信息对概率事件进行推断的能力，该能力对人类以及其它非人动物的生存与繁衍具有重要适应意义。以往研究发现，在控制了启发式策略后，7-8 岁儿童无法通过直觉性统计推断任务，9-10 岁儿童则可以通过该任务。7-8 岁儿童无法通过该任务的原因可能是在离散量的比例加工过程中产生了“整体数量偏差”，这导致他们更多地关注比例信息中绝对数量的大小而非相对数量的大小。为了探讨 7-8 岁儿童是否可以进行直觉性统计推断而非单纯使用了启发式策略，本研究同时使用了离散与连续形式的刺激对 7-10 岁儿童进行测试。以往研究发现连续型刺激下儿童对比例信息的加工会更少地表现出“整体数量偏差”。

结果发现，随年龄增大，7-10 岁儿童（$N = 99$）在直觉性统计任务中的表现变得更好；且在离散条件且控制了启发式策略后，7-8 岁儿童无法通过该任务，而在连续条件且控制了启发式策略后，7-8 岁儿童能够通过该任务。这说明 7-8 岁儿童能够基于比例信息进行直觉性统计推断，而非单纯依赖于启发式策略。在连续条件下的直觉性统计推断不依赖于离散的数量信息，这说明可能存在一般量的加工系统支持儿童的直觉性统计推断能力，其与离散条件下的推断是否基于相同的量的加工系统还需要更多研究证据来明确。

关键词 直觉性统计推断，7-8 岁儿童，刺激形式，策略，量的加工

Intuitive Statistical Inferences Across Discrete and Continuous Formats in 7- to 10-year-old Children

Siyi Liu[1], Yanjie Su[1*]

1 School of Psychological and Cognitive Sciences, Beijing Key Laboratory of Behavior and Mental Health, Peking University, Beijing, 100871

*Corresponding author, E-mail: yjsu@pku.edu.cn

Abstract: Intuitive statistical inferences refer to the ability to make inferences about probabilistic events based on limited statistical information, which is of great importance for the survival and reproduction of both human and non-human animals. Previous studies found that 7- to 8-year-old children failed in intuitive statistical inference tasks after heuristic strategy had been controlled, while 9- to 10-year-olds succeeded. Their failure might

be caused by “whole number bias” while processing proportional information in discrete formats. This bias made them focus on the absolute number rather than the relative number of proportional information. Considering that continuous-format stimuli could reduce “whole number bias” in previous studies, we used discrete- and continuous-format stimuli in present study, to examine whether 7- to 8-year-old children were able to make genuine intuitive statistical inferences, rather than relying solely on heuristic strategies.

Results revealed that 7- to 10-year-old children (N = 99) performances became better with age. Besides, 7- to 8-year-old succeeded in intuitive statistical inference tasks with continuous-format stimuli after heuristic strategy had been controlled but still failed in discrete-format stimuli condition. There was no discrete-format information in continuous condition, so general magnitude processing system might exist underlying intuitive statistical inferences. More empirical evidence is needed to clarify whether intuitive statistical inferences with discrete- and continuous-format information rely on the same magnitude processing system.

Keywords**:** intuitive statistical inferences, 7- to 8-year-old children, stimulus formats, strategy, magnitude processing

从无别到定向，动机对青少年创造力的影响：环境资源和坚毅的作用

张悠然　王依宁　苏彦捷（通讯作者）

北京大学 心理与认知科学学院/行为与心理健康北京市重点实验室，北京，100871，yjsu@pku.edu.cn

摘 要　创造力是一个从儿童到成年的连续适应性行为表现。本研究从发展心理学视角探讨了青少年创造力发展过程中环境资源和坚毅的作用，其中环境资源是指来自家庭和学校的能够有效促进个体积极健康发展的经验、社会关系、技能以及价值观的外部条件。研究还重点探究了动机在不同年龄段青少年创造力发展中的动态作用。采用随机抽样的方法，从中国东、西、中部区域随机抽样 7 个省份，分别通过儿童和青少年资源评估问卷（QARCA）、坚毅量表、一般因果取向量表（GCOS）和创造性行为传记清单（BICB）考察了 47278 名青少年的环境发展资源、坚毅、动机和日常创造行为。

研究结果表明，环境资源和坚毅可以正向预测各个学龄段下青少年的创造力表现，表现出稳定的促进作用。此外，结构方程模型指出，不同学龄段个体创造力的动机促进路径存在差异。对于高中和大学学生而言，环境资源和坚毅可以通过个体的自主定向动机正向预测其创造力表现。对于小学高年级学生而言，环境资源和坚毅是通过个体的控制定向动机来正向预测其创造力表现的。而小学低年级学生的自主定向和控制定向动机均可以预测其创造力表现，进一步地发现动机变量还具有内部的从“控制定向-自主定向”的方向性。这些研究结果丰富了当前青少年创造力模型，并为中国文化背景下不同年级学生创造力发展中动机的作用提供了参考。

关键词　创造力，自主定向，控制定向，环境资源，坚毅

From no distinction to direction, the impact of motivation on adolescent creativity: The contribution of environmental resources and grit

Youran Zhang, Yining Wang, Yanjie Su

Correspondence concerning this article should be addressed to Yanjie Su, School of Psychological and Cognitive Sciences and Beijing Key Laboratory of Behavior and Mental Health, Peking University, No. 5 Yiheyuan Road, Haidian District, Beijing, 100871, People's Republic of China. Email: yjsu@pku.edu.cn

Abstract: Creativity is a continuum of adaptive behavioral expressions from childhood to adulthood. This study explored the role of environmental resources and grit in the development of adolescent creativity from a developmental psychology perspective, where environmental resources refer to the external conditions of experiences, social relationships, skills, and values from the family and school that can effectively promote the positive and healthy growth of individuals. The study also investigates the dynamic role of motivation in adolescent creativity at various ages. A random sample of 47,278 adolescents from seven provinces in the eastern, western, and central regions of China was examined the environmental developmental resources, grit, motivation, and daily creative behaviors, through the Questionnaire for Assessment of Resources for Children and Adolescents (QARCA), the Grit Scale, the General Causal Orientation Scale (GCOS), and the Biographical Inventory of Creative Behavior (BICB), respectively.

The results found that environmental resources and grit positively predicted adolescents' creativity performance at all school ages, demonstrating stable facilitative effects. In addition, structural equation modelling indicated differences in the pathways of motivational facilitation of individual creativity across school ages. For high school and university students, environmental resources and grit positively predicted creativity performance through autonomy orientation. For upper primary schools, environmental resources and grit positively predicted their creativity performance through controlled orientation. For lower primary schools predictions held for both motivations, and the motivational variables were further found to have an internal "control-autonomy" connection. These findings enrich the current models of adolescent creativity and provide a reference for the role of motivation in creative development among different grade students in the Chinese cultural context.

Keywords: creativity, autonomy orientation, controlled orientation, environmental resources, grit

3.3 “理论心理与心理学史专业委员会”专题研讨会

大语言模型对精神心理障碍诊断服务的变革性影响

颜文靖 许冬武（通讯作者）
温州医科大学精神医学学院，温州，325015
通讯作者：E-mail：xdw@wmu.edu.cn

摘 要 在精神心理健康服务需求逐渐增长与及相关服务资源紧缺的失衡背景下，人们对人工智能技术辅助精神心理健康服务的关注度逐日提升。本文着重探讨了大语言模型（如 ChatGPT）在基于症状的精神心理障碍诊断中的潜在价值。以往的研究常常采用基于客观指标（如面部表情、身体姿态、语音、脑电图、脑成像以及神经递质等）的精神心理障碍诊断方法。这种基于监督学习的判别模型往往面临许多挑战。第一，客观指标与主观体验无明确的映射关系，而主观报告是诊断的主要依据。第二，现行的精神心理障碍诊断主要依赖于症状的定性描述，缺乏明确的标准。第三，精神心理疾病症状复杂，存在共病普遍、个体差异明显等特点。第四，训练模型的数据生态效度不高，限制了模型在实际环境中的应用。然而，基于无监督学习的自然语言模型，能较好地解决精神心理领域的自动化诊断问题，如 ChatGPT 这类 LLM 能建立起“主观报告-症状定性描述-精神障碍类别”间的映射关系，即依据患者的主观报告，匹配最接近的症状条目，进而匹配最接近的疾病类型。这一流程与精神科医生的实际诊断思路高度一致，也符合精神障碍的诊断手册 ICD-10 或 DSM-5 以症状为导向的诊断思路。在一个虚拟案例研究中，ChatGPT 与患者进行模拟互动，显示该模型在收集信息、共情、引导重点、澄清以及总结对话等方面都展现出了较高的能力。ChatGPT 等人工智能模型显示出了在辅助传统精神心理障碍诊断、提供个性化健康服务方面的巨大潜力。这种人工智能加持的工具有可能彻底改变精神心理健康服务现状，使其变得更为便利、更具有效性、以及更加个性化。然而，为了确保在精神心理健康服务环境中以道德和负责任的方式使用这些技术，我们仍需要持续进行研究，并以谨慎的态度实施。

关键词 大语言模型，ChatGPT，心理障碍 ，诊断，人工智能

The Transformative Impact of the Large Language Models on the Diagnosis Services of Mental Health Disorders

Yan Wen-Jing and Xu Dongwu (Corresponding author)
School of Mental Health, Wenzhou Medical University, Wenzhou 325015, China
Corresponding author: E-mail: xdw@wmu.edu.cn

Abstract：Against the background of the imbalance between the gradual increase in demand for mental health services and the shortage of related service resources, people's attention to artificial intelligence technology-assisted mental health services is increasing. This paper focuses on the potential value of large language models (e.g., ChatGPT) in symptom-based diagnosis of mental disorders. Previous studies have often used psychosomatic disorder diagnosis based on objective indicators (e.g., facial expression, posture, voice, EEG,

brain imaging, and neurotransmitters). Such supervised learning based discriminative models often face many challenges. First, there is no clear mapping of objective measures to subjective experience, and subjective reports are the primary basis for diagnosis. Second, the current diagnosis of psychosomatic disorders relies mainly on qualitative descriptions of symptoms and lacks clear criteria. Third, the symptoms of psychosomatic disorders are complex, characterized by widespread comorbidity and obvious individual differences. Fourth, the ecological validity of the data used to train the model is not high, which limits the application of the model in real-world settings. However, natural language models based on unsupervised learning can better solve the problem of automated diagnosis in psychiatric and psychological fields. For example, LLMs such as ChatGPT can establish a mapping relationship between "subjective reports - qualitative descriptions of symptoms - categories of mental disorders", i.e., based on the patient's subjective report, matching the closest symptom entries, and then matching the closest disease types. This process is highly consistent with the actual diagnostic thinking of psychiatrists and the symptom-oriented diagnostic thinking of the ICD-10 or DSM-5 diagnostic manuals for mental disorders. In a virtual case study, ChatGPT interacted with a patient in a simulation and showed that the model demonstrated a high level of competence in gathering information, empathizing, guiding focus, clarifying, and summarizing the conversation. Artificial intelligence models such as ChatGPT show great potential for assisting in the traditional diagnosis of psychiatric disorders and providing personalized healthcare services. Such AI-based tools have the potential to revolutionize mental health services by making them more accessible, effective, and personalized. However, there is a need for continued research and careful implementation to ensure that these technologies are used ethically and responsibly in mental health services.

Keywords：large language models, ChantGPT, psychiatric disorders, diagnosis, Artificial intelligence

人工智能接入心理服务——人类智慧与机器智慧的匹配

蒋柯
温州医科大学精神医学学院

摘 要 要实现自动化的心理健康服务，真正的障碍不在于智能化技术的硬件和软件的限制，而是在于心理健康服务本身如何被形式化表征。

本研究首先从人类智慧、机器智慧等基础概念的意义分析入手，形成关于人类智慧的形式化表征建议：智慧即意味着主客体或主体与主体之间发生互动时的灵活的、结构化的响应模式。研究进一步提出：心理健康问题与个体结构化水平降低有关。

接下来的心理学实验研究结果分离了心理问题人群与对照组在认知加工指标上的特殊变化。

在此基础上，研究预期：将人工智能的形式化表征与人类心智活动的形式化表征做匹配，通过人工智能与人类心智的形式化匹配训练，引入人工智能技术来辅助解决人类心理健康问题。

本研究还提出，通过人工智能技术辅助心理健康服务有两种模式：一种是“类人心理机器人”，即让机器人尽可能模拟人类心理师的活动；另一类是“非类人心理机器人”。它的工作可能与人类心理师的活动完全不同，但是可以通过程序对人的底层认知过程进行训练，从而实现心理服务的目的。

关键词 智慧；机器智慧；心理机器人；心理健康

Artificial Intelligence Integration in Psychological Services: Matching Human Intelligence and Machine Intelligence

Jiang Ke
School of Psychiatry, Wenzhou Medical University

Abstract：To achieve automated mental health services, the true challenge lies not in the limitations of hardware and software of intelligent technology but in how mental health services themselves are formally represented.

This study starts with a semantic analysis of fundamental concepts such as human intelligence and machine intelligence, leading to a proposed formal representation of human intelligence: wisdom implies flexible and structured response patterns when interactions occur between subjects or between subject and object. Furthermore, the research suggests that mental health issues are related to the reduction of individual structured levels.

The results of psychological experiments distinguish specific changes in cognitive processing indices between the group with psychological issues and the control group.

Based on this, the study anticipates matching the formal representation of artificial intelligence with the formal representation of human mental activities. Through the formal matching training of artificial intelligence and human cognition, artificial intelligence technology can be introduced to assist in addressing human psychological problems.

The study also proposes two modes of using artificial intelligence technology for supporting mental health services: one is the "human-like psychological robot," where the robot attempts to mimic the activities of human psychologists as much as possible; the other is the "non-human-like psychological robot." It may work completely differently from human psychologists but can be trained through programs to address underlying cognitive processes in humans, thus achieving the goal of psychological services.

Keywords：Wisdom, Machine Intelligence, Psychological Robot, Mental Health.

咨询服务中的心理机器人

王啸天（通讯作者）
华东政法大学心理健康教育与咨询中心，上海，200050
通讯作者：E-mail：jsnt@ntu.edu.cn

摘 要　科技的进步可以助力心理咨询事业的发展。心理机器人包括输入模块、语言分析模块、逻辑树对话模块、预料数据库、小结与反馈模块等，基于人工智能（AI）的心理咨询会话系统会模仿真人心理咨询师的话术，结合机器人与来访者间的会话信息，反馈来访者心理问题并输出相关的信息，来访者可以获得心理咨询建议和对应的心理干预方案。但是不管人工智能的程序写得有多么精细，心理咨询师的工作也不会被 AI 轻易取代，心理机器人仍存在以下几个问题：1、信息收集受限，无法收集语音、语调、肢体

动作等非言语信息；2、情绪的激发、联结受限，咨询师需敏感地捕捉来访者的情绪变化，良好的咨询与治疗效果离不开咨询师与来访者之间建立稳定而又安全的关系，关系中的情感和温度，AI 很难捕捉和反馈。3、行为的示范作用受限，在咨询过程中，咨询师本人就是咨询的工具，可通过咨询师的行为表现影响来访者，这点心理机器人无法做到。当下看来，心理机器人可助力心理咨询服务：1、可以作为咨询师辅助工具，帮助咨询师进行记录、分析、建议、总结等等，汇总资料、查询信息，针对问题给出启发式建议；2、心理机器人作为一个简易便捷的解决简单心理问题的工具，降低了心理咨询的门槛，它利用大数据优势，对于一些可被程序化、线性的问题，或者不需要掺杂太多情感因素的简单问题，可以提供服务；3、心理机器人可在规范化、结构化的疗法中提供咨询服务，通过大量缜密的设计和学习，它可以提供“认知行为疗法”等程序化较强的心理咨询服务。展望未来，除加强 AI 技术外，还要重视与之相应的法规、伦理研究，以使新技术更好的服务于来访者。

。

关键词　心理咨询，心理机器人，存在问题，助力

Consulting Service: Psychological Chatbot

Xiaotian Wang

Center for Psychological Health Education and Counseling, East China University of Political Science and Law

Abstract：Technological advancements can contribute to the development of the psychological counseling profession. Psychological chatbots, consisting of input modules, language analysis modules, logical tree dialogue modules, predictive databases, summarization, and feedback modules, are based on artificial intelligence (AI) and can simulate the language of a human psychological counselor. By incorporating conversation information between the robot and the visitor, the AI-driven psychological counseling session system can provide feedback on the visitor's psychological issues and offer relevant information, enabling visitors to obtain counseling advice and corresponding psychological intervention plans. However, regardless of how sophisticated the AI program is, the work of a psychological counselor cannot be easily replaced by AI. Psychological chatbots still face the following issues:

Limited information collection: They are unable to gather non-verbal information such as voice tone, intonation, and body language.

Restricted emotional elicitation and connection: Effective counseling and therapy outcomes depend on counselors sensitively capturing the visitor's emotional changes and establishing a stable and secure relationship with them. The emotional aspects and warmth in this relationship are challenging for AI to capture and provide feedback on.

Limited demonstration of behavior: In the counseling process, the counselor themselves act as a tool for counseling, and their behavior can influence the visitor. This is something that psychological chatbots cannot achieve.

Currently, psychological chatbots can assist in psychological counseling services in the following

ways: Assistive tools for counselors: They can help counselors with tasks like recording, analysis, suggestions, and summarization, as well as gather data and provide heuristic advice for specific issues.
Simple problem-solving tool: As an easy and convenient tool, psychological chatbots can address simple psychological problems, lowering the entry barrier for seeking counseling. Leveraging the advantages of big data, they can handle programmatic and linear issues or those that do not involve complex emotional factors.
Support for standardized and structured therapies: Through rigorous design and learning, psychological chatbots can provide counseling services based on highly structured therapies like "cognitive-behavioral therapy."
Looking ahead to the future, besides strengthening AI technology, attention should also be given to relevant regulations and ethical research to ensure that new technologies better serve visitors.

Keywords: Psychological counseling, psychological chatbot, challenges, assistance.

智能的进化连续性：

通过内稳态和动态调节连接通用人工智能与生物情感

刘崇艺　尹彬*（通讯作者）
福建师范大学心理学院，福建福州，350117
*通讯作者 Email: byin@fjnu.edu.cn

摘 要　OpenAI 的 GPT-4 是一款领先的大型语言模型，因其在多个领域中与人类智慧相匹敌或超越的卓越能力而受到关注。值得注意的是，GPT-4 在与人类的有效沟通和合作中展现出了显著的心理理论能力，这使它能够在现实背景中预测各种行为对个体心智状态的影响。然而，在逼近实现通用人工智能 (AGI) 的过程中，GPT-4 表现出明显的局限性。一个主要的关切是它无法识别输入命令背后的潜在意图，导致在涉及会话细微差异时可能会有误解。根据 Legg 和 Hutter 的观点，AGI 可以被视为一个执行任何人类可以完成的任务的系统。这种理解的背后，实质上是人类对于外部主体的一种向上的拟人化。在这个框架中，人们不仅认为体现出智能的机器或其他动物个体具有与人类相似的能力，而且还给予它们与人类相似的道德伦理地位。这意味着在人为中心的认知模型中，AGI 与其他智能生物是平等的。

因此，我们认为解决人与人工智能交互中的问题，关键可能在于研究人与不同物种之间的沟通与合作机制。从进化生物学的视角出发，所有动物，包括人类，都共享着某种进化历程，尤其是情感的进化连续性。这种进化连续性意味着，尽管物种之间存在着明显的差异，但通过某种互通的情感作用机制，它们仍然可以达成互相理解和交流。我们认为生命的内稳态和动态调节—一种调节身体状态的机制，可能是人与不同物种间情感互通的基础。我们提出了一个自适应的修正框架来解释这一可能过程。在这个框架中，身体感觉启动行为决策，以生存为中心的内稳态驱使生物体检测和响应来自内外环境的潜在威胁和奖赏，以维持其生存和繁衍。这种超越不同生物主体之间的进化距离的共享生命算法，可能为增强 AGI 处理环境反馈和培养主体能力提供了启示。

关键词　进化连续性，通用人工智能，生物情感，稳态，动态调节

Evolutionary Continuity in Intelligence: Bridging AGI and Biological Emotion through Homeostasis and Allostasis

LIU Chongyi & YIN Bin*
School of Psychology, Fujian Normal University, Fuzhou, Fujian 350117
*Corresponding Email: byin@fjnu.edu.cn

***Abstract*:** OpenAI's GPT-4 emerges as a leading large-scale language model, capturing attention for its remarkable abilities that either rival or surpass human intelligence across multiple domains. Notably, GPT-4 exhibits a significant capacity for theory of mind in its effective communication and collaboration with humans, enabling it to anticipate the real-world impact of various behaviors on an individual's mental state. However, as we edge closer to realizing Artificial General Intelligence (AGI), GPT-4 presents discernible limitations. A primary concern is its inability to grasp the underlying intent behind input commands, potentially leading to misunderstandings in nuanced conversational exchanges. According to the perspectives of Legg and Hutter, AGI is envisioned as a system competent to execute any task a human can undertake. Central to this understanding is a form of upward anthropomorphism, where humans attribute to external entities not only cognitive capacities akin to their own but also comparable moral and ethical standings. Within this framework, AGI, along with other sentient beings or intelligent machines, is seen as holding an equitable position in a human-centric cognitive model.

Subsequently, we argue that resolving challenges in human-AI interactions might be contingent on exploring communication and collaboration mechanisms between humans and other species. Approaching from an evolutionary biology standpoint, all animals, including humans, share a particular evolutionary trajectory, especially with regards to the evolutionary continuity of emotions. Such continuity suggests that despite evident differences between species, they might still achieve mutual understanding and communication through some kind of interoperative emotional mechanism. We hypothesize that the principles of homeostasis and allostasis, mechanisms governing an organism's state, might underlie this emotional bridge between humans and other species. We propose an adaptive correction framework to elucidate this potential process, where bodily sensations initiate behavioral decisions and a survival-centric homeostasis propels organisms to detect and respond to potential threats and rewards from their environments to safeguard their survival and reproduction. This shared life algorithm, transcending evolutionary distances between varied biological entities, could provide insights for enhancing AGI's environmental feedback processing and nurturing its agency.

***Keywords*:** Evolutionary Continuity, Artificial General Intelligence (AGI), Biological Emotions, Homeostasis, Allostasis

论心理学与现象学的关系

高申春

吉林大学哲学社会学院（长春，130012，gsc@jlu.edu.cn）

摘 要 施皮格伯格曾指出，阐明现象学与心理学之间的关系，是理解胡塞尔哲学的最重要的必要条件之一。这一评论实质上蕴含了一项哲学史任务。对这一任务的执行同时有助于对心理学的理解：从心理学角度说，阐明心理学与现象学之间的关系，是理解心理学的最重要的必要条件之一。无疑，胡塞尔的现象学兴起于布伦塔诺的心理学，由此决定了现象学与心理学之间必然的内在同一性关系；先验现象学转向导致心理学在其中发生性质的根本变故而从属于先验现象学，这种否定关系既决定于又揭示了先验现象学作为思想迷宫的性质；胡塞尔晚年关于“生活世界”、“前述谓经验”等主题的研究，乃是突破这个困境的不同尝试，并表达了向心理学回归的必然趋势。对于理解心理学与哲学的关系而言，这个趋势尤其富于启发性而值得关注。

关键词 心理学，现象学，胡塞尔哲学，心理学与哲学的关系

科学心理学是否还需要哲学

舒跃育

（西北师范大学心理学院，兰州，730070；shuyueyu@nwnu.edu.cn）

摘 要 在心理学的教科书中有句句经典的表述：“1879 年，心理学脱离哲学的束缚而成为一门独立科学。”这句话暗示了三点：“自从心理学与哲学一刀两断之后，这门学科就成长起来了；哲学曾经拖累了心理学；而且哲学将来随时还可能‘反扑’，将心理学‘拉回’到思辨水平。所以，这是当代心理学家们要警惕的。”其实，心理学与哲学的关系并非如此。哲学究竟是什么？对具体的经验学科而言，按照孙正聿教授的观点，哲学在于“对理论思维的前提批判”。那么，心理学是否需要“批判”？这里所说的“批判”，是指心理学的基本概念、命题、理论体系，需要不断地从哲学层面进行“反思和审查”。为什么需要审查呢？因为任何一门具体的学科，在表达观点的时候，都会无意识地、不自觉地暗含许多不能证明的哲学预设，这些哲学预设既不能证实，也不能证伪，甚至很难下定义。但是，这些强制性、无条件的哲学预设，却为这些理论表述划定了界限，如果我们的推论超出了这些界限，那么，原本可靠的知识体系就失去了根基，“科学”就变成了“迷信”。因此，在数学、物理学、化学中，都会有一些不需要证明的公理，或者不言自明的假设。比如，在牛顿力学体系中，就预设了时间均匀流逝、空间均匀分布，这就是一个基于常识的预设，只有在这个预设的范围内，牛顿力学体系才有效，一旦超出了这个范围，就需要新的科学体系了。爱因斯坦正是超越了牛顿的这个前提预设，讨论了时间和空间发生变化的情况，于是就提出了相对论。同样，心理学的研究也是如此。比如，在心理学的方法体系中，“小概率事件不会发生”就构成了心理统计的前提预设之一，“心理现象必有其数量，有数量必可测量”构成了心理测量的前提预设。按照“科学心理学”的标准，这两个预设不能“证实”，它只是在一定条件下有效。但在实际操作中，由于对这些“理论问题”的前提预设缺乏系统的反思和批判，$P<0.05$ 就变成了心理学研究的金科玉律。一个心理现象暂时不能定量分析就被视为“不科学”，这显然不妥。任何学科，包括物理学这样的自然科学，在其发展过程中都不能离开哲学的观照。因为任何经验科学，其最基本的概念、命题、公理体系，都根植于哲学。心理学的发展，不能缺乏从哲学层面对其基本理论预设的探讨，而是需要不断返回基本理论问题，以检视学科的初心和未来方向。

关键词 科学心理学；哲学预设；前提批判；本体论；方法论

走向世界的中国心理学

李明 北京林业大学
limingxinli@bjfu.edu.cn

摘 要 中国心理学作为一种区域心理学，已经成为世界心理学的关切。如何避免成为一种世界心理学范式的延伸和试验场，如何在世界心理学的知识积累和学术演进中贡献中国心理学的时代贡献，成为一种认识论命题。在这个问题的探讨中，应避免将中国心理学等同于“中国文化心理学”或者“在中国的心理学”，也应避免对中国哲学和所谓“国学”对理想化，避免中国心理学的的“理论心理学化”、“传统文化化”和“历史化”。可以尝试借助中国哲学走向世界的进程中所探讨的比较研究方法，从关注的主题、探究的进路、论理的范畴体系等方面进行创造诠释学的探究。

关键词 中国心理学 中国哲学 比较哲学研究 世界心理学

马克思主义与中国心理学发展

王波

厦门大学哲学系

摘 要 马克思主义对中国心理学研究有着非同一般的意义。如果不把马克思 主义时代化，通过思想史线索的清理，让内隐于文本中的马克思所预言了的对心理和心理学前提与界限的批判议程在心理学研究中直接在场，那么我们就无法在根本上理解和把握这种复杂的循环作用，从而 既在心理学中失去了马克思，又在马克思中失去了心理学。易言之，我们亟须跨越马克思主义与心理学学科边界的交叉性批判研究。

关键词 马克思主义哲学

3.4“生理心理专业委员会”专题研讨会

基于虚拟现实和经皮神经电刺激同步组合的优化镇痛效果研究

毕研芝 [1,2#], 刘旭 [1,2,3#], 李经纬 [1,2],罗文波 [3]（通讯作者）, 胡理 [1,2]（通讯作者）

[1] 中国科学院心理研究所，心理健康重点实验室，北京，100101，通讯作者：huli@psych.ac.cn；

[2] 中国科学院大学，心理学系，北京，100049；

[3] 辽宁师范大学，脑与认知神经科学研究中心，大连，116029，通讯作者：wenbo9390@sina.com.cn。

作者对本研究工作贡献相同。

摘 要 研究证明虚拟现实（VR）干预和经皮神经电刺激（TENS）疗法可用于缓解多种急慢性疼痛。然而，两种技术各自单独应用镇痛的效果有限。鉴于两种干预技术的镇痛效果及作用机制存在差异并具有互补优势，我们创新性的提出了一种将虚拟现实和经皮神经电刺激同步联合干预疼痛的调节策略。本研究采用被试内对照实验设计，共招募 32 名健康受试者接受三种不同类型的干预，包括：单独应用虚拟现实、虚拟现

实与传统经皮神经电刺激的单纯组合以及虚拟现实与同步经皮神经电刺激的同步组合。此外，本研究设置了一个不进行任何干预的条件作为对照。本研究收集了被试干预前后的疼痛强度、疼痛不愉悦度、积极和消极情绪以及脑电数据。研究结果显示，当被试接受低强度和高强度疼痛刺激时，两种组合干预的镇痛效果均优于单独虚拟现实干预，且虚拟现实与同步经皮神经电刺激同步组合干预的镇痛效果优于虚拟现实与传统经皮神经电刺激单纯组合干预。脑电数据进一步支持了以上行为结果，表明当被试接受低强度和高强度疼痛刺激时，两种组合干预比单独虚拟现实干预诱发更大的事件相关电位（ERP）幅值降低；当被试接受低疼痛刺激时，同步组合干预比单独虚拟现实干预诱发了更大的 N2 振幅降低。此外，与单独虚拟现实干预相比，两种组合干预均可显著降低被试的消极情绪。总体而言，本研究证实了虚拟现实和经皮神经电刺激同步组合在增强镇痛效果方面的有效性。这些发现为创新疼痛治疗的发展提供了重要的理论支持。

关键词 虚拟现实，经皮神经电刺激，脑电，疼痛，负面情绪

Enhancing Pain Modulation: The Efficacy of Synchronous Combination of Virtual Reality and Transcutaneous Electrical Nerve Stimulation

Yanzhi Bi[1,2#], Xu Liu[1,2,3#], Jingwei Li[1,2], Wenbo Luo[3], Li Hu[1,2]

[1] CAS Key Laboratory of Mental Health, Institute of Psychology, Beijing, 100101, China.

[2] Department of Psychology, University of Chinese Academy of Sciences, Beijing, 100049, China.

[3] Research Center of Brain and Cognitive Neuroscience, Liaoning Normal University, Dalian 116029, China.

# These authors contributed equally to this work.

Abstract: Virtual reality (VR) and transcutaneous electrical nerve stimulation (TENS) have emerged as effective interventions for pain reduction. However, their standalone applications often yield limited analgesic effects, particularly in certain painful conditions. To address this challenge, we propose a novel pain modulation strategy that combines VR and TENS in a synchronous manner, aiming to capitalize on the complementary pain modulation mechanisms of both techniques. Thirty-two healthy subjects participated in the study and underwent three types of interventions: VR alone, a combination of VR with conventional TENS, and a combination of VR with synchronous TENS. Additionally, a control condition with no intervention was included. Perceived pain intensity, pain unpleasantness, positive and negative affective scales, and EEG data were collected before and after the interventions. Our findings revealed that both combination interventions, when exposed to low and high pain stimuli, exhibited superior analgesic effects compared to the VR-alone intervention. Importantly, the combination of VR with synchronous TENS demonstrated greater analgesic efficacy than the combination of VR with conventional TENS. EEG data further supported these results, indicating that both combination interventions elicited a greater reduction in ERP magnitude compared to the VR-alone intervention during exposure to low- and high-pain stimuli. Moreover, the synchronous combination intervention induced a more significant reduction in N2 amplitude than the VR-alone intervention during exposure to low-pain stimuli. Both combination interventions resulted in a greater reduction in negative affect compared to the VR-alone intervention. Altogether, our study highlights the effectiveness of the synchronous combination of VR and TENS in enhancing pain modulation. These findings offer valuable insights into the development of innovative pain treatments, emphasizing the importance of tailored and multifaceted therapeutic approaches for various painful conditions.

Keywords: virtual reality, transcutaneous electrical nerve stimulation, EEG, pain, negative affect

基于节律同步化的音乐与动作联合镇痛研究

肖懿桉 [1,2]　潘信羽 [1, 2]　吕雪靖 [1,2]（通讯作者）
1 中国科学院心理研究所，中国科学院心理健康重点实验室，北京，100101
2 中国科学院大学心理系，北京 100049
通讯作者 luxj@psych.ac.cn

摘 要　音乐与运动因为其经济、安全、便捷等优势已逐步成为非药物镇痛的重要手段，其单独应用的镇痛作用也得到证实，且研究表明二者可能涉及不同的镇痛机制并各有优势。因此，将两者有效整合，不仅可以从外周和中枢多个层次调节疼痛，更能够从感觉、认知和情绪多个维度彼此加强，实现非药物镇痛手段的相互补充和相互促进。节律性（即规律性的时间结构）作为音乐和运动共有的主要特征之一，为二者的有效结合提供了可能性。为探讨音乐与动作联合镇痛的效果，本研究以音乐节律与简单动作为出发点，以节律同步化为纽带开展了三个实验。实验一招募了 80 名被试，对比了四种干预方案（单独音乐、单独击鼓、音乐击鼓联合、无干预）对激光诱发短时疼痛的镇痛效果，结果发现音乐击鼓联合干预显著降低了疼痛强度和不愉悦度，且提高了正性情绪；实验二招募了 66 名被试，进一步探讨了音乐与动作节律的同步性（同步、异步和随机）是否是影响联合镇痛效果的决定性因素，结果表明与异步和随机条件相比，音乐与击鼓节律同步的条件下个体的疼痛强度评分更低，且个体对同步性程度的评分与疼痛评分的降低程度正相关，提示节律同步性在音乐与动作联合镇痛中的重要作用；实验三拟考察音乐与动作联合镇痛方案对长时程冷痛的镇痛效果，进一步验证该方案的可推广性。本研究结果均表明音乐与动作联合镇痛具有明显优势，可以进一步提高镇痛效果，具有较大的应用价值，为未来临床缓解疼痛提供了新思路。

关键词　疼痛，情绪，镇痛，音乐与动作，节律性同步

A Study on Pain Management by Combining Music and Movement Based on Synchronization

Xiao Yian [1,2]　Pan Xinyu [1,2]　Lu Xuejing[1,2]
1 Key Laboratory of Mental Health, Institute of Psychology, Chinese Academy of Sciences, Beijing 100101, China
2 Department of Psychology, University of Chinese Academy of Sciences, Beijing 100049, China

Abstract：Music and exercise have gradually become important non-pharmacological analgesic methods due to their economic, safety, and convenience advantages. The analgesic effects of their individual application have also been confirmed, and research indicates that they may involve different analgesic mechanisms and have their respective advantages. Therefore, effectively integrating both can not only regulate pain at multiple levels, both peripherally and centrally, but also enhance each other from sensory, cognitive, and emotional dimensions, achieving mutual supplementation and promotion of non-pharmacological analgesic methods. Rhythm (i.e., regular temporal structure), as one of the main shared characteristics of music and exercise, provides the

possibility for their effective combination. To explore the effects of music and movement combined analgesia, this study conducted three experiments based on the starting point of music rhythm and simple movements, with rhythmic synchronization as the link. Experiment 1 recruited 80 participants and compared the analgesic effects of four intervention schemes (music alone, drumming alone, music-drumming combination, no intervention) on laser-induced pain. The results showed that the music-drumming combination intervention significantly reduced pain intensity and unpleasantness while increasing positive mood. Experiment 2 recruited 66 participants to further investigate whether the synchronicity of music and movement rhythm (synchronous, asynchronous, and random) was a determining factor in the combined analgesic effect. The results indicated that compared to asynchronous and random conditions, individuals scored lower on pain intensity under the condition of synchronous music and drumming rhythm, and the degree of synchronicity rating was positively correlated with the reduction in pain rating, suggesting the important role of rhythmic synchronicity in music and movement combined analgesia. Experiment 3 aimed to examine the analgesic effect of the music and movement combined analgesic scheme on long-term cold pain and further validate the generalizability of this scheme. The results of this study all indicate significant advantages of music and movement combined analgesia, which can further improve analgesic effects and have great application value, providing new ideas for future clinical pain relief.

Keywords：pain**,** rhythmicity, music and movement, analgesia, synchronization

多巴胺和阿片类递质神经活动选择性调节重复经颅磁刺激的镇痛作用

车先伟[1]（通讯作者） 王滢[1] 刘颖[2]

1 杭州师范大学认知与脑疾病研究中心，杭州，311100

2 浙江大学医学院附属第二医院，杭州，310009，通讯作者 E-mail（xwcheswu@gmail.com）

摘 要

背景：重复经颅磁刺激（rTMS）是一种安全、无创的神经调控技术。大量研究证明 rTMS 能够有效缓解慢性疼痛，但目前临床研究仅报告了约 40%的响应率，这一点制约了 rTMS 的临床价值和推广。因此，探索 rTMS 镇痛的神经机制是一种有效的研究思路，能够为优化 rTMS 的临床效果提供实证基础。

目的：本项目设计了两个研究，分别考察了多巴胺（研究一）和阿片类递质（研究二）介导的神经活动在 rTMS 镇痛中的作用。我们同时探索了这些神经活动在不同刺激靶点的表现形式。

方法：本项目两个研究均为双盲、交叉、假刺激对照研究，每个研究均招收 45 名健康成年人，并随机分配到左侧运动皮层（M1）、左侧前额叶（DLPFC），和假刺激组（Sham）各 15 名。受试者来访实验室两次，并接受不同的药物干预。其中，研究一受试者两次来访中分别在 rTMS 刺激前 90 分钟服用氯丙嗪（25mg）或安慰剂（维生素 C）。在研究二中，受试者在 rTMS 刺激前接受静脉注射纳洛酮（0.1 mg/kg，配置至 20 ml）或生理盐水（20 ml），并在纳洛酮/生理盐水代谢完成后（90 分钟）再接受第二次 rTMS 干预。两个研究分别在 rTMS 干预前和药物干预后评估受试者的疼痛感受。

结果：在研究一中，DLPFC 刺激增加了被试的疼痛耐受性，但氯丙嗪能够有效抵消 DLPFC 的镇痛作用。该结果并未出现在 M1 靶点中。在研究二中，纳洛酮有效抵消了 M1 和 DLPFC 刺激的镇痛作用并显著增加疼痛感受性。当纳洛酮代谢完成后，二次 rTMS 仅在 M1 靶点显著降低了疼痛感受，DLPFC 刺激未诱导显著的镇痛作用。

讨论与结论：前额叶脑区产生的镇痛作用可能同时依赖于多巴胺和阿片类递质介导的神经活动，而运动皮层的镇痛作用仅受到阿片类递质神经活动的调节。这些新颖的研究结果为未来优化 rTMS 的临床效果提供了实证基础和研究方向。

关键词　经颅磁刺激，疼痛，多巴胺，阿片类物质，神经递质

Dopaminergic and opioidergic neural transmissions selectively modulate the analgesic effects of rTMS

Xianwei Che[1], Ying Wang[1], Ying Liu[2]

1 Centre for Cognition and Brain Disorders, The Affiliated Hospital of Hangzhou Normal University

2 Department of Anesthesiology, The Second Affiliated Hospital of Zhejiang University School of Medicine

Abstract：

Background: Repetitive transcranial magnetic stimulation (TMS) is a safe and noninvasive form of brain stimulation technique. A large number of studies have demonstrated a consistent analgesic effect of rTMS. However, the clinical application of rTMS is limited by a moderate response rate of around 40%. It is therefore important to investigate the neural mechanisms underlying rTMS analgesia, which can be used to optimize the analgesic efficacy of rTMS.

Aims: We conducted two studies investigating the role of dopaminergic (study 1) and opioidergic (study 2) neural transmissions in the analgesic effects of rTMS. We specifically focused on the two most prominent targets for pain modulation, i.e., the primary motor cortex (M1) and the dorsolateral prefrontal cortex (DLPFC).

Methods: Both two studies were double-blind, crossover, and sham-controlled. Each study enrolled 45 healthy participants and they were equally randomized to the M1, DLPFC, and Sham group. Each participant visited the lab on two separate days and received different drugs. Specifically, participants in study 1 received an oral dose of chlorpromazine (25 mg) or placebo (Vitamin C) 90 minutes before rTMS administration. In study 2, intravenous administration of naloxone (0.1 mg/kg, 20 ml dilution) or saline (20 ml) was provided 20 minutes before rTMS. A second session of rTMS was then administrated when naloxone was fully metabolized (90 minutes). In both studies, pain experience was induced and evaluated both before rTMS and following drug administration.

Results: Study 1 indicated that rTMS over the DLPFC increased pain threshold. Chlorpromazine pre-treatment further abolished the analgesic effect induced by DLPFC stimulation. This effect was not observed in the M1 stimulation. In study 2, naloxone abolished the analgesic effects induced by both M1- and DLPFC- stimulation. When naloxone was fully metabolized (90 minutes), a second session of rTMS decreased pain perception only in the M1 stimulation, not in the DLPFC group.

Discussion and conclusion: DLPFC analgesia relies on both dopaminergic and opioidergic neural transmissions. Meanwhile, M1-induced analgesia is primarily mediated by opioidergic neural transmissions. These novel findings provide insight into the optimization of rTMS analgesia.

Keywords：TMS, pain, dopamine, opioid, neurotransmitter

对疼痛线索的注意加工与慢性疼痛发展的关系：来自 EM-ERP 的证据

杨周（通讯作者） 张兴宇

西南大学心理学部，重庆，400715，yangz@swu.edu.cn

摘 要 个体对环境中的特定线索保持视觉注视或回避是诸多心身疾病出现和发展的关键。研究探讨了慢性疼痛患者对疼痛线索的注意加工和慢性疼痛发展的关系。研究一使用眼动追踪技术（eye movement，EM），结合点探测视觉任务和融入真实疼痛刺激的视觉任务，以疼痛-中性、中性-中性图片对的日常生活场景为实验材料，测量慢性疼痛患者对疼痛线索的动态注视偏向指标，及其对六个月后慢性疼痛发展的预测作用。研究发现，点探测视觉任务中，慢性疼痛患者在前三个时间窗（0-500 ms、500-1000 ms、1000-1500 ms）对疼痛线索的注视偏向显著高于中性线索，但在第四个时间窗（1500-2000 ms）上不存在差异；融入真实疼痛刺激的视觉任务中，慢性疼痛患者在四个时间窗上对疼痛线索的注视偏向均显著高于中性线索。慢性疼痛患者在两个任务中对疼痛线索的晚阶注视偏向（1000-1500 ms、1500-2000 ms）预测了六个月后慢性疼痛强度和功能损伤的维持。为了进一步探究慢性疼痛患者对疼痛线索的注意控制及其与慢性疼痛发展之间的关系，研究二使用眼动追踪和时间相关电位同步采集技术（EM-ERP），结合改编的反眼跳范式，以疼痛姿势图片（如腰痛、背痛等）和中性姿势图片为实验材料，考察了慢性疼痛患者对疼痛线索的首次眼跳错误率、首次眼跳潜伏期和总注视时间三个眼动指标上的偏向，以及脑电指标 N1、P2、N2、P3 和 LPP 成分，及其与六个月后慢性疼痛发展之间的关系。结果显示，在朝向眼跳任务中，相比于中性姿势图片，慢性疼痛患者对疼痛姿势图片的首次眼跳潜伏期更短、总注视时间更长。慢性疼痛患者在观看疼痛图片时，相比中性图片表现出显著更大的 P2、P3、LPP 波幅，以及更小的 N2 波幅。在朝向任务条件下，慢性疼痛患者的 N2 波幅越小，六个月后的疼痛功能损伤就越严重。综述所述，慢性疼痛患者对疼痛信息的注意加工与六个月后慢性疼痛的发展密切相关，这为进一步研究慢性疼痛的机制和治疗提供了新的方向。

关键词 慢性疼痛，注视偏向，注意控制，疼痛强度，功能损伤

The association between the attention processing to pain related cues and the development of chronic pain：Evidence from EM-ERP studies

Yang Zhou, Zhang Xingyu

Faculty of Psychology, Southwest University, Chongqing, China, 400715

***Abstract*:** Individuals' visual attention towards or avoidance of specific clues in the environment is crucial for the occurrence and development of various mind-body disorders. Exploring the relationship between attentional processing of pain-related cues and the development of chronic pain is of great importance for understanding the maintenance and progression of chronic pain. In this study, we used eye tracking technology (eye movement, EM) combined with point detection visual tasks and visual tasks incorporating real pain stimuli, using pain-neutral and neutral-neutral image pairs as experimental materials, to measure the dynamic gaze bias index of chronic pain patients towards pain cues and its relationship with chronic pain development six months later. The study found that in the point detection visual task, chronic pain patients had a significantly higher gaze bias towards pain cues than neutral cues in the first three time windows (0-500 ms, 500-1000 ms, 1000-1500 ms), but no difference was

found in the fourth time window (1500-2000 ms); in the visual task incorporating real pain stimuli, chronic pain patients showed a significantly higher gaze bias towards pain cues in all four time windows. The late-stage gaze bias towards pain cues (1000-1500 ms, 1500-2000 ms) in both tasks predicted the maintenance of chronic pain intensity and pain interference six months later. To further investigate the attentional control of chronic pain patients towards pain-related cues and its relationship with chronic pain development, Study 2 used eye tracking and event-related potential synchronization collection technologies (EM-ERP), combined with an adapted anti-saccade paradigm, using pain posture images (e.g. back pain, neck pain) and neutral posture images as experimental materials to examine the bias of chronic pain patients in three eye movement measures: first saccade error rate, first saccade latency, and total gaze time, as well as brainwave components N1, P2, N2, P3, and LPP, and their relationship with chronic pain development six months later. The results showed that in the anti-saccade task, compared to neutral posture images, chronic pain patients had a shorter first saccade latency and longer total gaze time towards pain posture images. When viewing pain images, chronic pain patients showed significantly larger P2, P3, and LPP amplitudes, as well as smaller N2 amplitudes compared to neutral images. Under the conditions of the anti-saccade task, the smaller N2 amplitude towards pain posture images in chronic pain patients, the greater the pain-related functional impairment six months later. In summary, the attentional processing of pain cues in chronic pain patients is closely related to the development of chronic pain six months later, providing new directions for further research on the mechanisms and treatment of chronic pain.
Keywords：chronic pain, gaze bias, attention control, pain intensity, pain interference

基于虚拟现实增强的经皮神经电刺激镇痛研究

李军[1]　刘继欣[1]（通讯作者）

1 西安电子科技大学，生命科学技术学院，西安，710126，liujixin@xidian.edu.cn

摘 要　经皮神经电刺激（Transcutaneous electrical nerve stimulation）是一种非侵入性、非药物的疼痛治疗技术。虽然 TENS 已被广泛用于治疗健康和慢性疼痛患者的疼痛，但反复使用 TENS 可能会引起镇痛耐受。在当前工作中，我们设计并测试了一种将 TENS 与沉浸式虚拟现实(immersive virtual reality, iVR)相结合的方案，以测试 iVR 是否可增强 TENS 的急性镇痛效果并探索其可能的神经机制。该方案可以从第一人称视角实现 iVR，通过对虚拟场景的控制和真实的实验操作，实现与 TENS 感觉相关的视觉反馈。我们采用了横断面前瞻性介入实验设计，75 名健康志愿者被随机分到 TENS 组（25 名）、TENS-VR 一致组（25 名）和 TENS-VR 非一致组中（25 名）。疼痛-恐惧评分任务被使用，我们评估了志愿者在低、高强度疼痛刺激下对疼痛和恐惧的主观体验，志愿者恐惧、疼痛评分、脑电信号被采集。任务刺激后所有志愿者均接受了 30 分钟的 TENS（刺激频率 85 Hz，脉冲宽度 200 us）联合 VR 干预。在 VR 场景中，我们构建了一个封闭房间组成的中性治疗环境，仅包括一把椅子、一张桌子和一双虚拟手臂。在 TENS 组中，VR 场景仅呈现一个黑暗的环境；在 TENS-VR 一致组中，iVR 根据 TENS 频率和志愿者个体感受照亮手臂 TENS 干预点到疼痛处的区域；在 TENS-VR 非一致组中，TENS 干预点到疼痛处对侧手臂区域被照亮。在 TENS-VR 干预后，所有志愿者又接受了疼痛-恐惧评分任务和脑电采集。行为学研究结果发现：TENS 和一致 TENS-VR 干预可降低志愿者的疼痛分数，而且一致 TENS-VR 干预效果显著高于 TENS。上述结果未在非一致 TENS-VR 干预组中发现。此外，一致 TENS-VR 干预可有效降低志愿者的疼痛恐惧分数。脑电信号研究结果发现：TENS 和一致 TENS-VR 干预可降低志愿者在疼痛状态下 Cz 电极处 N2 波的绝对幅值，而且一致 TENS-VR 干预效果显著高于 TENS。此外，志愿者脑电信号特征前后变化显著相关于疼痛分数前后变化。

我们的研究结果表明一致 TENS-VR 可有效增强 TENS 的镇痛效果，这可能为疼痛干预策略提供新的参考方案。

关键词　疼痛，虚拟现实，经皮神经电刺激

Enhancing analgesic TENS with immersive virtual reality: a preliminary EEG study

Jun Li, Jixin Liu
School of Life Science and Technology, Xidian University, Xi'an, Shaanxi, China

Abstract：Transcutaneous electrical nerve stimulation (TENS) is a non-invasive, non-pharmacological pain treatment technique. Although TENS has been widely used to treat pain in healthy and chronic pain patients, repeated use of TENS may induce analgesic tolerance. In the current work, we designed and tested a protocol combining TENS with immersive virtual reality (iVR) to test whether iVR can enhance the acute analgesic effect of TENS and explore its possible neural mechanisms. Our platform can realize iVR from the first-person perspective and the visual feedback related to TENS sensory through the control of the virtual scene and the real experimental operation. We used a cross-sectional prospective interventional experimental design, and 75 healthy volunteers were randomized to the TENS group (n=25), the TENS-VR consistent group (n=25), and the TENS-VR non-consistent group (n=25). The fear-pain scoring task was used. We evaluated the volunteers 'subjective experience of pain and fear under low and high intensity pain stimuli, and the volunteers' fear, pain scores, and EEG signals were collected. After this task, all volunteers received 30 minutes of TENS (stimulation frequency 85 Hz, pulse width 200 us) combined with VR intervention. In the VR, we created a neutral physiotherapy environment consisting of a closed room in the current study. The room contained simply a chair, a large table, and a pair of virtual arms, with no additional things that could interfere with the experiment. In the TENS group, the VR scene was presented only in a dark environment. In the TENS-VR consistent group, the immersive TENS-VR platform illuminated the area according to the sensations the individual experienced as induced by TENS. In the TENS-VR inconsistent group, VR illuminated the area of the hand contralaterally to the TENS side in real time. After the TENS-VR intervention, all volunteers again underwent the fear-pain scoring task and EEG acquisition. Behavioral findings found that the TENS and consistent TENS-VR interventions reduced pain scores in volunteers, and the changes of pain scores in the consistent TENS-VR intervention were significantly higher than those from the TENS intervention. The above results were not found in the non-concordant TENS-VR intervention group. Furthermore, the consistent TENS-VR intervention was effective in reducing pain fear scores in volunteers. The results of the EEG study found that TENS and consistent TENS-VR intervention could reduce the absolute amplitude of the N2 wave at the Cz electrode in high-pain, and the effect of consistent TENS-VR intervention was significantly higher than that of TENS. Furthermore, pre-post changes in volunteer EEG features were significantly correlated with pre-post changes in pain scores. Our results indicated that consistent TENS-VR may effectively enhance the analgesic effect of TENS, which may provide a new reference scheme for pain intervention strategies.

Keywords：pain, immersive virtual reality, transcutaneous electrical nerve stimulation

疼痛共情刺激库(EPSS)及其在认知神经领域的初步应用

孟景

重庆师范大学脑与认知科学研究中心，重庆，401331，qufumj@qq.com

摘 要　为了更好地研究疼痛共情，我们建立了疼痛共情刺激库(Empathy for Pain Stimuli System, EPSS)。该数据库包括 5 个子数据库，分别是疼痛共情肢体图片库(EPSS-Limb)、疼痛共情面孔图片库(EPSS-Face)、疼痛共情语音库(EPSS-Voice)、疼痛共情动作视频库(EPSS-Action_Video)、疼痛共情动作图片库(EPSS-Action_Picture)。EPSS 数据库包括图片、声音和视频等刺激类型，贴近真实情境，具有较好的生态效度。EPSS 数据库可免费下载使用。我们采用 EPSS 数据库已对认知神经领域的很多共情相关问题进行了初步研究，例如我们采用 EPSS-Limb 和 EPSS-Voice 探索了视觉和听觉双感官通道下注意线索对疼痛共情的影响、情绪启动对疼痛共情的影响、社会情境对疼痛共情影响、疼痛共情和疼痛的关系等研究，采用 EPSS-Action_Video 和 EPSS-Action_Picture 对自闭症等特殊人群进行动态-静态疼痛共情的认知神经机制的探索，取得了较为丰富的研究成果。EPSS 数据库可助力未来疼痛共情、共情或痛觉领域的其他热点问题的进一步科学研究。

关键词　疼痛共情刺激库(EPSS)，疼痛共情，数据库

The Empathy for Pain Stimuli System (EPSS): Preliminary Application in Cognitive and Neural Research

Jing Meng

Research Center for Brain and Cognitive Science, Chongqing Normal University, Chongqing, 401331, qufumj@qq.com

***Abstract*:** In order to better investigate empathy for pain, we established the Empathy for Pain Stimuli System (EPSS). The database comprises 5 sub-databases, which are the Empathy for Limb Pain Picture Database (EPSS-Limb), the Empathy for Face Pain Picture Database (EPSS-Face), the Empathy for Voice Pain Database (EPSS-Voice), the Empathy for Action Pain Video Database (EPSS-Action_video), and the Empathy for Action Pain Picture Database (EPSS-Action_Picture). The EPSS including abundant stimulus types such as pictures, sounds, and videos, which are close to real situations and have good ecological validity. The EPSS can be downloaded for free. We have conducted preliminary studies on many empathy-related issues in the cognitive and neural domain using the EPSS database. For instance, using the stimuli from EPSS-Limb and EPSS-Voice, we explored the modulation of top-down attention on empathy for pain in both visual and auditory modalities, the effects of emotional priming on empathy for pain, social presence effects on empathy for pain, as well as the relationship between pain and empathy for pain. In addition, the EPSS-Action_Video and EPSS-Action_Picture were also used to investigate the cognitive and neural mechanisms of empathy for pain in individuals with autistic traits and other special groups during observation of static and dynamic empathic stimuli, which has already achieved ample results. Therefore, the EPSS database is able to contribute in further scientific research within the field of empathy for pain, empathy, and pain.

***Keywords*:** Empathy for Pain Stimuli (EPSS), empathy for pain, database

外源性睾酮对疼痛共情的调控及机制

卓诗维[1]　彭微微[1]（通讯作者）

[1]深圳大学心理学院，深圳，518060

通讯作者 彭微微 ww.peng0923@gmail.com

摘 要　睾酮是一种类固醇激素，被认为可以调控人类的生理和心理过程。根据极端男性大脑理论，在自闭症人群中观察到的共情缺损可能与产前睾酮暴露过多有关。这提示了睾酮会损害共情能力，然而相关研究证据尚存争议。研究一通过外源性给药操纵睾酮水平，考察了睾酮如何影响个体在目睹他人承受生理性疼痛时的行为和神经响应，以及这一影响是否受到自上而下的注意调节。当要求被试对图片中的非疼痛线索进行判断时，被试的反应正确率在睾酮条件显著低于安慰剂条件，且疼痛图片诱发的晚期正成分（500-900 ms）波幅在睾酮条件下显著高于安慰剂条件。这表明睾酮会通过增强晚期认知控制和情绪调节有关的神经响应从而干扰任务表现。当要求被试对图片中的疼痛情境进行评分时，睾酮会增强与早期自动化加工有关的 N1（115-155 ms）和 N2（240-280 ms）响应，但不会显著影响主观评分。因此，睾酮会总体增强生理性疼痛共情有关的早期和晚期神经响应，且与自上而下的注意调控有关。这可能与大脑状态的改变有关，即睾酮总体降低了刺激前大脑α频带的神经振荡幅度，提升了个体的警觉与唤醒度水平。研究二通过给被试呈现他人处于被群体接纳、排斥和中性互动的情境图片，考察了外源性睾酮如何影响个体在目睹他人承受社会性疼痛时的行为和神经响应。与安慰剂条件对比，睾酮增强了由社会排斥诱发的 N2（250-310 ms）波幅，降低了由社会接纳诱发的α神经振荡（8.28-10 Hz；1226-1901 ms）的抑制。这说明了外源性睾酮促进了在目睹他人社会疼痛时共情的早期自动化加工过程，但抑制了在目睹他人社会接纳时共情的晚期认知加工过程。研究结果共同说明睾酮促进对他人生理与社会疼痛情境的共情加工，这有助于我们理解共情的神经内分泌机制，还为基于激素给药的共情干预提供循证依据。

关键词　共情，睾酮，脑电；神经振荡

The modulation of pain empathy by exogenous testosterone administration and its mechanism

Shiwei Zhuo[1], Weiwei Peng[1]*

[1] School of Psychology, Shenzhen University, Shenzhen, 518060, China

* Corresponding author. Email: ww.peng0923@gmail.com (W.P.)

***Abstract*:** Testosterone is a steroid hormone that is thought to modulate physiological and psychological processes in humans. According to the extreme male brain theory, the impaired empathy observed among people with autism might arise from elevated prenatal exposure to the sex hormone testosterone. This suggests that testosterone impairs empathic abilities, however the evidence in the literature is controversial. Study 1 manipulated testosterone levels by exogenous administration and examined how testosterone affects individuals' behavioral and neural responses while witnessing others suffering physical pain, as well as whether this effect is modulated by top-down attention. When discriminating nonpainful aspects of the images in the hands-counting task, accuracies were lower and empathic late positive potential responses were greater in the testosterone sessions than in the placebo sessions. This suggested that testosterone enhanced empathic responses to task-irrelevant pain-related

features, which interfered with task performance. When providing empathic ratings to the images in the pain-rating task, empathic event-related potentials in the early stage were only observed in the testosterone session. This suggested that testosterone facilitated automatic affective reactivity to others' pain when elaborately processing empathic stimuli. Hence, testosterone generally enhanced neural responses related to pain empathy in both early and late stages, and these effects were dependent upon task demands deploying attention allocation. The enhancement of brain reactivity to empathic stimuli likely arose from the altered brain state (e.g., increased vigilance and arousal levels) after testosterone administration, as evidenced by the reduced amplitude of spontaneous α-oscillation recorded before the onset of the empathic stimulation. Study 2 examined how exogenous testosterone influenced behavioral and neural responses related to empathy for social rejection and acceptance. Compared to the placebo session, testosterone enhanced the N2 (250-310 ms) responses to the social rejection image and reduced the inhibition of alpha neural oscillations (8.28-10 Hz; 1226-1901 ms) evoked by social acceptance. However, there were no significant differences between the testosterone and placebo session on subjective ratings to pictures. Hence, testosterone administration facilitated early automated processing of empathy when witnessing others suffering social exclusion but inhibited late cognitive processing of empathy when witnessing others included by the social group. Altogether, these results indicate that testosterone facilitates brain reactivity to empathy for physical and social pain. This finding contributes to a better understanding of the neuroendocrine mechanisms of empathy in humans and provide an evidence-based basis for the intervention of empathy based on hormone administration.

Keywords： Empathy; Testosterone; Electroencephalography; Neural oscillation

背侧海马催产素神经元调控成年大鼠同伴社交联结的形成

胡宇飞[1] 李文思[1] 赵崟基[1] 刘玉英[1] 孙文玉[1] 严艺[1] 刘来鑫[1] 邓博文[2] 樊圃[1]（通讯作者）

1 中国医学科学院&北京协和医学院基础医学研究所，北京，100005

2 北京脑科学与类脑研究中心，北京，100069

通讯作者 樊圃 pu.fan@ibms.pumc.edu.cn

摘 要 健康的社交关系对人有益，而异常的社交关系与精神障碍密切相关。尽管目前学术界对亲子关系和伴侣关系进行了广泛研究，但目前我们对同伴关系的分子及神经生物学基础知之甚少。同伴关系指的是在家庭之外形成的社交联结，由于缺乏实验模型，一直以来对这一社会关系的研究相对较少。在本研究中，我们发现无亲缘关系的成年（同龄、同性）SD 大鼠在共同生活后可以形成亲密的社交联结。这些大鼠在同伴受到应激或疼痛刺激时，对同笼伙伴表现出亲和行为；但在同样的压力刺激下，对陌生鼠表现出攻击行为。我们使用 CRISPR/Cas9 方法获得了敲除催产素受体（*Oxtr*）基因的 SD 大鼠（$Oxtr^{KO}$），发现 $Oxtr^{KO}$ 大鼠在与同笼伙伴的互动中表现出亲和行为明显减少的现象。通过损毁背侧海马中的 OXTR 表达神经元，我们发现这些神经元对于建立新的同伴社交联结起着重要作用，但对于维持同伴社交联结则没有影响。

关键词 社会联结，催产素受体，海马，大鼠

Dorsal hippocampal oxytocin receptor-expressing neurons regulate

adult peer bonding in rats

Yufei Hu[1], Wensi Li[1], Yinji Zhao[1], Yuying Liu[1], Wenyu Sun[1], Yi Yan[1], Laixin Liu[1], Bowen Deng[2], Pu Fan[1]*

[1] Institute of Basic Medical Sciences Chinese Academy of Medical Sciences, School of Basic Medicine Peking Union Medical College, Beijing, 100005, China.

[2] Chinese Institute for Brain Research, Beijing, 100069, China

* Corresponding author. Email: pu.fan@ibms.pumc.edu.cn (P.F.)

Abstract: Healthy social relationships are beneficial whereas abnormal social relationships are closely related to psychiatric disorders. While parental bonding and pair bonding have been well studied, little is known about the molecular basis of peer bonding, defined as social bonds formed outside of the immediate family, largely due to the lack of experimental models. Here, we found that adult peer (same-age, -sex) Sprague Dawley (SD) rats can form close social relationships after co-housing. The rats exhibit affiliative displays toward their cagemates under distress or pain, but exhibit agonistic behaviors toward strangers under the same stressful conditions. We generated oxytocin receptor (*Oxtr*)-null SD rats ($Oxtr^{KO}$) using the CRISPR/Cas9 method and found that $Oxtr^{KO}$ rats significantly decreased affiliative displays toward their co-housed cagemates. By ablating dorsal hippocampal OXTR-expressing neurons, we found that these neurons are required for new peer social bonding establishment but not maintaining.

Keywords: Peer bonding, Oxytocin receptor, Hippocampus, Rats

小鼠救援样行为及其神经机制

张峰瑞[1] 刘娟[2] 耿凯文[3] 张梓晏[2] 宋锦康[2] 刘旭[1] 岳刘鹏[1] 陈军[3]（通讯作者） 胡理[1]（通讯作者） 陈宙峰[2]（通讯作者）

1 中国科学院心理研究所，北京，中国，100101 （通讯邮箱：huli@psych.ac.cn）

2 华盛顿大学医学院，圣路易斯，美国，63110 （通讯邮箱：chenz@szbl.ac.cn）

3 空军军医大学唐都医院，西安，中国，710038 （通讯邮箱：junchen@fmmu.edu.cn）

摘 要：在社会化物种中，亲社会行为对物种的生存具有积极影响。在高等哺乳动物中，存在复杂的亲社会行为，如海豚拯救人类的生命，或猴子挽救同伴的生命。有关于啮齿动物的研究表明，大鼠能够自发地安抚同伴，并通过训练学会解救被困同伴。然而，在小鼠中，目前的研究主要关注安抚行为，而对于解救和救援等高级行为的研究尚不完善。在本研究中，我们惊讶地发现，当小鼠观察到同伴处于异常状态时（被麻醉剂麻醉），自身的应激水平会升高，并且自发地去救援被麻醉的同伴，即小鼠会在没有接受过任何训练的情况下通过舔舐同伴的身体或面部来试图唤醒另一只麻醉的小鼠，并且被麻醉的小鼠也会因为这类的救援样行为而提前从麻醉状态中苏醒过来。

催产素（oxytocin, OXT）在哺乳类动物的社会行为，特别是亲社会行为为中发挥重要作用。本研究使用 Oxt^{Cre}，$Oxtr^{Cre}$ 以及 $Oxtr^{flox/flox}$ 转基因小鼠，并结合化学遗传学、光遗传学、光线记录等技术发现了下丘脑室旁核（paraventricular nucleus of the hypothalamus, PVN）投射至中央杏仁核（central nucleus of amygdala, CeA）以及投射至背侧终纹床核（dorsal bed nucleus of the stria terminalis, dBNST）的两条催产素神经环路介导了小鼠的救援样行为。

本研究首次证明了小鼠能够自发地表现出救援样行为，这种出现在高等动物中的亲社会行为。并且通过神经环路研究，我们发现了两条下丘脑催产素神经环路，即 PVN-CeA 和 PVN-dBNST，分别介导救援样行为的情绪和运动功能。

关键词：救援样行为，麻醉共情，催产素，亲社会行为

Neural mechanism of mice rescue-like behavior

Feng-Rui Zhang[1], Juan Liu[2], Kai-Wen Geng[3], Zi-Yan Zhang[2], Eric Song[2], Xu Liu[1], Lu-Peng Yue[1], Jun Chen[3*], Li Hu[1*], and Zhou-Feng Chen[2*].

1 Institute of Psychology, Chinese Academy of Sciences, Beijing, 100101, P.R. China.

(*Correspondence to huli@psych.ac.cn)

2 Washington University School of Medicine, St. Louis, MO 63110, U.S.A.

(*Correspondence to chenz@szbl.ac.cn)

3 Tangdu Hospital, Fourth Military Medical University, Xi'an, 710038, P. R. China

(*Correspondence to junchen@fmmu.edu.cn)

Abstract：Prosocial behavior occurs among social creatures, benefits other individuals, and forms the ethos of social lives. In higher level mammals, such as dolphins and primates, it is common to observe complex prosocial behavior, for example, a dolphin saves a human's life or a monkey revives a conspecific's life. In rodent researches, rats exhibit both innate consolation behaviors and gained-by-training helping behaviors, while mice only perform consolation behavior towards conspecifics suffering from negative stimuli, and it still remains debatable whether mice would act real helping behavior. In the present study, we surprisingly observed mice became stressed and exhibited spontaneous rescue-like behavior towards anesthetized conspecifics, i.e. a naïve mouse will revive another anesthetized mouse by licking its body and facial area without any training. By receiving the rescue-like behavior, the anesthetized mouse regained consciousness faster.

The nonapeptide oxytocin (OXT) is a conserved prosocial neuropeptide that plays a role in prosocial behavior. In the present study, we employed *Oxt*^{Cre}, *Oxtr*^{Cre}, and *Oxtr*$^{flox/flox}$ mice, combining chemogenetics, optogenetics, and fiber photometry approaches, and found that the paraventricular nucleus of the hypothalamus (PVN) projecting to central the nucleus of amygdala (CeA) and PVN to dorsal bed nucleus of the stria terminalis (dBNST) two neural oxytocin circuits mediated the rescue-like behavior.

The present study demonstrates for the first time that mice are capable to exhibit rescue-like behavior spontaneously. Moreover, we found two hypothalamic oxytocin neural circuits, PVN-CeA and PVN-dBNST, which mediate the emotional and motor functions of rescue-like behavior, respectively.

Keywords：Rescue-like behavior, Anesthesia empathy, Oxytocin, Prosocial behavior

聋人大学生共情的特点及其神经机制

武向慈　贾会宾　王恩国（通讯作者）

河南大学心理学院，开封 475004

摘 要 聋人普遍存在社会认知功能发展异常。近年来，国外相关研究发现，不同年龄段（如幼儿期、儿童期、青少年期和成年期）的聋人均表现出共情障碍，特别是认知共情。本研究通过共情相关行为范式和 ERP 技术系统考察了聋人大学生共情的特点及其神经机制。

实验一和实验二分别借助外显和内隐生理性疼痛共情范式考察了聋人大学生生理性疼痛共情的神经机制。这两个研究发现：（1）聋人大学生在生理性疼痛共情任务中正确率显著低于健听大学生；（2）实验一中，聋人大学生早期 ERP 成分（即 N1 和 N2 成分）显著比健听大学生更负，但是晚期 P3 成分显著比健听大学生更正。

实验三借助社会性疼痛共情范式考察了聋人大学生社会性疼痛共情的神经机制。该研究发现：聋人大学生早期 N1 成分显著比健听大学生更负，但是晚期 LPC 成分显著比健听大学生更正。

实验四和实验五采用启动范式引导聋人大学生对内群体（“聋人”）和外群体（“听人”）进行区分，并借助外显和内隐生理性疼痛共情范式考察了聋人大学生生理性疼痛共情内外群体效应的神经机制。这两个研究发现：（1）相比于内群体启动时，外群体启动时聋人大学生疼痛判断任务的反应时更长、正确率更低；（2）外群体启动时，疼痛图片早期 ERP 成分波幅与非疼痛图片早期 ERP 波幅差值会显著比内群体启动时更大（实验四：N2；实验五：N1）；但是在晚期成分（P3 和 LPC）上，上述波幅差值在内群体启动时波幅更大。

实验六采用启动范式引导聋人大学生对内群体和外群体进行区分，并借助社会性疼痛共情范式考察了聋人大学生社会性疼痛共情内外群体效应的神经机制。实验六发现：（1）相比于内群体启动时，外群体启动时聋人大学生疼痛判断任务的反应时更长、正确率更低；（2）内群体启动时 ERP 早期成分 N1 和 N2 的波幅显著比外群体启动时更负；（3）内群体启动时社会排斥与社会接纳图片晚期 P3 成分波幅差值显著比外群体启动时更大。

本研究借助六个实验发现：（1）聋人大学生存在情绪共情和认知共情障碍，并同时表现在生理性和社会性疼痛刺激加工过程中；（2）聋人大学生对生理性和社会性疼痛刺激加工存在内外群体效应，并表现出其独特的特点。

关键词 聋人，共情，ERP 技术

The characteristics and neural mechanisms of empathy in deaf college students

Xiangci Wu Huibin Jia Enguo Wang (corresponding author)
School of Psychology, Henan University，Kaifeng 475004

Abstract： Deaf individuals often have an atypical development of social cognitive abilities. Research from abroad has revealed that deaf people of various age groups, including early childhood, childhood, adolescence, and adulthood, tend to have difficulties with empathy, particularly cognitive empathy. To investigate the characteristics and neural mechanisms of empathy among deaf college students, this study used empathy-related behavioral paradigms and ERP technology.

In Experiment 1 and Experiment 2, the neural mechanisms of physiological pain empathy in deaf college students

were investigated using explicit and implicit physiological pain empathy paradigms, respectively. The results showed that deaf college students had a lower accuracy in physiological pain empathy tasks than healthy listening college students. Additionally, the amplitudes of early ERP components (N1 and N2) of deaf college students were significantly more negative than those of healthy listening college students, while the amplitude of late P3 component was significantly more positive in deaf college students.

Experiment 3 explored the neural mechanisms of social pain empathy among deaf college students using the paradigm of social pain empathy. Results revealed that the early N1 component of deaf college students was significantly more negative than that of healthy listening college students, while the late LPC component was significantly more positive in comparison to healthy listening college students.

In Experiments 4 and 5, deaf college students were primed to differentiate between the inner group ("deaf") and the outer group ("listener") using the priming paradigm, and the explicit and implicit physiological pain empathy paradigms were used to investigate the psychological mechanisms of physical pain empathy in deaf college students. The results showed that compared to inner group priming, outer group priming caused significantly longer reaction times and lower accuracy in pain judgment tasks for deaf college students. Furthermore, when the outer group was primed, the difference in early ERP component amplitudes between pain images and non-pain images was significantly greater than when the inner group was primed (Experiment 4: N2; Experiment 5: N1). However, in the late ERP components (P3 and LPC), the amplitude difference was significantly larger in inner group priming condition.

Experiment 6 used the priming paradigm and the social pain empathy paradigm to investigate the neural mechanisms of social pain empathy in deaf college students. Results showed that compared to inner group priming, outer group priming evoked significantly longer reaction time and lower accuracy in the pain judgment task. Additionally, the early components N1 and N2 in ERP when the inner group was primed were significantly more negative than those when the outer group was primed. Lastly, the amplitude difference of P3 components in the late stage of social exclusion and social inclusion images when the inner group was primed was significantly greater than that when the outer group was primed.

This research revealed that, through six experiments, deaf college students have emotional and cognitive empathy defects which appear in both physical and social pain empathy tasks. Moreover, the deaf college students demonstrate inner group effects when handling physical and social painful signals, and have their own distinct characteristics.

Keywords：deaf people, empathy, ERP techniques

延时惩罚对第二方和第三方惩罚的神经机制的影响

黄佳敏[1]　何毓文[1]　陈泽健[1]　蔡芊蔚[1]　王元辰[2]　戚艳艳[3]（通讯作者）　伍海燕[1]（通讯作者）

1 澳门大学认知与脑科学研究中心，澳门，999078

2 哈佛大学医学院，美国，02138

3 郑州大学教育学院，郑州，450001

通讯作者 haiyanwu@um.edu.mo

摘 要：

第二方惩罚(SPP)和第三方惩罚(TPP)都是控制社会行为的重要机制，两者对维护社会秩序起着至关重要的作用。然而，延迟惩罚可能会导致犯罪者在制裁中低估惩罚的效用，从而降低惩罚在维护社会规范上的作用。但延迟时间如何影响第二方及第三方的惩罚决策以及背后的神经机制仍不清楚。本研究采用功能磁共振技术，通过犯罪场景评估任务考察了立即和延迟时间条件对第二方和第三方惩罚决策影响的神经机制。在实验过程中，随机分配被试到 SPP 组或 TPP 组，要求被试扮演受害人（第二方）或法官（第三方），对法律案件中的被告人做出适当的惩罚决策。结果发现：首先，在行为上，两组被试均可以根据法律案件的社会危险性和严重性对被告人做出适当的惩罚决策，且两组在惩罚程度的选择上没有显著差异。神经层面上发现，SPP 组和 TPP 组均发现了颞顶联合区（TPJ）的激活，由于 TPJ 与支持惩罚决定的心理化过程有关，这表明两组被试均对被告人做出了惩罚决策。此外，在不同时间条件下，SPP 在心理理论（ToM）的脑区激活没有显著差异，而 TPP 组在延迟时间条件下在左侧心理理论区域的激活更强。由于第三方补偿受害者的行为与心理理论区域之间的线性相关性已得到证实，这表明第二方主要通过惩罚违规者来维护社会规范，而第三方可以利用惩罚违法者和补偿受害者两种方式来维持社会规范。其次，在行为上，研究发现第二方在立即和时间条件下的给予被告人的惩罚程度没有显著差异，但是，第三方在延迟时间条件下给予被告的惩罚程度显著高于立即时间条件并且在神经层面上伴随着背内侧前额叶皮层(DMPFC)的激活，由于 DMPFC 与时间感知下的奖赏决策和 ToM 相关，这可能表明了当违法者由于某种原因不能立即受到惩罚时，第三方希望通过补偿受害者来维持社会规范，从而阻止惩罚效用的减弱而这种决策在大脑中被识别为一种奖励信号。最后，神经层面上发现，与 TPP 相比，双侧楔前叶在 SPP 中的激活增加。此外，探索性分析揭示了第二方和第三方惩罚的严重程度的主要影响与默认模式网络、额叶网络和视觉网络的脑区有关。这表明默认模式网络、额叶网络和视觉网络构成了立即和延迟时间条件下第二方及第三方的惩罚决策背后的神经机制，而双侧楔前肌的激活参与了第二方和第三方惩罚决策不同心理过程。此外，本研究还为分级惩罚模型(HPM)提供了神经层面的证据，HPM 认为显著网络(SN)、默认模式网络(DMN)和中央执行网络(CEN)构成了 SPP 和 TPP 神经机制的框架。本研究揭示了立即和延迟时间条件下第二方及第三方的惩罚决策背后的神经机制，有助于更好的理解和预测延迟惩罚对维护社会规范和秩序的影响。

关键词：第二方惩罚；第三方惩罚；延迟时间； 分级惩罚模型(HPM)；功能磁共振成像

The neural mechanisms underlying the effects of delayed punishment on second-party and third-party punishment

Abstract:Both second-party punishment (SPP) and third-party punishment (TPP) are important mechanisms for regulating social behavior, playing crucial roles in maintaining social order. However, delayed punishment may lead to the underestimation of the utility of punishment by wrongdoers, thereby reducing its effectiveness in upholding social norms. Yet, the impact of delay on punishment decisions and the underlying neural mechanisms for both second-party and third-party punishment remain unclear. In this study, functional magnetic resonance imaging (fMRI) was employed to investigate the neural mechanisms underlying the influence of immediate and delayed time conditions on second-party and third-party punishment decisions using a crime scenario evaluation task. Participants were randomly assigned to either the SPP or TPP group and were instructed to play the role of a victim (second-party) or a judge (third-party) to make appropriate punishment decisions for defendants in legal cases. The results revealed that both groups were able to make appropriate punishment decisions based on the social dangerousness and severity of the legal cases, with no significant differences in the level of punishment chosen between the two groups. At the neural level, activation was observed in the temporoparietal junction (TPJ)

in both the SPP and TPP groups, which is associated with mental processes supporting punishment decisions, indicating that both groups made punishment decisions for the defendants. Furthermore, under different time conditions, the SPP group showed no significant differences in activation in the theory of mind (ToM) brain region, while the TPP group exhibited stronger activation in the left ToM region under the delayed time condition. Given that a linear correlation between third-party compensation for victims and activation in the ToM region has been confirmed, this suggests that second parties primarily uphold social norms by punishing violators, while third parties can maintain social norms by either punishing offenders or compensating victims. Additionally, at the behavioral level, the study found no significant differences in the level of punishment given to defendants by second parties between immediate and delayed time conditions. However, third parties gave significantly higher levels of punishment to defendants under the delayed time condition, accompanied by activation in the dorsal medial prefrontal cortex (DMPFC), which is associated with reward decision-making and ToM under time perception. This may indicate that when offenders cannot be immediately punished for some reason, third parties aim to uphold social norms by compensating victims, thereby preventing the weakening of punishment utility, and this decision is identified as a reward signal in the brain. Finally, at the neural level, increased activation in the bilateral anterior cingulate cortex (ACC) was found in the SPP group compared to the TPP group. Furthermore, exploratory analyses revealed that the main effects of severity of second-party and third-party punishment were associated with brain regions in the default mode network (DMN), frontal lobe network, and visual network. This suggests that the DMN, frontal lobe network, and visual network constitute the neural mechanisms underlying second-party and third-party punishment decisions under both immediate and delayed time conditions, while activation in the bilateral anterior cingulate cortex is involved in different psychological processes underlying second-party and third-party punishment decisions. Moreover, this study provides neural evidence for the Hierarchical Punishment Model (HPM), which posits that the salience network (SN), default mode network (DMN), and central executive network (CEN) form the framework for the neural mechanisms of SPP and TPP. Overall, this study reveals the neural mechanisms underlying second-party and third-party punishment decisions under immediate and delayed time conditions, contributing to a better understanding and prediction of the effects of delayed punishment on maintaining social norms and order.

Keywords：second-party punishment, third-party punishment, time delay, Hierarchical Punishment Model (HPM), functional magnetic resonance imaging

时间压力与认知负荷调节自我与社会决策的神经机制

刘正杰[1] 刘洁[2] 崔芳[1,2]（通讯作者）

1 深圳大学心理学院，深圳，518060

2 深圳大学脑疾病与认知研究中心，518060

通讯作者 cuifang0826@gmail.com

摘 要 日常生活中的社会决策常常面临时间压力和认知负荷，但二者如何影响我们的决策以及背后的神经机制仍不清楚。本研究采用功能磁共振技术，通过两项实验分别考察了时间压力和认知负荷对亲社会决策(社会决策)和（非社会性）自我决策影响的神经机制以及个体共情特质在其中的作用。

实验一中，被试在高低时间压力下分别决定是否花费自己的金钱消除自己/他人可能接收的疼痛刺激。结果发现：行为上，相比于低时间压力，高时间压力下个体更不愿意选择付出金钱消除疼痛威胁，且这一效应在自我决策下更强。此外，时间压力对亲社会决策的效应强度（计算为亲社会决策中高低时间压力下的行为结果差值）与被试共情特质得分负相关，即共情得分越高的个体，亲社会倾向受到时间压力的影响越小，自我决策中这一相关不显著。神经层面上发现，时间压力对自我决策和社会决策的影响存在差异，自我决策在低时间压力下双侧脑岛的激活比高时间压力下更强，而社会决策在低时间压力下价值整合相关的眶额皮层，共情相关的内侧扣带回以及奖赏相关的壳核等区域的激活更强。这表明，个体在低时间压力下调动了更多的情绪和认知加工脑区参与社会决策，更多的伤害回避脑区参与自我决策。RVR 分析表明，社会决策相关脑区间的功能连接可以显著预测时间压力对亲社会决策的影响程度。此外，眶额皮层的激活可以中介共情特质对亲社会决策的行为结果的影响。

实验二中，被试在高低认知负荷下进行类似的自我/他人决策任务。结果发现：行为上，相比于低认知负荷，高认知负荷下个体花费更多的金钱为自己/他人消除威胁。这一效应对对亲社会决策的影响更强。认知负荷对亲社会决策的效应强度（计算为亲社会决策中高低认知负荷下的反应时差值）与个体共情中的个人痛苦特质正相关，即个人痛苦得分越高的个体，亲社会决策中受到认知负荷的影响越大。神经层面上，认知负荷对自我决策和社会决策的影响表现出相同的模式。具体而言，高认知负荷下，双侧下顶叶，双侧颞下回以及左侧壳核等负责计算和情绪加工的区域激活更强，而低认知负荷下，楔前叶，右侧额上回以及双侧角回等默认网络脑区激活更强。RVR 分析表明，对认知负荷敏感的脑区间的功能连接可以显著预测认知负荷对自我以及亲社会决策的影响程度。此外，MVPA 的结果还发现，左侧下顶叶，右侧颞下回，双侧角回以及左侧颞顶联合区的激活可以准确的分类自我和社会决策，其中左侧颞顶联合区的分类效果最佳。

本研究揭示了时间压力和认知负荷影响自我和社会决策的神经机制，有助于更好地理解和预测时间压力及认知负荷下的社会行为。

关键词 社会决策，时间压力，认知负荷，功能性磁共振，机器学习

Time pressure and cognitive load regulate the neural mechanism of self-concerned and social decision-making

Liu Zhengjie[1] Liu Jie[1,2] Cui Fang[1,2]

1 School of Psychology, Shenzhen University, Shenzhen, China;

2 Center for Brain Disorders and Cognitive Neuroscience, Shenzhen, China;

Abstract： Social decision-making in daily life often faces time pressure and cognitive load, but the impact of these factors on decision-making and the underlying neural mechanisms are still unclear. Using fMRI, this study

conducted two experiments to investigate the neural mechanisms underlying the effects of time pressure and cognitive load on prosocial decision-making (social decision-making) and non-social self-concerned decision-making, as well as the role of individual traits in these effects.

Experiment 1 found that time pressure had a stronger impact on self-concerned decision-making than on prosocial decision-making. The probability of making self-benefiting decisions was significantly higher under low time pressure than under high time pressure. The effect of time pressure on prosocial decision-making (calculated as the difference in behavioral outcomes between high and low time pressure in prosocial decision-making) was negatively correlated with individual trait scores of empathy. This indicates that individuals with higher empathy scores are less influenced by time pressure in their prosocial tendencies. At the neural level, there were differences in the effects of time pressure on self-concerned decision-making and social decision-making. Under low time pressure, the bilateral insula was more active in self-concerned decision-making, while the medial orbitofrontal cortex related to value integration, the middle temporal gyrus related to empathy, and the putamen related to reward were more active in social decision-making. This suggests that individuals activate more emotional and cognitive processing areas in social decision-making under low time pressure, and more harm-avoidance areas in self-concerned decision-making. RVR analysis showed that functional connectivity between brain regions related to social decision-making significantly predicted the degree of the impact of time pressure on prosocial decision-making. Additionally, the activation of the medial orbitofrontal cortex mediated the effect of empathy on the behavioral outcomes of prosocial decision-making.

The second experiment found that cognitive load had a stronger impact on prosocial decision-making behavior. Specifically, under high cognitive load, the amount of tokens spent in prosocial decision-making was significantly higher than under low cognitive load. The strength of the cognitive load effect on prosocial decision-making (calculated as the reaction time difference between high and low cognitive load in prosocial decision-making) was positively correlated with individual trait of personal distress (PD), meaning that individuals with higher PD scores were more affected by cognitive load in prosocial decision-making. At the neural level, cognitive load affected self-concerned and social decision-making in a similar pattern. Specifically, under high cognitive load, regions responsible for calculation and emotion processing, such as the bilateral inferior parietal lobule, bilateral inferior temporal gyrus, and left putamen, were more activated, while under low cognitive load, default network brain regions such as the precuneus, right superior frontal gyrus, and bilateral angular gyrus were more activated. RVR analysis showed that the functional connections between brain regions sensitive to cognitive load could significantly predict the degree of its impact on self and prosocial decision-making. In addition, MVPA results revealed that the activation of the left inferior parietal lobule, right inferior temporal gyrus, bilateral angular gyrus, and left temporo-parietal junction could accurately classify self and social decision-making, with the left temporo-parietal junction showing the best classification performance.

This study reveals the neural mechanisms underlying the effects of time pressure and cognitive load on self and social decision-making, contributing to a better understanding and prediction of social behavior under time pressure and cognitive load.

Keywords：social decision-making, time pressure, cognitive load, fMRI, machine learning

攻击性行为神经机制的元分析和网络分析

王迪[1,2,3] 李厅[4] 古若雷[5,6]（通讯作者）封春亮[1,2]

1 教育部脑认知与教育科学重点实验室(华南师范大学)，广州，510631

2 华南师范大学广东省心理健康与认知科学重点实验室，510631

3 北京师范大学中国基础教育质量监测协同创新中心，北京，100875

4 四川师范大学心理学院，成都，610066

5 中国科学院心理研究所，北京，100101

6 中国科学院大学心理学系，北京，100049

通讯作者 gurl@psych.ac.cn

摘 要 人类攻击性行为是指有意对他人造成痛苦或伤害的行为。尽管攻击性行为在进化上具有重要意义，但病态的攻击性行为是多种精神障碍的核心症状。从目前文献状况来看，研究者们对病态攻击性行为的神经回路仍然缺乏共识。在本文中，我们通过比较攻击性人群（尤其是表现出病态攻击性行为的精神障碍患者）与对照人群之间的脑功能和结构差异来解决这个问题。

我们首先进行了一项元分析，综合了前人关于病态攻击性行为的功能或结构神经影像学数据（共 325 个实验，2997 个激活峰值点，16529 名被试）。随后进行了网络分析和功能解码分析，对元分析中发现的主要脑区进行定量描述。

我们的分析结果表明，与病态攻击性行为相关的脑区主要位于：与情绪加工相关的皮层下网络（例如杏仁核和外侧眶额叶皮层），与心智推理相关的默认模式网络（例如背侧前额叶皮层和中颞回），以及与认知控制相关的显著性网络（例如前扣带回和前岛叶）。我们进一步执行针对情绪加工、心智推理和认知控制领域的额外元分析，发现与这些领域对应的脑网络跟上述元分析所发现的脑区高度重叠，从而支持了我们的结论。

总的来说，我们认为这些研究结果有助于研究者们确定攻击性行为的风险生物标记（risk biomarker），同时有助于完善人类攻击性行为的理论模型。

关键词 攻击性；元分析；功能磁共振成像；脑网络；功能解码分析

Meta-analyses and network analyses of the neural correlates of human aggression

Li Wang[1,2,3], Ting Li[4], Ruolei Gu[5,6], Chunliang Feng[1,2]

1 Key Laboratory of Brain, Cognition and Education Sciences (South China Normal University), Ministry of Education, Guangzhou, China;

2 Guangdong Provincial Key Laboratory of Mental Health and Cognitive Science, Center for Studies of Psychological Application, School of Psychology, South China Normal University, Guangzhou, China;

3 Collaborative Innovation Center of Assessment for Basic Education Quality, Beijing Normal University, Beijing, China;

4 College of Psychology, Sichuan Normal University, Chengdu, China;

5 CAS Key Laboratory of Behavioral Science, Institute of Psychology, Chinese Academy of Sciences, Beijing, China;

6 Department of Psychology, University of Chinese Academy of Sciences, Beijing, China.

Abstract: Human aggression refers to deliberate actions aimed at causing pain or harm to another individual. While aggression plays a significant role in survival, it can escalate and become a core symptom of various psychiatric disorders. However, there is currently a lack of consistent evidence regarding the neural circuitry responsible for escalated aggression. To address this gap, we conducted a comparative analysis of brain functions and structures between populations exhibiting aggression (particularly psychiatric disorders with symptoms of escalated aggression) and non-aggressive populations.

In our study, we performed a comprehensive meta-analysis synthesizing previous neuroimaging studies investigating functional and structural alterations associated with escalated aggression. This meta-analysis encompassed 325 experiments, involving 2997 focal points and 16529 subjects. Subsequently, we conducted network and functional decoding analyses to provide quantitative characterizations of the identified brain regions.

Our findings revealed that the brain regions consistently implicated in escalated aggression were localized within the subcortical network, including the amygdala and lateral orbitofrontal cortex, which are associated with emotion processing. Additionally, the default mode network, involving the dorsal medial prefrontal cortex and middle temporal gyrus associated with mentalizing, as well as the salience network, encompassing the anterior cingulate cortex and anterior insula associated with cognitive control, were also consistently implicated in escalated aggression. These findings were further supported by additional meta-analyses focusing on emotional processing, mentalizing, and cognitive control, which demonstrated overlap with the brain regions identified in escalated aggression.

Collectively, our study contributes to a better understanding of the risk biomarkers associated with aggressive populations and refines the theoretical models of human aggression.

Keywords: aggression; meta-analysis; functional magnetic resonance imaging; large-scale brain networks; functional decoding

共情社会性传递的计算与神经机制

周雨青(通讯作者)[1 2] 韩世辉 [3] Pyungwon Kang[4], Philippe N. Tobler[4] & Grit Hein[2]

1 中国科学院心理研究所，北京，100101, 通讯作者 E-mail:zhouyq@psych.ac.cn

2 维尔茨堡大学精神疾病学系，维尔茨堡，97080

3 北京大学心理认知与科学学院，北京，100871

4 苏黎世大学经济学系，苏黎世，CH-8006

摘 要 共情是理解和分享他人情感的关键心理过程，是亲社会行为的基石。鉴于共情在人类社会生活中的重要性，系统研究共情习得与改变的机制尤为关键。既往研究发现个体共情会在人际间发生传递，但其深层的学习机制和神经基础尚未可知。本研究基于此，通过三个独立实验，结合观察学习范式与疼痛共情范式，从观察学习的角度尝试回答这一问题。运用强化学习模型以及功能磁共振成像，我们考察个体在观察他人共情反应后，其自身共情以及其相关脑响应的变化。我们发现，在行为水平上，观察比自己预期高或比自己预期低共情的个体后，人们会产生基于观察学习的预期偏差，并推动其增加或减少自身的共情反应。同时，共情的改变将进一步影响亲社会倾向的改变。通过独立的控制实验，我们发现共情的传递主要发生在观察人类(而非观察计算机)的行为上。在神经层面上，共情反应的改变发生在左侧前脑岛，这一与共情行为反应高度相关的脑区。在学习机制上，观察高共情与低共情个体均会在左侧颞顶联合区产生学习信号，而进一步的功能连接分析发现，左侧颞顶联合区与左侧前脑岛的功能连接与共情观察学习的程度呈现高度相关。我们的结果深化了对共情社会性传递在计算和神经机制上的理解，也将为未来设计相关的共情提升手段供科学证据。

关键词 共情，观察学习，功能磁共振成像，社会认知

The neurocomputational mechanisms of social transmission of empathy

Yuqing Zhou[1 2], Shihui Han[3], Pyungwon Kang[4], Philippe N. Tobler[4] & Grit Hein[2]

[1] CAS Key Laboratory of Behavioral Science, Institute of Psychology, Chinese Academy of Sciences

[2] Translational Social Neuroscience Unit, Department of Psychiatry, Psychosomatics, and Psychotherapy, University of Würzburg

[3] School of Psychological and Cognitive Sciences, Beijing Key Laboratory of Behavior and Mental Health, PKU-IDG/McGovern Institute for Brain Research, Peking University

[4] Department of Economics and Laboratory for Social and Neural Systems Research, University of Zurich and Neuroscience Center Zurich, University of Zurich and Swiss Federal Institute of Technology Zurich

***Abstract*:**

Theories of moral development propose that empathy is transmitted across individuals. However, the mechanisms through which empathy is socially transmitted remain unclear. Here, we combine computational learning models and functional magnetic resonance imaging to investigate whether and how empathic and non-empathic responses

observed in others affect the empathy of the observer. Replicated in two independent studies, the results showed that watching empathic or non-empathic responses generates a learning signal that increases or decreases empathy ratings of the observer. A third study revealed that the learning-related transmission of empathy is stronger when observing human than computer demonstrators. Finally, we show that the social transmission of empathy alters empathy-related responses in the anterior insula, i.e., the same region that correlated with empathy baseline ratings, as well as its functional connectivity with the temporal-parietal junction. Together, our findings provide a computational and neural mechanism for the social transmission of empathy that accounts for changes in individual empathic responses in empathic and non-empathic social environments.

Keywords:
Empathy, observational learning, fMRI, social cognition

不公平情境中妒忌体验的认知加工与神经机制

敬文曦[1], **汪晨波**[1]
1 华东师范大学心理与认知科学学院，上海，200062
通讯作者 Email：cbwang@psy.ecnu.edu.cn

摘 要

妒忌往往发生在自己与相关他人进行社会比较时处于劣势地位。然而，当自己处于社会比较的优势地位却依然没有获得应有回报时，这种妒忌可能更加强烈。那么，这种不公平情境下的妒忌体验有何独特之处？本研究通过两个实验描述这类妒忌的认知加工特征和神经机制。

实验一招募 315 名大学生，采用情境诱发行为学范式研究妒忌的认知加工机制。结果显示，妒忌程度随着自我相关和实力信息的披露而逐渐增高。这一过程伴随着沮丧和愤怒情绪的增强，以及钦佩和愉悦情绪的减弱。相比实力相当条件，自己实力更强时的妒忌程度显著更高。此外，恶意妒忌特质更高的个体，在这种不公平情境下会体验到更多的愤怒情绪，这使他们更希望他人失去已有获利。

实验二招募 42 名大学生，结合磁共振成像技术考察不公平情境中妒忌的神经机制。结果显示，当对方获得竞争结果，自己实力更强时的妒忌程度显著最高。第二，这种不公平情境中妒忌体验的神经活动主要体现在脑岛、额中回、楔前叶和枕中回等区域的激活。第三，在自己实力更强条件下，左侧脑岛的激活强度越大，羞愧评分越低，妒忌程度越高。

本研究揭示了在不公平情境下妒忌发生并逐渐增强时的认知加工机制。这其中伴随着消极情绪（尤其是愤怒）的增强和积极情绪的减弱。研究进一步揭示了不公平情境中妒忌发生的神经机制，推测脑岛对不公平引发愤怒情绪的表征是此类妒忌体验的加工特征。研究拓展了特定情境下妒忌的认知神经机制。

关键词：妒忌，不公平，愤怒，脑岛，功能磁共振成像

The cognitive processing and neural mechanism of envy experience in unfair situations

Wenxi Jing[1], **Chenbo Wang**[1]

1 School of Psychology and Cognitive Science, East China Normal University, Shanghai 200062

Correspondence: cbwang@psy.ecnu.edu.cn

***Abstract*:**

Envy often occurs when one finds themselves in a disadvantaged position compared to relevant others during social comparisons. However, this envy can become even stronger when one is in a socially advantageous position but still fails to receive the expected rewards. Thus, what are the unique aspects of experiencing envy in such unfair situations? This study describes the cognitive processing features and neural mechanisms of this type of envy through two experiments.

In Experiment 1, 315 college students were recruited to investigate the cognitive processing mechanisms of envy using a situation-induced behavioral paradigm. The results showed that the level of envy gradually increased with the disclosure of self-relevant and competence-related information. This process was accompanied by enhanced feelings of frustration and anger, as well as reduced feelings of admiration and joy. Compared to situations of comparable competence, envy was significantly higher when one's own competence is stronger. Additionally, individuals with higher levels of malicious envy traits experienced more anger in such unfair situations, making them more inclined to wish others would lose their gains.

In Experiment 2, 42 college students were recruited, and the neural mechanisms of envy in unfair situations were examined using functional magnetic resonance imaging (fMRI) technology. The results showed that the level of envy was significantly highest when the other person achieved the competitive result while one's own competence is stronger. Second, the neural activity associated with the experience of envy in this unfair situation was mainly reflected in the activation of regions such as the insula, middle frontal gyrus, precuneus and middle occipital gyrus. Third, under conditions of stronger personal competence, the greater the activation intensity in the left insula, the lower the shame scores, and the higher the level of envy.

This study reveals the cognitive processing mechanisms of envy when it occurs and gradually intensifies in unfair situations. This process is accompanied by increased negative emotions, particularly anger, and decreased positive emotions. The study further reveals the neural mechanisms underlying envy in unfair situations, suggesting that the insula's representation of anger emotion in response to unfairness is a processing feature of this type of envy experience. The research expands our understanding of the cognitive and neural mechanisms of envy in specific contexts.

***Keywords*:** envy, unfair, anger, insula, fMRI

神经调控的影像学引导与机制解读

季公俊[1]

1 安徽医科大学，合肥，230000

摘 要：作为无创神经调控技术，重复经颅磁刺激（rTMS）已成为脑科学研究的关键技术之一，对抑郁症等精神疾病也有明确的治疗作用。近年来，随着神经影像尤其是磁共振（MRI）技术与 rTMS 的深入结合，为强化 rTMS 在认知与脑疾病的调控效果发挥了重要作用，也为解读 rTMS 的调控机制提供了大量的新线索。自 2015 年以来，安徽医科大学“神经影像与调控”实验室开展了多项包括 RCT 在内的临床研究，在 rTMS 的方案优化和机制解读方面做了大量的探索性研究。结合实验室的研究经验，本次报告以 MRI 在 rTMS 发展中的作用为主线，介绍 rTMS 技术的参数优化、临床应用及机制解读。最后，以神经影像的新技术探讨 rTMS 未来的发展方向。

关键词 经颅磁刺激，神经影像，磁共振，神经调控

Imaging guidance and mechanism interpretation of neuromodulation

Gong-Jun Ji

Anhui Medical University, Hefei, China

Abstract：As a non-invasive neuroregulation technique, repetitive transcranial magnetic stimulation (rTMS) has become one of the key techniques in brain science research, and it also has a clear therapeutic effect on mental diseases such as depression. In recent years, with the in-depth integration of neuroimaging and rTMS, magnetic resonance image (MRI) has played an important role in strengthening the modulation effect of rTMS in cognitive and brain diseases, and also provided a lot of new clues for understanding the modulation mechanism of rTMS. Since 2015, the "Neuroimaging and Modulation" Laboratory of Anhui Medical University has carried out a number of clinical studies including RCT, and has done a lot of exploratory research in the protocol optimization and mechanism interpretation of rTMS. Combined with laboratory research experience, this report takes the role of MRI in the development of rTMS as the main line, and introduces the parameter optimization, clinical application and mechanism interpretation of rTMS technology.Finally, the future direction of rTMS is discussed with the new technology of neuroimaging.

Keywords：transcranial magnetic stimulation, magnetic resonance image, neuromodulation, neuroimage

深部经颅磁刺激在药物成瘾中的应用和展望

赵迪[1] 袁逖飞[1]（通讯作者）

1 上海市精神卫生中心，上海，200030

通讯作者 E-mail ytf0707@126.com

摘 要 药物成瘾是全球性的重大医学难题。甲基苯丙胺(俗称“冰毒”)是我国现有主要的成瘾药物，复吸率高达 80%以上。线索诱发渴求是成瘾者接触到药物相关线索后，呈现出一种反复、强烈的想要使用药

物的心理状态，也是导致复吸的重要原因。在过去的十年中，非侵入性脑刺激，特别是经颅磁刺激已成为最具前景的成瘾（包括渴求）治疗策略。重复经颅磁刺激(rTMS)在改善物质成瘾者渴求方面的治疗潜力越来越受到关注。本研究中进一步探索了深部经颅磁刺激(deep rTMS)对冰毒成瘾者渴求的作用，并使用高密度脑电图(HD-EEG)探讨了全脑神经振荡和脑功能连接的变化。23 名冰毒成瘾者完成了针对内侧前额叶皮层（MPFC）和前扣带皮层(ACC)的 10Hz rTMS 为期三周的双盲、伪刺激组的临床试验。在治疗前后评估提示诱发的渴求测量和静息状态全脑活动和功能连接。结果：结果显示，与伪刺激组相比，10Hz rTMS 组的线索诱发的渴求显著降低。源定位分析显示，alpha 频段中以 MPFC 为中心的全局连通性增加，从网络的角度表明了治疗效果。此外，在线索诱导的渴求降低的成瘾中，MPFC 的β频段的活动选择性降低。结论：这些发现表明靶向深部脑区 MPFC 可作为一种减少成瘾者渴求的有效的治疗方式，该研究为其有效性背后的神经网络调节提供了见解。之后的研究有必要对更大的样本和长期随访进行进一步研究，以验证这些发现，并扩大这项技术在成瘾领域的应用。

关键词　甲基苯丙胺成瘾，线索诱发渴求，深部非侵入脑刺激，内侧前额叶皮层，大规模脑网络

Deep magnetic stimulation targeting the medial prefrontal and anterior cingulate cortices for methamphetamine use disorder

Di Zhao [1], Ti-fei Yuan [1]

1 Shanghai Mental Health Center, 666 South Wanping Road，Xuhui District, Shanghai，200030

***Abstract*：** Substance use disorder (SUD) is a major global medical problem. Methamphetamine (commonly known as "meth") is the main addictive drug in China, with a relapse rate of over 80%. Cue-induced craving is a recurring, strong desire to use drugs after individuals with methamphetamine use disorder (MUD) has been exposed to drug-related cues, which is an important cause of relapse. In past decades, non-invasive brain stimulation, especially repetitive transcranial magnetic stimulation (rTMS), emerged as the most prospective therapeutic strategy for craving. Chronic rTMS treatment efficiently reduces craving for drugs and drug associated cues in heroin, methamphetamine, cocaine, etc. We investigated the effects of rTMS on cravings in MUD and explored changes in neural oscillations and connectivity using high-density electroencephalography (EEG). Twenty-three male MUD patients completed a three-week double-blind, sham-controlled trial of 10Hz rTMS targeting the medial prefrontal cortex (MPFC) and anterior cingulate cortex (ACC). Cue-induced craving measures and resting-state EEG were assessed before and after treatment. Results revealed a significant reduction in cue-induced cravings in the 10Hz rTMS group compared to the sham group. Source localization analysis showed increased global connectivity in the MPFC for the alpha band, indicating treatment efficacy from a network perspective. Additionally, MPFC beta activity was selectively reduced in MUD patients with decreased cue-induced craving. Conclusions: These findings highlight the potential of MPFC-targeted rTMS as a treatment modality for reducing cravings in MUD and provide insights into neural network modulation underlying its effectiveness. Further research with larger samples and long-term follow-ups is warranted to validate these findings and expand the application of this technique in the addiction field.

***Keywords*：** Methamphetamine use disorder, cue induced craving, deep non-invasive brain stimulation, medial prefrontal cortex, large-scale brain network

功能网络连边个体变异的梯度结构

杨航[1,#], 吴国伟[1,2,#], 李瑶新[1,3], 马祎垚[1], 陈润森[4], Adam Pines[5], 徐婷[6], Valerie J. Sydnor[7,8], Theodore D. Satterthwaite[7,8], 崔再续[1,*]

[1]北京脑科学与类脑研究中心，102206，中国

[2]心理研究所, 中国科学院, 北京, 100101, 中国

[3]神经科学研究所，密歇根大学，安娜堡，48109，美国

[4]万科公共卫生与健康学院，清华大学，北京，100084，中国

[5]精神病学和行为科学系，斯坦福医学院，斯坦福大学，加利福尼亚，美国

[6]脑发育研究中心，儿童心理研究所，纽约，10022，美国

[7]生命周期信息学和神经影像学中心，宾夕法尼亚大学，费城，19104，美国

[8]精神病学系，宾夕法尼亚大学，费城，19104，美国

[#]共同第一作者

[*]通讯作者: cuizaixu@cibr.ac.cn

摘 要

大脑功能连接在个体之间表现出有组织规律的差异，这种差异与个体在认知和行为上的差异有关。以往的研究表明，脑区水平功能连接的个体变异沿着皮层梯度的轴连续减小，该梯度从高级联合皮层逐渐过渡到初级感觉运动皮层。这种皮层梯度与不同皮层属性的分布一致，如解剖、功能、进化和分子，表明皮层个体功能变异具有多尺度神经生物学基础。然而，这些研究仅限于描述皮层的脑区水平功能连接，皮层区域间的连接变异性是否也呈现梯度结构仍不清楚。

在本研究中，我们通过两个独立数据集，在连接水平上展示了一个连续的梯度。我们使用 fMRI 数据为每个被试构建了任意两个皮层区域彼此互连的功能连接网络。然后，我们估计了每条功能连接在所有被试间的个体变异。我们发现，个体变异沿着从网络内的连接到感觉运动和联合皮层网络之间的连接的梯度连续下降。例如，个体变异沿着从默认模式网络内部的连接到默认模式与其他联合皮层网络间的连接的轴下降，并且在默认模式和感觉运动网络之间的连接继续下降。我们将这种沿着连接的变异性的轴称为“连接梯度”。

我们发现，这种个体功能变异性的连接梯度与通过弥散磁共振成像数据所得到的结构连接的变异性的分布一致。并且，功能连接变异性的梯度模式与基因表达和神经递质受体表达的区域间相似性网络相关。此外，我们发现在儿童期、青春期和青年期的发育过程中，连接水平的个体功能变异性模式与成人越来越相似。最后，我们发现网络水平连接梯度的斜率在青少年时期下降，并且与认知能力呈负相关。这些结果在控制功能连接强度和脑区间的距离后仍然显著。

总之，我们在连接组上发现了一种新的个体功能变异性的连接梯度，它沿着从网络内部连接到感觉运动和联合皮层网络之间的连接的连续梯度变化。这种梯度模式与多模态和多尺度的人类连接组相关，并在青少年的发育过程中得到完善。这些结果对理解精神病理学和设计最优的神经调节干预措施具有重要意义。

关键词 功能连接；个体差异；连接梯度；人脑连接组；青少年发育。

A Connectional Gradient of Individual Variability across Functional Network Edges

Hang Yang1[,#], Guowei Wu[1,2,#], Yaoxin Li[1,3], Yiyao Ma[1], Runsen Chen[4], Adam Pines[5], Ting Xu[6], Valerie J. Sydnor[7,8], Theodore D. Satterthwaite[7,8], Zaixu Cui[1,*]

[1]Chinese Institute for Brain Research, Beijing, 102206, China

[2]CAS Key Laboratory of Behavioral Science, Institute of Psychology, Chinese Academy of Sciences, Beijing, 100101, China

[3]Michigan Neuroscience Institute, University of Michigan, Ann Arbor, MI 48109, USA

[4]Vanke School of Public Health, Tsinghua University, Beijing, China

[5]Psychiatry and Behavioral Sciences, Stanford School of Medicine, Stanford University, Stanford, California, USA

[6]Center for the Developing Brain, Child Mind Institute, New York, NY 10022, USA

[7]Penn Lifespan Informatics and Neuroimaging Center, University of Pennsylvania, Philadelphia, PA 19104, USA

[8]Department of Psychiatry, University of Pennsylvania, Philadelphia, PA 19104, USA

#Co-first author

*Correspondence: cuizaixu@cibr.ac.cn

Abstract

Functional brain connectivity exhibits organizational differences between individuals that are associated with individual differences in cognition and behavior. Previous studies have shown that inter-individual variability in regional functional connectivity continuously decreases along the axis of cortical gradient, which progresses from higher-order association cortex to primary sensorimotor cortex. This cortical gradient aligns with the distribution of diverse cortical properties, such as anatomy, function, evolution, and molecule, suggesting multi-scale neurobiological bases of cortical individual functional variability. However, these studies have been limited to the description of the regional functional connectivity across the cortex, and it remains unclear whether the variability of the connections between cortical regions also exhibits a gradient organization across the edges.

Here, we address this gap by demonstrating a continuous gradient at connectional level across connectome edges with two independent datasets. We generated the network of functional connectivity between any two cortical regions for each participant using fMRI data and estimated the inter-individual variability of each functional connectivity edge across all participants. We found that individual variability continuously declined along a gradient from within-network connections to between-network edges connecting sensorimotor and association networks. For example, the variability declines along an axis from edges within the default mode network to edges between default mode and other association networks, and continues to decrease in edges between default mode and sensorimotor networks. We termed this axis of variability across connectome edges “connectional gradient”.

We found that this connectional gradient of individual functional variability aligns with the distribution of edge-level variability in structural connectivity from diffusion MRI data. We

also found the patterning of the variability gradient is associated with the between-region similarity networks for gene expression. Moreover, we found the pattern of individual functional variability at connectional level becomes increasingly similar to that in adults during the development through childhood, adolescence, and young adulthood. Finally, we found the slope of the network-level connectional gradient in individual functional variability declined in youth and was negatively associated with cognitions. All these results were still significant after controlling for the pattern of functional connectivity strength as well as between-region distance.

Altogether, we identified a novel connectional gradient of individual functional variability across the connectome edges, progressing along a continuous gradient from within-network connections to the edge between sensorimotor and association networks. This gradient pattern was associated with multi-modal and multi-scale human connectome and was refined during development in youth. These results could inform important implications in understanding of psychopathology and the design of optimal neuromodulatory interventions.

Keywords:

Functional Connectivity; Individual variability; Connectional gradient; Human Connectome; Youth Development.

感觉运动皮层的 alpha 经颅交流电刺激对疼痛的调控作用

李晓云[1]　彭微微[1]（通讯作者）

[1]深圳大学心理学院，深圳，518060

通讯作者 彭微微 ww.peng0923@gmail.com

摘 要　经颅交变电流刺激（transcranial alternating current stimulation, tACS）是一种非侵入式的神经调控技术，被认为能以频率特异的方式调控大脑的内在神经振荡活动。以往的研究表明感觉运动皮层的α神经振荡能量与疼痛体验呈现负相关关系，这提示通过施加α-tACS 提高感觉运动皮层的α神经振荡幅度有望有效缓解疼痛。为验证这一假设，研究一和研究二采用双盲、随机和假对照设计，通过在单侧的初级感觉运动皮层（primary sensorimotor cortex, SM1）施加高精度α-tACS，调控前后分别采集了激光疼痛诱发的 EEG 和 fMRI 响应。EEG 结果表明相对于假刺激组，α-tACS 能有效提高 SM1 的α神经振荡能量，但未观察到对主观痛觉产生直接的影响。fMRI 结果表明，α-tACS 能有效减弱了双侧 SM1 对疼痛刺激的 BOLD 响应，从而间接降低痛觉体验。功能连接分析进一步揭示α-tACS 有效降低了调控靶区 SM1 与疼痛信息加工有关的多个脑区的信息交流，包括中扣带回皮层、背外侧前额叶皮层等。研究三进一步探讨了α-tACS 对疼痛的调控效果是如何受到情境因素的影响。相对于假刺激组，α-tACS 能有效提高 SM1 的α神经振荡能量，但抑制了由疼痛刺激重复导致的习惯化现象（包括痛觉体验和激光疼痛诱发响应）。在确定性情境下，α-tACS 比假刺激组显著提升了前额叶区域的θ神经振荡能量以及疼痛诱发的 P2 响应（主要与痛觉的情绪动机过程有关）。中介分析进一步表明，α-tACS 通过提高前额叶区域的θ神经振荡能量，从而抑制激光疼痛诱发的 P2 响应和痛觉体验。然而，在不确定情境，我们并没有发现α-tACS 对θ神经振荡能量的影响。因此，α-tACS 能有效提高 SM1 的α神经振荡能量及其在疼痛信息加工过程中的脑响应。与此同时，α-tACS 还可能以情境依赖的方式影响其他频带的神经振荡活动从而干扰其镇痛效果。

关键词　疼痛，神经振荡；激光疼痛诱发响应；感觉运动皮层

The modulation of pain by transcranial alternating current stimulation over the sensorimotor cortex at alpha frequency

Xiaoyun Li[1], Weiwei Peng[1]*

[1] School of Psychology, Shenzhen University, Shenzhen, 518060, China

* Corresponding author. Email: ww.peng0923@gmail.com (W.P.)

Abstract: Transcranial alternating current stimulation (tACS) is thought to modulate brain oscillations in a frequency-specific manner. Given the negative correlation between sensorimotor α-oscillation amplitude and pain perception, tACS that enhances sensorimotor α-oscillations has the potential to reduce pain. Therefore, studies 1&2 sought to determine the aftereffects of α-tACS over unilateral primary sensorimotor cortex (SM1) on the perceptual and neural responses to noxious painful stimulation. Using a double-blinded, randomized and sham-controlled design, we recruited healthy participants to receive either a single-session α-tACS or sham stimulation of unilateral SM1 through an electrode montage in a 4 × 1 ring configuration. Neural responses to laser nociceptive stimuli were assessed using electroencephalogram (EEG, Study 1) and functional magnetic resonance imaging (fMRI, Study 2) immediately before and after α-tACS intervention. Perceptual reports were recorded simultaneously. EEG results revealed that compared with sham stimulation, α-tACS significantly enhanced the spontaneous α-oscillation over SM1, but did not exert direct effect on subjective pain perception. fMRI results revealed that α-tACS could reduce bilateral SM1 responses to painful stimuli, thus indirectly contributing to the decrease of pain perception. Moreover, α-tACS decreased the functional connectivity between the targeted SM1 and a network of regions that are crucially involved in pain processing, including the middle cingulate cortex and dorsolateral prefrontal cortex. Study 3 further explore how the contextual factor (e.g., certainty) influenced the aftereffects of α-tACS on pain perception. Compared with sham stimulation, α-tACS could effectively elevate α-oscillation over the SM1, but inhibited the habituation induced by repeated painful stimuli (including subjective pain perception and laser-evoked brain responses). In the certain context, α-tACS significantly enhanced middle-frontal θ -oscillation amplitude and pain-evoked P2 responses (related to the affective-motivational dimension of pain). Mediation analysis further revealed that α-tACS could indirectly attenuate laser-evoked P2 responses and subjective pain perception by increasing middle-frontal θ-oscillation amplitude. However, in the uncertain contexts, we did not observe significant effects of α-tACS on θ-oscillations. These findings provided evidence for the effective role of α-tACS on enhancing sensorimotor α-oscillation and its effects on brain responses to painful stimuli. Meanwhile, α-tACS may also affect brain oscillation at other frequency bands in a context-dependent manner, thus exerting interferences on its analgesic effects.

Keywords: Pain; Neural oscillation; Transcranial alternating current stimulation (tACS); Laser evoked brain responses; Sensorimotor cortex

爱情存在于大脑中:调节额下回的活动可以长期改善恋爱关系

宋洪文[1]，张效初[1]（通讯作者）

1 中国科学技术大学生命科学与医学部，合肥 230027，通讯作者 E-mail：zxcustc@ustc.edu.cn

摘 要 幸福、持久的浪漫关系可以对健康、工作效率和父母/孩子的幸福产生积极影响。不幸的是，随着时间的推移，全球范围内，浪漫关系满意度和关系承诺呈下降的趋势，许多国家的离婚率仍然很高。当人们积极地看待他们的浪漫伴侣时，这种“积极感知”与关系满意度和关系持久性存在密切关联。本研究，我们探讨了积极感知是否可以改善浪漫关系的质量，促进了我们对其潜在的神经机制的理解，并提供了一个维持 18 个月的因果推断。在积极感知生成实验中，我们使用功能磁共振成像技术发现，被试在更新对浪漫伴侣的看法时，选择性的降低了对不利信息的学习。这种积极感知的过程与左侧额下回（IFG）对他们的浪漫伴侣的不利信息的估计误差的神经表征有关。在经颅直流电刺激实验中，我们利用功能磁共振成像技术和经颅直流电刺激技术建立了 IFG 在积极感知中的因果作用。经颅直流电刺激可以增加左侧额下回的神经活动，增强积极感知，改善浪漫关系质量。此外，我们发现在左侧额下回上进行重复经颅直流电刺激干预可以降低关系破裂率，提高关系承诺和关系满意度。我们的结果提供了一个理解浪漫关系的新的生物学和心理学机制。未来将这一知识用于改变浪漫关系持久性和浪漫关系质量，具有重要的社会和伦理意义。

关键词 积极感知，浪漫爱情，信念更新任务，关系承诺，关系满意度

Love is in the brain: modulating inferior frontal gyrus activity shows long-term improvements for romantic partnerships

Hongwen Song[1] and Xiaochu Zhang[1]

1 Department of Radiology, the First Affiliated Hospital of USTC, School of Life Science, Division of Life Science and Medicine, University of Science & Technology of China, Hefei, 230027, China

* Corresponding author E-mail: zxcustc@ustc.edu.cn

Abstract **：** A satisfying and persistent romantic relationship can positively impact health, work productivity, and parent/child wellbeing. Unfortunately, there is a global trend toward a decline in relationship satisfaction and relationship commitment over time, and divorce rates remain high in many countries. When humans view their romantic partner optimistically, this “positive perception” is associated with satisfying and persistent relationships. Here we investigated whether positive perception can improve romantic relationship quality, progress our understanding of its underlying neural mechanisms, and provide a causal inference, lasting up to 18 months. In the positive perception generation experiment, we used functional MRI (fMRI) to show that participants selectively discount unfavorable information while updating their beliefs about romantic partners. This positive perception process is associated with an increased neural representation of unfavorable estimation error about their romantic partner in the left inferior frontal gyrus (IFG). In the tDCS intervention experiment, we established the causal role of the IFG in positive perception using fMRI-transcranial direct current stimulation (tDCS). tDCS increased the neural activity in the left IFG, enhanced positive perception, and improve perceived relationship quality. Furthermore, we show that a repeated application of tDCS

intervention over the left IFG reduced the odds of relationship dissolution, and improved relationship commitment and satisfaction, highlighting the role of positive perception. Our results provide a novel biological and psychological mechanistic understanding of romantic relationships. The future translation of this knowledge to alter relationship persistence and romantic relationship quality has societal and ethical implications.

Keywords ： Positive perception; Romantic love; Belief renewal mission; Relationship commitment; Relationship satisfaction

高通道经颅电刺激的优化策略

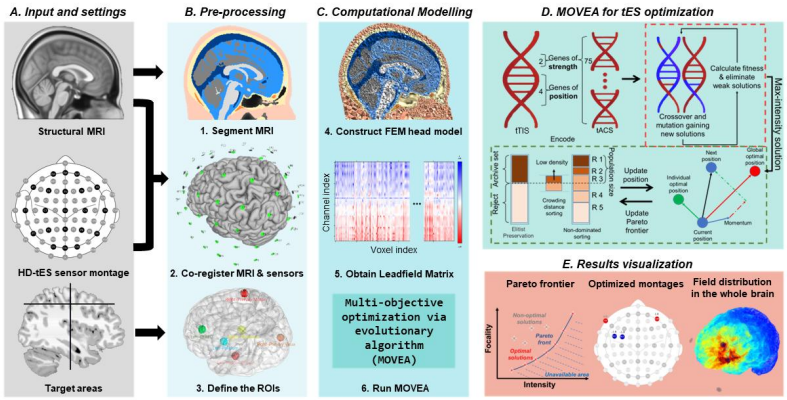
王漠 [1]　楼可心 [1]　刘泽铭 [1]　蔚鹏飞 [2]　刘泉影 [1]（通讯作者）

1 南方科技大学生物医学工程系，深圳，518055

2 中国科学院深圳先进技术研究院，深圳，518055

通讯作者邮箱 liuqy@sustech.edu.cn

摘 要 经颅电刺激（tES）是一种具有潜在临床多样化应用的有希望的非侵入性神经调节技术，包括中风治疗、运动功能改善、记忆巩固和脑疾病治疗等。然而，tES 的一个重要挑战在于受试者对刺激的反应存在明显的个体差异，因此需要个性化的方法。为了解决这个问题，我们提出了一个新颖的框架，多目标优化进化算法（MOVEA），旨在通过帕累托优化同时优化多个目标。MOVEA 框架接受个体结构性 MRI、tES 传感器参数以及目标脑区等作为输入。首先进行预处理，将脑体积分割为具有不同传导率的组织，将个体结构性 MRI 与电极通道进行配准，并根据脑区分割图谱定义目标区域。随后，构建精确的有限元方法（FEM）头部模型，并计算引导场矩阵（Leadfield Matrix）。MOVEA 然后使用进化算法高效地探索参数空间，生成一系列最优传感器配置的帕累托前沿，可以同时优化多个目标，包括最大化电场强度、汇聚性刺激、控制刺激深度以及最小化避免区域刺激。帕累托前沿包含一系列最优解，展现了在冲突目标之间多样化的权衡，无需手动调整权重。MOVEA 的灵活性使其能够适应各种 tES 模式，包括经颅交流电刺激（tACS）和经颅时间干涉刺激（tTIS）。此外，MOVEA 可以增加用户定义的约束，使其能够根据个体需求定制刺激方案。我们使用 MOVEA 评估和比较了不同 tES 模式的性能。我们的分析表明，在没有预先定义方向的电场中，HD-tACS 和 HD-tTIS 都能够实现更高的刺激强度。此外，HD-tTIS 在其卓越的焦点性方面表现突出，特别适用于精确瞄准特定的脑区域。MOVEA 的有效性和灵活性使其成为推进基于 tES 的神经调节的宝贵工具，能够实现考虑受试者间变异性的个性化策略。它在理解大脑认知关系和为神经系统疾病开发定制治疗方面具有潜在应用价值。完整代码可以在该链接获得： https://github.com/ncclabsustech/MOVEA 。



关键词 经颅电刺激，多目标优化，进化算法，个性化神经调控

Optimization for high-definition transcranial electrical stimulation of the human brain

Mo Wang[1], Kexin Lou[1,2], Zeming Liu[1], Pengfei Wei[3], Quanying Liu[1]
[1] Department of Biomedical Engineering, Southern University of Science and Technology
[2] School of Information Technology and Electrical Engineering, University of Queensland
[3] Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences
Corresponding to Q.L. with liuqy@sustech.edu.

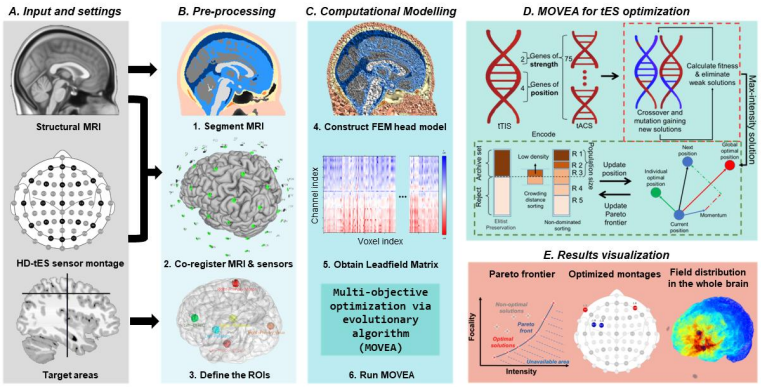
Abstract： Transcranial electrical stimulation (tES) is a promising non-invasive neuromodulation technique with the potential for diverse clinical applications, including stroke treatment, motor function improvement, memory consolidation, and brain disease treatment. However, a significant challenge in harnessing the full potential of tES lies in the inter-subject variability of response to stimulation, necessitating personalized approaches. To address this issue, we present a novel framework, Multi-Objective Optimization via Evolutionary Algorithm (MOVEA), designed to optimize multiple objectives simultaneously through Pareto optimization.

Our MOVEA framework takes individual structural MRI, tES sensor montage, and target areas as inputs, initiating with pre-processing steps to segment the brain volume into tissues with distinct conductivities, co-register the individual's structural MRI with HD-tES sensors, and define target areas based on the Brodmann atlas. Subsequently, an accurate finite element method (FEM) head model is constructed, and the leadfield matrix for the region of interest is computed. This matrix represents the relationship between applied tES montages and the resulting electric field distribution within the brain.

MOVEA then efficiently explores the parameter space to generate a Pareto front of optimal montages. It simultaneously optimizes objectives, including maximizing the electric field intensity, achieving high focality, controlling stimulation depth, and minimizing unwanted stimulation in specific regions (avoidance zone). The Pareto front contains optimal solutions that exhibit diverse trade-offs between conflicting objectives, without the need for manual weight adjustments.

The versatility of MOVEA allows it to accommodate various tES modalities, such as transcranial alternating current stimulation (tACS) based on both large sponge electrodes and high-definition (HD) electrodes, and transcranial temporal interference stimulation (tTIS) based on HD and two-pair systems. Furthermore, MOVEA considers user-defined constraints, making it possible to customize stimulation protocols to individual needs.

We evaluated and compared the performance of different tES modalities using MOVEA. Our analysis revealed that, for electrical fields without a predefined orientation, both HD-tACS and HD-tTIS can achieve higher stimulation intensities. Additionally, HD-tTIS stood out for its superior focality, making it particularly effective in precisely targeting specific brain regions.



The effectiveness and versatility of MOVEA make it a valuable tool for advancing tES-based neuromodulation, enabling personalized strategies that account for inter-subject variability. It offers potential applications in understanding brain-cognition relationships and developing tailored treatments for neurological disorders. To facilitate its implementation, we have provided the code for MOVEA at https://github.com/ncclabsustech/MOVEA, empowering researchers to design effective and personalized tES protocols.

In conclusion, our novel MOVEA framework offers a promising solution to the challenges posed by inter-subject variability in tES-based neuromodulation. By optimizing multiple objectives through Pareto optimization, MOVEA enables personalized strategies that can achieve higher stimulation intensities and superior focality, thus advancing the understanding and clinical applications of tES.

Keywords: Transcranial electrical stimulation (tES), Multi-objective optimization, Evolutionary algorithm, Transcranial temporal interference stimulation (tTIS), Transcranial alternating current stimulation (tACS), Personalized neuromodulation

3.5 “学校心理专业委员会”专题研讨会

青少年感觉寻求和集体主义发展的异质性：基于增长混合模型和网络分析的视角

沈腾辉[1]　王兴科[1]　王道阳[1,2]（通讯作者）

1 杭州师范大学经亨颐教育学院，杭州，311121

2 浙江省婴幼儿发展与托育哲学社会科学实验室，浙江 杭州，311121，daoyangwang@hznu.edu.cn

摘 要　感觉寻求和集体主义的发展对青少年的社会适应和身份认同起着重要作用，然而，缺乏对这两者的共同发展和相互作用的理解，感觉寻求和集体主义发展轨迹的异质性和两者关系及其变化尚不清楚。本研究使用增长混合模型探究了感觉寻求和集体主义增长轨迹的异质性，并且基于网络分析的视角，对不同潜在类别中感觉寻求和集体主义的关系进行了探究。本研究选取了广东、四川、贵州、河北四省的 20225 名（基线平均年龄 16.76 ± 0.68 岁，男性占比 60.4%）职业高中一年级和二年级学生的三年追踪数据（三次测量，每次测量间隔一年）。单变量增长混合模型分别确定了感觉寻求增长轨迹的四个潜在类别以及集体主义增长轨迹的三个潜在类别；平行过程增长混合模型确定了样本中存在四个具有不同感觉寻求和集体主义联合增长轨迹的潜在类别。网络分析结果表明，所有类别感觉寻求和集体主义网络都具有足够的稳定性和准确性，并且随着时间的推移，所有类别内网络全局强度和网络连通性增强，但增加速度和模式在各个类别间有所不同。感觉寻求节点在所有类别中都表现出最高的预期影响，而集体主义节点是连接感觉寻求和集体主义的重要桥梁节点。研究结果揭示了感觉寻求和集体主义动态的复杂关系，凸显了随着时间的推移，感觉寻求和集体主义的关系逐渐增强，但具体的感觉寻求和集体主义表现关联和一些桥梁因素可能因潜在类别而异。

关键词　感觉寻求，集体主义，增长混合模型，网络分析，青少年

Uncovering Differential Trajectories and Relationships of Sensation Seeking and Collectivism in Chinese Adolescents: A Two-Pronged Approach Using Growth Mixture Modeling and Network Analysis

Tenghui Shen[1]　Xingke Wang[1]　Daoyang Wang[1,2]（Corresponding Author）

(1. College of Education, Hangzhou Normal University, Hangzhou, 311121

2. Zhejiang Philosophy and Social Science Laboratory for Research in Early Development and Childcare, Hangzhou Normal University, Hangzhou 311121, China）

Abstract：The development of sensation seeking and collectivism plays a crucial role in adolescents' social adaptation and identity recognition. Despite this, the shared growth and interaction of these two elements have been largely overlooked, leaving the heterogeneity of their developmental trajectories and the nature and evolution of their relationship unclear. This study employs Growth Mixture Modeling to investigate the heterogeneous growth trajectories of sensation seeking and collectivism, alongside a network analytical perspective to probe their relationship across different latent classes. Our research involves a three-year longitudinal dataset from 20,225 first and second-year vocational high school students (average baseline age of 16.76 ± 0.68 years, 60.4% male) from

Guangdong, Sichuan, Guizhou, and Hebei provinces. The Univariate Growth Mixture Model identified four and three latent classes for sensation seeking and collectivism growth trajectories respectively; while the Parallel Process Growth Mixture Model revealed four latent classes representing different joint growth trajectories of sensation seeking and collectivism. Network analysis results indicate that sensation seeking and collectivism networks in all classes show sufficient stability and accuracy. Over time, the global strength and connectivity of networks within all classes increased, albeit with varying rates and patterns across classes. The sensation seeking nodes exhibited the highest expected influence in all classes, while the collectivism nodes served as significant bridge nodes linking sensation seeking and collectivism. Our findings shed light on the intricate dynamic relationship between sensation seeking and collectivism. They underscore an increasingly tight correlation over time, although the specific sensation seeking-collectivism association and certain bridge factors may vary depending on the latent class. This study provides nuanced insights, underscoring the value of understanding the heterogeneity and complexity of adolescents' psychological development trajectories.

Keywords：Sensation seeking, Collectivism, Growth mixture modeling, Network analysis, Adolescents

高中生述情障碍的潜在转变方式：社会支持的作用

郁嘉铭[1]　陈博[1]　陈展洁[1]　甄瑞[1,2]（通讯作者）

1. 杭州师范大学经亨颐教育学院，杭州，311121，zhenrui1206@126.com

2. 浙江省哲学社会科学培育实验室“杭州师范大学婴幼儿发展与托育实验室”

摘 要　述情障碍又称“情感难言症”，是指个体存在情绪识别和情绪表达困难，同时表现有缺乏想象力和外向性思维的特征。高中生群体正处于身心发展的动荡期，加之沉重的学习压力，述情障碍的发生率可能更高。对此，很多研究采用变量中心法探讨了高中生的述情障碍问题。由于个体特征、生活环境等差异，不同的高中生在述情障碍的表现上也可能存在差异，并可能会随着时间的推移而变化，但以往研究难以有效地考察述情障碍在高中生群体中的异质性及其变化转归特征。为明确述情障碍在高中生群体中的表现和变化转归特征以及社会支持的作用，本研究采用潜在剖面分析与潜在转变分析对高中生的述情障碍进行研究。研究采用了社会支持、述情障碍等问卷对 789 名高中学生进行问卷调查。一年后，对原始的班级进行了追踪调查，回收 798 份问卷。为保障结果的可靠性，研究最后保留同时参加两次调查的 684 名学生。潜在剖面分析的结果发现，述情障碍在高中生群体中有三种表现类型，即情绪表达正常组(T1：17.8%；T2：12.9%)、情绪表达一般组(T1：61.9%；T2：64.7%)、情绪表达困难组(T1：20.3%；T2：22.5%)，其中，相对情绪表达困难组的学生，男生和社会支持多的学生更可能归于情绪表达正常和一般组。潜在转变分析的结果发现，在两个时间点之间，情绪表达一般组的稳定性较好，有 74.4%的学生保持不变，其余 12.3%和 13.3%的学生分别向情绪表达正常组和情绪表达困难组转变；情绪表达正常组中，有 40.5%的学生保持不变，有 49.8%的学生向情绪表达一般组转变；情绪表达困难组中，有 46.3%的学生保持不变，有 46.7%的学生向情绪表达一般组转变。此外，社会支持水平高的学生更不可能向情绪表达困难组转化。这些研究结果说明，述情障碍在高中生群体中存在异质性的特征，并会随着时间的变化发生转归；社会支持是述情障碍恶化转向的保护性因子。

关键词　高中生，述情障碍，社会支持，潜在转变分析

A latent transition analysis of alexithymia in senior high school students: Roles of social support

Jiaming Yu[1] Bo Chen[1] Zhanjie Chen[1] Rui Zhen[12]

1 Jing Hengyi School of Education, Hangzhou Normal University, Hangzhou, 311121, China
2 Zhejiang Philosophy and Social Science Laboratory for Research in Early Development and Childcare, Hangzhou Normal University

Abstract：Alexithymia, also known as "emotional unspeakable disease", means that individuals have difficulties in emotional recognition and expression, and at the same time they are characterized by lack of imagination and extroversion thinking. High school students are in a turbulent period of physical and mental development, and the incidence of alexithymia may be higher due to heavy study pressure. In this regard, many studies have discussed the alexithymia of senior high school students by variable center method. Because of the differences in individual characteristics and living environment, different high school students may have differences in the performance of alexithymia, which may change with the passage of time. However, it is difficult to effectively investigate the heterogeneity of alexithymia in high school students and its changing and turning characteristics in previous studies. In order to clarify the characteristics of alexithymia in senior high school students and its influencing factors, this study uses latent profile analysis and latent transformation analysis to study alexithymia in senior high school students. The study used social support, alexithymia and other questionnaires to investigate 789 senior high school students. A year later, the original class was followed up and 798 questionnaires were collected. In order to ensure the reliability of the results, the study finally retained 684 students who participated in two surveys at the same time. The results of latent profile analysis show that alexithymia has three types in high school students, namely, the emotional expression normal group (T1: 17.8%; T2: 12.9%), emotional expression general group (T1: 61.9%; T2: 64.7%), emotional expression difficulty group (T1: 20.3%; T2: 22.5%), among them, students in emotional expression difficulty group, boys and students with more social support are more likely to belong to the emotional expression normal and general groups. The results of latent transition analysis show that between two time points, the emotional expression general group is stable, with 74.4% students remaining unchanged, and the remaining 12.3% and 13.3% students changing to the emotional expression normal group and the emotional expression difficulty group respectively. In the emotional expression normal group, 40.5% of the students remained unchanged, and 49.8% of the students changed to the emotional expression general group. In the emotional expression difficulty group, 46.3% students remained unchanged, and 46.7% students changed to the emotional expression general group. In addition, students with high level of social support are even less likely to transform into emotional expression difficulty group. These results show that alexithymia is heterogeneous in high school students and will change with time. Social support is a protective factor for the deterioration of alexithymia.

Keywords：senior high school students, alexithymia, social support, latent transformation analysis

青少年个人公正世界信念与成长型思维的关系：自尊的纵向中介作用

陈楚琪[1]　沈腾辉[1]　唐赛[1]　高洋[1]　王道阳[1,2]（通讯作者）
1 杭州师范大学经亨颐教育学院，浙江 杭州，311121
2 浙江省婴幼儿发展与托育哲学社会科学实验室，浙江 杭州，311121，daoyangwang@hznu.edu.cn

摘 要　个人公正世界信念与成长型思维有着紧密的联系，然而，缺少对两者关系方向性以及影响这种关系的潜在过程的研究。已有研究表明个人公正世界信念能有效缓冲消极事件对自尊的负面影响，同时高自尊往往与成长型思维相伴随。因此，自尊可能在个人公正世界信念与成长型思维之间起中介作用。本研究采用问卷法对 10350 名青少年（基线平均年龄 16.62 ± 0.81，男性占比 62.6%，女性占比 37.4%）进行

了历时 3 年的 3 次追踪测试（T1：基线；T2：一年后；T3：两年后）。青少年是人格发展的关键时期，首先，采用潜变量增长模型（LGM）考察个人公正世界信念、成长型思维与自尊的发展变化趋势；其次，采用交叉滞后模型（CLPM）和带随机截距的交叉滞后模型（RI-CLPM）分别从个体间和个体内水平考察个人公正世界信念与成长型思维是否存在互动性因果关系；最后，考察自尊在个人公正世界信念与成长型思维之间的纵向中介效应。结果发现：（1）个人公正世界信念、成长型思维与自尊在 3 年内均呈线性递增。（2）在个体间水平上，发现个人公正世界信念与成长型思维存在双向因果关系；在个体内水平上，个人公正世界信念可以预测成长型思维，成长型思维无法预测个人公正世界信念。（3）自尊在个人公正世界信念与成长型思维之间起到中介作用。这表明青少年的个人公正世界信念对成长型思维的培养具有重要作用，而且个人公正世界信念可以通过自尊进而影响成长型思维。

关键词　青少年，个人公正世界信念，成长型思维，自尊

The longitudinal association between personal belief of just world and growth mindset in Chinese adolescents: the mediation of self-esteem

Chuqi Chen[1]　Tenghui Shen[1,2]　Sai Tang[1]　Yang Gao[1]　Daoyang Wang[1,2]（Corresponding Author）

(1. College of Education, Hangzhou Normal University, Hangzhou 311121, China;
2. Zhejiang Philosophy and Social Science Laboratory for Research in Early Development and Childcare, Hangzhou Normal University, Hangzhou 311121, China)

Abstract：Emerging evidence highlights the strong association between personal belief of just world and growth mindset, however, little is known about the direction of the relationship and the underlying processes mediating it. The present study surveyed 10,350 adolescents (62.6% male; M_{age} =16.62, SD=0.81 at baseline) during a 3-year period over 3 time points. First, the latent growth model (LGM) was used to examined the longitudinal trajectories of the 3 variables; second, the causal relationship between personal belief of just world and growth mindset was examined at the between-person and within-person level using the cross-lagged model (CLPM) and the cross-lagged model with random intercept (RI-CLPM), respectively; finally, the longitudinal mediation of self-esteem between personal belief of just world and growth mindset was examined. The results revealed that (1) personal belief of just world, growth mindset, and self-esteem all showed a liner increasing trend. (2) At the between-person level, a bidirectional causal relationship was found between personal belief of just world and growth mindset; at the within-person level, only personal belief of just world can predicted growth mindset. (3) Self-esteem partially mediated the relationship between personal belief of just world and growth mindset. This suggests that adolescents' personal belief of just world plays an important role in the development of growth mindset and the effect can be mediated by self-esteem.

Keywords：Chinese adolescents, Personal belief of just world, Growth mindset, Self-esteem

童年虐待经历对疫情期间青少年心理健康的影响

刘正一 杨西玛 周宵（通讯作者）
浙江大学心理与行为科学系，杭州，310028，psyzx@zju.edu.cn

摘 要 以往研究探讨了童年期虐待经历对青少年心理健康的消极作用，但均是从虐待经历的整体水平出发进行探究，尚未考虑到虐待经历类型及其异质性特征。实际上，童年期虐待经历包括情感虐待和躯体虐待两个方面，并且这两种虐待经历在不同个体中有不同的表现形式。因此，这可能对青少年的心理健康产生不同的作用。本研究采用潜在剖面分析方法对童年期情感和躯体虐待经历类型进行分析，并进一步探究了虐待经历的异质性类型对青少年在疫情期间的心理健康的影响。

研究采用自陈式量表于 2019 年 11 月(T1)、2020 年 11 月(T2)以及 2021 年 11 月(T3)对 1032 名青少年的童年虐待经历、抑郁、问题行为、孤独和希望感进行测查。潜在剖面分析结果发现，童年虐待经历主要表现为 5 种类别组，即高度躯体-情感虐待组，中度躯体-情感虐待组，高情感虐待组，矛盾型虐待组以及低躯体-情感虐待组。将低躯体-情感虐待组作为参照组进行回归分析，结果表明，相比于低躯体-情感虐待组，T2 时间点青少年其余各童年虐待经历组均与问题行为水平呈显著的正相关，即躯体虐待和情感虐待水平越高，个体问题行为水平越高。然而，在 T3 时间点，只有高度躯体-情感虐待组和中度躯体-情感虐待组的青少年表现出类似的模式。另外，除中度躯体-情感虐待组外，所有类别组均与 T2 时间点的抑郁呈正相关，但在 T3 时间点，仅矛盾型虐待组与抑郁呈显著正相关。相比于低躯体-情感虐待组，矛盾虐待组、高情感虐待与 T2 时间点的孤独感之间存在显著正相关；仅高度躯体-情感虐待组与 T3 时间点的孤独感之间存在显著正相关。最后，仅高度躯体-情感虐待组与 T2 时间点的希望感具有显著的负相关。本研究不仅表明童年虐待经历具有异质性特征，而且还对疫情期间青少年的心理健康有不同影响，因此，为提升疫情后青少年的心理健康，可以依据不同童年虐待经历类型对各青少年亚群体开展具体且有针对性的干预策略。

关键词 童年虐待，青少年，疫情，心理健康

The Impact of Childhood Abuse Experiences on Adolescent Mental Health during the Pandemic

Zhengyi Liu, Xima Yang, Xiao Zhou(Corresponding author）
Department of Psychology and Behavioral Sciences, Zhejiang University, Hangzhou, 310028, China

***Abstract*:** Previous studies have explored the negative effects of childhood abuse experience on adolescents' mental health, but all studies have been conducted from the perspective of the overall level of abuse experience, without considering specific types of abuse experience and its heterogeneity among these types. In fact, childhood abuse experiences include both psychological abuse and physical abuse, and these two types of abuse experiences exhibit differently on individuals. Therefore, this may have a distinct effect on the mental health of adolescents. In this study, latent profile analysis was used to analyze the types of childhood psychological and physical abuse, and we further explored the impact of heterogeneous types of abuse experiences on adolescents' mental health during the pandemic.

Childhood abuse, depression, problem behavior, loneliness, and sense of hope were measured in 1032 adolescents using the self-report scale in November 2019 (T1), November 2020 (T2), and November 2021 (T3).

The results of latent profile analysis showed that childhood abuse experience mainly manifested in 5 classes: high physical-psychological abuse group, moderate physical-psychological group, high psychological abuse group, ambivalent group and low physical-psychological abuse group. Regression analysis was performed with the low physical-psychological abuse group as the reference group. The results showed that compared with the low physical-psychological abuse group, the other childhood abuse experience groups of adolescents at T2 were significantly positively correlated with problem behavior, that is, the higher the level of physical abuse and psychological abuse, the higher the level of individual problem behavior. However, at T3, only adolescents in the high physical-psychological abuse group and the moderate physical-psychological abuse group showed similar patterns. In addition, all groups except the moderate physical-psychological abuse group were positively associated with depression at T2, but only the ambivalent group was significantly positively associated with depression at T3. Compared with low physical-psychological abuse group, ambivalent group and high psychological abuse group were significantly positively correlated with loneliness at T2; Only the high physical-psychological abuse group had a significant positive association with loneliness at the T3. Finally, only the high physical-psychological abuse group had a significant and negative association with the sense of hope at the T2. This study not only shows the heterogeneity of childhood abuse experience, but also highlights the different effects of heterogeneous abuse on adolescents' mental health during the pandemic. Therefore, in order to improve the mental health of adolescents after the pandemic, specific and targeted intervention strategies can be carried out for each adolescent subgroup according to different types of childhood abuse experience.

Keywords：Childhood abuse, adolescent, pandemic, mental health

青少年受害与自伤的性别特异性联合发展轨迹及童年期情感虐待与忽视的影响:男孩危机与女孩风险

王思怡[1]　谢瑞波[1]（通讯作者）

1 浙江师范大学心理学院，家长教育研究中心，浙江省儿童青少年心理健康与危机干预智能实验室，浙江金华, 321004, xrb4526@zjnu.edu.cn

摘 要　尽管受害与非自杀性自伤（简称自伤）分别属于被动与主动两种不同形式的伤害，但却有着紧密的联系。探讨二者的发展规律是阻断二者共生发展的前提。不仅如此，受害与自伤的联合发展可能存在独特的性别模式与异质性轨迹，且受到童年期情感虐待与忽视的影响。本研究从性别与个体差异视角出发，旨在探讨青少年受害与自伤的性别特异性联合发展轨迹以及童年期情感虐待和情感忽视的预测作用。使用问卷法对 1214 名高中一年级学生进行间隔半年的三次追踪调查，构建平行发展的潜类别增长模型并使用多元逻辑回归进行回归分析。结果发现（1）在男孩中识别出男孩安全组（87.25%）与男孩高分增长组（12.75%）两类轨迹，在女孩中识别出女孩安全组（79.37%）、女孩高分增长组（7.29%）和女孩高受害-低自伤分化组（13.34%）三类轨迹。（2）童年期情感虐待与忽视对不同性别联合发展轨迹的影响存在差异。童年期情感虐待水平越高的男孩在青春期越倾向于男孩高分增长组，而在女孩中，童年期情感虐待水平越高则越倾向于女孩高受欺凌-低自伤分化组；童年期情感忽视对男孩未来受害与自伤联合发展轨迹的影响并不显著，却使女孩倾向于女孩高分增长组和女孩高受欺凌-低自伤分化组的可能性变大。本研究揭示了不同性别青少年受害与自伤发生发展的独特类别与形态，并检验了早期情感虐待与忽视的作用，为未来构建系统性、针对性和性别化的儿童教养模式与青少年风险干预提供支持与思路。

关键词　受害，非自杀性自伤，儿童期情感虐待与忽视，联合发展轨迹，性别差异

Gender-specific joint developmental trajectories of victimization and NSSI in adolescents and the impact of childhood emotional abuse and neglect: boys' crisis and girls' risk

SiYi Wang[1], Wan Ding[1*]

[1]School of Psychology, Parent Education Research Center, Intelligent Laboratory of Child and Adolescent Mental Health and Crisis Intervention of Zhejiang Province, Zhejiang Normal University, Jinhua, 321004, China

***Abstract*:** Although victimization and nonsuicidal self-injury (NSSI) belong to passive and active forms of injury respectively, they are closely related. To explore the development law of the two is the premise of blocking their symbiotic development. Moreover, the joint development of victimization and NSSI may have unique gender patterns and heterogeneous trajectories, and may be affected by childhood emotional abuse and neglect.

This study aimed to investigate the gender-specific joint development trajectory of adolescent victimization and NSSI as well as the predictive value of emotional abuse and neglect in early life from the perspective of gender and individual variations. A total of 1214 senior high school students were surveyed three times with an interval of six months by questionnaire method. A parallel-process latent category growth model was constructed and multivariate logistic regression was used for regression analysis.

The results show that (1) in boys, two classes of trajectories are identified: the boy safety group (87.25%) and the boy high score increase group (12.75%). Three classes of trajectories were identified among girls: the girl safety group (79.37%), the girl high score increase group (7.29%), and the girl high victim-low NSSI differentiation group (13.34%); (2) The impact of childhood emotional abuse and neglect on the joint development trajectory of different genders is different. Boys with higher levels of childhood emotional abuse tended to be in the boy high score growth group in adolescence, while girls with higher levels of childhood emotional abuse tended to be in the girls high victim-low NSSI differentiation group. Emotional neglect in childhood has no significant effect on the joint development trajectory of victimization and NSSI in boys, but makes girls more likely to be inclined to the girl high score increase group and girl high victim-low NSSI differentiation group.

This study reveals the unique categories and forms of victimization and NSSI in adolescents of different genders, and examines the role of early emotional abuse and neglect, which provides support and ideas for the construction of systematic, targeted, and gendered child-rearing models and adolescent risk intervention in the future.

***Keywords*:** Victimization, Nonsuicidal self-injury, Childhood emotional abuse and neglect, Joint development trajectory, Gender difference

受害为何变加害？童年期严厉管教对青少年攻击行为发展轨迹的影响：自我同情的中介作用

杨青风[1]　丁菀[1]（通讯作者）

1 浙江师范大学心理学院，家长教育研究中心，浙江省儿童青少年心理健康与危机干预智能实验室，浙江金华, 321004, dingwan@zjnu.edu.cn

摘 要　以往研究发现，青少年时期是攻击行为发展的高峰时期，童年期严厉管教可能是其早期风险因素之一。仅有少数研究综合考察了心理攻击和体罚与青少年攻击行为发展水平之间的关系，二者对青少年攻击行为发展速度的影响缺乏进一步探讨。此外，自我同情可能是童年期严厉管教与青少年攻击性行为发展间的潜在中介机制。然而，到目前为止，尚未有研究对此进行系统探讨。本研究对 1214 名高一学生间隔 6 个月的 3 次追踪测试，采用潜变量增长模型考察了青少年攻击行为的发展轨迹，并综合探讨了童年期严厉管教（心理攻击和体罚）与青少年攻击行为发展轨迹的关系，以及自我同情在这种联系中的潜在中介作用。本研究样本的调查结果发现：（1）青少年攻击行为呈线性下降趋势，其初始水平和发展速度间没有显著关联。（2）在控制青少年性别、年龄、家庭主观经济地位后，童年期心理攻击和体罚均直接正向预测青少年攻击行为发展水平，然而，只有童年期心理攻击经历能够直接减缓青少年攻击行为的下降速度，童年期体罚经历对青少年攻击行为发展速度的直接预测作用不显著。（3）在此基础上，童年期心理攻击和体罚均通过自我同情对青少年攻击行为的初始水平和发展速度起间接作用。这些研究发现表明，童年期的心理攻击和体罚经历是青少年攻击行为发展轨迹的重要预测因子。此外，童年期的心理攻击和体罚都可能通过降低自我同情水平而增加青少年攻击性。

关键词　心理攻击，体罚，自我同情，攻击行为，发展轨迹

How Victims Become Victimizers? The Influence of Harsh Discipline During Childhood on the Development Trajectory of Adolescent Aggression: The Mediating Role of Self-Compassion

Qingfeng Yang[1], Wan Ding[1*]

[1]School of Psychology, Parent Education Research Center,　Intelligent Laboratory of Child and Adolescent Mental Health and Crisis Intervention of Zhejiang Province, Zhejiang Normal University, Jinhua, 321004, China

Abstract：Previous research has found that adolescence is a peak period for the development of aggressive behavior, and harsh discipline during childhood may be one of its early risk factors. Only a few studies have comprehensively examined the relationship between psychological aggression, corporal punishment, and the development of adolescent aggressive behavior, and the impact of these factors on the speed of development of adolescent aggressive behavior needs further exploration. In addition, self-compassion may be a potential mediator between harsh discipline during childhood and the development of adolescent aggression. However, to date, few study has systematically explored this issue. In this study, a latent variable growth model was used to examine the trajectory of adolescent aggressive behavior among 1214 high school students who were followed up three times at

six-month intervals. The study also explored the relationship between childhood harsh discipline (psychological aggression and corporal punishment) and the trajectory of adolescent aggressive behavior, as well as the potential mediating role of self-compassion in this relationship. The survey results of the study sample revealed that: (1) Adolescent aggressive behavior showed a linear declining trend, and there was no significant correlation between its initial levels and growth rate. (2) Controlling for adolescent gender, age, and subjective family economic status, childhood psychological aggression and corporal punishment both directly and positively predicted the level of development of adolescent aggressive behavior. However, only childhood psychological aggression could directly slow down the decline of adolescent aggressive behavior, and the direct predictive effect of childhood corporal punishment on the growth rate of development of adolescent aggressive behavior was not significant. (3) On this basis, childhood psychological aggression and corporal punishment both indirectly affected the initial levels and growth rate of adolescent aggressive behavior through self-compassion. These findings suggest that childhood psychological aggression and corporal punishment are important predictors of the trajectory of adolescent aggressive behavior. In addition, both childhood psychological aggression and corporal punishment may increase adolescent aggression by reducing self-compassion levels.

Keywords： psychological aggression, corporal punishment, self-compassion, aggression, developmental trajectories

学业压力对大学生情绪耗竭的影响：学业延迟满足的中介作用

刘宵　宋金泽　潘颖　张潮（通讯作者）

1 山西师范大学教育科学学院，山西太原，030000，zhangchao951217@163.com

2 山西大学教育科学学院，山西太原，030000，1240318989@qq.com

摘 要：情绪耗竭是一种疲劳的状态，是由于生活中压力源所引发的个体过多的耗费情感和情绪资源造成的，长期处于情绪耗竭状态下势必会影响个体的心理健康，因此产生情绪耗竭的心理成因以及减少情绪耗竭的对策方法值得关注。学业压力是个体在学习生活中的主要压力源，是指个体因为外部环境的学习要求或个体自身的期望在学习过程中出现的一系列生理或心理上的不良反应。根据资源保存理论，人们有建立、保护和培养自己资源库的动机，以保护自我和支持自己的社会关系。较大的学业压力会消耗个体更多的精力，如果资源没有得到进一步的补充就会使个体更容易产生情绪耗竭，而学业延迟满足更高的个体可能会有更少的资源补充。学业延迟满足是指学生在面临不断变化的学业情境时，为了取得更好的学业成绩，延迟对某种快乐的满足的一种自我控制能力。为调查学业压力对大学生情绪耗竭的影响以及是否存在学业延迟满足的中介机制，采用学业压力量表、学业延迟满足量表、情绪耗竭量表对某大学学生进行调查，预期研究结果为：(1)情绪耗竭与学业压力和学业延迟满足之间呈现负相关；(2)学业延迟满足在学业压力与情绪耗竭之间起部分中介作用。

关键词：学业压力，情绪耗竭，学业延迟满足

The Effect of Academic Pressure on College Students' Emotional Exhaustion: the Mediation of Academic Delayed gratification

LIU Xiao[1]　SONG Jinze[2]　PAN Ying[1]　ZHANG Chao[1]

1 School of Education Science, Shanxi Normal University, Taiyuan, Shanxi, 030000

2 School of Education Science, Shanxi University，Taiyuan，030032，1240318989@qq.com
Corresponding Author: ZHANG Chao E-mail: zhangchao951217@163.com

Abstract：Emotional exhaustion is a state of fatigue caused by excessive consumption of emotions and emotional resources by stressors in daily life. Long term exposure to emotional exhaustion will inevitably affect individual mental health. Therefore, the psychological causes of emotional exhaustion and strategies to reduce emotional exhaustion are worth paying attention to. Academic pressure is the main source of stress for individuals in their learning and life, which refers to a series of physiological or psychological adverse reactions that occur during the learning process due to external learning requirements or individual expectations. According to the theory of resource conservation, people have the motivation to establish, protect, and cultivate their own resource pool to protect themselves and support their social relationships. Higher academic pressure will consume more energy of individuals, and if resources are not further supplemented, individuals will be more likely to have emotional exhaustion, while individuals with higher academic delayed gratification may have less resource supplementation. Academic delayed gratification refers to the self-control ability of students to delay the satisfaction of a certain happiness in order to achieve better academic performance when facing changing academic situations. In order to investigate the impact of academic stress on college students' emotional exhaustion and whether there is a mediating mechanism of academic delayed gratification, we used the academic stress scale, academic delayed gratification scale, and emotional exhaustion scale to investigate a college student. The expected research results are: (1) Emotional exhaustion is negatively correlated with academic stress and academic delayed gratification; (2) Academic delayed gratification plays a partial mediating role between academic stress and emotional exhaustion.

Keywords：academic pressure,, academic delayed gratification, emotional exhaustion

无法忍受不确定性对中小学生拖延的影响：正念和自我控制的链式中介作用

连培琴[1] 柴彩霞[1] 徐思元[1] 邸美琴[1] 吴怡霖[2] 冯喜珍[1]（通讯作者）
1 山西师范大学教育科学学院，太原，030000，517824719@qq.com
2 北京师范大学教育学部特殊教育学院，北京，100875

摘 要 拖延作为一种非适应性行为，会导致学生成绩下降，引发焦虑、自责、抑郁等负性情绪，出现手机成瘾等不良行为，对身心健康造成不利影响。中小学时期正是行为习惯养成的关键期，拖延无疑会阻碍学生身心健康发展，因此探究中小学生拖延的发生机制具有一定的现实意义。生活中我们会听到诸如“不确定该怎么做，稍后再处理”之类的话，人们是否会因不确定而拖延？中小学生在学习、人际交往、家庭关系以及个人成长等方面均会面临不确定性情境或事件，正念和自我控制强调对当下的觉知与专注，对拖延可能起到一定的抑制作用。基于此，本研究使用《简版无法忍受不确定性量表（IUS-12）》、《正念注意觉知量表》、《自我控制量表》、《一般拖延量表(GP)》，以 541 名五到八年级学生为研究对象，探究中小学生的无法忍受不确定性对拖延的影响以及正念和自我控制在其中的作用机制。结果显示：（1）无法忍受不确定性与正念、自我控制呈显著负相关，与拖延呈显著正相关；正念与自我控制呈显著正相关，与拖延呈显著负相关；自我控制与拖延呈显著负相关；（2）正念和自我控制在无法忍受不确定性对拖延的影响中起到中介作用。具体表现为四条路径：一是正念的完全中介作用；二是自我控制的完全中介作用；三是通过正念和自我控制的中介顺序在无法忍受不确定性与拖延之间起链式中介作用，且是完全中介；四是通过自我控制和正念的中介顺序在无法忍受不确定性与拖延之间起链式中介作用，且是完全中介。研究表明：

无法忍受不确定性无法直接影响拖延，但是可以通过正念和自我控制间接影响拖延，且正念和自我控制的关系是双向的。研究启示学校和家庭教育不仅要加强学生正念、自我控制能力的培养，也要减少学生学习生活中的不确定性，如布置任务要清晰明确，以此减少或避免学生拖延的发生。
关键词　中小学生，无法忍受不确定性，正念，自我控制，拖延

The effect of intolerance of uncertainty on procrastination in primary and secondary school students: the chain mediation between mindfulness and self-control

Lian Peiqin[1], Chai Caixia[1], Xu Siyuan[1], Di Meiqin[1], Wu Yilin[2], Feng Xizhen[1]
1 Institute of Education Science, Shanxi Normal University, TaiYuan
2 Department of Special Education, Faculty of Education, Beijing Normal University, Beijing, 100875

Abstract：Procrastination, as a kind of non-adaptive behavior, will lead to the decline of students' grades, lead to anxiety, self-blame, depression and other negative emotions,lead to such bad behavior as addiction to mobile phone, which has a negative effect on physical and mental health. The primary and middle school period is the key period for the formation of behavior habit, procrastination will undoubtedly hinder the development of students' physical and mental health.Therefore, it is of practical significance to explore the mechanism of procrastination in primary and middle school students. In our daily life, we hear things like"If you are not sure what to do, deal with it later." Do people procrastinate because they are not sure? Primary and secondary school students face uncertain situations or events in learning, interpersonal relationships, family relationships and personal growth. Mindfulness and self-control emphasize awareness and focus on the present, may play a role in the inhibition of procrastination. Based on this, this study used IUS-12, mindfulness attention perception scale, self-control scale, general procrastination scale (GP) , and investigated the effects of intolerance of uncertainty on procrastination and the mechanisms of mindfulness and self-control in 541 students in grades 5 to 8. The results showed that: (1) intolerance of uncertainty was negatively correlated with mindfulness and self-control, intolerance of uncertainty was positively correlated with procrastination, and mindfulness was positively correlated with self-control, there was a significant negative correlation between mindfulness and procrastination, and a significant negative correlation between self-control and procrastination; (2) mindfulness and self-control mediate the effects of intolerance of uncertainty on procrastination. There are four paths: one is the complete mediation of mindfulness, the other is the complete mediation of self-control; Third, through the mediation order of mindfulness and self-control, it plays a chain mediation role between intolerance of uncertainty and procrastination, and it is a complete mediation; Fourthly, through the Mediation order of self-control and mindfulness, there is a chain mediation between intolerance of uncertainty and procrastination, and it is a complete mediation. Research shows that intolerance of uncertainty can not directly affect procrastination, but it can indirectly affect procrastination through mindfulness and self-control, and the relationship between mindfulness and self-control is bidirectional. The findings suggest that schools and child discipline should not only strengthen the development of students' mindfulness and self-control, but also reduce the uncertainty in students' learning and life, in order to reduce or avoid the occurrence of students' procrastination.

Keywords ： primary and middle school students, intolerance of uncertainty, mindfulness, self-control, procrastination

妒忌对社会退缩的影响：核心自我评价的中介作用

李安喆 张晓瑜 史艳君 张潮（通讯作者）
山西师范大学教育科学学院，太原，030000，zhangchao951217@163.com

摘 要 社会退缩是指在社会情境中，个体不与他人交往，主动选择孤独的行为。以往的情绪调节研究表明，回避导向行为是妒忌等令人不快、痛苦的情绪的一种常见反应。而社会退缩可能是妒忌产生后选择的行为反应。妒忌分为善意妒忌和恶意妒忌两种亚型，不同类型的妒忌对社会退缩的影响可能存在差异。本研究想要探讨妒忌与社会退缩的影响及其内在机制。本研究共包括三个实验：实验一采用社会退缩亚型和同伴孤立量表(CSPS-R)、善意和恶意妒忌量表(BeMaS)、核心自我评价量表(CSES)对大学生进行问卷调查。预期善意妒忌负向预测社会退缩，恶意妒忌正向预测社会退缩，善意妒忌正向预测核心自我评价，恶意妒忌负向预测核心自我评价，核心自我评价在不同类型的妒忌与社会退缩之间起中介作用。实验二采用单因素(善意妒忌、恶意妒忌、中性)被试间设计，通过回忆书写范式诱发三种情绪，并完成核心自我评价量表与社会退缩亚型和同伴孤立量表，预期善意妒忌组的社会退缩和核心自我评价的得分显著高于中性组，中性组社会退缩和核心自我评价显著的得分显著高于恶意妒忌。实验三采用单因素(高核心自我评价、低核心自我评价)被试间设计，通过回忆书写范式诱发核心自我评价的高低，并完成社会退缩亚型和同伴孤立量表，预期高核心自我评价组社会退缩的得分显著高于低核心自我评价组。

关键词 妒忌，社会退缩，核心自我评价

The impact of envy on social withdrawal: the mediating role of core self-evaluation

Li Anzhe Zhang Xiaoyu Shi Yanjun ZhangChao(Corresponding author)
School of Education Science, Shanxi Normal University, Taiyuan, 030032，
zhangchao951217@163.com

Abstract：Social withdrawal refers to the behavior of individuals actively choosing to be lonely without interacting with others in a social context. Previous studies on emotional regulation have shown that avoidance oriented behavior is a common response to unpleasant and painful emotions such as envy. Social withdrawal may be a behavioral response to envy and choice. Envy can be divided into two subtypes: benign envy and malicious envy, and the impact of different types of envy on social withdrawal may vary.This study aims to explore the impact and underlying mechanisms of envy and social withdrawal. This study consists of three experiments: Experiment 1 used the Social Withdrawal Subtypes and Peer Isolation (CSPS-R), the Benign and Malicious Envy Scale (BeMaS), and the Core Self Evaluation Scale (CSES) to conduct a questionnaire survey on college students. Anticipated benign envy negatively predicts social withdrawal, malicious envy positively predicts social withdrawal, benign envy positively predicts core self-evaluation, malicious envy negatively predicts core self-evaluation, and core self-evaluation plays a mediating role between different types of envy and social withdrawal. In Experiment 2, a single factor (benign envy, malicious envy, and neutrality) inter subject design was used to induce three emotions through the recall writing paradigm. CSES and CSPS-R were completed. The expected benign envy group had significantly higher scores for social withdrawal and core self-evaluation than the neutral group, while the neutral group had significantly higher scores for social withdrawal and core self-evaluation than the malicious envy group. Experiment 3 adopted a single factor (high core self-evaluation, low core self-evaluation) inter subject design, and induced the high and low levels of core self-evaluation through the recall writing paradigm. CSPS-R were completed, and it was expected that the high core self-evaluation group had significantly higher scores of social withdrawal than the low core self-evaluation group.

Keywords：Envy, Social Withdrawal, Core Self-Evaluations

无法忍受不确定性与同性恋者生活满意度的关系：一个有调节的中介模型

邸美琴　徐思元　连培琴　李烨　冯喜珍（通讯作者）
山西师范大学教育科学学院，太原，030000，517824719@qq.com

摘 要　近年来，随着思想文化的多元化，同性恋群体逐渐浮现在大众视野，并受到多领域学者的关注。但是同性恋者依然面临生存空间缺失、传统道德束缚和社会偏见等各方面难题，生活满意度较低。根据性少数压力模型，研究不仅要关注远端压力，也需重视近端压力的影响。研究发现，无法忍受不确定性对生活满意度具有显著的负向影响。与异性恋者相比，同性恋者体验到的不确定感更高，无法忍受不确定性对他们的生活满意度可能产生更为严重的影响。基于此，本研究通过构建一个有调节的中介模型，旨在考察同性恋者无法忍受不确定性对生活满意度的影响及其内在机制。研究采用无法忍受不确定性量表、自我概念清晰性量表、未来取向量表和生活满意度量表进行在线调查，通过网络抽样法选取 16 岁以上的同性恋被试，得到有效数据 367 份（男 265 人，女 102 人）。结果发现：（1）同性恋者的无法忍受不确定性处于中等偏高水平，且在性别上存在显著差异，即男同性恋者的无法忍受不确定性水平显著高于女同性恋者；（2）无法忍受不确定性显著负向预测同性恋者的生活满意度；（3）无法忍受不确定性与自我概念清晰性、未来取向和生活满意度均呈显著负相关，自我概念清晰性、未来取向和生活满意度三者两两之间存在显著正相关；（4）自我概念清晰性在无法忍受不确定性与生活满意度的关系间起部分中介作用；（5）未来取向调节了“无法忍受不确定性→自我概念清晰性→生活满意度”的前半段路径，即高未来取向的同性恋者，无法忍受不确定性对自我概念清晰性的负向预测作用减弱。总之，研究结果证实了无法忍受不确定性不仅会直接影响同性恋者的生活满意度，还会通过自我概念清晰性的中介作用和未来取向的调节作用对同性恋者的生活满意度产生间接影响。研究结果有助于公众对同性恋者获得更深层次的认识和了解，也启发同性恋者积极探索自我，减少不确定感，提高生活满意度。

关键词　无法忍受不确定性，同性恋者，生活满意度，自我概念清晰性，未来取向

The Relationship between Intolerance of Uncertainty and Life Satisfaction among Homosexuals: A Moderated Mediation Model

Di Meiqin[1], Xu Siyuan[1], Lian Peiqin[1], Li Ye[1], Feng Xizhen[1] (corresponding author)
Institute of Education Science, Shanxi Normal University, Taiyuan, 030000

Abstract：In recent years, with the diversification of ideology and culture, the LGBT community has gradually emerged in the public view and received attention from scholars in various fields. However, homosexuals still face various problems such as the lack of Lebensraum, traditional moral constraints and social prejudice, and their life satisfaction is low. According to the Sexual Minority Stress Model, research should not only focus on the distal pressure, but also pay attention to the influence of the proximal pressure. Researches have found that intolerance of uncertainty has a significant negative impact on life satisfaction. Compared with heterosexuality people, homosexuals experience higher uncertainty, and their inability to tolerate uncertainty may have a more serious impact on their life satisfaction. Based on this, this study aims to investigate the impact of intolerance of

uncertainty on life satisfaction among homosexuals and its underlying mechanisms by constructing a moderated mediation model. The study conducted an online survey using the Intolerance of Uncertainty Scale, Self-Concept Clarity Scale, Future Orientation Scale, and Life Satisfaction Scale. A network sampling method was used to select homosexual participants aged 16 and above, and 367 valid data were obtained (265 males and 102 females). The results showed that: (1) The intolerance of uncertainty of homosexuals is at a medium to high level, and there are significant differences in gender, that is, the intolerance of uncertainty of Gay men is significantly higher than that of lesbians; (2) Intolerance of uncertainty is significant negative predicting the life satisfaction of homosexuals; (3) Intolerance of uncertainty is significantly negatively correlated with self-concept clarity, future orientation, and life satisfaction. There is a significant positive correlation between self-concept clarity, future orientation, and life satisfaction; (4)Self-concept clarity partially mediates the relationship between intolerance of uncertainty and life satisfaction; (5) Future orientation moderated the first half of the path of " intolerance of uncertainty → self-concept clarity → life satisfaction", which means that for homosexuals with high future orientation, the negative predictive effect of intolerance of uncertainty on self-concept clarity weakens. In summary, the research results confirm that intolerance of uncertainty not only directly affects the life satisfaction of homosexuals, but also indirectly affects their life satisfaction through the mediating effect of self-concept clarity and the moderating effect of future orientation. The results help the public gain a deeper understanding of homosexuals, and also inspire homosexuals to actively explore themselves, reduce uncertainty, and improve life satisfaction.
Keywords：intolerance of uncertainty, homosexuals, life satisfaction, self-concept clarity, future orientation

初中生视屏时间对人际适应的影响：共情的中介作用和亲子沟通的调节作用

郝伟廷　史艳君　潘颖 张潮（通讯作者）
山西师范大学教育科学学院，山西太原，030000，zhangchao951217@163.com

摘 要　人际适应是指个体在社会交往中，与他人建立并保持和睦、温暖的关系、获得支持与爱的能力。作为一种积极的社会行为，有助于初中生的身心发展。已有研究发现视屏时间能够负向预测个体的人际适应，但视屏时间对人际适应的作用机制及作用条件还有待探讨。本研究采用整群抽样的方法，对视屏时间采用自编问题“在非学习时间，你每天使用电子产品（包括电视、电脑、手机、平板电脑等）用来娱乐的时间共___小时”，和人际适应量表、人际反应指针量表、亲子沟通量表为研究工具，对山西省太原市、临汾市 6 所中学共 800 名初中生进行问卷调查，探究视屏时间与人际适应的关系，并进一步考察了共情在视屏时间与人际适应的中介作用以及亲子沟通对此过程的调节作用。结果发现:（1）视屏时间、人际适应、共情和亲子沟通两两显著正相关；（2）在控制生源地、年级后，视屏时间负向预测初中生的人际适应；（3）共情在视屏时间与初中生人际适应之间起部分中介作用；（4）亲子沟通正向调节了“视屏时间→共情→人际适应”的后半段,即亲子沟通能够通过提升大学生的共情，从而促进自身的社会适应。

关键词　初中生，视屏时间，人际适应，共情，亲子沟通

The Effect of Screen Time on Interpersonal Adaptation of Junior High School Students: The Mediating Role of Empathy and

the Moderation Role of Parent-child Communication

Hao Weiting　Shi Yanjun　Zhang Chao（Corresponding author）
School of Education Science, Shanxi Normal University, Taiyuan , 030000,
zhangchao951217@163.com

Abstract：Interpersonal adaptation is the ability of an individual to establish and maintain harmony, warm relationships, obtain support and love with others in social interaction. As a positive social behavior, it contributes to the physical and mental development of junior high school students. It has been found that screen time negatively predicts interpersonal adaptation, but the mechanism and conditions of screen time's effect on interpersonal adaptation have yet to be explored. In this study, we used the cluster sampling method, the self-administered question "During non-study time, you use electronic products (including TV, computers, cell phones, tablets, etc.) for recreation for a total of __ hours per day", and the Interpersonal Adaptation Scale, Interpersonal Response Pointer Scale, and the Parent-Child Communication Scale as the instruments. A total of 800 junior high school students from six middle schools in Taiyuan and Linfen City, Shanxi Province, are surveyed to investigate the relationship between screen time and interpersonal adaptation, and the mediating role of empathy in screen time and interpersonal adaptation and the moderating role of parent-child communication in this process are further examined. The results show that: 1. screen time, interpersonal adaptation, empathy and parent-child communication are two-two significantly correlated; 2. screen time negatively predicted junior high school students' interpersonal adaptation after controlling for place of origin and grade level; 3. empathy partially mediated the relationship between screen time and junior high school students' interpersonal adaptation; 4. Parent-child communication positively moderates the latter part of "screen time→empathy→interpersonal adaptation", i.e., parent-child communication enhances college students' empathy and thus promotes their social adaptation.

Keywords：junior high school student,screen time,interpersonal adaptation,empathy,parent-child communication

居住流动性感知对人际信任的影响

侯恒松　潘颖　张晓瑜　张潮（通讯作者）
山西师范大学教育科学学院，太原，030000，zhangchao951217@163.com

摘　要：人际信任问题长期受到学者的关注。信任对社会稳定、个体幸福感等都有积极作用。随着经济的发展，现代社会的流动性不断增大，个体感知到的不确定性逐渐增加，生活中的信任危机现象也频繁出现，日常生活中的信任包括普遍信任和特殊信任，即对无直接关系者的信任和对朋友亲人等的信任。因此，本文通过聚焦于居住流动，探究个体的居住流动性感知与普遍信任、特殊信任的关系；当外界环境发生改变影响人们日常生活秩序时，个体的本体安全感会受到威胁，而安全感受到威胁时会影响个体的人际信任，本研究期望探讨本体安全感在其中起到的中介作用；地方认同是个人对所处的外界物理环境的依恋感，归属感与认同感，当个体感知到外界环境发生的巨大改变时，地方认同感不同的个体是否会在人际信任中表现出差异，本研究期望探讨地方认同在其中起到的调节作用。本研究通过启动个体的居住流动性感知，采用本体安全感威胁感知量表、一般信任量表（GTS），特殊信任量表（SITS），地方认同量表对被试进行测试，本文预期实验结果为，居住流动性感知高的个体的普遍信任和特殊信任有显著差异，而居住流动性感知低的个体在这两种信任感的测量中没有显著差异，相较于居住流动性感知高的个体，居住流动性感知低

的个体的普遍信任和特殊信任感更高。其中本体安全感起到中介作用，具体而言，居住流动性感知高的个体更容易体验到本体安全感威胁，从而更容易对周围环境和他人产生不信任感，而亲友所表现的可依赖性和可靠性能够帮助个体应对本体安全感下降所带来的心理威胁，使个体更加信任和依赖亲友；反之，居住流动性感知低的个体具有更高的本体安全感，因而对亲友和陌生人的信任不存在显著差异。实验结果还发现，地方认同在居住流动性感知对人际信任的影响中起到调节作用，地方认同感高的个体即使感知到高的居住流动性也能信任他人，而地方认同感低的个体只有在感知到的低的居住流动性时才能信任他人。
关键词：居住流动性感知, 本体安全感, 地方认同, 普遍信任, 特殊信任

The impact of residential mobility perception on interpersonal trust

Hou Hengsong　Pan Ying　Zhang Xiaoyu　Zhang Chao（corresponding author）
School of Education Science, Shanxi Normal University, Tai Yuan

***Abstract*：** The problem of interpersonal trust has long been concerned by scholars. Trust has positive effects on social stability and individual happiness. With the development of economy, the mobility of modern society is increasing, the uncertainty perceived by individuals is gradually increasing, and the phenomenon of trust crisis in daily life is also frequent. Trust in daily life includes general trust and special trust, that is, trust in people with no direct relationship and trust in friends and relatives. Therefore, by focusing on residential mobility, this paper explores the relationship between individuals' perception of residential mobility and general trust and special trust. When changes in the external environment affect the order of People's Daily life, the sense of security of individuals will be threatened, and the perceived threat of security will affect the interpersonal trust of individuals. This study is expected to explore the mediating role of the sense of security of individuals in this process. Place identity is an individual's sense of attachment, belonging and identity to the external physical environment. When individuals perceive great changes in the external environment, will individuals with different local identities show differences in interpersonal trust? This study is expected to explore the moderating role of place identity in this process. This study activates individuals' perception of residential mobility and tests subjects with the ontological security threat perception Scale, General Trust Scale (GTS), special Trust Scale (SITS), and place identity Scale. The expected experimental result of this paper is that individuals with high perception of residential mobility have significant differences in general trust and special trust, while individuals with low perception of residential mobility have significant differences There was no significant difference between the two measures of trust. Compared with the individuals with high perception of residence mobility, the individuals with low perception of residence mobility had higher general trust and special trust. Specifically, individuals with a high perception of residential mobility are more likely to experience the threat of ontological security, and thus more likely to distrust the surrounding environment and others. The dependability and reliability of relatives and friends can help individuals cope with the psychological threat brought by the decline of ontological security, and make individuals more trust and rely on their relatives and friends. On the contrary, individuals with low perception of residential mobility have higher ontological security, so there is no significant difference in trust between relatives and strangers. The experimental results also found that place identity plays a

moderating role in the impact of residence mobility perception on interpersonal trust. Individuals with high local identity can trust others even when they perceive high residential mobility, while individuals with low local identity can trust others only when they perceive low residential mobility.
***Keywords*：：**Residential mobility perception, ontological security, local identity, universal trust, special trust

3.6 “心理测量专业委员会”专题研讨会

中国、坦桑尼亚和加拿大青少年的焦虑-抑郁共病网络：一项跨文化的网络分析

龚杰[1]，张丹凤[1]，Danielle M Law[2]，肖博文[3]，刘俊升[1]（通讯作者），谢晓龙[1]，桑标[1,4]

[1]华东师范大学心理与认知科学学院

[2] Department of Psychology, Wilfrid Laurier University, Brantford, ON, CA

[3] The University of British Columbia, Faculty of Education, Vancouver, BC, CA

[4]上海市教育科学研究院

摘要:目的：虽然抑郁和焦虑症状之间的共病现象已普遍得到证实，且二者具有高度相关性，但多个文化背景下的抑郁和焦虑症状网络特征尚未得到交叉检验。因此，本研究的主要目的是探讨不同文化背景下焦虑和抑郁症状之间的网络，以及它们的症状-结构关联。方法：本研究数据来自一项跨文化研究项目（中国、坦桑尼亚、加拿大），采用一系列网络分析，基于儿童行为评估系统（Behavior Assessment System for Children; BASC）的子量表收集的青少年焦虑抑郁水平（中国：$N = 2073$; $M_{age} = 16.36$, $SD = 1.14$；坦桑尼亚：$N = 990$; $M_{age} = 15.98$, $SD = 2.02$；加拿大：$N = 653$; $M_{age} = 12.12$，$SD = 0.76$），评估各自网络的中心症状及桥梁症状。网络分析结果：焦虑-抑郁症状网络在三个国家都可以得到可靠评估（中国：$CS_{Strength} = 0.594$; 坦桑尼亚：$CS_{Strength} = 0.595$；$CS_{Strength} = 0.361$）。Anxiety 8（“我担心将要发生的事情”）为中国和加拿大青少年焦虑和抑郁症状网络的核心和桥梁症状，而 Anxiety 4（“我感到紧张”）为坦桑尼亚青少年的核心和桥梁症状。比较结果显示，两两网络在症状结构和整体强度方面均存在显著差异，中国青少年的焦虑-抑郁网络联系更为紧密，强度相对更高(中国= 6.03；坦桑尼亚= 5.54；加拿大= 5.76；$S = 0.21 \sim 0.49$；$ps < 0.05$)。结论：总的来说，研究结果强调了不同文化背景下焦虑和抑郁症状网络的独特特征，有助于为青少年制定符合文化敏感的干预措施。

关键词：心理健康, 跨文化, 网络分析, 青少年

A Transcultural Network Analysis of Anxiety and Depressive Symptoms in Adolescents from China, Tanzania, and Canada

Jie Gong[1], Danfeng Zhang[1], Danielle M Law[2], Bowen Xiao[3], Junsheng Liu[1], Xiaolong Xie[1], Biao Sang[1,4]

[1] School of Psychology and Cognitive Science, East China Normal University, Shanghai, China
[2] Department of Psychology, Wilfrid Laurier University, Brantford, ON, CA
[3] The University of British Columbia, Faculty of Education, Vancouver, BC, CA
[4] Lab for Educational Big Data and Policymaking, Shanghai Academy of Educational Sciences, Shanghai, China

Abstract：**Object:** Although the comorbidity between depressive and anxiety symptoms has generally been validated and highly correlated, the network structure of mental symptoms across multiple countries has not yet been cross-examined. Thus, the purpose of this study was to investigate the relationships between anxiety and depressive symptoms, along with their symptoms-structure associations. **Methods:** The adapted subscale of the Behavior Assessment System for Children (BASC) was used to evaluate the anxiety-depressive symptoms network among adolescents, based on a series of network analysis across three countries: China (N = 2,073; M_{age} = 16.36, SD = 1.14), Tanzania (N = 990; M_{age} = 15.98, SD = 2.02), and Canada (N = 653; M_{age} = 12.12, SD = .76). **Results:** Networks of symptoms could be reliably assessed among all three countries ($CS_{Strength_china}$ = 0.594; $CS_{Strength_Tanzania}$ = 0.595; $CS_{Strength_Canada}$ = 0.361). In China and Canada, Anxiety ("I worry about what is going to happen") was identified as the core symptom in the anxiety and depressive symptoms network, while in Tanzanian adolescents, Anxiety ("I get nervous") was reported as the core symptom. Furthermore, these networks exhibited significant differences in terms of symptom-structure and global strength, with a stronger and more density yielded in Chinese network (China = 6.03, Tanzania = 5.54; Canada = 5.76; S = 0.21 – 0.49; ps < 0.05). **Conclusion:** Overall, our findings emphasized the importance of understanding and addressing the unique features of anxiety and depressive symptoms networks in different cultural contexts, contributing to the development of effective and culturally sensitive interventions for adolescents.

Keywords：mental health; cross culture; network analysis; adolescents

公共卫生事件相关媒体信息与心理健康的关系：基于网络分析方法

薛的妮[1] 刘拓[2,3] 刘霞[4]（通讯作者）

1 北京师范大学发展心理研究所，北京,100875

2 教育部人文社会科学重点研究基地天津师范大学心理与行为研究院，天津，300387

3 学生心理发展与学习天津市高校社会科学实验室，天津，300387

4 北京师范大学发展心理研究院，北京，100875，liuxia@bnu.edu.cn

摘 要 以往研究表明，重大公共卫生事件的相关媒体报道会对人们的心理健康产生重要影响，其中不同媒体形式的媒体使用行为也与不同的心理结果相关。但前期研究聚焦研究变量较少，难以揭示诸多变量之间的复杂关系。因此，本研究旨在采用网络分析方法，探究不同媒体形式的疫情相关媒体使用与心理健康之间的关系。通过网络问卷形式收集了来自全国范围内 30 个省份的 917 份有效数据。问卷采用自编的疫情背景下的《媒体形式使用问卷》测量了被试在电视和报纸等、新闻（如今日头条等）、视频（如抖音等）、微信推送（如公众号等）、微博（如热搜等）上观看或浏览疫情信息的时间。采用《中文版正负性情绪量表(PANAS)》、《抑郁焦虑压力量表(DASS-21)》、《生活满意度量表(SWLS)》、《无聊量表》，以及结合疫情背景改编的《死亡焦虑量表(DAS)》、《中文版人生意义问卷(C-MLQ)》、《共情-同情量表》评估了被试的心理健康状况。数据分析使用 R 包 qgraph 包中图像最小绝对值收敛和选择算法(GLASSO)估计和可视化偏相关网络(partial correlation model)，并根据节点中心性指标以及网络结构探索变量关系中的关键变量和可能的作用机制。节点中心性指标结果显示，负性情绪具有最高的中介中心性(Z=2.80)和接近中心性(Z=2.55)和较强的强度中心性(Z=0.69)，是网络的中心节点。网络结构显示负性情绪连接了媒体形式变量与心理健康变量，由此构建以负性情绪为中介，以媒体形式使用为自变量和抑郁、焦虑、压力为因变量的中介模型。运用 Mplus 8.0 进行中介分析，结果发现微博形式的疫情相关媒体使用能够正向预测负性情绪(β=0.242, p<0.001)并进一步的正向预测抑郁焦虑压力(β=0.479, p<0.001)，间接效应为 0.116(p<0.001)，直接效应为 0.014(p=0.697)。负性情绪的中介作用在其他的中介路径中均不显著。结果警示在重大公共卫生事件发生时，政府应该积极干预舆论尤其是微博等社交媒体，以削弱媒体使用对心理健康的消极影响。

关键词 媒体信息，心理健康，网络分析

Relationship between public health event-related media information and mental health: a network analysis study

Dini Xue[1] Tuo Liu[2,3] Xia Liu[4]

1 Institute of Developmental Psychology, Beijing Normal University, Beijing 100875, China

2 Key Research Base of Humanities and Social Sciences of the Ministry of Education, Academy of Psychology and Behavior, Tianjin Normal University, Tianjin 300387, China

3 Tianjin Social Science Laboratory of Students' Mental Development and Learning, Tianjin 300387, China

4 Institute of Developmental Psychology, Beijing Normal University, Beijing 100875, China, liuxia@bnu.edu.cn

***Abstract*:** Previous studies have shown that media coverage of major public health events has significant impact on people's mental health, and media use behaviors of different media forms are also associated with different

psychological outcomes. However, previous research focused on limited variables, and it was difficult to reveal the complex relationships among multiple variables. Therefore, this study aims to explore the relationship between epidemic related media use and mental health using network analysis methods. We collected 917 valid data from 30 provinces across the country through online questionnaires. Revised Media Usage Questionnaire under the epidemic background measured participants' time spent browsing epidemic information on various media forms such as television, newspapers, news platforms (e.g., Headline), videos (e.g., Tiktok), WeChat push (e.g., Official Accounts), and microblogs (e.g., hot searches). The mental health questionnaires included the Chinese Version of Positive and Negative Emotion Scale (PANAS), Depression, Anxiety and Stress Scale (DASS-21), Life Satisfaction Scale (SWLS) and Boredom Scale. In addition, Death Anxiety Scale (DAS), Meaning of Life Questionnaire (C-MLQ) and Empathy-Compassion Scale were adapted based on the epidemic background. Data analysis was conducted using the graphical least absolute shrinkage and selection operator (GLASSO) algorithm implemented in the R package qgraph to estimate and visualize the partial correlation network. Key variables and potential mechanisms were explored based on node centrality indexes and network structure. The node centrality indexes revealed that negative affect had the highest betweenness centrality (Z=2.80), closeness centrality (Z=2.55), and strong strength centrality (Z=0.69), making it the important node in the network. The network structure showed that negative affect connected media use with mental health. Therefore, we constructed a mediating model with negative emotions as the mediator, media use as the independent variable and depression, anxiety and stress as the dependent variable. Mediation analysis results revealed that the use of epidemic-related microblogs positively predicted negative affect (β=0.242, p<0.001), which further positively predicted depression, anxiety, and stress (β=0.479, p<0.001), with an indirect effect of 0.116 (p<0.001) and a direct effect of 0.014 (p=0.697). Other mediation paths were not significant. These results highlight the need for proactive government intervention, particularly in social media platforms like microblogs, to mitigate the negative impact of media usage on mental health during major public health events.

Keywords：media information，mental health，network analysis

青少年非自杀性自伤、抑郁和童年期创伤关系的网络分析研究

雷辉[1]　杨颜慈[1]　朱婷[1]　张小崔[2,3,4]（通讯作者）

1 湖南农业大学教育学院，长沙 410128

2 中南大学湘雅二医院医学心理中心，长沙 410011

3 中南大学医学心理学研究所，长沙 410011

4 国家精神心理疾病临床医学研究中心，长沙 410011

通讯作者 E-mail:xiaocuizhang@csu.edu.cn

摘 要　**目的：**非自杀性自伤行为对青少年的身心健康威胁极大，而有自伤行为的青少年往往伴有抑郁症状。抑郁与非自杀性自伤又很大程度上受童年期创伤的影响。为了探究青少年非自杀性自伤、抑郁和童年期创伤的关系，为更有针对性的青少年心理健康干预和教育工作提供启示，本研究采用网络分析方法从症状的角度探讨三者之间的关系。**方法：**本次研究在四所初中进行横断面调查，回收有效问卷 2640 份。分别使用青少年自伤量表、儿童抑郁量表和儿童期创伤问卷评估非自杀性自伤、抑郁症状和儿童期创伤。随后对三者的关系进行网络分析研究。**结果：**网络分析结果显示，青少年非自杀性自伤、抑郁症状和童年创伤密切相关。抑郁症状中的低自尊和童年创伤类别中的情感虐待是最中心的节点。低自尊和消极情绪与非自杀性自伤直接相关，抑郁症状的其他节点可以通过这两个节点与非自杀性自伤间接相连。情感虐待是童年创伤类别中唯一与非自杀性自伤直接相连的节点。其他类别的童年创伤(身体忽视、身体虐待、情感忽视和

性虐待) 到非自杀性自伤的最短的途径均是通过情感虐待的作用。**结论：**本研究结果表明，将低自尊、消极情绪和情感虐待作为干预目标可以最大程度地缓解青少年的抑郁症状和减少非自杀性自伤行为，有助于实现青少年身心健康发展。
关键词　青少年，非自杀性自伤，抑郁，童年期创伤，网络分析

Network analysis of the relationship between non-suicidal self-injury, depression, and childhood trauma in adolescents

Hui Lei[1], Yanci Yang[1], Ting Zhu[1], Xiaocui Zhang[2,3,4]*

[1] College of Education, Hunan Agricultural University, Changsha, Hunan, China;

[2] Medical Psychological Center, the Second Xiangya Hospital, Central South University, Changsha, China;

[3] Medical Psychological Institute of Central South University, Changsha, Hunan, China;

[4] National Clinical Research Center for Mental Disorders, Changsha, Hunan, China.

***Abstract*：Objective:** Non-suicidal self-injury behavior is a great threat to teenagers' physical and mental health, while teenagers who have self-injury behavior are often accompanied by depression symptoms. Depression and non-suicidal self-injury are largely affected by childhood trauma. In order to explore the relationship among non-suicidal self-injury, depression and childhood trauma in adolescents, and provide new inspiration for more targeted adolescent mental health intervention and education, network analysis was used to explore the relationship among them from the perspective of symptoms. **Methods:** A cross-sectional survey was conducted in four junior high middle schools and collected 2640 valid questionnaires. Non-suicidal self-injury (NSSI), depressive symptoms, and childhood trauma were assessed using the Adolescent Self-Harm Scale, the Childhood Depression Scale, and the Childhood Trauma Questionnaire, respectively. A network analysis was performed. **Results:** In the network, NSSI, depressive symptoms and childhood trauma are closely related. Negative self-esteem in the depressive symptoms and emotional Abuse in the childhood trauma categories were the most central nodes. Negative self-esteem and negative mood were directly connected to NSSI, other nodes of depressive symptoms appeared to be indirectly connected to NSSI through these two nodes. Emotional abuse was the only node in the childhood trauma categories directly connected to NSSI. The shortest pathways form other categories of childhood trauma (physical neglect, physical abuse, emotional neglect, and sexual abuse) to the NSSI through the effect of emotional abuse. **Conclusion:** Our findings indicate that targeting negative self-esteem, negative mood, and emotional abuse as intervention targets may alleviate depression and reduce NSSI in adolescents to the greatest extent, which is helpful to realize the healthy development of adolescents.

***Keywords*：** Adolescent, Non-suicidal self-injury, Depression, Childhood trauma, Network analysis

创伤后应激障碍筛查表（PCL-5）在处境不利儿童中的网络结构

费史恩宇[1,2]　成嘉园[1,2]　陈维[1,2]（通讯作者）

1 贵州师范大学心理学院，贵阳，550025

2　贵州师范大学心理大数据研究中心，贵阳，550025，chenweihb@yeah.net

摘 要　网络分析是一种允许研究人员探索和理解人类、生物和其他表现出相互依存结构的系统的方法。通过对表示离散对象之间关系的图的探索，网络分析试图解释特定类别的现象。网络分析方法认为，精神障碍的特点是可观察到的精神病理现象之间的因果相互作用。精神障碍的出现、维持和停止可以通过症状的动态相互作用来描述。本文拟采用网络分析方法考察创伤后应激障碍筛查表（The PTSD Checklist for DSM-5，PCL-5）在处境不利儿童中的网络结构，并探索其核心症状及因子结构。采用 PCL-5 和创伤后应激障碍反应指数量表对 2056 名处境不利儿童进行调查。结果显示：(1) 除了不能体验积极情感（D7）和惊跳反应(E4)，其他症状在网络内是均正相关的；(2) 回避创伤相关的思想(C1)和回避提示创伤的线索(C2)是网络中联系最强的边；(3) 持续的负性情绪（D4）、过度警觉（E3）、回避创伤相关的思想（C1）、生理反应（B5）和情感疏远（D6）是预期影响和强度最高的症状；(4) 处境不利儿童的网络结构支持了 PCL-5 七因子混合模型。综上可见，持续的负面情绪可能是参与者报告经历中最显著的症状。发展或完善现有的治疗方法，以精确地针对持续的负性情绪，可能会改善创伤后应激障碍的整体长期临床病程。

关键词　处境不利儿童，PCL-5，网络分析，创伤后应激障碍

The network structure of the PTSD Checklist for DSM-5 in disadvantaged children

Fei Shienyu[1,2]　CHENG Jiayuan[1, 2]　CHEN Wei[1,2]

[1] School of Psychology, Guizhou Normal University, Guiyang 550025, China

[2] Psychology Big Data Research Center, Guizhou Normal University, Guiyang 550025, China

***Abstract*:** Network analysis is a method that allows researchers to explore and understand systems that exhibit interdependent structures among humans, organisms, and others. By exploring graphs that represent the relationships between discrete objects, network analysis attempts to explain phenomena of specific categories. The network analysis method believes that the characteristic of mental disorders is the causal interaction between observable psychopathological phenomena. The emergence, maintenance, and cessation of mental disorders can be described through the dynamic interaction of symptoms. This article intends to use network analysis methods to investigate the network structure of the PTSD Checklist for DSM-5 (PCL-5) in disadvantaged children, and explore its core symptoms and factor structure. A survey was conducted on 2056 disadvantaged children using PCL-5 and the Posttraumatic Stress Disorder Response Index Scale. The results showed that (1) except for the inability to experience positive emotions (D7) and startle reactions (E4), all other symptoms were positively correlated within the network; (2) Avoiding trauma-related thoughts (C1) and avoiding clues that suggest trauma (C2) are the most strongly connected edges in the network; (3) Persistent negative emotion (D4), Hypervigilance (E3), avoidance of trauma related thoughts (C1), physiological reaction (B5) and emotional alienation (D6) are the symptoms with the highest expected impact and intensity; (4) The network structure of disadvantaged children supports the PCL-5 seven factor Mixture model. In summary, persistent negative emotions may be the most significant symptom reported by participants in their experiences. Developing or improving existing treatment methods to accurately target persistent negative emotions may improve the overall long-term clinical course of

post-traumatic stress disorder.

***Keywords*:** Disadvantaged children, PCL-5, Network Analysis, Posttraumatic Stress Disorder

青少年精神病态网络及其与攻击的关系

鲜国徽 罗杰（通讯作者）

贵州师范大学心理学院，贵阳，550025，luojiegznu@163.com

摘　要：精神病态是一种多维度的人格障碍，包括人际关系维度、情感维度、行为/生活方式维度以及可能的反社会维度，同时精神病态与攻击的正向关系受到了众多研究的支持。然而，关于精神病态核心特征的认识依然不一致，其与攻击之间的关系也大多局限于相关分析。本研究旨在以贵州省某高中 1396 名学生（平均年龄 15.41 岁，男生 703 人）作为研究对象，利用网络分析方法探究青少年精神病态的核心特征，同时细化精神病态与攻击之间的关系。首先对少年精神病态特质量表(YPI-50)所有项目进行网络分析，之后将 YPI-50 中的十个精神病态特质（分量表）与被动-主动攻击问卷中文版(RPQ)两维度进行网络分析。结果发现，在青少年精神病态网络中， C15（“我很擅长让人们相信我捏造的事情”）、 C20（“对我来说操作他人是一件很容易的事情”）和 C31（“为了让别人为我做事，欺骗他们是很有效的办法”）等要比其他项目位于更中心的位置。在精神病态与攻击的联合网络中，被动性攻击与精神病态行为维度中的冲动特征、寻求刺激特征有直接的正向联系，尤其是与冲动特征的联系最强，而主动性攻击与精神病态各特质联系微弱。本研究中的结果表明，在青少年精神病态网络中人际关系因子的项目具有非常核心的位置，而情感因子的项目则较为边缘化，这说明青少年精神病态的核心可能是在于人际关系层面。同时，青少年精神病态更多与被动性而不是主动性攻击相联系，可能是由于研究对象是普通高中生，他们作为正常人大多数都具有较低的主动性攻击水平，所以他们的攻击主要是体现在被动性上面，其次也可能是由于精神病态者冲动和无情的天性会导致他们会以一种鲁莽的方式来应对攻击性威胁，即精神病态者的攻击性是对外界挑衅的反应。

关键词：精神病态，网络分析，青少年，YPI-50，RPQ

Adolescent Psychopathy Network and Their Relationship with Aggression

XIAN Guohui, LUO Jie

Guizhou Normal University, School of Psychology, Guiyang

***Abstract*:** Psychopathy is a multidimensional personality disorder, including interpersonal dimensions, affective dimensions, behavioral/lifestyle dimensions, and possible antisocial dimensions, while the positive relationship between psychopathy and aggression has been supported by numerous studies. However, the understanding of the core features of psychopathy remains inconsistent and the relationship between psychopathy and aggression is mostly limited to correlation analysis. In this study, 1396 students (M_{age}=15.41, 703 male) from a high school in Guizhou Province were selected as the research objects, and the core features of adolescent psychopathy were explored by using network analysis method, and the relationship between psychopathy and aggression was detailed. Firstly, the network analysis of all items of the Youth Psychopathic Traits Inventory (YPI-50) was carried out, and then the network analysis of the ten psychopathic traits (subscale) in YPI-50 and the Reactive-Proactive Aggression Questionnaire (RPQ) were carried out. The results showed that C15 ("I am good at getting people to believe in me when I make something up"), C20 ("It’s easy for me to manipulate people"), and C31 ("To get people to do what I want, I often find it efficient to con them") were more central to the adolescent psychopathy network than other items. In the network of psychopathy and aggression, reactive aggression has a direct positive correlation with impulsiveness and thrill-seeking in the behavioral dimension of psychopathy, especially the

strongest correlation with impulsiveness, while proactive aggression has a weak correlation with various traits of psychopathy. This study showed that the interpersonal dimensions have a very central position in the adolescent psychopathy network, while the affective dimensions are relatively marginal, which indicates that the core of adolescent psychopathy may lie in the interpersonal relationship level. Meanwhile, adolescent psychopathy is more associated with reactive rather than proactive aggression, which may be because the research objects are ordinary high school students. As normal people, most of them have a low level of proactive aggression, so their aggression is mainly reflected in reaction. It is also possible that the impulsive and ruthless nature of psychopaths can lead them to respond to aggressive threats in a reckless way, that is, aggression in psychopaths is a response to external provocation.

Keywords：psychopathy, network analysis, adolescent, YPI-50, RPQ

大学生无手机恐惧与抑郁、焦虑之间的纵向网络特征

贝冬丽[1] 罗杰[1,2]（通讯作者）

1 贵州师范大学心理学院，贵阳，550025

2 贵州师范大学心理大数据研究中心，贵阳，550025，luojiegznu@163.com

摘 要 无手机恐惧是21世纪信息科学技术高速发展背景下的一种衍生品，指的是由于手机不在身边或无法使用手机产生的一种焦虑或不舒适的感觉。本研究基于网络测量学构建大学生无手机恐惧与抑郁、焦虑之间的心理网络结构，以探讨大学生无手机恐惧与抑郁、焦虑之间的相互关系以及这种网络关系随时间发展的变化情况。采用无手机恐惧问卷，病人健康问卷(PHQ)以及广泛焦虑量表(GAD)对来自全国21个省/自治区/直辖市的2037名大学生间隔6个月的调查数据构建偏相关网络，并在此基础上进行网络差异分析。结果显示：（1）抑郁-焦虑网络的核心症状为“感到似乎将有可怕的事情发生而害怕”、“变得容易烦恼或急躁”以及“感到心情低落，沮丧或绝望”，该抑郁-焦虑网络及其核心症状在两个时点表现出稳定性；（2）无手机恐惧和抑郁、焦虑之间在不同时点存在相互影响的关系但是边线强度较弱；（3）网络等值性检验(Network Invariance Test)和全局强度不变性(Global Strength Invariance Test)检验分别表明无手机恐惧与抑郁、焦虑节点连接模式(M=0.19, p<0.05)以及全局强度(S=0.95, p<0.05)在两个网络之间存在显著差异。由此可知，无手机恐惧和抑郁、焦虑网络在整体结构上前后保持稳定，并且整个网络不同症状之间的连接及其重要性随时间发生显著变化。此外，无手机恐惧与抑郁、焦虑之间的弱边线权重说明无手机恐惧与焦虑、抑郁概念有所不同，未来需要进一步探讨无手机恐惧的形成机制。

关键词 无手机恐惧，焦虑，抑郁，纵向网络分析，中国大学生

Longitudinal Network Characteristics Between Nomophobia and Depression and Anxiety in College Students

BEI Dong-li[1] LUO Jie[1,2]

[1] School of Psychology, Guizhou Normal University, Guiyang 550025, China

[2] Psychology Big Data Research Center, Guizhou Normal University, Guiyang 550025, China

Abstract: Nomophobia, a derivative of the rapid development of information science and technology in the 21st century, refers to the anxiety or discomfort generated from being without a mobile phone or being unable to use it. This study aims to construct the psychological network structure between nomophobia and depression and anxiety symptoms in college students, and explore the mutual influence between nomophobia and depression and anxiety

symptoms, as well as the temporal changes in this network relationship based on network measurement. Using the Nomophobia Questionnaire (NMP-Q), the Patient Health Questionnaire (PHQ-9), and the Generalized Anxiety Disorder scale (GAD-7), survey data from 2037 college students from 21 provinces in China were collected at six-month intervals to construct two partial correlation networks. Network difference analysis was leveraged based on that. Results showed that: (1) The core symptoms of the depression-anxiety network were "feeling afraid that something terrible might happen," "becoming easily annoyed or irritable," and "feeling down, depressed, or hopeless." The depression-anxiety network and its core symptoms exhibited stability across two time points. (2) There was a mutual influence between nomophobia and depression and anxiety symptoms at different time points, but the edge strength was relatively weak. (3) Network invariance test and global strength invariance test indicated significant differences in the nomophobia-depression and anxiety symptom node connection pattern (M=0.19, p<0.05) and global strength (S=0.95, p<0.05) between the two networks. To sum up, the nomophobia and depression-anxiety network maintains stability in the overall structure, and the connectivity and importance between different symptoms in the entire network changed significantly over time. Furthermore, the weak edge weight between nomophobia and depression and anxiety suggests that nomophobia is distinct from the concept of anxiety and depression, and further research is needed to explore the mechanisms underlying the development of nomophobia.

***Keywords*:** Nomophobia, anxiety, depression, longitudinal social network, the Chinese college students

基于贝叶斯正则化方法的潜变量多重中介分析

潘俊豪[1]（通讯作者）张沥今[2]
1 中山大学心理学系，广州，510006，panjunh@mail.sysu.edu.cn
2 斯坦福大学研究生教育院，美国

摘 要 中介变量在解释预测变量对结果变量的影响方面起着重要作用。在行为科学领域，经常会存在多个中介变量的情况。传统检验间接效应的方法，如 Sobel 检验和 bootstrap 法适用于单个中介变量的情况，然而在处理多个中介变量时，这些方法可能会导致过高的一类错误率和过拟合问题。为了解决这些问题，Serang 等人(2017)将基于可观测变量的中介模型与频率学派框架下的 Lasso 方法结合，以改进多重中介分析中的变量选择。然而，该方法仍然存在一些局限性，例如未考虑可观测变量的测量误差以及无法提供间接效应的区间估计等。因此，本研究旨在解决多重中介分析中传统方法存在的局限性。具体而言，本研究把贝叶斯正则化方法，包括岭回归(Ridge)、Lasso、自适应 Lasso、Horseshoe 和 Spike and Slab，应用于潜变量多重中介模型，从而克服了这些局限性。为了评估所提出方法的表现，本研究进行了蒙特卡洛模拟研究，并将其与传统的 Sobel 检验和 bootstrap 法进行了比较。研究结果显示，正则化方法受样本量和信度变化的影响较小。此外，模拟研究突显了全局和局部正则化方法在变量选择和中介模型参数估计方面的差异。基于这些发现，本研究提出了建议并给出了未来研究的方向。总体而言，本研究为潜变量多重中介分析中的变量选择提供了改进的方法，在考虑测量误差的同时纳入了不确定性信息。这种方法可以帮助研究人员更好地理解复杂模型中的中介机制。

关键词 贝叶斯估计，正则化方法，潜变量多重中介模型，先验分布

Latent Multiple Mediation Analysis with the Bayesian Regularization Method

[1]Junhao Pan, [2] Lijin Zhang
1. Department of Psychology, Sun Yat-sen University, China
2. Graduate School of Education, Stanford University, U.S.

***Abstract*：** Mediators have played a crucial role in understanding how predictors influence outcome variables. It is common to have multiple mediators in behavior research. Traditional approaches for testing the indirect effects, such as the Sobel test and bootstrap methods, are used. However, when dealing with multiple mediators simultaneously, these approaches can lead to inflated Type I error rates and overfitting. To address these issues, Serang et al. (2017) combined mediation models of observed variables with the frequentist Lasso (least absolute shrinkage and selection operator) method to improve variable selection in multiple mediation analysis. However, this method has limitations: it doesn't consider measurement errors of manifest variables, and it cannot provide uncertainty information such as interval estimation of indirect effects. In this study, we extended the Bayesian regularization methods, including Ridge, Lasso, Adaptive Lasso, Horseshoe, and Spike and Slab, to latent multiple mediation models to overcome these limitations. A Monte Carlo simulation study was conducted to compare the proposed method with the traditional Sobel and bootstrap methods. The results showed that the regularization methods were less affected by changes in sample size and reliability. Furthermore, the simulation study highlighted the differences between global and local regularization methods in variable selection and parameter estimation in the mediation model. Based on these findings, we provided recommendations and

suggested future directions for research. Overall, our study offers an improved approach for variable selection in latent multiple mediation analysis, incorporating uncertainty information and considering measurement errors. This method can help researchers better understand the mechanism of mediation in complex models.

Keywords ： Bayesian Estimation, Regularization Method, Latent Multiple Mediation Model, Prior Distribution

密集追踪数据的中介效应分析方法

方杰[1]（通讯作者） 温忠麟[2]

1 广东财经大学新发展研究院，广州，510320，E-mail: fangj@gdufe.edu.cn

2 华南师范大学心理学院，广州，510631

摘 要 随着智能手机和可穿戴设备的普及，研究者可以便利地收集密集追踪数据，即重复测量的时间间隔短、测量频次大于 20 的追踪数据。不仅截面数据和面板数据的数据格式不适合密集追踪数据，更重要的是，截面数据和面板数据的中介效应分析方法也不都适用于密集追踪数据。新的数据类型意味着需要新的数据分析方法。目前有两类模型可以进行密集追踪数据的中介效应分析，即多水平自回归中介模型和动态结构方程模型（包括两水平动态结构方程模型和交叉嵌套的动态结构方程模型）。本研究首先述评了密集追踪数据的中介效应分析方法从多水平自回归中介模型到动态结构方程模型的发展历程，建议优先使用动态结构方程模型进行密集追踪数据的中介效应分析(Mplus 软件实现)。然后讨论了如何利用两水平动态结构方程模型进行随个体变化的中介效应分析。具体地，两水平动态结构方程模型将密集追踪数据看成是测量时间点嵌套于个体的两层嵌套结构，因此层 2 只有个体层，可以进行随个体变化的中介效应分析。接着，讨论了如何利用交叉嵌套的动态结构方程模型进行随时间变化的中介效应分析。具体地，密集追踪数据还可以看成既嵌套于个体，又同时嵌套于时间的交叉嵌套数据，因此层 2 也有时间组的方程，可以进行随时间变化的中介效应分析。最后展望了密集追踪数据的中介效应分析方法的拓展方向。

关键词 密集追踪数据，中介效应，多水平自回归中介模型，动态结构方程模型

Mediation Analysis Methods for Intensive Longitudinal Data

Fang Jie[1] Wen Zhonglin[2]

(1. Institute of New Development, Guangdong University of Finance & Economics, Guangzhou 510320, China;

2. School of Psychology, South China Normal University, Guangzhou 510631, China)

Abstract： Technological advances have made it possible to collect intensive longitudinal data (ILD) via devices like smartphones or wearable devices. ILD is characterized by frequent and dense repeated measures (e.g., 20 or more; Collins, 2006) and a relatively short between measurement occasions. Not only are the data structures of cross section data and longitudinal panel data not suitable for intensive longitudinal data, but more importantly, the mediation analysis methods for cross section data and longitudinal panel data are not always applicable to ILD. At present, there are two types of mediation models for ILD, namely multilevel autoregressive mediation model and dynamic structural equation model (DSEM). DSEM include two-level DSEM and cross-classified DSEM.

In the present study, we firstly reviewed the development of mediation analysis methods for ILD from the multilevel autoregressive mediation model to DSEM. It is recommended to use DSEM for mediation analysis in ILD (implemented by Mplus software). Secondly, we discussed how to use the two-level DSEM to analyze the

person-specific mediation. Specifically, ILD was treated as a two-layer structure with measurement occasions nested within individual in the two-level DSEM, so that layer 2 has only an individual layer and the person-specific mediation can be analyzed. Third, we discussed how to use the cross-classified DSEM to analyze the dynamic mediation (i.e., mediation effect over time). ILD can be regarded as cross-classified data nested in both individuals and time points, so that layer 2 has both individual layer and time layer, and the dynamic mediation can be analyzed. Finally, the development direction of mediation analysis methods for ILD is prospected.

***Keywords*：** intensive longitudinal data, mediation effect, multilevel autoregressive mediation model, dynamic structural equation model

因子分析模型中的贝叶斯次序假设评估

顾昕

华东师范大学教育心理学系，上海，200062，xgu@dep.ecnu.edu.cn

摘 要　次序假设表达研究者关于模型参数大小关系的理论。次序假设包括不等式假设 p1>p2>p3 和等式假设 p1=p2=p3，以及它们的混合形式 p1=p2>p3，其中 p 表示模型参数。在因子分析模型中，评估关于因子负荷的次序假设可以解决许多心理测量问题。例如，在信度分析中，研究者可以通过检验因子负荷的等式假设，即 tau equivalence 检验，作为使用 Cronbach's alpha 系数的前提。在效度分析中，研究者可以通过比较特定指标的主负荷与交叉负荷的大小，来判断题项的区分效度。此外，评估某个因子的各负荷次序大小，可以明确各指标在测量该因子时的相对重要性。

本研究提出因子分析模型中的贝叶斯次序假设评估方法，使用贝叶斯因子检验次序假设是否受到数据的支持。贝叶斯因子量化了数据支持假设的相对程度，比如若 p1>p2>p3 与备择假设的贝叶斯因子等于 5，则表示次序假设受到数据的支持程度是备择假设的 5 倍。贝叶斯次序假设评估的关键是先验分布的设置和贝叶斯因子的计算。对于因子分析模型，本研究设置因子负荷的条件正态分布，以及测量误差方差、潜变量方差的逆 Wishart 分布，并使用训练样本(training sample)估计以上分布的先验参数。根据 Savage-Dickey 密度比方法，次序假设的贝叶斯因子可表示为因子负荷的后验密度与先验密度在假设限制下的比值。本研究在 MCMC 抽样的每一步计算因子负荷的条件密度，即条件正态密度。因子负荷的后验或先验密度等于 MCMC 抽样中其条件密度的均值。

模拟研究验证了贝叶斯次序假设评估的有效性、准确性和一致性。模拟设置不同的总体模型和样本模型，考虑样本模型完全正确和略微错误情形下贝叶斯因子的表现。结果显示，模型设置正确时，1000 次模拟的贝叶斯因子中位数总是能够正确选择假设；模型设置错误时，特别是部分交叉负荷被忽视时，贝叶斯因子中位数可能选择错误的假设。最后，本研究以因子分析模型的经典例子展示因子负荷次序假设的贝叶斯因子检验步骤和结果解读。

关键词　贝叶斯因子，次序假设，因子分析，先验分布

Bayesian evaluation of order hypotheses in factor analysis models

Xin Gu

Department of Educational Psychology, East China Normal University, Shanghai

Abstract： Order hypotheses represent researchers' theories about model parameters using equality and inequality constraints. Order hypotheses include inequality hypothesis p1>p2>p3, equality hypothesis p1=p2=p3, and their mixture p1=p2>p3. In factor analysis models, evaluating order hypotheses with respect to factor loadings can address many problems in psychological measurement. For example, researchers can test the equality of loadings on one factor for using Cronbach's coefficient alpha (i.e., essential tau equivalence) in reliability analysis, compare the main loading with cross-loadings of a specific indicator to assess item-level discriminant validity, and evaluate the ordering of loadings on a factor to understand the relative importance of indicators in the measurement.

This study presents a Bayesian method of evaluating order hypotheses in factor analysis models. The order hypotheses are tested using Bayes factors. The Bayes factor quantifies the relative support in the data for the order hypothesis. If, for example, the Bayes factor of hypothesis p1>p2>p3 versus the alternative hypothesis is 5, this implies that the support for the order hypothesis is 5 times larger than the alternative. Prior specification and Bayes factor computation are the key of Bayesian tests. For factor analysis models, we specify conditional normal priors for factor loadings and inverse-Wishart priors for the variance-covariance of measurement errors and latent factors. The training sample of the data is used to estimate the prior parameters. Based on the Savage-Dickey density ratio method, the Bayes factor of the order hypothesis can be expressed as the ratio of the posterior and prior densities of factor loadings under the hypothesis constraints. We compute the conditional densities of the loadings (i.e., conditional normal densities) in each step of the MCMC sampling. The posterior or prior density of the loadings is obtained by averaging the conditional densities in the MCMC samples.

Simulation studies assess the effectiveness, accuracy and consistency of the Bayesian order hypothesis testing. Different population models and sample models are considered to investigate the performance of the Bayes factor when the sample model is completely correct or slightly misspecified. The result shows that when the sample model is correct, the median Bayes factor under 1,000 simulated datasets can always correctly select the hypothesis, whereas when the sample model is wrong, especially when some cross-loadings are ignored, the Bayes factor median may favor the incorrect hypothesis. Finally, a classical example of factor analysis models is used to illustrate the procedure of the Bayes factor test for order hypothesis with factor loadings and interpret the result.

Keywords： Bayes factor, order hypothesis, factor analysis, prior distribution

两水平框架下调节作用分析及其拓展模型中效应量的估计

刘红云[1] （通讯作者） hyliu@bnu.edu.cn 董洁源[1] 辛畅[1]

1 北京师范大学心理学部，北京，100875

摘 要：在社会科学研究中，调节(moderation)效应分析和中介(mediation)效应分析和是探讨自变量和因变量之间复杂关系常用的两类方法。一方面，随着研究问题的不断深入，近年来越来越多的研究者将两类方法整合以探讨更加复杂的变量间关系以及关系的变化。另一方面，针对研究报告中过分强调统计显著性的问题，越来越多的期刊要求研究者提供效应量和区间估计的结果。因此，针对所关注的研究问题，发展合适的统计性质良好的效应量指标至关重要。刘红云和袁克海（2021），刘红云，袁克海和甘凯宇（2021），以及刘红云，袁克海和温忠麟（2022）针对常用调节效应量指标的局限，以及测量有中介的调节和有调节中介效应量大小指标缺乏的现状，提出了对单一水平数据的两水平建模的框架，以更好区分模型中预测变量、调节变量和中介变量的不同角色，更好匹配概念模型，并在此基础上定义了系列统计性质良好的效应量指标。然而，这些新效应量指标在实际中的应用仍很有限，其中最主要的原因是对于单水平数据如何定义两水平的模型以及如何操作实现效应量的估计，对应用研究者存在一定的困难。

为了推动心理学应用研究中复杂变量关系模型中效应量指标的应用，本研究拟重点结合 Mplus 软件和 Jags 程序包，解决实际操作中如何更好估计效应量以及置信区间的问题。本文首先通过蒙特卡洛模拟研究，比较两种不同实现方法在效应量以及置信区间估计精度上的差异，系统探讨样本量、效应量大小、随机方差、以及先验分布对效应量估计精度的影响，为应用研究者提供选择方法的指导。另外，本研究还将结合实证研究数据，演示实际应用中如何采用 Mplus 和 Jags 计算效应量的指标，以及如何结合研究假设正确解释和选择新效应量指标的系列问题。最后，我们讨论了参数估计软件和方法选择上的建议以及优缺点。

关键词　效应量，调节效应，有中介调节，有调节中介，贝叶斯估计

Estimation of effect sizes for moderation analysis and its extended model: under a two-level framework

Hongyun Liu, Jieyuan Dong, Chang Xin
Faculty of Psychology, Beijing Normal University, Beijing, 100875

***Abstract*:** Mediation and moderation analyses are commonly used methods for studying the relationship between a predictor and an outcome variable in social science research. To better understand the relationships among variables, there is an increasing demand for a more general theoretical framework that combines moderation and mediation analyses. Recently, statistical analysis of moderation (MO) effects, moderated mediation (moME) effects and mediated moderation (meMO) have become powerful tools for scientists to investigate complex processes. Routinely reporting ESs has been recommended as the primary solution to the issue of overemphasis on significance testing. Therefore, appropriate ESs for measuring MO effects, moME effects, and meMO effects are very important in reporting and interpreting inferential results. Liu and Yuan (2021), Liu, Yuan, and Wen (2022), and Liu, Yuan, and Gan (2021) proposes a two-level framework with single level data to distinguish the roles of predictor, moderator, mediator variables, and developed several measures to quantify the moderation effect sizes, moderated mediation (moME) effect sizes, and mediated moderation (meMO) effect sizes. They demonstrated that the new developed measures of ES are more interpretable, and directly answer the questions corresponding to the conceptual models. However, the application of these new effects in practice is still limited, with the main reason being the difficulty for application researchers in defining two-level models with single level data and estimating effect sizes.

This paper aims to focus on how to better estimate the effect sizes and the corresponding confidence intervals by using Mplus and Jags package. Using Monte Carlo simulation study, we compare the differences between two different implementation methods in accuracy of estimating the effect sizes and confidence intervals. A simulation study was conducted to compare the performance of the two methods, and examine the performance of Bayesian methods in estimating and testing the effect sizes and the corresponding ESs under different conditions. The conditions manipulated in our design include the effect sizes, the moderation-residual variances, sample size， and prior distributions. The Bias, MSE, and coverage rate of the 95% nominal CI are used to evaluate the performances of the two methods in estimating ESs. Three empirical examples illustrate the applications of Mplus 8.7 and Jags in practice.

We conclude that the two level model with single level data is simple to implement, and the Bayesian estimation procedure can be conducted using either free Bayesian programs or commercially available software Mplus 8.7. In particular, Jags are easily assessable to researchers, and they allow very flexible specifications of likelihood functions and prior distributions; and Mplus 8.7 program is easy to operate and user friendly, especially

for empirical researchers. Overall, the results indicated that the differences of two methods can be ignored in most cases.

Keywords: effect size, mediated moderation effect, moderated mediation effect, Bayesian estimation

多维潜变量建模：方法演变和模型发展

顾红磊[1]（通讯作者） 温忠麟[2]

1 湖南师范大学教育科学学院，长沙，410081，GHL@hunnu.edu.cn

2 华南师范大学心理学院，广州，510631

摘 要 在心理、教育、管理等社会和行为科学研究中，所涉及的变量往往是不能直接观测的，即所谓的潜变量，如情绪智力、自我效能感等。潜变量可以通过精心设计的若干指标来间接测量，测量模型构建是研究潜变量的重要环节。验证性因子分析(Confirmatory Factor Analysis, CFA)是应用最为广泛的构建测量模型的方法。然而，不少研究者认为，CFA 至少存在两方面的不足：一是过分依赖严格且不切实际的独立分群模型假设，即每个指标只从属于一个因子。二是无法同时检验多维构念各维度的共同效应和独特效应。

为了克服 CFA 的不足，研究者相继提出了双因子模型(bifactor model)和探索性结构方程模型(Exploratory Structural Equation Modeling, ESEM)。双因子模型可以分析多维构念的共性和维度独特性(通常作为高阶因子模型的竞争模型)；而 ESEM 则容许因子之间存在交叉负荷(cross-loading)，使得测量模型更符合实际(例如, 一个测量数学能力的题目同时也测量了阅读理解能力)。近年出现的双因子探索性结构方程模型(bifactor Exploratory Structural Equation Modeling, bifactor-ESEM)则使用新算法允许双因子模型的局部因子之间存在交叉负荷，同时整合了双因子模型和 ESEM 的优点。与 bifactor-ESEM 可比的还有新近出现的双因子贝叶斯结构方程模型(bifactor Bayesian Structural Equation Modeling, bifactor-BSEM)。bifactor-BSEM 使用贝叶斯方法分析双因子模型，在模型设定上跟 bifactor-ESEM 类似，都比双因子模型更具灵活性和现实意义。目前，bifactor-ESEM 和 bifactor-BSEM 的研究和应用在国内罕见，国际上也刚起步不久。

尽管国内学者对 CFA 比较熟知，对双因子模型和 ESEM 也有一定的了解，但对两种新型的建模方法——bifactor-ESEM 和 bifactor-BSEM 知之甚少。鉴于此，本文在回顾和评介多维潜变量的传统建模方法的基础上，介绍 bifactor-ESEM 和 bifactor-BSEM 的特点以及在心理学等社科研究中的应用，然后总结出一个兼顾简洁性和精确性的多维潜变量建模流程。最后通过一个实例对两种新方法的使用进行演示。

关键词 多维潜变量，双因子模型，探索性结构方程模型，双因子探索性结构方程模型，双因子贝叶斯结构方程模型

Multidimensional latent variable modeling:

The evolution of methods and the development of models

Gu Honglei[1] Wen Zhonglin[2]

1 School of Educational Science, Hunan Normal University, Changsha, 410081, China

2 School of Psychology, South China Normal University, Guangzhou, 510631, China

***Abstract*:** Empirical psychological, educational, social, and behavioral researches are frequently confronted with multidimensional latent variables (e.g., emotional intelligence, self-efficacy). Latent variables can be measured indirectly by carefully designed indicators. The construction of measurement model is an important part of studying latent variables. The confirmatory factor analysis (CFA) is the most commonly used approach to model multidimensional latent variables. CFA, however, is often criticized for its overly restrictive independent cluster model (ICM) assumption, which requires that each item is defined by one, and only one, content domain. Furthermore, CFA could not test the common and unique effects of each dimension simultaneously.

In order to overcome the limitations of CFA, researchers have successively developed the bifactor model and Exploratory Structural Equation Modeling (ESEM). The bifactor model can examine the commonality and dimensional uniqueness of multidimensional constructs. ESEM allows for the cross-loadings between items and non-target factors, making the measurement model more realistic. Bifactor Exploratory Structural Equation Modeling (bifactor-ESEM), which has emerged in recent years, uses a new algorithm to allow for the cross-loadings between the items and non-target specific factors, and integrates the advantages of both the bifactor model and ESEM. Likewise, the bifactor Bayesian Structural Equation Modeling (bifactor-BSEM) is recently developed as a new modeling method. Bifactor-BSEM uses Bayesian method to analyze the bifactor model and is similar to bifactor-ESEM in model specification, both of which are more flexible and realistic than the traditional bifactor model.

Although domestic scholars are familiar with CFA and have a certain understanding of bifactor model and ESEM, they know little about two new modeling methods, namely bifactor-ESEM and bifactor-BSEM. This study firstly reviews and comments on the traditional modeling methods of multidimensional latent variables, and introduces the characteristics of bifactor-ESEM and bifactor-BSEM and their applications in social science research (e.g., psychology). Then a flow chart of multidimensional latent variable modeling is presented, which balances the simplicity and the precision. Finally, an empirical example is illustrated to demonstrate the use of the two new methods.

***Keywords*:** multidimensional latent variable, bifactor model, ESEM, bifactor-ESEM, bifactor-BSEM

潜剖面分析能使用项目打包吗？一项蒙特卡罗模拟研究

王孟成（通讯作者）

广州大学教育学院心理测量与潜变量建模研究中心，广州 510006，通讯作者邮箱 wmcheng2006@126.com

摘 要 潜在类别和潜在剖面分析是探索群体异质性最流行方法。如果分析的指标或题目较多时研究者常常使用 SEM 建模时项目打包的方法，但在潜在类别和潜在剖面分析是打包的使用条件尚不清晰。为此本研究通过蒙特卡罗模拟系统探讨了打包数、组成包的条目数、样本容量等因素对项目打包法应用于 LCA/LPA 的影响。结果表明：(1)条目在潜在类别上的条件概率间距较大、存在清晰的潜在类别时：①对单个量表的条目进行打包，打包后的分类结果与不打包的结果基本一致；②对多个量表的条目进行打包，样本容量与打包数相同时，组成包的条目数越多，打包后的分类效果与不打包结果一致的可能性越大；③对多个量表的条目进行打包，样本容量与组成包的条目数相同时，打包数越多，越有利于得到与不打包一致的分类结果；(2)条目在潜在类别上的条件概率间距较小、存在程度差异较多的潜在类别时，打包的模型支持率明显低于不打包的结果，而且难以得出打包数、组成包的条目数、样本容量与分类效果之间的关系。

关键词 潜在类别分析，潜在剖面分析，项目打包法，分类效果，蒙特卡洛模拟

Can item parceling be used in latent profile analysis:

A Monte Carlo simulation study

Meng-Cheng Wang, Qiaowen Deng, Jiaxin Deng
Center for Psychometrics and Latent Variable Modeling, Guangzhou University, Guangzhou, China

Abstract：Latent Class Analysis (LCA) and Latent Profile Analysis (LPA) have become popular statistical methods for modelling latent population heterogeneity. Due to the benefits of using item parcels, researchers use parcels as indicators in LCA/LPA models. However, no studies explore its rationality. By using parcels instead of items as model indicators, the original information of items will be covered to a certain extent. Hence, it is essential to explore whether item parcels will influence the accuracy of class enumeration.

Via applying Monte Carlo simulation methods, we generated artificial data to compare the performance of parcels with items under different LCA/LPA modeling conditions. Each simulation was repeated 200 times for each condition of the combinations: sample sizes, number of parcels and number of items in each parcel. The sample data were generated and analyzed with Mplus8.0.

Results found that latent class distance plays an important role in class enumeration when using parcels as latent variable indicators. When analyzing a unidimensional scale in LCA/LPA model which class distance is large, the class enumeration of parcels is consistent with the results of items. When the model analyzes more than one unidimensional scale with large class distance, the model evaluation is influenced by sample sizes, number of parcels and number of items in each parcel. Parcels perform well with more number of items in each parcel across sample size and number of parcels. In addition, parcels perform well with more number of parcels. However, when the latent class distance of the un-parcel model is small, making the right judgement of model evaluation is much smaller with parcels as indicators. Also, it is hard to achieve coincident results in consideration of sample sizes, number of parcels and number of items in each parcel.

The simulation indicates that item parcels can be used under large latent class distance and a single unidimensional scale condition. When the model composes of more than one unidimensional scale with large latent class distance, the combinations of sample sizes, number of parcels and number of items in each parcel should be considered. It is unsuitable to use item parcels when the latent class distance of the un-parcel LCA model is small.

Keywords：latent class analysis, latent profile analysis, item parceling, class enumeration, Monte Carlo simulation

小学生社会情感能力、学校人际关系和学业成就：基于交叉滞后分析

杨佳奇[1]　邓宇泽[1]　王烨晖[1]（通讯作者）
1 北京师范大学中国基础教育质量监测协同创新中心，北京，100875，yehuiwang@bnu.edu.cn

摘 要　社会情感能力对学生发展具有积极的促进作用，近年来受到政策制定者和教育研究者的广泛关注，与学业成就并列为学生学校学习的两大主要任务。以往研究表明，同伴关系和师生关系作为学校人际关系的主要组成部分，与社会情感能力和学业成就具有紧密的关联。但以往的横断研究和纵向研究大多数

关注同伴接纳和同伴拒绝，少有研究探讨其他同伴关系指标（如社会偏好和社会影响）的作用，使得社会情感能力、社会偏好、社会影响、师生关系和学业成就之间的纵向关系尚不明确。此外，由于学生与教授不同科目的教师可能具有不同的师生关系，有必要基于不同科目对师生关系的作用进行研究。基于此，本研究采用分层随机抽样法，使用社会情感能力量表、师生关系量表、同伴提名法和学业成就测验（阅读、数学和科学）对 3995 名四年级学生首次进行调查，时隔两年后，再次对这批学生进行追踪（n=2789），并使用 Mplus 8.3 建立交叉滞后面板模型探究小学生社会情感能力、社会偏好、社会影响与不同科目背景下的师生关系和学业成就之间的纵向关系。结果显示，在阅读、数学和科学三个科目中，学生社会情感能力、学业成就和师生关系两两之间均存在显著的正向预测关系，且学业成就和社会偏好之间也能够相互预测。另外，学生社会情感能力、社会偏好、社会影响、师生关系和学业成就之间的预测作用在不同科目背景下存在差异。总体而言，本研究揭示了小学生社会情感能力、学校人际关系以及学业成就之间的相互预测关系，为提高学生社会情感能力和学业成就、促进其建立积极的同伴关系和师生关系提供了启示。此外，本研究通过考虑这些因素在特定科目中复杂的相互预测关系，能够对特定学科的教育方法和教育政策的制定提供实证依据。

关键词　社会情感能力，学业成就，师生关系，社会偏好，社会影响

Reciprocal Associations among Social-emotional Competence, School Interpersonal Relationships and Academic Achievements in Primary School: based on Cross-lagged Analysis

Jiaqi Yang [1], Yuze Deng [1], Yehui Wang [1]

1 Collaborative Innovation Center of Assessment toward Basic Education Quality, Beijing Normal University, Beijing, 100875

Abstract **：** In recent years, social-emotional competence has been underscored by policymakers and researchers due to its positive influence on students' development. And it alongside academic achievement, is recognized as a crucial aspect of students' school learning. Previous studies have highlighted the strong associations between peer and teacher-student relationship and both social-emotional competence and academic achievement. However, the majority of these studies have focused primarily on peer acceptance and rejection, neglecting other indicators of peer relationships, such as social preference and social impact. As a result, the longitudinal associations among social-emotional competence, social preference, social impact, teacher-student relationship, and academic achievement remain unclear. Furthermore, considering that students may have different relationships with teachers across different subjects, there is a need for research that examines the role of subject-specific teacher-student relationship. In light of these gaps, this study utilized a stratified random sampling method to investigate the reciprocal associations among social-emotional competence, social preference, social impact, teacher-student relationships, and academic achievements in reading, mathematics and science of primary school students. The Social Emotional Competence Scale, Teacher-Student Relationship Scale, Peer Nomination Method, and Academic Achievement Tests (Reading, Mathematics, and Science) were administered to a sample of 3,995 fourth-grade students. Two years later, the same tests were readministered to the same group of students (n=2789), and a cross-lagged panel model was developed using Mplus 8.3 to explore the reciprocal associations among social-emotional competence, social preference, social impact, teacher-student relationships, and academic

achievements in reading, mathematics and science. The results of the study revealed positive reciprocal associations between students' social-emotional competence, academic achievements, and teacher-student relationships in the subjects of reading, mathematics, and science. Additionally, academic achievements and social preference demonstrated reciprocal predictions. Moreover, the predictive effects of social-emotional competence, social preference, social influence, teacher-student relationships, and academic achievements varied across different subjects. Overall, this study demonstrates the reciprocal associations among primary school students' social-emotional competence, teacher-student relationships, academic achievements, and peer relationships. These findings provide evidence for enhancing students' social-emotional competence and academic achievements while fostering positive peer and teacher-student relationships. Furthermore, by considering the complex interplay of these factors within specific subjects, this study offers insights for subject-specific educational approaches and the development of educational policies.

Keywords ： Social-emotional competence, Academic achievements, Teacher-student relationship, Social preference, Social impact

父母自我效能感量表在中国父母中的效度和测量不变性：探索性结构方程模型

成嘉园[1] 高美慧[1] 费史恩宇[1] 陈维[1,2]（通讯作者）

1 贵州师范大学心理学院，贵阳，550025

2 贵州师范大学心理大数据研究中心，贵阳，550025，chenweipsy@yeah.net

摘 要 小学生的内在化障碍与青少年焦虑症、抑郁的发展有关，并且可以被视为青少年情绪的延续和积累。基于班杜拉的社会认知理论父母自我效能感高的个体对孩子表现出积极的态度、观点和信念。PSE预防性养育行为的一个重要决定因素，并与健康的儿童发展密切相关。但是 PSES 目前仅有英文版本且国内关于父母自我效能的研究较少。所以本研究将 PSES 汉化且在中国父母中进行效度和测量不变性探讨。我们最终回收有效问卷 403 份组成样本 1，其中父母的平均年龄 37.25（SD=3.69）岁，年龄范围 23-56 岁，孩子的平均年龄 8.67（SD=0.97）。六个月后对同一批被试进行重测获得样本 2，有效配对问卷 225 份，其中父母的平均年龄 38.99（SD=3.47）岁，年龄范围 32-53 岁，孩子的平均年龄 10.40（SD=1.02）。结果显示，PSES 的 Cronbach's α=0.89，具有良好的内部一致性信度。校标效度我们选用 PSI-SF 和 SDQ 作为标准。PSES 与 PSI-SF 和 SDQ 的 4 个困难分量表之间存在显著的负相关，表明具有良好的判别效度。与 SDQ 的长处分量表呈正相关，具有良好的收敛效度。结构效度下，单因素模型的拟合指数达到理想水平，采用传统的验证因子分析（CFA）和探索性结构方程建模（ESEM）对 PSES 的因子结构进行了检验和比较；ESEM 的结果显示 PSES 符合单维性的构想，χ^2=38.677，*df*=27，CFI=0.991，TLI=0.988，SRMR=0.024，RMSEA=0.033，模型拟合良好。而且项目 8 在中文版中并不会影响总量表的结果，这与之前的研究不同。随后，本研究检验了 PSES 的跨父母性别和纵向测量不变性。在性别不变性中，形态等值、弱等值、强等值和严格等值四个模型的 CFI 指标在 0.929~0.934 之间，TLI 指标在 0.962~0.975 之间，SRMR 在 0.035~0.099 之间，RESEA 指标在 0.053~0.059 之间，达到了心理测量学的基本要求，表明 PSES 没有性别差异。在纵向不变性中，形态等值、弱等值、强等值和严格等值四个模型检验中，CFI 指标在 0.922~0.942 之间，TLI 指标在 0.920~0.930 之间，SRMR 指标在 0.058~0.108 之间，RMSEA 指标在 0.039~0.059 之间，均达到模型拟合良好的标准。综上所述，PSES 中文版具有良好的效度，可能被证明是未来研究和儿童和家庭治疗干预的有用工具。

关键词 父母的自我效能感，PSES，ESEM，效度

The validity and measurement invariance of the Parental Self-efficacy Scale (PSES) in Chinese parents: An exploratory structural equation model

Cheng, Jiayuan[1] GAO, Meihui[1] FEI, Shienyu[1] Chen, Wei[1,2]

[1] School of Psychology, Guizhou Normal University, Guiyang 550025, China
[2] Psychology Big Data Research Center, Guizhou Normal University, Guiyang 550025, China

Abstract:The internalization disorder of primary school students is related to the development of adolescent anxiety and depression, and can be regarded as the continuation and accumulation of adolescent emotions. Based on Bandura's social cognitive theory, individuals with high parental self-efficacy show positive attitudes, opinions and beliefs toward their children. PSE is an important determinant of preventive parenting behavior and is strongly associated with healthy child development. However, there are only English versions of the PSES , and there are few domestic studies on parental self-efficacy. In this study, PSES will be translated into Chinese and validity and measurement invariance will be explored in Chinese parents. We finally collected 403 valid questionnaires and composed sample 1, in which the mean age of parents was 37.25 (SD=3.69) years, the age range was 23-56 years, and the average age of children was 8.67 (SD=0.97). Six months later, the same group of subjects were retested to obtain sample 2, with 225 valid matching questionnaires, in which the average age of parents was 38.99 (SD=3.47) years old, the age range was 32-53 years old, and the mean age of children was 10.40 (SD=1.02). The results showed that Cronbach's α of PSES =0.89 had good homogeneity reliability. Criterion validity We chose PSI-SF and SDQ as the criterion. There were significant negative correlations between PSES and the four Difficulties subscales of PSI-SF and SDQ, indicating good discriminant validity. It is positively correlated with SDQ's Strengths subscales and has good convergence validity. Under the structural validity, the fitting index of the single-factor model reached an ideal level, and Exploratory Structural Equation Modeling (ESEM) was used to examine the PSES factor structure. The results of ESEM showed PSES，χ^2=38.677，*df*=27，CFI=0.991，TLI=0.988，SRMR=0.024， RMSEA=0.033, and the model was well fitted. Moreover, item 8 in the Chinese version does not affect the results of the total table, which is different from previous studies. Subsequently, the present study examined the PSES of cross-parent gender and longitudinal measurement invariance. In the gender measurement invariance of configural invariance, metric invariance, scalar invariance and strict invariance models, CFI ranged from 0.929 to 0.934, TLI ranged from 0.962 to 0.975, SRMR ranged from 0.035 to 0.099, and RESEA ranged from 0.053 to 0.059. The basic requirements of psychometrics were met, showing that there was no sex difference. In the longitudinal measure invariance test of configural invariance, metric invariance, scalar invariance and strict invariance models, CFI ranges from 0.922 to 0.942, TLI ranges from 0.920 to 0.930, SRMR ranges from 0.058 to 0.108, and RMSEA ranges from 0.039 to 0.059. All the models meet the standard of good fit. In summary, the PSES Chinese version has good validity and may prove to be a useful tool for future research and therapeutic interventions in children and families.

Keywords:Parental self-efficacy; PSES; ESEM; validity

基于项目反应理论的中文版黑暗人格四联征量表修订

刘梦君[2] 万富裕[2] 刘拓[1,2,3]

1 教育部人文社会科学重点研究基地天津师范大学心理与行为研究院，天津，300387

2 天津师范大学心理学部，天津，300387

3 学生心理发展与学习天津市高校社会科学实验室，天津，300387

Email: liutuo@tjnu.edu.cn

摘要 本研究以 Paulhus 等人(2021)开发的短式黑暗四联征量表(the short Dark Tetrad scale, SD4)为基础，修订出了适用于国内的中文版黑暗人格四联征量表 (SD4-C)。研究首先使用探索性因素分析对量表结构进行初探；其次使用项目反应理论 GRM 模型进行项目分析，并根据分析结果对项目进行修改和筛选，形成正式版量表；最后对正式版量表进行信效度检验，并再次对量表题目进行项目分析。最终量表共 12 道题目，包括马基雅维利主义、自恋、精神病态和施虐狂 4 个维度；总量表的 Cronbach α系数为 0. 661，四个维度的α系数分别为: 0.633, 0.672, 0.557 和 0.730。CFA 验证性结果显示量表结构较好 (χ^2 / *df* = 5.721, CFI = 0.933, TLI = 0.902, RMSEA = 0.057, SRMR = 0.045)；使用大五人格极简版量表(CBF-PI-B) 作为校标，结果显示黑暗人格各维度与大五人格各维度之间相关在[0.015, 0.339]，效度良好。最终量表项目区分度在[0.974, 3.552]之间，四维度区分度均值为 1.609, 2.011, 1.497 和 2.337，项目难度参数在[-4.558, 4.367]之间。综上结果显示该研究修订的中文版黑暗人格四联征量表各项指标均达到了心理测量学要求，可供后续研究使用。

关键词 中文版黑暗人格四联征量表，项目反应理论，等级反应模型，探索性因素分析

The revision of the Chinese version of the short Dark Tetrad Scale (SD4-C) based on Item Response Theory (IRT)

Mengjun Liu[2] Fuyu Wan[2] Tuo Liu[1,2,3]*

1 Key Research Base of Humanities and Social Sciences of the Ministry of Education, Academy of Psychology and Behavior, Tianjin Normal University, Tianjin 300387, China

2 Faculty of Psychology, Tianjin Normal University, Tianjin 300387, China

3 Tianjin Social Science Laboratory of Students' Mental Development and Learning, Tianjin 300387, China

* Correspondence: liutuo@tjnu.edu.cn

***Abstract*:** Based on the short Dark Tetrad Scale (SD4) developed by Paulhus et al. (2021), this study revised the Chinese version of the short Dark Tetrad Scale (SD4) for China. Our study firstly used exploratory factor analysis (EFA) to explore the structure of the scale; secondly, we used item response theory (IRT) GRM model to analyze the items, and then modified and screened the items according to the results of the analysis to form the revised version of the scale; finally, we conducted a reliability test on the revised version of the scale, and then analyzed the items on the questions of the scale again. The final scale consisted of 12 questions, including four dimensions: Machiavellianism, narcissism, psychopathy and sadism; the Cronbach's alpha coefficient of the total scale was 0.661, and the alpha coefficients of the four dimensions were 0.633, 0.672, 0.557, and 0.730, respectively. The CFA results showed good scale structure (χ^2 / *df* = 5.721, CFI = 0.933, TLI = 0.902, RMSEA = 0.057, SRMR = 0.045). Using Chinese Big Five Personality Inventory-15 scale as a criterion, the results showed that the correlation between the dimensions of the dark tetrad and the Big Five personality was [0.015, 0.339]. The item discrimination of the final scale ranged from [0.974, 3.552], the mean values of the four-dimensional

discrimination were 1.609, 2.011, 1.494, and 2.337, and the item difficulty parameter ranged from [-4.558, 4.367]. The results show that the revised Chinese version of the short Dark Tetrad Scale meets the psychometric requirements and can be used in subsequent studies.

***Keywords*：** the Dark Tetrad Scale for Chinese version (SD4-C), Item Response Theory (IRT), Graded Response Model (GRM), Exploratory Factor Analysis (EFA)

中文版知识隐藏量表在青少年中的信效度检验——基于 CTT、GT 和 IRT 的分析

邱婷[1]　罗杰[1]（通讯作者）

1 贵州师范大学心理学院，贵阳，550025　luojiegznu@163.com

摘 要 基于经典测量理论、概化理论和项目反应理论检验中文版知识隐藏量表(Knowledge Hiding Scale, KH)在青少年群体中的信效度。结果显示：（1）项目分析结果显示，KH 各条目的题总相关均大于 0.50 (*p*s<0.01)，独立样本 *t* 检验均达到显著水平(*p*<0.001)，项目区分度在[0.72, 3.00]之间，项目难度参数在[-2.58,3.57]之间；（2）验证性因素分析各拟合指标达到可接受水平(CFI=0.948, TLI=0.933, SRMR=0.056, RMSEA=0.065)，且各条目在所属目标维度上的因素负荷均在 0.40 以上；多组测量不变性分析显示，KH 的三因子模型满足跨性别不变性;（4）效标效度方面，KH 各分量表和全量表与人际不信任得分和神经质得分呈显著正相关(*ps*<0.05)、与知识共享得分呈显著负相关(*ps*<0.05)，合理化隐藏分量表和全量表与知识囤积呈显著正相关(*ps*<0.05)，装傻、逃避式隐藏分量表和全量表与宜人性得分呈显著正相关(*ps*<0.01)，装傻分量表与尽责性得分呈显著正相关(*ps*<0.05)；（5）信度分析中，装傻、逃避式隐藏、合理化隐藏分量表和 KH 全量表的α系数分别为 0.80、0.77、0.76 和 0.83，合成信度为 0.82、0.77、0.77 和 0.81，概化系数为 0.80、0.77、0.76 和 0.87，可靠性指数为 0.75、0.77、0.76 和 0.86。综上可知，中文版知识隐藏量表在我国青少年群体中具有良好的心理测量学特性，可作为测量青少年知识隐藏行为的有效工具。

关键词 知识隐藏量表，经典测量理论，概化理论，项目反应理论，青少年

Psychometric Properties of the Chinese Version of Knowledge Hidding Scale (C-KH) in Chinese Adolescents: Based on the CTT, GT and IRT

QIU Ting[1]　LUO Jie[1]

[1] School of Psychology, Guizhou Normal University, Guiyang 550025, China

***Abstract*:** The reliability and validity of the Chinese version of Knowledge Hidding Scale (C-KH) in adolescents was tested based on classical testing theory, generalizability theory and item response theory. The results showed that: (1) the item-total correlations of all items greater than 0.5 (*ps*<0.01), independent samples' t-test reached the measurement standard(*p*<0.001), and the item differentiations were between [0.72, 3.00] and the item difficulty parameters were between [-2.58, 3.57]; (2) for the confirmatory factor analysis, each fitting index reached the acceptable standard(CFI=0.948, TLI=0.933, SRMR=0.056, RMSEA=0.065) , the factor load of each item in the

target dimension was above 0.40, and the multi-group confirmatory factor analysis showed that the KH had full strict measurement invariance across gender; (4) KH subscales and total scale were significantly positively correlated with interpersonal distrust scale and neuroticism scale(*p*s<0.05) and significantly negatively correlated with the knowledge sharing scale (*ps*<0.05), the rationalized hidding subscale and total scale showed significantly positively correlated with knowledge hoarding(*ps*<0.05), the playing dumb and evasive hidding subscales and total scale showed significantly positively correlation with agreeableness scale(*ps*<0.01), and the playing dumb subscale was significantly positively correlated with conscientiousness scale(*ps*<0.05); (5) the Cronbach's alpha of the playing dumb, evasive hidding, rationalized hidding subscales and total scale were 0.80, 0.77, 0.76 and 0.83, the omega were 0.82, 0.77, 0.77 and 0.81, the generalization coefficients were 0.80, 0.77, 0.76, and 0.87, and the dependability indexes were 0.75, 0.77, 0.76, and 0.86, respectively. In sum, the Chinese Knowledge Hiding Scale is a reliable and valid instrument for assessing knowledge hiding behavior in adolescents.

Keywords**:** knowledge hidding scale, classical testing theory, generalization theory, item response theory, adolescents

基于贝叶斯协方差 Lasso 的多层异质性因子分析模型及其应用

潘俊豪[1]（通讯作者），Edward Ip[2]

1 中山大学心理学系，广州，510006，panjunh@mail.sysu.edu.cn

2 Wake Forest University School of Medicine, USA

摘 要 近年来，生态瞬时评估(Ecological Momentary Assessment; EMA)数据已经被广泛应用到心理学的多个领域。Ansari 等人(2002)在验证性因子分析模型(Confirmatory Factor Analysis; CFA)的基础上，提出了异质性 CFA(Heterogeneous CFA)模型，以分析个体重复测量的 EMA 数据。在该模型中，虽然均值以及因子载荷参数允许随个体而变化，但假设因子结构在不同个体中保持不变，即该模型以满足形态不变性(Configural Invariance)为重要前提。本研究通过允许个体水平残差相关以放宽上述模型形态不变性的限制，把机器学习中 Lasso(Least Absolute Shrinkage and Selection Operator)正则化方法与异质性 CFA 模型结合，建立多层异质性因子分析模型(Multilevel Heterogeneous CFA)，在平衡模型简约性、模型拟合和参数估计准确性的同时，放宽上述形态不变性的假设，实现对因子结构不同的个体予以识别和区分，将因子结构的探讨从传统的变量层面拓展到个体差异层面。同时，本研究还提出了相应的贝叶斯算法对所提出的模型进行统计推断(包括未知参数估计和模型比较)。计算机模拟研究以及基于情绪 EMA 数据的实证研究均表明所提出的新模型和新方法具备有效性、稳健性和实用性。

关键词 验证性因子分析模型，生态瞬时评估，残差协方差矩阵，Lasso

Multilevel Heterogeneous Factor Analysis Models with Bayesian Covariance Lasso Prior: Statistical Inference and Application

Junhao Pan[1], Edward Ip[2]

3. Department of Psychology, Sun Yat-sen University, China

4. Wake Forest University School of Medicine, USA

Abstract**:** In recent years, ecological momentary assessment (EMA) data has been widely utilized in

various fields of psychology. Ansari et al. (2002) introduced a heterogeneous confirmatory factor analysis (CFA) model to analyze individual repeated measurements EMA data. In their model, they allowed the mean and factor loading parameters to vary across individuals while assuming that the factor structure remains constant across different individuals, meeting the requirement for configural invariance. However, this study relaxes the assumption of configural invariance by considering correlated residuals at the individual level. By combining the least absolute shrinkage and selection operator (Lasso) regularization method from machine learning with the heterogeneous CFA model, this study presents a multilevel heterogeneous CFA model. This model enables the identification and differentiation of individuals with different factor structures, expanding the exploration of factor structures from the traditional variable level to the individual difference level. The model strikes a balance between simplicity, model fit, and parameter estimation accuracy. Moreover, this study proposes corresponding Bayesian algorithms for statistical inference, including the estimation of unknown parameters and model comparison. The effectiveness, robustness, and practicality of the proposed model and method are demonstrated through simulation studies and empirical study based on emotion EMA data.

Keywords：Confirmatory Factor Analysis, Ecological Momentary Assessment, Residual Covariance Matrix, Lasso

密集追踪研究中测量跨时间等价性的检验

刘红云[1]（通讯作者） hyliu@bnu.edu.cn

1 北京师范大学心理学部，北京，100875

摘 要：追踪研究中测量工具满足跨时间等价性是后续分析的基础。近年来随着研究问题的不断深入和数据收集方法和存储方式的发展，密集型追踪研究设计在心理学研究中越来越普遍。然而，由于密集型追踪数据具有测量时间点多，测量时间间隔不等的特点，传统的用于分析长期追踪数据测验等价性的方法，如纵向因素分析，并不适应于密集型追踪数据。但是如何检验密集型追踪数据跨测量时间点的等价性，这一问题尚没有很好的解决。

本文的目的是尝试将含惩罚的结构方程模型的方法用于密集型追踪研究中测量跨时间等价性的检验。文章首先简要介绍密集型追踪数据等价性检验中，含惩罚结构方程模型的定义和检验逻辑；其次通过一个模拟研究检验含惩罚的结构方程模型在检验等价性方面的表现，并探讨样本量（50,100,200）、测量时间点（30,60,100）、不等价参数所占比例（10%，20%），以及不等价参数差异大小（载荷参数：0.4 和 0.6; 截距参数：0.25 和 0.5）对检验结果的影响。另外，文章还将结合一个实际例子演示含惩罚的结构方程模型在检验测量跨时间等价性中的应用，为应用研究者提供实现检验方法和正确解释结果的范例。最后，我们简要谈论方法应用和选择的建议，以及未来需进一步研究的问题。

关键词：密集追踪数据，测量等价性，含惩罚结构方程模型

Testing of measurement invariance across time in intensive longitudinal data

Hongyun Liu

Faculty of Psychology, Beijing Normal University, Beijing, 100875

Abstract: The literature on longitudinal research have argued that measurement invariance of measured constructs need to be addressed regardless of the type of analysis that involves data collected from more than one time point. Assumption of invariance has to be tested to ensure that the measurement is on the same metric at each

measurement occasion. If such assumption is not met, any conclusion about between-time differences or change in the constructs is not substantial. Recently, the intensive longitudinal method (ILM) has gained popularity over the last decade with the advancement on communication and data storage technology. However, unlike longitudinal panel method, longitudinal measurement invariance has not been widely discussed in ILM. This could partly due to the unique data composition in which there may be more variables measured across the measurement occasions (T) than participants (N) which renders estimation problem in conventional longitudinal confirmatory factor analysis approach with the wide-form data.

This paper aims to test measurement invariance across timepoint using the penalized structural equation model (PSEM). Firstly, we briefly introduce the penalized structural equation model for testing longitudinal measurement invariance for intensive longitudinal data. Then, a simulation study is conducted to examine the performance of the PSEM. The factors of sample size (N=50, 100, and 200), measurement occasion (T = 30, 60, and 100), the percentage of non-invariance overall measurement occasions for that particular parameter (10% and 20%), and the size of the non-invariance (for loading 0.4 and 0.6; for thresholds 0.25 and 0.5) are considered in the simulation study. Next, an empirical example is analyzed for illustration purposes. In addition, pros and cons of the model, as well as issues for further research will also be discussed.

Keywords: intensive longitudinal data, measurement invariance, penalized structural equation model

二阶潜增长模型两种标准化估计的比较

温忠麟 （通讯作者） 王一帆

华南师范大学心理学院/心理应用研究中心, 广州, 510631, wenzl@scnu.edu.cn

摘 要 潜增长模型（LGM）是分析追踪数据的一种重要方法。LGM 是一种特殊的因子模型，但不能像通常的因子分析那样得到参数的标准化估计。对于一阶 LGM，求解标准化估计的方法是将时间点 1 的变量 X_1 进行标准化变换，其他时间点的变量逐一进行与时间点 1 相同的变换（即减去 X_1 的均值后除以 X_1 的标准差），对变换后的变量进行建模，便可得到标准化估计。

对于使用多个指标测量的潜变量，比较精确的 LGM 建模方法是从指标出发建立潜变量 LGM（也称为二阶 LGM，是二阶因子模型的特例）。因为二阶 LGM 中的一阶因子（即潜变量）的均值和方差都不是模型的参数，所以不能直接对时间点 1 的潜变量η_1进行标准化。

Yang 等（2021）在指标的信度已知或者合成分数的信度已知的假设下，提出了潜变量标准化标度方法（简称为信度已知的标准化），可以得到二阶 LGM 的一种标准化估计。但实际应用中上述信度是未知的，因而他们的方法缺乏可操作性。温忠麟等（2023）提出二阶 LGM 的一种两阶段标准化方法：第一阶段，固定η_1的均值为 0、方差为 1，设置负荷和截距有跨时间的不变性，做验证性因子分析；第二阶段：建立二阶 LGM，将指标的截距之和限制为第一时间点各指标的样本均值之和，并将负荷之和限制为第一阶段得到的负荷之和。

本文要研究的问题是，上述二阶 LGM 的两阶段标准化估计方法表现如何？使用文献中常见的 LGM 参数和相应的模型，设计了 4 种样本容量，将两阶段标准化估计与信度已知的标准化估计进行比较。模拟研究结果发现，在估计偏差、均方根误差(RMSE)等评价指标上，两阶段标准化估计与信度已知的标准化估计表现相当，但前者更具可操作性。

关键词 二阶潜增长模型, 标准化估计, 潜变量标准化方法, 两阶段标准化方法

A comparison of two standardized estimation methods of second-order latent growth models

Wen Zhonglin, Wang Yifan
School of Psychology, South China Normal University, Guangzhou 510631, China

***Abstract*:** The latent growth model (LGM) is an important method for analyzing longitudinal data. It is a special type of factor models, but the standardized estimation of the model parameters obtained by conventional factor analysis is not appropriate. For the first-order LGM (i.e., univariate LGM), the standardized estimation method is to standardize the variable at the first time point (X_1) and then perform the same transformation (i.e., subtract the mean of X_1 and then divide it by the standard deviation of X_1) on the variables at the remaining time points. By modeling the transformed variables, standardized estimates can be obtained.

For latent variables measured by multiple indicators, a more precise modeling approach for LGM is to establish a latent variable LGM based on the indicators (also known as the second-order LGM, a special type of second-order factor models). However, since the mean and variance of the first-order factors (i.e., latent variables) in the second-order LGM are not model parameters, it is not possible to directly standardize the latent variable at time point 1 (η_1).

Yang et al. (2021) suggested a standardized estimation method for the second-order LGM (abbreviated as the standardized method with known reliability) under the assumption that the reliability of the indicator or the reliability of the composite score is known. In empirical research, however, the above reliabilities are unknown, so this method is not feasible. Wen et al. (2023) proposed a two-stage standardization method for the second-order LGM. In the first stage, a confirmatory factor analysis is conducted by fixing the mean and variance of η_1 to 0 and 1 respectively, under the assumption that loadings and intercepts are cross-time invariant. In the second stage, a second-order LGM is established, with the constraints that the sum of the intercepts of indicators equals the sum of the sample means of indicators at the first time point, and the total loadings equals the total loadings obtained in the first stage.

The present study investigated the performances of the two-stage standardized estimation method for the second-order LGM. Using common LGM parameters and corresponding models in the literature, we compared two-stage standardized estimates with those obtained by the standardized method with known reliability. Simulation results showed that the two standardized estimation methods performed rather similarly in terms of estimation bias, RMSE (root mean squared error) and other evaluation measures, but the two-stage standardization method turned out to be of greater feasibility.

***Keywords*:** second-order latent growth model, standardized estimate, latent variable standardization method, two-stage standardization method

密集型追踪研究中个体内和个体间信度的评估——基于两水平随机动态模型的方法

肖悦[1] 王璞珏[2] 刘红云[2]（通讯作者） 罗晓慧[2]
1 华东师范大学教育心理学系，上海，200062

2 北京师范大学心理学部，北京，100875，hyliu@bnu.edu.cn

摘 要 密集型追踪研究因在短期内对个体进行频繁、密集地测量，适合用于探究个体内部心理过程的动态变化及其作用机制与个体间差异，已成为近年来心理学领域的一大热点。但是，由于测量时间点非常密集，这类研究中使用的测验工具通常很短，很容易受到测量误差的影响，而关于这些测量是否可靠这一问题并没有受到足够的关注。已有的大多数信度评估方法或是混淆了个体内和个体间水平的变异，或是难以处理个体间差异，并不适用于密集型追踪数据。同时，在密集型追踪数据的建模方法中，测量模型总是被轻视或是直接被忽略。因此，本研究介绍了一个在密集型追踪情境下考虑所关注变量的测量模型的方法——两水平随机动态测量模型（two-level random dynamic measurement model，简称为 2RDM 模型)。该模型建立于密集型追踪数据的常用分析方法之一——动态结构方程模型（dynamic structural equation modeling, DSEM）的框架下，能够有效分离变量的个体内和个体间水平变异。基于 2RDM 模型，本研究讨论了如何进行方差分解，推导出项目和量表的个体内与个体间信度。本研究通过一个小的模拟研究，展现了 2RDM 模型在 Mplus 软件中的实现及信度指标的估计准确性。并且，本研究将所提出方法应用于简版的感知压力量表（Perceived Stress Scale, PSS），以说明该方法对于多维量表的实际应用。使用基于实际数据的 2RDM 模型参数估计值，计算了 PSS 每个项目以及分量表的个体内和个体间信度。结果显示，尽管 PSS 各项目以及分量表的个体间信度较高，均达到 0.7 以上，但是个体内信度都存在很大的个体间差异，也即，对于一部分人来说，该工具并不能可靠地测量出其实际状态的波动。

关键词 个体内信度，个体间信度，密集型追踪数据，两水平随机动态测量模型，个体间差异

Assessing Intra- and Inter-individual Reliabilities in Intensive Longitudinal Studies: A Two-Level Random Dynamic Model-Based Approach

Yue Xiao[1], Pujue Wang[2], Hongyun Liu[2] (corresponding author), Xiaohui Luo[2]
1 Department of Educational Psychology, East China Normal University, Shanghai, 200062
2 Faculty of Psychology, Beijing Normal University, Beijing, 100875, hyliu@bnu.edu.cn

Abstract： Due to the frequent and intensive nature of measurements, intensive longitudinal studies are suitable for investigating the dynamic changes and the corresponding mechanisms as well as the interindividual differences, and are becoming increasingly popular in psychology. However, measures used in such studies are quite susceptible to measurement errors due to their short lengths and whether they are reliable has not received enough attention. Most existing approaches for assessing reliability are not appropriate for the intensive longitudinal data (ILD) because of the conflation of inter- and intraindividual variations or the difficulty in handling interindividual differences. In addition, measurement models are always relegated or omitted in the ILD modeling approaches. Therefore, in this study, we introduce a two-level random dynamic measurement (2RDM) model for ILD, which takes into account measurement models for key variables of interest. This model is built upon the dynamic structural equation modeling (DSEM) framework that is commonly used for ILD and can separate the between- and within-level variations. Then we discuss how to realize the variance decomposition and derive the within-person and between-person reliabilities for items and scales in the context of the 2RDM model. A small simulation study is presented to illustrate the implementation of the 2RDM model in Mplus and the

reliability estimation. An empirical application is also provided to demonstrate the application of the proposed approach for multidimensional scales, in which we calculated the within- and between-person reliabilities for both items and subscales of a short version of the Perceived Stress Scale. Results showed that although the inter-individual reliabilities of items and subscales were high (＞0.7), there were large inter-individual differences in the intra-individual reliabilities of items and subscales. In other words, for a subset of the participants, the instrument could not reliably measure the intraindividual fluctuations in their states over time.

Keywords： within-person reliability, between-person reliability, intensive longitudinal data, two-level random dynamic measurement model, interindividual differences

错误设定与过度参数化：往复影响模型中的模型选择

都弘彦[1]　刘源[1,2]（通讯作者）

[1]西南大学心理学部，重庆，400715

[2]认知与人格教育部重点实验室，重庆，400715

通讯作者 E-mail:lyuuan@swu.edu.cn

摘 要　往复影响模型(reciprocal effect model)是检验不同潜在心理构念之间纵向关系的常用模型。该系列模型在结构方程模型的框架下能灵活地抽取纵向设计中的不同成分，包括但不限于交叉滞后面板模型(CLPM)、特质-状态-误差模型(TSE)、自回归潜增长模型(ALT)等。由于简单模型在统计上嵌套在复杂模型中，模型设定错误(misspecification，例如，使用错误模型或获得不适当的解)和过度参数化(over-parameterization，例如，所选择模型拟合良好但参数估计不合适的复杂模型)困扰着没有明确理论依据的实证研究者。此外，近年来不少学者基于研究需要在纵向模型的构建过程中拓展出多指标模型，丰富了纵向模型的使用情境。研究旨在基于多指标视角探究纵向模型之间的模型选择，并为实证研究者提供切实的建议。采用模拟研究和实证研究以考察在拟合不同复杂程度数据集时，交叉滞后和自回归参数估计的表现。模拟研究探讨了模型复杂程度、时间点和因子载荷对不同模型拟合表现的影响，共设置 3（真模型）×3（测量时间点）×3（因子载荷）=27 个模拟条件。实证研究则基于美国青年纵向研究(Longitudinal Study of American Youth，LSAY)数据库进行。研究结果发现：（1）不管在何真实数据的情况下，TSE 模型总体优于 CLPM 和 ALT；（2）随着因子载荷和测量时间点的增加，模型参数估计精度得到提升；（3）单指标模型与多指标模型的参数估计结果比较接近。在研究者不确定数据的真实结构如何时，TSE 是更为合适的选择。该模型具有相对精确的估计结果，并且足以检验个体间和个体内成分。此外，通过增加时间点和因子载荷在一定程度上能够提升参数估计的精度。如果只有部分测量指标满足强载荷要求，确保测量指标中至少有一个或两个具有代表性的测量指标对提升估计精度有所帮助。

关键词　往复影响，交叉滞后模型，特质-状态-误差模型，自回归潜增长模型

Misspecification and Over-parameterization: Model Selection in Reciprocal Effect Models

Hongyan Du[1] and Yuan Liu[1,2]

[1] Faculty of Psychology, Southwest University, Chongqing, 400715

[2] Key Laboratory of Cognition and Personality (SWU), Ministry of Education, Chongqing, 400715

Abstract：Reciprocal effect models are popular to examine the longitudinal relationships between different latent psychological constructs. The series of models includes but is not limited to Cross-lagged Panel Model (CLPM), Trait-State-Error Model (TSE), Autoregressive Latent Trajectory Model (LV-ALT), etc. Since the simple models are statistically nested in the complex ones, model misspecification (e.g., using the wrong model or obtaining inappropriate solutions) and over-parameterization (e.g., selecting the complex model good in model fit but inappropriate in parameter estimation) confused empirical researchers without clear theoretical basis. Moreover, many researchers have added multiple indicators to longitudinal models in their empirical research and enriched the family of longitudinal models in recent years. In the present study, we aim to provide instructions for model selection between these longitudinal models based on the multiple-indicator perspective. The study performs a simulation study and empirical study to investigate the performance of the nested models with single and multiple indicators when fitting datasets with different levels of complexity. The simulation study set 3 (true data generating models) × 3 (measurement waves) × 3 (factor loading) = 27 simulation conditions. And the empirical study is based on the database - Longitudinal Study of American Youth (LSAY). Results indicate that (1) TSE family generally outperforms CLPM and ALT families; (2) The estimated accuracy improves as the factor loadings and measurement waves increase; (3) Single-indicator models had close estimates of parameter to the multiple-indicator ones. Irrespective of the datasets, the TSE seems to be the first choice for researchers to use. It has precise estimates and is powerful enough to detect between- and within-person components. In addition, increasing time points and factor loadings can improve the estimated accuracy of the fitted model to some extent. If not all the items have high factor loadings, ensure that there are at least one or two representative items among the indicators.

Keywords：reciprocal effect, cross-lagged panel model (CLPM), trait-state-error model (TSE), autoregressive latent trajectory model (ALT)

时间序列中早期预警信号的阈值探索——基于变点自回归模型

陈照盟[1]　刘玥[1]

四川师范大学脑与心理科学研究院，成都，610066，helena701@126.com

摘 要　精神疾病（如焦虑症等）可被视作复杂动力系统中的不健康状态。基于临界减速理论的早期预警信号有助于预测从健康到精神疾病的转变，并及时实施干预。预警信号在时间序列上通常表现为自回归的突然增加，然而其阈值目前尚没有统一标准，为实际应用带来了困难。变点自回归模型（Change Point Autocorrelation Model，CPAM）通常用于识别心理状态转变的临界点。一般来说，预警信号后会紧接发生状态的转变。因此，本研究提出了一种基于 CPAM 确定预警信号阈值的方法。该方法主要包括三个步骤：第一，对自回归系数定义系列备选阈值（如 1σ,1.5σ,2σ,...等，σ表示所有滑动窗口自相关的标准差）；第二，使用备选阈值发出预警信号，将其作为变点，分别拟合 CPAM 并计算拟合指标（如 AIC）；计算不含变点的 CPAM 的拟合指标；第三，首先将不含变点的 CPAM 的拟合指标与每个备选阈值得到的 CPAM 的拟合指标比较，如果差异小于定义的临界值，则认为不存在状态转变；如果差异大于定义的临界值，则将拟合指标最优模型所对应的备选阈值作为最终阈值。模拟研究使用 Lotka-Volterra 模型生成数据，在包含变点的情况下，变量对当前时刻变化率的影响程度固定为在转换阶段从 0.6 均匀增长至 1.2，基线阶段和转换后阶段分别为 0.6 和 1.2。在不包含变点的情况下变量对当前时刻变化率的影响程度固定为 0.6。时间序列总长度固定为 1000 个时间点，基线阶段和转换后阶段的时间点数量相等，模型残差方差（即噪声）固定为 1。模拟因素包括：转换阶段长度（50，100，200 个时间点）；滑动窗口大小（50，100，200 个时间点）；拟

合指标 AIC 差异临界值（5,10,15,20）。三个因素完全交叉共形成 3*3*4=36 个水平的组合，在每种组合下重复生成 1 个被试的时间序列 1000 次，其中 500 次包含变点，500 次不包含变点。评价标准：真阳性率，假阳性率，识别变点和实际变点的时间差。研究结果表明：（1）随着转换阶段长度的减少，所提出方法选取阈值的表现变好；（2）更大的滑动窗口适合检测转换阶段更短的情况；（3）设置 AIC 差异临界值为 15 时选取的阈值有较低的假阳性率。

关键词　早期预警信号，变点自回归模型，滑动窗口，预警指标阈值

Investigating the Threshold for Early Warning Signals in Time Series Data——Based on Change Point Autoregressive Models

Chen Zhaomeng[1]　Liu Yue[1]

Institute of Brain and Psychological Sciences, Sichuan Normal University, Chengdu,610066

***Abstract*：** Mental illnesses (such as anxiety disorder) can be regarded as unhealthy states in complex dynamical systems. Early warning signals based on critical deceleration theory can predict the transition from health to mental illness in order to apply interventions. Early warning signals usually manifest as sudden increases in autoregression in time series. However, the threshold for signaling a critical transition is still unclear, which limits the application of early warning signals. Change Point Autoregressive Model (CPAM) are often used to identify critical points at which mental states shift. Consequently, the current study proposed a method for determining the threshold of early warning signals based on CPAM. The method has three steps. (1) Define a series of candidate thresholds for autoregressive coefficients (e.g., 1σ, 1.5σ, 2σ,…, σ represents the standard deviation of autocorrelations from all sliding windows). (2) Locate the change points at where the early warning indicator values are above the candidate thresholds, and calculate the model fit index (e.g., AIC) of the corresponding CPAM. The fit index of CAPM without change point is calculated as well. (3) The value of fit index of CPAM without change points is compared to those of CPAM defined based on each threshold. If the difference is less than a pre-defined threshold value, it means that the improvement of model fit is too small. Thus, there is no indication for a change point. Otherwise, the threshold for the best-fitted model according to the fit index is used to locate early warning signal. In the simulation study, data were generated based on a Lotka-Volterra model. In the scenario with change point, the extent of the influence of the variable on the rate of its change (*r(t)*) was fixed as 0.6 and 1.2 at the baseline and period after transition respectively, with linear change in the transition period. In the scenario without change point, *r(t)* remained 0.6 in the whole time series. The time series length was 1000 time points, with equal length of baseline period and after-transition period. Noise intensity (i.e., residual variance of the Lotka-Volterra model) was fixed as 1. The manipulated factors were: length of transition period (50，100，200 time points)；rolling window size(50，100，200 time points)；the threshold of AIC-difference to indicate the existence of change point (5,10,15,20). Therefore, a total of 36 ($3 \times 3 \times 4$) simulation conditions were examined. For each condition, 1000 replications were generated (500 without change points, 500 with change point). The evaluation measures were true positive rate, false negative rate, and the distance between the early warning signal and its true change point. The results showed that as the length of the transition period decreased, the proposed method performed better, especially with smaller sliding window size. Smaller false negative rate was obtained when the threshold of AIC-difference was 15.

***Keywords*：** early warning signs, change point autoregressive model, sliding window, threshold of early warning indicator

3.7“社会心理学专业委员”专题研讨会

00 后大学生榜样认同对积极自我认知的影响探析

——基于榜样特质的多维探索

付丽莎[1]　昂然[1]　方若彤[2]（通讯作者）

1 北京航空航天大学马克思主义学院，北京，100191

2 伦敦大学学院心理与语言科学系，伦敦，WC1E 6BT，通讯作者 E-mail：imfangruotong@163.com

摘 要　榜样认同指的是个体充分认知榜样精神的基础上，经过引导自发产生对榜样的崇敬及模仿心理，最终自觉向榜样学习的一种理想的榜样教育下的人格范式，榜样认同影响着个体积极自我认知的形成。

本研究借助“三元论”理论模型，分析了 00 后大学生的榜样认同对其情感、认知、行为三个维度的影响。研究自编《大学生榜样认同及心理机制调查问卷》，自变量为榜样有无和榜样特质，因变量分为情感、认知、行为三个角度，其中情感维度的因变量包括自尊和生命意义感；认知维度的因变量包括自我同一性；行为维度的因变量包括匿名亲社会行为、成就动机和性格外倾程度。

研究发现，在情感方面，有榜样的人表现出更高的自尊水平和更强的生命意义感，且 00 后大学生对榜样积极态度的认同程度越高，其自尊水平也就越高；在认知方面，有榜样的人有更强的自我同一性，个体对榜样知名度和积极态度的认可都会带来更稳定的自我同一性，但对榜样财富水平的认同会降低自我同一性水平；在行为方面，有榜样的人更希望取得成就、更期待向外界展现自我，同时有更高的可能性在匿名的情况下帮助他人，进一步分析榜样特质对个体自我认同的影响，发现榜样知名度与成就动机、榜样个人美德与匿名亲社会行为、榜样积极态度与性格外倾程度之间均有显著正相关关系，而榜样的财富水平则对 00 后大学生匿名亲社会的意向产生负面的影响。

基于以上结果，本研究认为 00 后大学生群体能够感知榜样的价值观、行为标准和行为倾向等方面的特质，并将这些特质融入自我观念，形成积极的自我认知。在这一过程中建立起的积极自我认知能够为个体在社会实践中提供情感、认知、行为层面的积极引导。研究通过考察榜样对 00 后大学生自我认知的影响，厘清了榜样认同在大学生情感、认知、行为层面积极态度形成的作用路径，能够更好地指导大学生在树立榜样的过程中发现自我意义、完善自我构建，实现自我价值。

关键词　榜样认同，榜样特质，积极自我认知，态度三元论，00 后大学生

Influence of Role Model Identification on Positive Self-Cognition of the Post-00s College Students --A Multidimensional Analysis Based on Role Model Traits

Fu Lisha[1]　Ang Ran[1]　Fang Ruotong[2] (Corresponding Author)

1 School of Marxism, Beihang University, 37# Xueyuan Rd., Haidian District, Beijing, China

2 Division of Psychology and Language Sciences, University College London, Gower Street, London, United Kingdom, Email: imfangruotong@163.com

Abstract：Role model identification refers to an ideal personality paradigm under role model education, in which an individual recognizes the spirit of role models, spontaneously generates respect and imitation for role models through guidance, and consciously learns from role models. Role model identification influences the formation of an individual's positive self-cognition.

Referring to the triadic theoretical model, this study analyzes the influence of role model identification in three aspects, namely emotion, cognition, and behavior, of post-00s college students. The study compiled the *Role Model Identification and Psychological Mechanisms of College Students* questionnaire. The independent variables were role model presence and role model traits. The dependent variables were divided into emotion, cognition, and behavior groups. The dependent variables of the emotion group included self-esteem and meaning in life. The dependent variable of the cognition group included self-identity. The dependent variables of the behavior group included anonymous prosocial behaviors, achievement motivation, and extraversion of personality.

It was found that, from the perspective of emotion, people who had role models showed higher levels of self-esteem and a stronger sense of meaning in life. The higher the level of identification with positive attitudes of role models, the higher the level of self-esteem of post-00 college students. From the perspective of cognition, people who had role models were in stronger self-identity. Individuals' recognition of role models' popularity and their positive attitudes would lead to a higher level of self-identity, but role model identification of their wealth would reduce the level of self-identity. From the perspective of behavior, people who had role models had stronger desires to achieve success and to present themselves in public. They also have a higher likelihood of helping others anonymously. Discussing the effects of role model traits on an individual's self-identity, the study found that there was a statistically significant positive correlation between the role model's popularity and college students' achievement motivation, between the role model's virtues and individual's anonymous pro-social behaviors, and between the role models' positive attitudes and the extroversion of personality. While role models' wealth negatively affected individuals' intention of anonymous pro-social behaviors of post-00 college students.

Based on the above analysis, this study finds that post-00 college students can perceive the qualities of values, behavioral standards, and behavioral tendencies of role models, and integrate these qualities into their self-cognition. The positive self-cognitions established in this process provide positive guidance for individuals in social interactions in the aspects of emotion, cognition, and behavior. By examining the influence of role models on self-cognition of post-00s college students, the study clarifies the role of role model identification in the formation of an individual's positive attitudes, which can better guide college students to discover the meaning of self, improve the self-construction, and realize their self-value in the process of setting up role models.

Keywords：Role Model Identification, Role Model Traits, Positive Self-Cognition, Triadic Theory of Attitudes, Post-00s College Students

工作倦怠对体验型消费偏好的影响及其内在机制

邢采[1]（通讯作者）周文惠[1] 王霞[2] 鲁宇涛[1]

1 中国人民大学心理学系，北京，100872

2 中国人民大学商学院，北京，100872

通讯作者 E-mail：cxing@ruc.edu.cn

摘 要 每个人都具有不同的社会角色，是工作时的打工人，也是消费时的“上帝”。随着科技的发展，生活与工作之间界限变得模糊，在工作时的状态会影响下班后的行为表现，而在消费时对消费

决策也会产生影响。随着工作节奏变快，工作压力的增加，工作倦怠逐渐成为影响个人产生各种行为的重要因素，并且作为一种稳定的心理因素持续的在生活中产生影响。

个体的每一次的消费都是一次综合状态的决策，消费者会根据自身的需求，个人的状态做出各种消费行为，比如今天下班后是去看哪一场电影或者去买哪一双新出的鞋子。然而，消费者个人状态是不同的，需求也是有先后顺序的，能够满足所有需求的消费很难在同一次消费决策中得到实现，究竟是先看电影还是先买鞋子，消费者往往会面对“厚此就可能薄彼”的处境时。不同的消费方式能够满足的需要不同，根据 Van Boven 的研究结论按照购买的目的不同能够将消费者的消费类型划分为实物型和体验型。当消费者以获得体验为目的时则为体验型消费，重视体验；当消费者以获得某种有形实物为目的则为实物消费，为了拥有或保存。

本研究基于资源保存理论和努力恢复理论，认为个体的工作倦怠状态是一种资源消耗状态，并且会持续到生活状态中，同时做出寻求资源恢复的寻求的需要，这种需要动机被称为恢复需要。在恢复需要寻求动机下进行消费时，面对体验与实物不同的消费类型，基于以往的研究发现，体验消费比实物消费给个体带来的体验优势，积极情绪和幸福感以及心理资本，社会支持更丰富，与自我的联系更加密切，在这种情况下，个体会更倾向选择体验消费。而为了更进一步证明体验消费具备的这种动机满足的功能，本研究结合恢复需要满足的过程中，恢复体验在其中的核心作用，结合体验消费优势认为体验消费可能比实物消费更容易满足恢复体验。基于此，本研究对“经历工作倦怠对消费类型的影响”这一问题进行了深入探讨，并在工作倦怠条件下探索体验型消费的这种对满足恢复体验感的优势是否成立。最后，本研究在工作倦怠-消费类型偏好的影响路径上，对恢复需要的中介作用进行了探索。

研究 1 通过两个子研究探索了工作倦怠与消费偏好的关系和工作倦怠操纵对于消费偏好的影响。结果发现，工作倦怠与体验型消费偏好存在正相关，相比于控制组，工作倦怠组的被试更偏好体验型消费。研究 2 通过操纵工作倦怠探究恢复需要在工作倦怠影响消费类型偏好这一路径上的中介作用。研究 2 发现，工作倦怠后的个体是通过恢复需要的提高而更偏好体验型消费的。研究 3 通过实验研究操纵工作倦怠与消费类型来研究体验型消费的恢复体验调节作用。研究结果显示：工作倦怠和消费类型对于个体的恢复体验存在交互作用，在工作倦怠组，相比回忆实物消费的被试而言，回忆体验消费的被试报告更高的恢复体验；研究 3 从恢复体验调节的角度解释了研究 1 的结果，即当经历工作倦怠时，个体偏好购买体验的原因之一是因为体验型消费可以帮助获得恢复体验，满足寻求恢复需要的动机。

综上，本研究深入探究了工作倦怠对个体消费类型偏好的影响，并探究了其中的中介过程，以及体验型消费在工作倦怠下对个体恢复体验满足的积极作用。具体而言，本研究发现经历工作倦怠时，个体会更偏爱体验型消费，个体的恢复需要在其中起到中介作用。同时，工作倦怠时，体验型消费能够帮助个体获得更高的恢复体验。

关键词　工作倦怠,体验型消费，消费类型,恢复体验,资源保存理论

The Underlying Effect of the Promoting Role of Job Burnout on Experiential Consumption

Cai Xing[1], Wenhui Zhou[1], Xia Wang[1], Yutao Lu[1]

1　Department of Psychology, Renmin University of China, Beijing, 100872

2　Business School, Renmin University of China, Beijing, 100872

Abstract： As society develops and the line between life and work begins to blur, the link between an individual's role as a worker at work and his or her role as a consumer in life becomes stronger. Various factors

such as work stress can influence consumer choices. Research has shown that consumer decisions are influenced after experiencing work stress and work conflict. Compared to material consumption, experiential consumption delivers greater and persistent well-being and it is emerging as an extremely important consumption pattern. However, it is unclear how being at work affects consumers' preferences for experiential consumption. Based on the Conservation of Resources theory, four experiments were conducted to examine how job burnout affects consumers' preferences for experiential consumption.

Experiment 1a and Experiment 1b explored the effects of job burnout on consumption type preferences. Experiment 1a (*N*=200) was a questionnaire study and Experiment 1b (*N*=198) manipulated job burnout experimentally. Experiment 2 (*N*=300) built on Experiment 1b by manipulating job burnout, replicating the effect of job burnout on preference for experiential consumption choice, and further validating the mediating role of need for recovery between job burnout and preference for experiential consumption. Experiment 3 (*N*=200) used a 2 (job burnout vs. control condition) x 2 (physical vs. experiential consumption) between-subjects design to explore the advantages of experiential consumption in terms of recovery functions from a recovery experience perspective.

The main findings of this study are as follows: (1) Individuals in a state of job burnout prefer experiential consumption. (2) Need for recovery mediates the relationship between job burnout and preference for experiential consumption. Specifically, job burnout increases consumers' preference for experiential consumption by increasing their need for recovery. (3) Compared to physical consumption, experiential consumption has a higher recovery function and provides consumers with more recovery experiences. In summary, resource recovery is an important mechanism by which job burnout increases experiential consumption.

This study has theoretical and practical implications, confirming that job burnout positively affects consumers' preferences for experiential consumption and that experiential consumption has advantages in terms of restoring the experience, which provides references for promoting employees' subjective well-being and improving companies' marketing strategies.

***Keywords*：** job burnout, experiential consumption, consumption type, recovery experience, conservation of resource theory

恐惧管理理论视角下的性别化饮食：死亡凸显对两性健康饮食的影响

高阳[1*] 陆可心[2] 席欣佳[1] 甘雅晴[1]

1 西北大学公共管理学院，西安，710127，

2 同济大学心理健康教育与咨询中心，上海，200092

[*]通讯作者 E-mail：20185300@nwu.edu.cn

摘 要 公共健康宣教中常常采用凸显不健康饮食的致病和致死风险来促进大众的健康饮食，但对其效果及其作用机制却鲜有探讨。饮食不仅关乎健康，其在社会生活中也具有重要的性别文化意义：国内外研究均表明，人们普遍具有“肉类为偏男性化食物”、“蔬菜水果为偏女性化食物”的食物性别刻板印象。而恐惧管理理论的大量研究证实，在面对致死风险的死亡凸显后，人们会更加依从社会文化，当然也包括性别文化。那么，在面对健康宣教中的死亡凸显时，是否会影响两性对于饮食性别刻板文化的依从？进而影响其健康饮食呢？本研究通过两个实验展开探讨：实验一在死亡凸显（或控制）操纵后，采用饮食刻板印象量表（GBFISS）评估两性被试对饮食性别刻板文化的依从，发现死亡凸显后，两性被试对于饮食性别刻板文化认同程度都更高；实验二进一步考察在死亡凸显（或控制）操纵后，

两性被试对于典型男性化和女性化食物的选择，发现死亡凸显后，女性倾向选择典型的女性化食物（小份精致的蔬菜），而男性倾向选择典型的男性化食物（大份粗糙的肉）。这些结果说明在死亡凸显后两性会更加依从饮食性别刻板文化，选择符合自身性别刻板文化的食物，这可能反而导致男性更不健康的饮食。

关键词　恐惧管理理论，死亡凸显，饮食刻板文化，食物性别

Gendered Food Consumption from the Perspective of Terror Management Theory: The Effect of Mortality Salience on Gender-Specific Health Diets

Gao Yang[1], Lu Kexin[2], Xi Xinjia[1], Gan Yaqin[1]
1.School of Public Management, Northwest University, Xi' an, 710127
2. Mental Health Education and Counseling Center of Tongji University, Shanghai, 200092

Abstract： Public health education often utilizes highlighting of the risks of unhealthy diets and their association with disease and mortality to promote healthier eating habits among the general population. However, there is a limited exploration of its effectiveness and underlying mechanisms. Food consumption not only relates to health but also holds significant gender cultural implications in social life. Studies have consistently demonstrated the existence of food gender stereotypes, such as the perception of meat as predominantly masculine food and vegetables and fruits as predominantly feminine foods. Extensive research on Terror Management Theory has confirmed that individuals tend to conform to social and cultural norms, including gender norms when faced with mortality salience, a heightened awareness of mortality risk. Thus, when confronted with death salience in health education campaigns, does it influence adherence to gendered food stereotypes and subsequently impact individuals' health diets? This study aims to investigate this question through two experiments. Experiment 1 manipulated mortality salience (compare to the control condition) and assessed the conformity to gendered food stereotypes using the Gender-based food intake stereotype scale (GBFISS) among male and female participants. The findings revealed that male and female participants exhibited higher conformity to gendered food stereotypes when facing death. Experiment 2 further examined the food choices of male and female participants regarding prototypical masculine and feminine foods after mortality salience (compare to the control condition). The results indicated that females tended to choose prototypical feminine foods (smaller portions of vegetables), while males tended to choose prototypical masculine foods (larger portions of meat) after death salience. These findings suggest that individuals tend to conform more to gendered food stereotypes and select foods that align with their gender norms after experiencing death salience, potentially leading to less healthy eating patterns, particularly among males.

Keywords： terror management theory， mortality salience， gendered food consumption stereotype，gendered food stereotypes

抵抗或顺从：算法意识下的网络浏览决策行为研究

元英[1]　石垠[2]（通讯作者）　张晗瑄[1]　苏缇[2]

1 北京师范大学新闻传播学院，北京，100875

2 北京师范大学教育学部，北京，100875，shiyin@bnu.edu.cn

摘 要　随着大数据技术的不断发展，算法日益深入到我们的日常生活中。受限于自身的思维和运算能力,人们一方面依赖算法对数据进行挖掘、解析、排序和配置来获取有用信息,另一方面，又困扰于个人被算法推荐机制裹挟而产生的对个人获取信息自主性“失权”的冲击。算法意识下，人们为什么会出现算法顺从和算法抵抗，又是如何在网络浏览中产生算法权力的让渡行为？本研究从用户内生体验的角度出发，采用 2×2 的混合实验设计，以算法意识和浏览目的为自变量，考察网络浏览决策的行为变化。研究结果发现，算法意识显著减少人们浏览单条信息的时间，但增加浏览信息数量和继续浏览意愿。无论是否存在浏览目的，人们均认为被告知是算法推荐产生信息的浏览体验更好（尽管实验中所有的信息均为随机呈现）。算法意识提高人们对信息的内控感，进而增加算法顺从行为。本研究通过对移动新媒体用户顺从与抵抗算法影响因素的研究，为帮助用户摆脱技术无意识状态，达成算法善用具有一定的帮助。

关键词　算法意识，算法权力，顺从，抵抗，内控

Resistance or Compliance: A Study of Web-browsing Decision-making Behavior under Algorithmic Consciousness

Yuan Ying[1], Shi Yin[2](corresponding author), Zhang Hanxuan[1], Su Ti[2]

1 School of Journalism and Communication, Beijing Normal University, Beijing, 100875

2 Faculty of Education, Beijing Normal University, Beijing, 100875, shiyin@bnu.edu.cn

Abstract：With the continuous development of big data technology, algorithms are increasingly penetrating into our daily life. Restricted by their own thinking and computing power, people rely on algorithms to mine, analyze, sort and configure data to obtain useful information on the one hand, and on the other hand, they are disturbed by the impact of "disempowerment" of personal autonomy in obtaining information when they are held hostage by algorithmic recommendation mechanism. Under algorithmic awareness, why do people become algorithmically compliant and algorithmically resistant, and how do they cede algorithmic power in web browsing? This study examines behavioral changes in web browsing decisions from the perspective of endogenous user experience, using a 2×2 mixed experimental design with algorithm awareness and browsing purpose as independent variables. The results of the study found that algorithm awareness significantly reduced the time people spent browsing a single message, but increased the number of messages browsed and their willingness to continue browsing. Regardless of the presence or absence of browsing purpose, people perceived a better browsing experience when they were told that the algorithmic recommendation generated the information (even though all the information in the experiment was presented randomly). Algorithmic awareness increases people's sense of internal control over information, which in turn increases algorithmic compliance behavior. By studying the influencing factors of mobile new media users' compliance and resistance to algorithms, this study is helpful in helping users to get rid of the state of technological unconsciousness and reach algorithmic good use.

Keywords：Algorithmic consciousness, algorithmic power,compliance, resistance, internal control

感恩对创新决策的影响：自尊的中介作用

王晓宇[1] 张玉凤[1]（通讯作者）
1 北京师范大学教育学部，北京，100875，zhangyf19@bnu.edu.cn

摘 要 感恩作为一种积极情绪，对于个体心理健康和组织良性发展具有重要的促进作用。近年来，学界逐渐开始关注感恩对决策的影响机制，却很少有研究关注在组织管理领域感恩对个体创新决策的影响及其内在机制。本研究通过四个一系列的实验，深入探讨了感恩对组织中的个体创新意愿和行为的影响及其机制。研究一采用特质感恩量表和创新意愿量表，初步证实了特质感恩对个体创新意愿和行为的正向预测作用。研究二进一步探讨了在两种具体的决策情境下，特质感恩对个体创新意愿和行为的影响。研究三采用实验操控的方式，证实了状态感恩与个体在具体决策情境下的创新意愿之间的因果关系。研究四进一步探讨了自尊在感恩与组织中的个体创新意愿之间关系中的中介作用机制。总之，本研究系统探讨了感恩对组织中的个体创新决策的影响，及其自尊在二者关系中的中介作用，拓展了感恩在组织管理领域中的影响研究，对于促进组织管理情境中的员工创新行为具有重要的启示作用。

关键词 感恩，创新，决策，自尊

How gratitude affects innovative decision making: the mediating role of self-esteem

Xiaoyu Wang
Faculty of Education, Beijing Normal University, Beijing, 100875
Yufeng Zhang
Faculty of Education, Beijing Normal University, Beijing, 100875

Abstract： Gratitude, as a specific positive emotion, has been proved to predict individual well-being and organizational development positively. Recently researchers have paid increasing attention to how gratitude affects decision making, yet little research has explored the effect of gratitude on innovative intention in organizational behavior. Therefore, the present research aimed to examine how gratitude affects innovative intention and behavior and the underlying mechanism, and four studies were conducted to test our two hypotheses. Study 1 examined how trait gratitude affects innovative intention by scales and preliminarily supported our main hypothesis. Study 2 further explored the relationship between trait gratitude and innovative intention in specific scenarios. Study 3 experimentally manipulated state gratitude and tested the causal link between gratitude and innovative intention. Study 4 explored the mediating role of self-esteem in the relationship between gratitude and innovative intention. The present research adds evidence to how gratitude affects decision making in organizational settings, and have practical implications on how to stimulate organizational innovative behavior.

Keywords： gratitude, innovation, decision, self-esteem

追求稳定还是无私奉献：街头官僚在风险决策中的避责倾向

秦川申　孟悦

上海交通大学国际与公共事务学院，上海，200030

摘 要　街头官僚是直接与公众互动的公职人员，在执行工作时具有实质性的自由裁量权。一方面，由于日常工作中需要面临复杂琐碎的公共事务，街头官僚可能通过自由裁量权让自己的工作变得安全和轻松；另一方面，公职人员的公共服务动机驱动街头官僚在处理公共事务时具有奉献精神。既有研究指出街头官僚在风险决策中由于风险厌恶而存在避责倾向。但是街头官僚在不同概率以及不同框架下是否都存在避责倾向？这些避责倾向是否存在差异？这些差异如何受到公共服务动机的调节？这些问题还有待研究。本文基于上海基层公务员样本，采用实验设计，以台风应急管理为情景，从避责视角对街头官僚的风险决策进行了研究，检验了不同概率水平（大概率 vs 小概率）的框架效应（收益框架 vs 损失框架）如何对街头官僚的避责倾向产生影响。研究发现：（1）概率水平的主效应显著，在大概率风险决策中，街头官僚有更高的避责倾向；（2）框架效应的主效应显著，在损失框架风险决策中，街头官僚有更高的避责倾向；（3）概率水平和框架效应的交互效应显著，在大概率损失框架的风险决策中，街头官僚有更高的避责倾向；（4）公共服务动机能够调节风险条件对避责倾向的影响，更高的公共服务动机削弱了风险决策情景的影响。本研究整合了外部风险决策条件和内在公共服务动机，深化了对街头官僚避责倾向机制的解释；此外，本研究也进一步将心理学与公共管理进行融合，丰富了行为公共管理的应用。

关键词　风险决策，框架效应，概率水平，街头官僚，避责倾向

Stability or selflessness: street bureaucrats' intention to avoid blame in risk decision-making

Chuanshen Qin　　Yue Meng

1 School of International and Public Affairs, Shanghai Jiao Tong University, Shanghai, 200030

Abstract：Street-level bureaucrats are public officeholders who interact directly with citizens and have substantive discretion in the execution of their work. On the one hand, because of the complexity of public affairs in their daily task, street-level bureaucrats may use discretion to make work safe and easy. On the other hand, the public service motivation (PSM) of public officials drives street-level bureaucrats to sacrifice themselves in the conduct of public affairs. Previous studies have indicated that street-level bureaucrats intend to avoid blame due to risk aversion in risk decision-making. However, the following questions remain unanswered. Do street-level bureaucrats intend to avoid blame in different probabilities and framings? Are there differences in intention of blame avoidance? How are these differences moderated by PSM? Based on the sample of grassroots civil servants in Shanghai, applying experimental design in a scenario of typhoon emergency management, this study explains the risk decision-making of street-level bureaucrats from the perspective of blame avoidance. Specifically, this study examines how the framing effect (gain-framed vs loss-framed) of different probability levels (high probability vs small probability) affects the street-level bureaucrats' intention to avoid blame. The results show that (1) the main effect of probability level is significant, and street-level bureaucrats have a higher intention to avoid blame in high-probability risk decision-making. (2) The main effect of the framing effect is significant, and in the loss-framed condition, street-level bureaucrats have a higher intention to avoid blame. (3) The interaction

effect of probability level and framing effect is significant, and in the risk decision of high probability loss-framed condition, street-level bureaucrats have a higher intention to avoid blame. (4) PSM can moderate the influence of risk conditions on the intention to avoid blame, and higher PSM weakens the impact of risk decision-making conditions. This study synthesizes the external risk decision-making conditions and intrinsic public service motivation to deepens the explanation of the mechanism of street-level bureaucrats' intention to avoid blame. In addition, this study further integrates psychology and public administration, enriching the application of behavioral public administration.

Keywords：risk decision-making, framing effect, probability level, street-level bureaucrats, intention to avoid blame

3.8“临床与咨询心理学专业委员会”专题研讨会

超强台风后青少年自我同情与内化问题发展的关系：反刍发展变化的作用

黄佳丽　周宵（通讯作者）

浙江大学心理与行为科学系，杭州，310028，通讯作者 E-mail: psyzx@zju.edu.cn

摘 要　内化问题在青少年群体中普遍存在，可能会影响到他们的外化问题、学业问题等。自我同情理论和现有研究表明，自我同情高的个体能够不回避也不过分沉溺于消极情绪，可能通过反刍的情绪调节方式对内化问题产生影响。然而目前对青少年内化问题的机制探讨主要关注变量自身水平层面，这忽略了影响因素对内化问题发展的影响作用，以致青少年内化问题干预效果缓慢。为此，本研究采用纵向追踪数据来探究经历台风利奇马后青少年积极和消极自我同情与内化问题发展变化的关系，以及侵入反刍和主动反刍发展变化的中介作用。研究采用自陈量表获取台风后青少年三次追踪数据 1342（$M_{年龄}$ 17.14，SD = 1.54；44.6% 为男生），被试报告了他们在台风后 3 个月（T1）的创伤暴露和积极、消极自我同情，以及他们在台风后 3 个月、15 个月（T2）和 27 个月（T3）的侵入反刍、主动反刍和内化问题（创伤后应激障碍和抑郁）。潜变量增长模型结果发现，台风后青少年的内化问题、侵入反刍和主动反刍均呈显著下降趋势。潜变量增长中介模型结果发现，消极自我同情不仅可以直接地正向预测内化问题的截距，还可以间接地分别通过侵入反刍和主动反刍的截距，或通过侵入反刍的截距经主动反刍的截距产生影响；消极自我同情可以直接或间接地通过侵入反刍的斜率对内化问题斜率产生负向影响。积极自我同情可以直接或间接地通过主动反刍的截距对内化问题的截距产生负向影响，但对内化问题的斜率没有影响作用。这些结果说明消极自我同情主要通过侵入反刍对青少年台风后内化问题的初始水平和变化速率产生消极影响，积极自我同情则主要通过主动反刍对青少年内化问题产生缓解作用，但这一作用只体现在初始水平层面。该研究结果提示临床工作者在对青少年内化问题进行干预时应将重点放在缓解消极层面上，减轻青少年消极自我同情和侵入反刍，从而加速内化问题的下降过程，而非通过促进积极自我同情和主动反刍只缓解当下的内化问题。

关键词　内化问题，积极和消极自我同情，侵入反刍，主动反刍，潜变量增长中介模型

The relationship of self-compassion and the development of internalizing problems among adolescents following super typhoon Lekima: the role of the development of rumination

Jia-li HUANG, Xiao ZHOU
Department of Psychology and Behavioral Sciences, Zhejiang University Hangzhou China

Abstract: Internalizing problems is considered common among adolescents, which is associated with externalizing problems and low academic achievement. Self-compassion theory and prior studies have posited that individuals with high level of self-compassion are able not to avoid or overindulge in negative emotions, which may associate with internalizing problems via rumination. However, the literature of the mechanism of adolescents' internalizing problems mainly focused on variables themselves, and ignored exploring the influence of risk factors on the development of internalizing problems, which may lead to low intervention effect. Therefore, in this study, longitudinal data was used to explore the associations of positive self-compassion (PSC) and negative self-compassion (NSC) with the development of internalizing problems, and the mediating role of the development of intrusive rumination (IR) and deliberate rumination (DR) among adolescents following super typhoon Lekima. The data of 1342 longitudinal adolescents was collected using self-report scale (44.6% were boys; *M*age = 17.14 years old, *SD* = 1.54). Participants reported their trauma exposure, PSC and NSC 3 months after typhoon (T1), as well as IR, DR, and internalizing problems (posttraumatic stress disorder and depression) 3, 15, and 27 months after typhoon (T1- T3). The results of latent univariate growth models showed decrease in ID, DR, and internalizing problems over time. The latent growth mediation model indicated that NSC was not only directly predicted the intercept of internalizing problems, but also indirectly via the intercept of IR and DI respectively, or indirectly via the intercept of IR and then to the intercept of DR; NSC negatively predicted the slope of internalizing problems directly, or indirectly via the slope of intrusive rumination. PSC could negatively predict the intercept of internalizing problems directly, or indirectly via the intercept of DR, but have no prediction in the slope of internalizing problems. The results indicate that NSC has a negative effect on the initial level and decline rate of internalizing problems after typhoon mainly through IR, while the alleviating role of PSC on internalizing problems mainly through DR, only showing at initial level. That advises clinical workers paying more attention to alleviating the negative aspects of adolescents, reducing NSC and IR to accelerate the decline rate of internalization problems. Promoting their PSC and DR could only alleviate the current internalization problems.

Keywords*:* internalizing problems, positive and negative self-compassion, intrusive rumination, deliberate rumination, latent growth mediation model

基于网络分析探索大学生童年创伤类型、创伤后应激障碍与抑郁的关系及性别差异

刘艾祎[1] 刘明宵[1] 任怡臻[1] 林文舟[1] 伍新春[1,2](通讯作者)
1 北京师范大学心理学部，北京，100875
2 北京师范大学应用心理学院（珠海校区），广东，519087，xcwu@bnu.edu.cn

摘 要　研究目的：经历童年创伤的大学生常常表现出创伤后应激障碍（PTSD）和抑郁等心理病理性症状，而二者又在经历过童年创伤的群体中高病名。然而，目前对童年创伤群体的干预在有效性上存在局限，而探究不同童年创伤类型与成年后个体不同的心理病理性症状是精准化干预的基础。本研究旨在运用网络分析探究不同类型童年虐待、PTSD 和抑郁之间的复杂联系。方法：本研究从 5,231 名大学生中筛选出 481 名经历过童年创伤，并达到 PTSD 和抑郁症状临床诊断值的被试（平均年龄为 19.25 岁，女性占比 54.5%）。被试分别完成了经过信效度检验的测量工具，用于评估童年创伤、PTSD 和抑郁症状。结果：对整体样本进行的网络分析显示出不同类型童年虐待、PTSD 症状簇和抑郁之间的强相关。在 PTSD 和抑郁中最核心的症状是负性认知和情绪改变，而情感虐待在不同类型童年创伤类型中显示出最高的中心性。在比较不同性别子网络的中心性时发现，性虐待、身体忽视、情感忽视和回避等节点上存在显著的性别差异。结论：本研究的发现确认了不同形式的童年创伤与成年后的心理病理症状之间复杂而多面的联系。此外，负性认知和情绪改变可能是最显著的症状，而情感虐待可能在不良心理结果中起着重要作用。此外，在不同性别个体中，虐待类型和心理病理症状存在显著差异。

关键词　童年期创伤，创伤后应激障碍，抑郁，网络分析

Exploring Gender Differences in the Relationships Among Childhood Maltreatment, PTSD, and Depression in young adults through Network Analysis

Aiyi Liu[1], Mingxiao Liu[1], Yizhen Ren[1], Wenzhou Lin[1], Xinchun Wu[1, 2*]

[1]Beijing Key Laboratory of Applied Experimental Psychology, National Demonstration Center for Experimental Psychology Education (Beijing Normal University), Faculty of Psychology, Beijing Normal University, Beijing 100875, China

[2]School of Applied Psychology, Beijing Normal University at Zhuhai, Zhuhai, Guangdong 519087, China

Abstract ： *Background and objectives:* College students who have experienced childhood maltreatment commonly exhibit psychopathology symptoms such as post-traumatic stress disorder (PTSD) and depression. However, the current interventions for childhood maltreatment are limited in their efficacy. The aim of this study is to use network analysis to investigate the complex connections among various types of childhood maltreatment, PTSD, and depression. *Methods:* This study involved 481 participants (*M* = 19.25 years, 54.5% female) who were selected from a larger sample of 5,231 college students. These participants had experienced childhood maltreatment and exhibited significant clinical symptoms of PTSD and depression. The participants completed validated measures that assessed childhood trauma, PTSD, and depression. *Results:* The network analysis performed on the entire sample revealed robust connections among various types of childhood maltreatment, symptom clusters of PTSD, and depression. The most central symptom that emerged was negative alterations in cognitions and mood emerged (NACM), with emotional abuse displaying the highest centrality measure among the various types of childhood maltreatment. Upon comparing the subnetworks, the centrality analysis identified significant gender differences in nodes such as sexual abuse, physical neglect, emotional neglect, and avoidance. *Conclusions:* The study's findings confirm that various forms of childhood abuse have intricate and multifaceted connections with psychopathological symptoms in adulthood. The study suggests that NACM could be the most

significant symptom, and emotional abuse may play a vital role in adverse psychological outcomes. Furthermore, significant differences were observed in the types of abuse and psychopathological symptoms among individuals of different genders.
Keywords: Childhood maltreatment; PTSD; Depression; Network analysis

童年期虐待和欺凌受害的模式及其与大学生创伤后应激障碍症状的关系：自我同情的中介作用

刘明宵[1] 刘思含[1] 刘艾祎[1] 余晓晴[1] 伍新春[1,2](通讯作者)

1 北京师范大学心理学部，北京，100875

2 北京师范大学应用心理学院（珠海校区），广东，519087，xcwu@bnu.edu.cn

摘 要 家庭和校园是个体社会化的主要场所，对个体发展起着重要的作用。目前大多数研究分别探究了来自家庭和学校逆境的影响。然而，家庭虐待和校园欺凌受害可能同时发生，进而对个体产生共同影响。鉴于两者关系密切，只关注一种环境的逆境形式会高估这一创伤事件的作用。因此，本研究将同时关注家庭和学校这两种逆境形式。采用潜在剖面分析识别中国大学生在发展早期受到的家庭虐待和欺凌受害的模式，并检验不同模式对创伤后应激障碍(post-traumatic stress disorder, PTSD)症状的影响及自我同情的中介作用。采用童年期虐待、欺凌受害、自我同情和 PTSD 量表，对来自河北和湖北的 5231 名大学生(男生 2171 人，女生 3060 人，平均年龄 19.40 ± 1.47 岁)进行调查，并采用潜在剖面分析和结构方程模型进行数据分析。结果发现：（1）家庭虐待和欺凌受害模式可分为五个亚群组：低风险组(72.6%, *n* = 3800)、忽视组(14.2%, *n* = 742)、欺凌受害组(8.1%, *n* = 425)、严重虐待组(2.9%, *n* = 152)和多重受害组(2.1%, *n* = 112)；（2）与低风险组相比，严重虐待组、欺凌受害组和多重受害组表现出更强的 PTSD 症状，而忽视组表现出更低 PTSD 症状；（3）以低风险组为基准组，积极和消极的自我同情在严重虐待组、欺凌受害组和多重受害组与 PTSD 症状的关系中起并行中介作用，而在忽视组中起到完全中介的作用。本研究为揭示家庭虐待和欺凌受害的模式提供了新的视角，强调了关注个体可能存在的不同创伤模式的重要性，以及针对不同的群体培养自我同情能力的必要性。

关键词 童年期虐待，欺凌受害，自我同情，创伤后应激障碍症状，潜剖面分析

Profiles of Childhood Maltreatment and Bullying Victimization and Their Associations with Posttraumatic Stress Disorder Symptoms among College Students: The Mediating Role of Self-Compassion

Mingxiao Liu[1], Sihan Liu[1], Aiyi Liu[1], Xiaoqing Yu[1], Xinchun Wu[1,2*]

[1]Beijing Key Laboratory of Applied Experimental Psychology, National Demonstration Center for Experimental Psychology Education (Beijing Normal University), Faculty of Psychology, Beijing Normal University, Beijing 100875, China

[2]School of Applied Psychology, Beijing Normal University at Zhuhai, Zhuhai, Guangdong 519087, China

Abstract: Family and school are both crucial for youth development because they are the main places of socialization. Most current studies have examined impact one of adversities from family or school and not both in a single study, but family maltreatment and bullying victimization may co-occur and exert a joint impact on youth.

Given the high correlation between them, focusing on only one form of environmental adversity overestimates the role of this traumatic event. Therefore, we identified the profiles of family and peer victimization and then explored how these profiles are related to post-traumatic stress disorder (PTSD) symptoms through self-compassion. In total, 5231 college students ()were recruited from Hebei and Hubei provinces in mainland China in this study and completed questionnaires for childhood maltreatment, bullying victimization, self-compassion, and PTSD. The latent profile analysis and structural equation model were used for data analyses. In total, five profiles were identified: low-risk (72.6%, *n* = 3800), neglect (14.2%, *n* = 742), bullying victimization (8.1%, *n* = 425), severe maltreatment (2.9%, *n* = 152), and doubly disadvantaged (2.1%, *n* = 112). Compared with the low-risk group, the severe maltreatment, bullying victimization, and doubly disadvantaged groups report higher levels of PTSD symptoms, whereas the neglect group was more negatively related to PTSD symptoms. Meanwhile, compared with the low-risk group, positive and negative self-compassion exerted mediating functions in the relationship between severe maltreatment, bullying victimization, and doubly disadvantaged groups association with PTSD symptoms but a full mediating role in the neglect group. The identification of maltreatment and victimization profiles suggests that interventions need to be administered to college students in the specific profiles. This study reveals new insights into the patterns of childhood maltreatment and bullying victimization in Chinese youths and implies that the importance of focusing on the different patterns of trauma. It also highlights the necessity of developing self-compassion for distinct groups.

Keywords **：** childhood maltreatment, bullying victimization, self-compassion, post-traumatic stress disorder symptoms, latent profile analysis

警察工作倦怠的潜在类别转变及其影响因素

程选[1]　安媛媛[1]（通讯作者）

[1]南京师范大学心理学院，南京，210097，anran220@163.com

摘 要　工作倦怠是指个体因为不能有效应对工作上延续不断的各种压力，而产生的一种长期性反应，包括情绪衰竭(emotional exhaustion, EE)、玩世不恭(cynicism, Cy)和成就感低落(decreased professional efficacy, PE)。警察群体面临高压力、高风险的工作任务，可能发展出不同类型的工作倦怠模式，但以往研究较少关注警察工作倦怠潜在类别及其转变情况。本研究于 2020 年 5 月(T1)、2020 年 9 月(T2)和 2021 年 1 月(T3)三次对 325 名警察(78.77%男性)的工作倦怠水平进行了追踪施测，采用潜在剖面分析和潜在转变分析方法探究警察工作倦怠类型转变及其影响因素。结果发现：(1)T1 时警察工作倦怠存在“中 EE-中 Cy-中 PE”(占比 69.54%)、“高 EE-高 Cy-中 PE 组”(占比 30.46%)两种类型，T2 和 T3 时警察工作倦怠存在“低 EE-低 Cy-低 PE”(T2 占比 32.31%；T3 占比 32.62%)”、“中 EE-中 Cy-中 PE”(T2 占比 52.62%；T3 占比 53.54%)和“高 EE-高 Cy-中 PE”(T2 占比 15.08%；T3 占比 13.85%)三种类型；(2)性别和警种与 T1 两种工作倦怠类型关联显著(*p*s < 0.05)，年龄和受教育水平与 T2 三种工作倦怠类型关联显著(*p*s < 0.05)，婚姻状况和受教育水平与 T3 三种工作倦怠类型关联显著(*p*s < 0.05)；(3)从 T2 到 T3，警察工作倦怠的三种类型均保持较高的稳定性(转变概率为 0.811~0.926)；(4)婚姻状况能显著预测警察工作倦怠类型从 T2 到 T3 的转变(*p*s < 0.05)。研究结果有助于深化对警察群体工作倦怠发展模式的理解，并提示管理部门有必要对警察的社会人口学信息进行多方位了解，对其工作倦怠进行动态监测，以便根据不同类型和社会人口学特点制定更具针对性的预防和干预方案。

关键词　工作倦怠，警察，潜在剖面分析，潜在转变分析

The profiles and transition patterns of police officers' burnout and its effect factors: A latent transition analysis

Xuan Cheng[1], Yuanyuan An[1] (Corresponding author)
[1] School of Psychology, Nanjing Normal University, Nanjing, China, anran220@163.com

Abstract: Burnout refers to a long-term reaction that individuals experience due to their inability to effectively cope with various ongoing pressures at work, including emotional exhaustion (EE), cynicism (CY), and decreased professional efficiency (PE). The police officers face high pressure and high-risk work tasks, and may develop different burnout patterns. However, previous studies have paid less attention to the profiles and transition patterns of police officers' burnout. This study tracked and measured the level of burnout among 325 police officers (78.77% male) three times in May 2020 (T1), September 2020 (T2), and January 2021 (T3). Latent profile analysis and latent transition analysis were used to explore the profiles and transition patterns of police officers' burnout and their effect factors. The results showed that: (1) At T1, there were two patterns: "medium EE-medium Cy-medium PE" (69.54%) and "high EE-high Cy-medium PE" (30.46%). At T2 and T3, there were "low EE-low Cy-low PE" (32.31% for T2; 32.62% for T3), "medium EE-medium Cy-medium PE" (52.62% for T2; 53.54% for T3), and "high EE-high Cy-medium PE" (15.08% for T2; (accounting for 13.85%) three patterns; (2) There was a significant correlation between gender and police type and the two patterns of burnout in T1 (ps < 0.05), age and education level were significantly correlated with the three patterns of burnout in T2 (ps < 0.05), and marital status and education level were significantly correlated with the three patterns of burnout in T3 (ps < 0.05); (3) From T2 to T3, the three patterns of police officers' burnout maintain high stability with a transition probability of 0.811 to 0.926; (4) Marriage status can significantly predict the transition of police officers' burnout patterns from T2 to T3 (ps < 0.05). The results of the study help to deepen the understanding of the development patterns of police officers' burnout, and remind the management department of the need to understand the social demography information of the police from multiple perspectives, and dynamically monitor their burnout, so as to formulate more targeted prevention and intervention programs according to different types and social demography characteristics.

Keywords: burnout, police, latent profile analysis, latent transition analysis

有童年期人际创伤的大学生复杂性创伤后应激障碍和抑郁症状共存模式及性别差异

林文舟[1] 伍新春[12]
1 应用实验心理北京市重点实验室，心理学国家级实验教学示范中心（北京师范大学），北京 100875
2. 北京师范大学应用心理学院（珠海校区），广东 519087 伍新春 xcwu@bnu.edu.cn

摘 要 童年期人际创伤可能导致个体在青春期和成年早期出现 CPTSD 和抑郁障碍的症状，并且影响其社会适应和身心健康。本研究旨在以经历过童年期人际创伤的大学生群体为研究对象，鉴别这一群体中 CPTSD 和抑郁障碍之间的关系，识别其相关风险因素，并考察其性别差异，对于有效开展预防和干预具有重要意义。为此，本研究采用网络分析方法，构建一个囊括所有 CPTSD 和抑郁症状的共存网络，探索 CPTSD

和抑郁在这一群体中的症状表现，并使用网络比较检验男性和女性样本在 CPTSD 和抑郁症状表达上的差异。结果发现：

（1）在 CPTSD 和抑郁症状共存网络中，存在五个子网络，分别为 PTSD 子网络、DSO 子网络、抑郁情绪伴躯体化症状子网络、抑郁情绪伴人际关系子网络、缺乏积极情绪子网络。其中，抑郁情绪、人际关系问题、感到失败和回避症状是共存网络的核心症状，情绪调节困难、高度警觉和孤独感是两种障碍之间的桥接症状。

（2）从宏观上来看，CPTSD 和抑郁症状共存网络均是由 CPTSD 症状激发抑郁症状，且是由 PTSD 症状簇激发 DSO 症状簇。噩梦是触发两种障碍的初始症状，没有任何一个节点指向它。食欲不振、活力减退是两种障碍的末端症状，不触发任何节点。

（3）CPTSD 和抑郁共存网络的性别差异主要体现在抑郁症状上。男性以抑郁情绪激活和维持共存网络；女性除情绪外，还受人际关系影响。二者在抑郁子网络中的激活路径也不同，女性从抑郁情绪伴人际关系子网络激活共存网络，而男性更多从抑郁情绪伴躯体化子网络激活共存网络。

总之，本研究首次在经历过童年期人际创伤的大学生群体中，利用网络分析模型，构建了 CPTSD 和抑郁症状共存的网络，在症状层面探讨了 CPTSD 和抑郁症状的共存模式，并得到以下结论：（1）PTSD、DSO 和抑郁是不同但相关的结构；（2）情绪调节困难、高警觉和孤独感在 CPTSD 和抑郁的共存中起到了关键作用；（3）CPTSD 和抑郁共存潜在的因果机制可能是 PTSD 激活 DSO，进而引发抑郁；（4）CPTSD 和抑郁共存的性别差异重点在于抑郁子网络的激活和维持有所不同。

关键词 CPTSD，抑郁，网络分析，共存模式，童年期创伤

THE CO-OCCURRENCE PATTERNS AND GENDER DIFFERENCES OF CPTSD AND DEPRESSION SYMTOMS AMONG COLLEGE STUDENTS WHO EXPERIENCED CHILDHOOD MALTREATMENT

Wenzhou Lin[1], Xinchun Wu[12]

1. Faculty of Psychology, Beijing Normal University, Beijing 100875, China；
2. School of Applied Psychology, Beijing Normal University at Zhuhai, Guangdong 519087, China

Abstract **：** Childhood maltreatment may lead to CPTSD and depression symptoms in adolescence and early adulthood, and affect their social functioning and mental health. Therefore, identifying the relationship between CPTSD and depressive disorder among college students who experienced childhood maltreatment, recognizing their associated risk factors, and examining their gender differences are important for developing effective prevention and intervention strategies. This study used network analysis to construct a co-occurrence network of all CPTSD and depression symptoms, and explored the symptom expression of CPTSD and depression in this population. Moreover, our study used network comparison test to compare the male and female samples in terms of CPTSD and depression symptom expression. We found that:

(1) In the co-occurrence network of CPTSD and depression symptoms, there were five sub-networks, namely PTSD, DSO, depressive mood with somatic symptoms, depressive mood

with interpersonal problems, and lack of positive affect sub-networks. Depressive moods, relationship problems, feel defeated, avoidance symptoms were the core symptoms of the co-occurrence network, and emotion dysregulation, hyperarousal and loneliness were the bridge symptoms between the two disorders.

(2) From a macro perspective, the co-occurrence network of CPTSD and depressive disorder symptoms was activated by CPTSD symptoms, and the PTSD symptom cluster activated the DSO symptom cluster. The node of nightmares was the initial symptoms that triggered the two disorders, and no node pointed to it. Loss of appetite and reduced vitality were the end symptoms of the two disorders, and did not trigger any node.

(3) The gender difference in the co-occurrence network of CPTSD and depression is mainly reflected in the depression symptoms. Males activate and maintain the co-occurrence network with depressive mood, while females were affected by interpersonal problems in addition to emotional problems. They also have different activation paths in the depression sub-network. Females activate the co-occurrence network from the depressive mood with interpersonal relationships sub-network, while males more often activate the co-occurrence network from the depressive mood with somatic symptoms sub-network.

In summary, our study was the first to construct a co-occurrence network of CPTSD and depressive disorder symptoms in college students who experienced childhood interpersonal trauma, using network analysis model and without the boundaries defined by existing diagnostic criteria. Our study explored the co-occurrence pattern of CPTSD and depression symptoms at the symptom level, and obtained the following conclusions: (1) PTSD, DSO and depression were different but related structures; (2) emotion regulation difficulties, hyperarousal and loneliness played a key role in the co-occurrence of CPTSD and depression; (3) the potential causal mechanism of CPTSD and depression co-occurrence might be that PTSD activated DSO, which then led to depression; (4) the gender differences in CPTSD and depression co-occurrence were mainly in the activation and maintenance of the depression sub-network.

Keywords：CPTSD, Depression, Network analysis, Co-occurrence pattern, Childhood trauma

一线医务工作者的心理应激反应、影响因素及干预策略的研究进展：以新冠疫情为例

周宁宁[1] 申了[1] 田雨[1] 席居哲[1]（通讯作者）

1 华东师范大学心理与认知科学学院，华东师范大学附属精神卫生中心，上海市心理健康与危机干预重点实验室，上海，200062 通讯作者 Email: jzxi@psy.ecnu.edu.cn

基金信息：国家社会科学基金青年项目(21CSH091)

摘要 2022 年底疫情防控进入优化调整期，目前，一线医务人员已不像疫情期间处于绷紧状态，但长期高强度、高风险的一线工作经历仍会有部分遗留影响，如部分人员可能仍存在慢性应激反应；而且，我们也需要思考和总结，如何在危机事件爆发时以及结束后，为医务工作者提供有针对性的心理社会支持。本研究通过回顾已有研究成果，分别从心理应激反应、

影响因素和干预策略三个方面对国内外研究现状进行梳理，总结当前研究所存在的局限性，提出可能的方向，旨在为改善医务工作者的心理健康，做好相应的社会心理服务提供可能的进路和方法。

方法：检索国内外新冠疫情防控一线医务工作者心理健康相关文献，系统总结并分析一线医务工作者的心理应激反应、影响因素及干预策略。

结果：一线医务工作者呈现出急慢性心理应激反应，包括失眠、疲劳等躯体症状，抑郁、焦虑、创伤后应激等心理症状。个体、工作和社会三个层面的风险和保护因素会影响心理应激反应。国内外研究者开发了多种类型的线上和线下干预策略。线下干预包括以下内容，心理科普，积极心理学培训，涵盖倾听、正念、确认、认知重构等的心理健康支持计划，等等。线上干预包括，聚焦心理支持、生活管理等主题的线上非结构式团体心理咨询，心理科普数字化工具包，心理弹性训练，基于认知行为和正念疗法的自我管理式心理干预，等等。不同的干预策略均能在一定程度上帮助一线医务工作者缓解压力。

结论：已有研究多聚焦于疫情爆发期，针对疫情常态化阶段的长期追踪研究较为匮乏；干预研究更多报告方案的开发和执行，而较少涉及干预效果的循证检验，未来可考虑结合数字化技术开发干预方案并检验干预效果。

关键词 一线医务工作者，心理应激反应，影响因素，心理干预

Research progress about the psychological reactions, influential factors, and intervention strategies in frontline healthcare workers: taking the COVID-19 as an example

Ningning Zhou[1], Liao Shen[1], Yu Tian[1], Juzhe Xi (Corresponding author) [1]

1 Shanghai Key Laboratory of Mental Health and Psychological Crisis Intervention, Affiliated Mental Health Center (ECNU), School of Psychology and Cognitive Science, East China Normal University, Shanghai, 200062, China, Correspondence: jzxi@psy.ecnu.edu.cn

Abstract At the end of 2022, epidemic prevention and control entered a period of optimization and adjustment. At present, front-line medical staff are no longer in a tense state like they were during the epidemic, but long-term high-intensity, high-risk front-line work experience might still have some legacy effects. For example, some personnel may experience chronic stress reactions. Moreover, we also need to reflect and summarize how to provide targeted psychosocial support for medical workers when a crisis breaks out and after it ends. By reviewing the existing research, this study sorts out the research status from the three aspects of psychological stress response, influencing factors and intervention strategies, summarizes the limitations of the current research, and proposes possible directions, aiming to provide possible approaches and methods for improving the mental health of medical workers and providing corresponding social and psychological services.

Methods By reviewing English and Chinese literature regarding the mental health of front-line medical workers during the Covid-19 epidemic, we summarized and analyzed the

psychological stress response, influencing factors, and intervention strategies.

Results The front-line medical workers showed acute and chronic stress responses, including physical symptoms such as insomnia and fatigue, and psychological symptoms such as depression, anxiety, and post-traumatic stress. Risk and protective factors at the individual, work, and social levels affect their responses. Researchers developed various types of online and offline intervention strategies. Offline interventions include, psychological education, positive psychology training, mental health support programs (e.g., listening, mindfulness, confirmation, and cognitive restructuring), etc. Online interventions include online unstructured group counseling focusing on topics such as psychological support and life management, digital toolkits for psychological education, psychological resilience training, self-management psychological interventions based on cognitive behavior and mindfulness therapy, etc. These interventions can help front-line medical workers relieve stress.

Conclusion Most of the existing research focuses on the outbreak period, and long-term follow-up research on the normalization stage of the epidemic is relatively scarce. Intervention research is more about the development and implementation, and evidence-based tests of intervention effects are few. In the future, digitalization technology can be combined when developing intervention programs.

新冠疫情下中国留学生心理危机远程干预的反思

摘要：新冠疫情对中国留学生的心理健康提出新的挑战，部分中国留学生出现急性焦虑发作、自伤甚至幻觉妄想等，由于文化、个性和家庭等因素影响，远程心理危机干预服务成为应急途径之一，针对留学生心理问题分类、伦理、干预效果评价和督导等，作者从多个角度探索和反思，为留学生心理危机数字化干预积累了可靠经验。

关键词：中国留学生；心理危机；远程干预；反思

Reflections on Remote Intervention for Psychological Crisis among Chinese International Students

Abstracts:The COVID-19 epidemic has posed new challenges to the mental health of Chinese international students, and some Chinese international students have experienced acute anxiety attacks, self-injury, even hallucinations and delusions, etc. Due to the influence of culture, personality, and family, remote psychological crisis intervention services have become one of the emergency response pathways, and with regard to the categorisation of international student's psychological problems, ethics, evaluation of the intervention effect, and supervision, etc., the authors have explored and reflected on the issue from multiple perspectives, and have accumulated reliable experience in digital intervention for international student's psychological crises.

Keywords:Chinese international students; psychological crisis; remote intervention; reflection

提高成年早期个体亲密关系质量：治疗性评估和收集信息模型的比较

严文华[1] 靳雯悦[2] 岳冰洁[2] 杨美潭[2]

1 华东师范大学心理与认知科学学院，上海市心理健康与危机干预重点实验室，上海 200062

2 华东师范大学心理与认知科学学院，上海，200062

摘要

成年早期个体心理发展水平并不成熟，缺乏亲密关系相关经验及能力，因此成年早期个体的亲密关系质量不稳定，存在不良交流、冲突、糟糕的应对方式等问题，对其身心健康造成消极影响。目前针对成年早期个体亲密关系的辅导和改善方案主要包括测验评估反馈以及关系教育，但传统的测验评估反馈即信息收集模型（information gathering, IG）并未实现个性化反馈，关系教育较为枯燥，参与者缺乏积极性，成年早期个体需要更为有效的亲密关系改善方案。治疗性评估（therapeutic assessment, TA）是一种以心理测验为简短治疗核心的评估和干预的半结构化模型，与传统模型相比较，治疗性评估更为个性化，强调评估者与被评估者之间的联系，具有效率高、时间短等优势，且已被证明适用于亲密关系。

本研究招募本研究招募 30 名正处于亲密关系中且亲密关系遇到困难的成年早期个体，运用治疗性评估和信息收集模型，利用投资模型量表、每日亲密关系满意度量表、评估问卷等测量工具，探讨了治疗性评估和信息收集模型对提高成年早期亲密关系质量的作用。

重复测量方差分析结果显示，接受治疗性评估或信息收集模型的个体面谈结束后 1 个月的每日亲密关系满意（p=0.094<0.1）、每周亲密关系满意度（p<0.01）以及亲密关系承诺度（p=0.001<0.01）均显著性或边缘显著高于未进行治疗性评估前，两组个体不存在显著性差异；个体面谈结束后 1 个月的不合理期望显著降低（p=0.001<0.01;p=0.003<0.01），对亲密关系及其期望的了解均显著提高（p=0.003<0.01），两组个体不存在显著性差异；在工作同盟方面，两组个体面谈后的工作同盟均显著增加（p<0.001），但 TA 组个体工作同盟显著性高于 IG 组个体（p=0.003<0.01）。评估问卷结果显示，TA 组个体在新的自我觉知（t_{27}=2.114，p=0.044<0.05）、与评估者积极的关系（t_{27}=2.536，p=0.017<0.05）以及整体满意度上（t_{27}=2.148，p=0.041<0.05）的得分显著高于 IG 组。

研究结果初步证明了治疗性评估以及信息收集模型在对提高成年早期个体亲密关系质量的有效性，治疗性评估在建立工作同盟方面具有优势。此外，该研究对治疗性评估在中国的发展提供了有效性的证据。

关键词 成年早期，亲密关系，治疗性评估，信息收集模型

Improving the quality of individual intimate relationships of young adulthood: a comparison of Therapeutic Assessment and Information Gathering model

Wenhua Yan[1], Wenyue Jin[2], Bingjie Yue[2], Meitang Yang[2]

1 Shanghai Key Laboratory of Mental Health and Psychological Crisis Intervention, School of Psychology and Cognitive Science, East China Normal University, Shanghai, China, 200062

2 School of Psychology and Cognitive Science, East China Normal University, Shanghai, China, 200062

The psychological development level of individuals in young adulthood is not mature, and they lack the experience and ability related to intimate relationship. Therefore, the quality of intimate relationship of individuals in early adulthood is unstable, and there are problems such as poor communication, conflict and poor coping styles,

which have a negative impact on their physical and mental health. At present, the counseling and improvement programs for individual intimate relationships in early adulthood mainly include test feedback and relationship education. However, the traditional test feedback, namely information gathering (IG), has not achieved personalized feedback, and relationship education is boring and participants lack enthusiasm. Individuals in early adulthood need more effective intimacy improvement approaches. Therapeutic Assessment (TA) is a semi-structured assessment and intervention model with psychological test as the core of brief treatment. Compared with traditional models, TA is more personalized and emphasizes the relationship between assessor and assessee, and has the advantages of high efficiency in short time, which has been shown to work in intimate relationships.

To explore effects of Therapeutic Assessment and Information Gathering on improving intimate relationships for young adults, 30 early adult individuals who were in romantic relationships and encountered difficulties in intimate relationships were recruited, Measurement tools, such as Romantic Discrepancy Scale, Daily Intimate Relationship Satisfaction Scale, and Assessment Questionnaire were used.

Repeated measurements of ANOVA showed that, The Daily Intimate Relationship Satisfaction ($p=0.094<0.1$), weekly intimate relationship satisfaction ($p<0.01$) and intimate relationship commitment ($p=0.001<0.01$) of both groups were significantly or marginal significantly higher than baseline. There was no significant difference between the two groups. Unreasonable expectations were significantly decreased one month after three individual interviews ($p=0.001<0.01$; $p=0.003<0.01$), the understanding of intimate relationship and its expectation was significantly improved ($p=0.003<0.01$), there was no significant difference between the two groups. In terms of work alliance, the work alliance of both groups increased significantly after the interviews ($p<0.001$), but the work alliance of TA group was significantly higher than that of IG group ($p=0.003<0.01$). The results of the Assessment Questionnaire showed that: new self-awareness ($t27=2.114$, $p=0.044<0.05$), positive relationship with evaluators ($t27=2.536$, $p=0.017<0.05$) and overall satisfaction ($t27=2.148$, $p=0.041<0.05$) of individuals in TA group were significantly higher than that in IG group.

The results of this study preliminarily demonstrated the effectiveness of therapeutic assessment and information gathering in improving the quality of intimacy in early adulthood. Therapeutic assessment has its unique advantages in working alliance. In addition, the study provides evidence of effectiveness for the development of Therapeutic Assessment in China.

低强度心理干预在高校中的探索和检验

魏晨光　刘静洋　吴睿瑶　梁一鸣（通讯作者）

华东师范大学心理与认知科学学院，华东师范大学附属精神卫生中心，上海市心理健康与危机干预重点实验室，上海, 200062　通讯作者 Email: ymliang@psy.ecnu.edu.cn

基金信息：国家社会科学基金青年项目（22CSH092）

摘 要　背景：学业相关的压力是影响大学生心理健康的主要风险因素之一，过高的学业压力不仅会影响学生的学业成就，还会增加身体和心理健康风险。然而在国内高校，有限的心理健康资源往往难以满足学生较为广泛的心理服务需求，亟需一些低强度心理干预模式以解决当前难题。低强度心理干预是填补

巨大心理健康需求与获得优质治疗之间的差距的一个可行的解决方案，是全球精神卫生研究议程的重要组成部分。

方法：本研究对两种低强度心理模式进行了探索和检验。问题管理家（problem management plus, PM+）是由世界卫生组织开发的一种短程结构化的心理干预措施，可由非专业人员经培训后开展。自助正念认知训练被研究者设计为线上自助打卡收听音频的形式。研究招募了有较高学业压力和中度以上抑郁和焦虑的被试，分为 PM+组（n=26）和正念组（n=26），PM+组被试接受连续五周的线下 PM+训练，正念组自助完成线上正念音频，两组被试都完成前测和后测问卷。

结果：在接受相应干预后，两组被试的心理健康状况均有显著提高。在控制前测变量后，PM+组的后测抑郁显著低于正念组，PM+组的后测领悟社会支持显著高于正念组并且这种效果能延续到干预结束三周后。学业压力、焦虑、感知压力、正负性情绪和应对方式的干预效果在两组间均没有显著差异。

结论：本研究发现两种低强度心理干预均有效提升了大学生的心理健康状况，在缓解抑郁症状和加强社会支持方面，线下的 PM+干预比线上的正念干预更优。这些发现为高校建设心理健康服务、推进低强度心理干预的模式提供了启示。

关键词　问题管理家，低强度干预，线上正念干预，大学生，抑郁

Exploring and testing low-intensity psychological interventions in Chinese college students

Chenguang Wei, Jingyang Liu, Ruiyao Wu, Yiming Liang (Corresponding author)

Shanghai Key Laboratory of Mental Health and Psychological Crisis Intervention, Affiliated Mental Health Center (ECNU), School of Psychology and Cognitive Science, East China Normal University, Shanghai, 200062, China, Correspondence: ymliang@psy.ecnu.edu.cn

***Abstract*：** Background: Academic-related pressure is one of the main risk factors for college students' mental health. Excessive academic stress not only affects students' academic achievements but also increases physical and risk of mental health. However, limited mental health resources are often difficult to meet students' psychological service needs in Chinese college, and there is an urgent need for some low-intensity psychological interventions to address the current challenges. Low-intensity psychological intervention is a feasible solution to bridge the gap between the enormous mental health needs and access to quality treatment, and it is an important part of the global mental health research agenda.

Method: This study explored and tested two low-intensity psychological models. Problem Management Plus (PM+) is a short-term structured psychological intervention developed by the World Health Organization, which can be carried out by non-professionals after training. Self-help mindfulness cognitive training was designed by researchers in the form of online self-help check-in and audio listening. The study recruited participants with high academic pressure and moderate to severe depression and anxiety, divided into the PM+ group (n=26) and the mindfulness group (n=26). The PM+ group participants received PM+ training for five weeks. The mindfulness group completed online mindfulness audio by themselves. Both groups completed the baseline and post-test questionnaires.

Results: After receiving the respective interventions, the mental health status of the participants in both groups significantly improved. After controlling for pre-test variables, the post-test depression in the PM+ group

was significantly lower than in the mindfulness group, and the post-test perceived social support in the PM+ group was significantly higher than in the mindfulness group, and this effect could last until three weeks after the intervention. There were no significant differences between the two groups in the intervention effects on academic pressure, anxiety, perceived stress, positive and negative emotions, and coping strategies.

Conclusion: The current study found that two types of low-intensity psychological intervention effectively improved the mental health status of college students. In terms of alleviating depressive symptoms and enhancing social support, the face-to-face PM+ intervention was superior to the online mindfulness intervention. These findings provide insights for universities to build mental health services and promote low-intensity psychological intervention models.

Key words: problem management plus, low-intensity psychological interventions, online mindfulness, college student, depression

汶川地震 10 年后个体创伤累积与心理健康的关系：社会支持的作用

王东方[1]　陈小燕[2]　范方[1]（通讯作者）

1 华南师范大学心理学院，广州，510000，fangfan@scnu.edu.cn

2 香港理工大学应用社会科学系，香港，100872

摘 要 背景：在自然灾害之后，创伤性事件通常会继续积累，以与原始灾难不同的方式影响个体。然而很少有研究考察创伤事件对心理健康结果的累积影响以及社会支持作用的这些关联。本研究基于汶川地震青少年队列（WEAHC）探索了个体累积创伤事件、心理健康问题和社会支持的前瞻性关系。方法：695 名汶川地震幸存者在震后 6 个月（基线）和震后 10 年完成了评估，评估内容包括地震暴露指数、童年期虐待、日常负性生活事件和基线的社会支持。基线和震后 10 年的抑郁症状和创伤后应激障碍作为心理健康的指标。使用累积创伤事件指数评估累积创伤事件的水平，并采用线性回归比较预测效应。结果：在 695 名参与者中，分别有 41.3%，28.5%和 7.9%的参与者报告了一项，两项和三项创伤事件。震后 10 年的累积创伤事件与心理健康问题之间的关联呈现出剂量反应模式：那些经历了三项事件的人出现了心理健康问题的风险最高，随后是那些经历了两项事件的人和报告了一项事件的人。此外，较高的社会支持部分减少了累积创伤事件对心理健康的负面影响。结论：在地震幸存者中，累积创伤事件与 10 年后的心理健康问题有关，且社会支持可能减少这一负面影响，但是当创伤事件积累达到最高水平时，其保护作用则会消失。这些发现强调了评估灾难幸存者可能遇到的创伤事件和社会支持的累积影响的重要性，并进行干预以防止心理健康状况恶化。

关键词　创伤累积，心理健康，社会支持，地震，汶川地震青少年队列

Cumulative traumatic events and mental health in young adults after 10 years of Wenchuan earthquake: the role of social support

Dongfang Wang[1] Xiaoyan Chen[2] Fang Fan[1] (corresponding author)
1 School of Psychology, South China Normal University, Guangzhou，510000
2 Department of Applied Social Sciences, Hong Kong Polytechnic University, Hong Kong, 100872

Abstract： Background: After a natural disaster, traumatic events often continue to accumulate, affecting individuals in a different manner than the original disaster never occurred. However, few studies have examined these associations, the cumulative impacts of traumatic events on mental health outcomes, and the role of social support. This study examined the prospective association between cumulative traumatic events and mental health problems and the role of social support based on the Wenchuan Earthquake Adolescent Health Cohort (WEAHC). Methods: 695 participants provided available data on earthquake exposure, childhood maltreatment, other negative life events, and social support at baseline. Depressive symptoms and posttraumatic stress disorder were assessed at baseline and 10 years after the earthquake (T_{10y}). A cumulative traumatic events index was used to evaluate the levels of cumulative traumatic events. Linear regressions were used to explore the predictive effects. Results: Of 695 participants, 41.3%, 28.5%, and 7.9% reported one, two, and three traumatic events, respectively. The associations between cumulative traumatic events and mental health problems at T_{10y} presented a dose–response pattern: those who experienced three events had the highest risk of mental health problems, followed by those who experienced two events and those who reported one event. Additionally, higher social support partially reduced the negative impact of cumulative traumatic events on mental health. Conclusions: Cumulative traumatic events are associated with mental health problems 10 years later in young earthquake survivors. Social support could reduce the negative impact, but its protective role disappears when traumatic events accumulate at the highest level. These findings highlight the importance of assessing the cumulative impacts of traumatic events and social support available to young disaster survivors and intervening to prevent worse mental health outcomes

Keywords： cumulative traumatic events, mental health, social support, earthquake, Wenchuan Earthquake Adolescent Health Cohort

地震与疾病丧亲者的哀伤症状网络分析

龙梦媛[1] 盖弈涵[1] 李洁[1]（通讯作者） 李梅[2] 时勘[3]
1 中国人民大学心理学系，北京，100872，lijie2013@ruc.edu.cn
2 中国戏曲学院学生工作部，北京，100073
3 温州大学温州模式发展研究院，温州，325035

摘 要 哀伤是丧亲后的一种普遍反应，但一部分丧亲者可能会经历病理性的复杂哀伤。先前研究表明，创伤性死亡是复杂哀伤的风险因素，因创伤性死亡(如事故、自然灾害、自杀等)而丧亲的群体中复杂哀伤的患病率(约 49%)远高于一般丧亲人群(约 9.8%)。针对创伤性丧亲的干预重点也与普通哀伤有所不同。这些都提示，创伤性丧失带来的哀伤与非创伤性情景存在差异。增进对创伤性和非创伤性丧失下个体哀伤表达的认识，有利于促进理解创伤性死亡为什么是风险因素，并为干预方案提供指导。本研究借助网络分析方法，在距离丧亲时间平均都为 12.5 个月的因地震(创伤性死亡, N=818)和疾病(相对而言属于非创伤性死亡, N=237)丧亲的两个样本中，以复杂哀伤问卷(Inventory of grief, ICG)各条目作为节点，分别估计其正则化偏相关网络，以识别高中心节点和强联系边缘。结果显示，孤独和难以接受死亡是两个网络中共同的高中心节点。对所发生的事情感到难以置信、丧亲后的空虚感以及觉得他死了我活着是不公平的(幸存者内疚)在疾病样本中也显示出高中心性。在地震样本中，“很难相信他人”、“对逝者的渴望”和“幻视”也表现出高中

心性。两个网络节点和边线间的差异表明，创伤性和非创伤性丧亲下，哀伤症状网络的相互作用可能存在不同。研究结果为“促进创伤性记忆的整合和探索、寻找追忆逝者的同时减轻痛苦的适应性方法、保留与逝者有关的非创伤型记忆”等现有干预措施的合理性提供了支持。

关键词　复杂哀伤，网络分析，创伤性丧失，丧亲中国人

Bereaved from earthquake or illness: Differences in networks of complicated grief

Mengyuan Long[1]　Yihan Gai[1]　Jie Li[1]　Mei Li[1]　Kan Shi[1]

1 Department of Psychology, Renmin University of China, Beijing, China

2 Students' Affairs Division, National Academy of Chinese Theatre Arts, Beijing, China

3 Wenzhou Model Development Institute, Wenzhou University, Wenzhou, China

Abstract：Grief is a common response to bereavement, but a proportion of bereaved people may experience pathologically complex grief. Previous research has shown that traumatic death is a risk factor for complicated grief, and that the prevalence of complicated grief in groups bereaved by traumatic deaths (e.g., accidents, natural disasters, suicides, etc.) is much higher (approximately 49%) than in the general bereaved population (approximately 9.8%). The focus of interventions for traumatic bereavement also differed from that of ordinary grief. These suggest that there are differences between grief from traumatic loss and non-traumatic scenarios. Increasing knowledge of individual expressions of grief in the context of traumatic and non-traumatic loss can be beneficial in facilitating an understanding of why traumatic death is a risk factor and provide guidance for intervention programs. In this study, with the help of network analysis methods, in two samples bereaved by earthquake (traumatic death, N=818) and illness (relatively non-traumatic death, N=237), both with a mean of 12.5 months from the time of bereavement, we estimated their regularized partial correlation networks separately using each entry of the Inventory of Complex Grief (ICG) questionnaire as a node, in order to identify high center nodes and strong linkage edges. The results showed that loneliness and difficulty in accepting death were common high center nodes in both networks. Incredulity about what happened, emptiness after bereavement, and the feeling that it is not fair for me to live when he died (survivor's guilt) also showed high centrality in the disease sample. In the earthquake sample, "difficulty in trusting others", "longing for the dead" and "hallucinations" also showed a high intermediate level of mindfulness. Differences between the nodes and edges of the two networks suggest that the interactions of the grief symptom networks may differ between traumatic and non-traumatic bereavement. The findings provide support for the rationale of existing interventions such as "promoting the integration and exploration of traumatic memories, finding adaptive ways to alleviate suffering while remembering the deceased, and preserving non-traumatic memories associated with the deceased."

Keywords：complicated grief, network analysis, traumatic loss, bereaved Chinese

哀伤干预中的什么元素有效？基于干预模块的元分析

盖弈涵　宁婧　李洁（通讯作者）

中国人民大学心理学系，北京，100872，lijie2013@ruc.edu.cn

摘 要　亲人去世是一类重大应激事件，往往会给个体的身心健康造成负面影响，甚至有部分丧亲者

会经历不随时间而缓解的、持续而强烈的病理性哀伤反应，被称为“延长哀伤障碍”。有许多研究考察了不同的哀伤干预方法对丧亲人群的效果，但已有的哀伤干预在技术和内容上存在较大的异质性，目前尚不清楚哪些具体的干预元素最有效。本研究采用提炼和匹配模型（distillation and matching model）提取哀伤干预中共同和特异的干预成分。我们在四个英文数据库（PsycINFO, Web of Science, Embase, PubMed）与三个中文数据库（知网、万方、维普）中进行文献检索，并从初步检索到的 17492 篇文献中根据纳入标准：干预方法为心理干预、被试为成年丧亲者、研究设计为随机对照实验等标准进行文献筛选。随后对入选文献中的干预元素采用内容分析的方法进行编码，提取出与哀伤理论相关的干预元素并进行元分析。本研究将报告各干预模块的使用频率及其效应量，并探讨潜在调节变量（死亡原因、干预前症状水平、干预时长等）的作用。研究结果能对丧亲者的心理干预提供实证依据，增进对哀伤辅导有效性的机制理解，为未来丧亲干预项目的开放设计提供参考，并促进模块化干预的发展。

关键词　丧亲，哀伤，干预，元分析，提炼和匹配模型

What elements of a grief intervention work? A meta-analysis based on intervention modules

Yihan Gai　Jing Ning　Jie Li*

Department of Psychology, Renmin University of China, Beijing, China

Abstract：The death of a loved one is a major stressful event that often negatively affects an individual's physical and psychological well-being. And some bereaved individuals may even experience a persistent, intense, and pathologically significant grief reaction that does not resolve over time, referred to as "prolonged grief disorder" (PGD). Many studies have examined the effectiveness of different grief interventions for bereaved populations. But there is considerable heterogeneity in the techniques and content of existing grief interventions, and it is unclear which specific intervention elements are most effective. This study used a distillation and matching model (DMM) to extract common and specific intervention components of grief interventions. We conducted a literature search in four English databases (PsycINFO, Web of Science, Embase, PubMed) and three Chinese databases (CNKI, Wanfang Data, and VIP Information) and screened the literature from the preliminary 17,492 retrieved articles based on the inclusion criteria: the intervention method was psychological, the participants were adult bereaved people, and the study design was a randomized controlled trial. Then the intervention elements in the selected literature were coded by the method of content analysis, and the intervention elements related to grief theory were extracted and meta-analyzed. This study will report the frequency of use of each intervention module and its effect size, and explore the role of potential moderating variables (cause of death, pre-intervention symptom level, length of intervention, etc.). Findings can provide an empirical basis for psychological interventions for the bereaved and improve mechanistic understanding of the effectiveness of grief counseling. It can also inform the design of future bereavement intervention programs, and promote the development of modular interventions.

Keywords：bereavement, grief, intervention, meta-analysis, distillation and matching model(DMM)

哀伤反刍思维如何影响丧亲适应？来自生态瞬时评估的启示

唐苏勤[1]（通讯作者）　周士人[1]

1 深圳大学心理学院，深圳，618060，jasminetsq@hotmail.com

摘 要　丧亲个体的哀伤反刍思维在延长哀伤障碍的发展与维持中起着重要作用，其中不同内容的哀伤反刍思维作用不一。现有研究多采用横断面问卷调查，难以捕捉哀伤反刍思维在日常生活中的变化，也难以考察其与丧亲适应的动态关系。本研究旨在采用生态瞬时评估法考察丧亲个体哀伤反刍思维与日常情绪、延长哀伤症状变化之间的关系。研究共纳入 65 名中国丧亲个体（平均年龄 21.9±2.9 岁，女性 42 人），连续 14 天、每天 4 次评估其哀伤反刍思维和日常情绪，并在 14 天前后分别对其哀伤反刍思维与延长哀伤症状进行测量。每日评估问卷回收率为 95.7%，后测问卷回收率为 93.8%。对数据进行两水平回归分析、同时性相关分析和交叉滞后分析。结果显示：（1）控制人口学变量及丧亲经历特征变量后，前测延长哀伤症状水平与哀伤反刍思维总分均不能预测每日评估中的哀伤反刍思维；（2）每日评估中，回想冲突、思考不公平、考虑他人与悲伤之间为同时正相关关系，自我安慰则与焦虑为同时负相关关系，思考丧亲意义与焦虑和开心均存在同时正相关关系，而寻求积极意义则与悲伤和开心均存在同时负相关关系；（3）每日评估中，当前有关考虑他人的反刍思维可负向预测随后的悲伤情绪，回想冲突可负向预测随后的孤独情绪，怀念逝者可正向预测随后的孤独情绪，而当前的焦虑情绪则会负向预测思考丧亲反应的反刍思维；（4）每日评估中有关考虑他人的反刍思维能预测延长哀伤症状的减轻，思考丧亲意义、寻求积极意义则负向预测了延长哀伤症状的减轻，认为反刍可控及给自己带来了积极影响也负向预测了延长哀伤症状的减轻。本研究揭示，丧亲个体的哀伤反刍思维与日常情绪、延长哀伤症状水平变化之间的关系随不同反刍内容而变化，对其进行心理干预时应基于哀伤反刍思维的内容及元认知调整干预策略。

关键词　哀伤反刍思维，延长哀伤障碍，日常情绪，元认知，生态瞬时评估

How Does Grief Rumination Affect Bereavement Adjustment? Implications from Ecological Momentary Assessment

Suqin Tang, Shiren Zhou
School of Psychology, Shenzhen University, Shenzhen 518060, China

Abstract：Grief rumination plays a significant role in the development and maintenance of prolonged grief among bereaved individuals, and grief rumination could be adaptive and maladaptive depending on specific content. Existing studies mainly adopted cross-sectional surveys, which failed to capture the daily changes of grief rumination and to examine the dynamic relationship between grief rumination and bereavement adjustment. This study aimed to investigate grief rumination in the daily life of the bereaved individuals, and its relationship with daily emotions, as well as changes in the severity of prolonged grief symptoms, via ecological momentary assessment (EMA). Sixty-five bereaved Chinese individuals (Mage = 21.9 ± 2.9, 42 females) were recruited and invited to assess their grief rumination and daily emotions four times a day for 14 successive days in the EMA period. They were also asked to complete two assessments on grief rumination and prolonged grief before and after the 14-day EMA period. The response rates of the EMA questionnaires and post-EMA assessment were 95.7% and 93.8%, respectively. Two-level regression analyses, concurrent correlation analyses, and cross-lagged analyses were performed to handle the data. Results showed that after controlling for the demographic and bereavement-related variables, symptom levels of prolonged grief and the total score of grief rumination at pre-EMA assessment were unable to predict grief rumination in daily life. Daily grief rumination including recalling conflicts, thinking about injustice, and considering others had a positively concurrent correlation with sadness, while self-comforting was negatively

concurrently correlated with anxiety. Daily thinking about the consequences and meaning of the loss was positively concurrently associated with both anxiety and happiness and seeking positivity had a negatively concurrent association with both sadness and happiness. Regarding the cross-lagged relationships, considering others and recalling conflicts at an earlier time point predicted lower levels of sadness and loneliness later, respectively, whereas earlier yearning predicted later loneliness. On the other hand, earlier anxiety could predict later thinking about one's own reactions to the loss. When predicting the decrease in the severity of prolonged grief symptoms, considering others in daily life had a positive effect, while thinking about the consequences and meanings of the loss, seeking positivity, considering rumination as controllable, and perceiving rumination as having positive influences had negative effects. This study suggests that grief rumination plays a distinct role in its relationship with daily emotions and changes in prolonged grief symptoms, given its specific content. When working with bereaved individuals with prolonged grief symptoms, intervention strategies should be chosen and integrated based on the specific content of and the meta-cognition for their grief rumination.

Keywords **：** grief rumination, prolonged grief disorder, daily emotion, meta-cognition, ecological momentary assessment

基于“心房模型”干预改善失独老人自我概念和情绪的探索性研究*

李雅青　白雪聪　郑文怡　贾若楠　林依倩　张宇迪（通讯作者）
北京科技大学社会学系，北京，100083，zhangyudi@ustb.edu.cn

* 基金项目：本研究是国家社会科学基金一般项目“基于情感视角提升失独老人生活质量的社会工作介入研究”（21BSH161）的阶段性研究成果。

摘 要　“失独”是“失去独生子女”的简称。失独老人是指独生子女去世，且未再生或养育新的子女的老人。人口学家估计，失独家庭的数量在我国已超百万，且将长期处于增长趋势。受到丧子事件的打击，失独群体有着极大的身心健康风险。本研究以 8 位失独老人为干预对象，构建了“心房模型”干预模式，并基于该模式对失独老人开展人生回顾式干预。“心房”是失独老人内心状态的比喻，基于“心房模型”的人生回顾是在帮助失独老人系统回顾人生经历的过程中，在象征层面开展“修缮或整理心房”和“对住客发声方式和声量的调整”两部分工作，以达到重塑“心房”的目的。本研究的干预采用单组前中后测设计，使用 Wallace 自我概念量表和 PANAS 正性负性情绪量表进行量化评估，并通过访谈对效果和满意度进行评估。研究结果显示，Wallace 自我概念量表与 PANAS 正性情绪分量表的前中后测得分存在边缘显著的差异且呈上升趋势，PANAS 负性情绪分量表的前中后测得分呈显著差异且后测得分低于前测。访谈评估中，有 6 位干预对象认为参与活动帮助其加深了对自我的认识，有 5 位干预对象表示参与活动后情绪有所改善。访谈评估还包括干预对象对干预过程的满意度，满分为 10，平均得分为 8.5。本研究的结果支持了基于“心房模型”的干预对改善失独老人的自我概念和情绪有一定效果且易被失独老人接受，且由于该干预方法不必然涉及对失独老人丧失经历的挖掘，带来二次伤害的风险低、安全性高。本研究也存在一些局限，由于是探索性研究，样本量小，且未设立对照组，将来尚需开展大样本随机对照实验。

关键词　心房模型，人生回顾，失独老人，自我概念，情绪

An Exploratory Study Based on the “Room-of-heart Model”

Intervention to Improve Self-concept and Emotion in the elderly with shidu

LI Yaqing BAI Xuecong ZHENG Wenyi JIA Ruonan LIN Yiqian ZHANG Yudi
Department of Sociology, University of Science and Technology Beijing, Beijing, 100083,
zhangyudi@ustb.edu.cn

***Abstract*:** Shidu is short for "losing one's only child". The elderly with shidu refers to the elderly who have lost the only child and have not reborn or raised new children. Demographers estimate that the number of shidu families in China has exceeded one million, and will keep a long-term growth. Affected by bereavement of children, the shidu group suffers a great risk of health both physically and mentally. In this study, 8 elderly people suffering such losses were selected as intervention objects. We built the "Room-of-heart Model" intervention, carrying out our intervention by reviewing their lives based on this model. "Room-of-heart" is a metaphor for the inner state of the elderly with shidu. The life review based on the "Room-of-heart Model" is to carry out two parts of work at the symbolic level, which are "repairing or arranging the room-of-heart" and "adjusting the voice and volume of the residents" in the process of reviewing their life experiences systematically, so as to reshape the room-of-heart. The intervention was a one-sample design with pre-mid-post test. The Wallace Self-concept Scale and PANAS (Positive and Negative Affect Schedule) were used for our quantitative evaluation, and the effects and satisfaction were evaluated through interviews. The results demonstrated that, there were marginal significant differences between the Wallace Self-concept Scale and the positive affect subscale of PANAS in their pre-mid-post test scores. Also, the negative emotion subscale of PANAS showed differences in the pre-mid-post test scores significantly, and the post-test scores were lower than the pre-test scores. As for the interview evaluation, 6 of our intervention objects believed that the activity helped them deepen their self-understanding, and 5 of the objects indicated that their mood improved after the activity. Besides, the interview evaluation included the intervention objects' satisfaction with the intervention process, with an average score of 8.5 out of 10. The results of this study support that the intervention based on the "Room-of-heart Model" is effective on improving the self-concept and emotion of the elderly with shidu, and it is easily accepted by the objects. Moreover, as the intervention method does not necessarily evoke of the loss experience of the elderly with shidu, it has a low risk of secondary harm and high safety. However, there are still some limitations. Since it is an exploratory study with a small sample size and no control group, it would need to conduct randomized controlled experiments with a large sample size in the future.

***Keywords*:** room-of-heart model, life review, the elderly with shidu, self-concept, emotion

新冠肺炎疫情期间大学生睡眠紊乱和精神健康问题之间桥接症状和动态网络的纵向变化：来自新冠肺炎疫情三个不同时期的启示

马紫娟[1] 王东方[1] 范方[1]（通讯作者）
[1]华南师范大学心理学院/华南师范大学心理应用研究中心，广州，510631
通讯作者 E-mail: fangfan@scnu.edu.cn

摘 要

目的: 现有文献表明新冠肺炎疫情可能会诱发人们多种精神健康问题。尽管前人研究已初步探讨了新冠肺炎疫情期间睡眠问题、焦虑或抑郁网络结构的核心症状；然而，鲜少了解疫情发展的不同时期下睡眠紊乱与精神健康问题之间的桥接症状以及他们之间的因果关系。因此，我们用网络方法来研究从新冠肺炎爆发期到控制期间睡眠紊乱与精神健康问题之间是如何发生发展的。

方法: 共有 35516 名来自新冠肺炎疫情期间大学生行为与健康队列的大学生参与者参与了本研究。青少年失眠自评量表、广泛性焦虑症 7 项量表和患者健康问卷分别用于评估睡眠紊乱、焦虑和抑郁症状。使用 EBICglasso 和交叉滞后面板网络估计新冠肺炎大流行期间的桥接症状和动态网络。

结果: 桥接症状的结果发现，“易怒”、“精力不足”和“内疚”是三个网络在不同时期的关键桥接症状。新冠肺炎不同时期的纵向关系是独特不同的。具体而言，在新冠肺炎爆发期间出现“神经紧张”症状的个体，在新冠肺炎转折期出现“难以放松”症状的可能性有 2.75 倍，而在新冠肺炎过渡期报告“睡眠不满意”症状的人群在新冠肺炎控制期出现“睡眠质量差”症状的可能性为 3.23 倍。此外，新冠肺炎爆发期间的症状“感到疲乏”是新冠肺炎转折期和控制期其他症状的最强预测性症状。

结论: 这些探索性的发现突出了症状（“易怒”、“精力不足”、“内疚”、“感到疲乏”）在不同网络中对其他症状的潜在影响。在新冠肺炎爆发期间针对这些症状，理论上有助于预防和/或减少随后控制期间出现自发性抑郁症的可能性。

关键词 睡眠紊乱，精神健康症状，桥接症状，动态网络，纵向研究

Longitudinal changes in bridge symptoms and dynamics network between sleep disturbance and mental health problems among college students in China: Insights from three distinct periods of the COVID-19

Zijuan Ma[1] Dongfang Wang[1] Fang Fan[1,*]

[1] School of Psychology and Center for Studies of Psychological Application, South China Normal University, Guangzhou, China, 510631

***Abstract*:**

Objectives: Existing literature has revealed that the COVID-19 pandemic was related to multiple mental health problems。 Although previous studies have contributed to understanding the central symptoms of sleep problems, anxiety, or depression during the COVID-19 pandemic; however, less is known about the vital bridge symptoms and the temporal relationship between sleep disturbance and mental health problems across distinct periods of the COVID-19 over time. Going beyond a pathogenetic pathway perspective, we thus applied the network approach to examine how psychological distress unfolds from the outbreak to the control period of COVID-19.

Methods: A total of 35,516 young participants from the College Students' Behavior and Health Cohort during the COVID-19 pandemic were included in the current study. The Youth Self-Rating Insomnia Scale, the Generalized Anxiety Disorder 7-item scale, and the Patient Health Questionnaire were used to assess sleep disturbance, anxiety, and depressive symptoms, respectively. Bridge symptoms and unique longitudinal relationships between symptoms during the COVID-19 pandemic were estimated using the EBICglasso and

selection operator and cross-lagged panel network.

Results: The results of bridge symptoms found that "Irritability", "Lack of energy", and "Guilt" are the key bridge symptoms for three networks across different periods. Longitudinal relationships across distinct periods of COVID-19 were unique. Specifically, individuals with the symptom "Nervousness" during the COVID-19 outbreak were 2.75 times more likely to endorse the symptom "Trouble relaxing" during the COVID-19 transitional period, while people who reported the symptom "Unsatisfactory sleep" during the COVID-19 transitional period were 3.23 time likely to suffer from the symptom "Poor sleep quality" during the COVID-19 control period. In addition, the symptom "Feel unrestored" during the COVID-19 outbreak was most predictive of other symptoms during the transitional and control period of COVID-19.

Conclusion: These exploratory findings highlight symptoms ("Irritability", "Lack of energy", "Guilt", "Feel unrestored") as potential influencers of other symptoms across distinct networks. Targeting those symptoms during the outbreak period of COVID-19 would theoretically have been beneficial in preventing and/or reducing the likelihood of spontaneous depression during the subsequent control period.

Keywords **：** Sleep disturbance, Mental health symptoms, Bridge symptoms, Dynamics network, A longitudinal study

新冠疫情期间大学生失眠症状的变化轨迹及其对自杀意念的预测作用

李媛媛[1,2]　王东方[2]　张一凡[2]　黄水清[2]　马紫娟[2]　范方[2]（通讯作者）

1 中山大学孙逸仙纪念医院心理支持与咨询部，广州，510515

2 华南师范大学心理学院，广州，510515，

摘 要　背景 新冠疫情对大学生睡眠状况产生了重要影响，并加剧了其自杀意念（suicidal ideation，SI）的检出率。本研究旨在考察疫情不同流行阶段下大学生失眠症状的变化轨迹和相关影响因素，以及失眠症状和自杀意念之间的横向和纵向关系。**方法** 采用方便抽样方法，本研究分别于疫情爆发期（2020 年 2 月）、初始缓解期（2020 年 4 月）和有效控制期（2020 年 6 月），通过电子问卷向广东省内 22 所大学进行线上调查。研究纳入完成 3 次调查的有效被试 35,516 名（年龄：20.3±1.9，73.9%为女性）。采用匹兹堡睡眠质量指数量表（PSQI）中的 5 项条目从入睡困难、睡眠维持困难、早醒、睡眠时长和睡眠质量 5 方面评估失眠症状；采用 9 条目患者健康问卷 PHQ-9 中第九项测量自杀意念；分别采用 2 条目患者健康问卷（PHQ-2 ≥ 3），广泛性焦虑量表(GAD-7 ≥10）和 6 条目事件影响量表（IES-6）测量其他心理影响因素如抑郁、焦虑和应激症状。通过潜在剖面分析得到不同的睡眠障碍亚组，采用多元逻辑回归分析失眠症状的影响因素以及失眠症状与自杀意念的关系。**结果** （1）大学生人群失眠症状（7.8%升至 8.5%）和自杀意念（7.6%升至 10.0%）检出率在疫情期间均持续上升。（2）失眠症状呈现五种变化轨迹：高抗性组（82.8%），恢复组（5.0%），迟发性障碍组（5.8%），持续性障碍组（1.8%），复发/缓解组（4.6%）。（3）城市居住、有睡眠问题史、有心理健康问题（抑郁、焦虑、应激症状）、饮酒、消极应对方式和低领悟社会支持与失眠症状风险显著正相关，而良好的家庭功能有助于持续性失眠症状的恢复与缓解。（4）在控制了人口学变量和心理问题相关变量后，大学生失眠症状和睡眠时间不足（<6 小时/天）与当下和两个月后的自杀意念风险的提高均显著相关（all ORs > 2.47）。并且，失眠症状和睡眠时间不足可预测自杀意念的出现和维持。**结论** 在疫情期间，大学生群体失眠症状的发展具有异质性，尤需关注具有以上危险因素的学生。具有失眠症状的大学生自杀意念明显升高，建议加强对疫情下大学生失眠症状的早期评估和干预，以预防危机事件的发生。

关键词　睡眠障碍，自杀意念，心理健康，大学生，新冠肺炎，队列研究

Longitudinal trajectories of insomnia symptoms and its predictive effect of suicidal ideation among college students during the COVID-19 lockdown in China

Yuanyuan Li[1,2] Dongfang Wang[2] Yifan Zhang[2] Shuiqing Huang[2] Zijuan Ma[2] Fanf Fan[2]

1 Department of Psychology, Sun Yat-sen Memorial Hospital, Sun Yat-sen University, Guangzhou, China

2 School of Psychology, South China Normal University, Guangzhou, China

***Abstract*:**

Background The COVID-19 epidemic has had an essential impact on the sleep status of college students, and has exacerbated the detection rate of suicidal ideation (SI). The purpose of this study is to examine the patterns and predictors of the trajectories of college students' insomnia symptoms across different stages of the COVID-19 pandemic, as well as the cross-sectional and longitudinal association between insomnia symptoms and suicidal ideation among them. **Methods** Using the convenience sampling method, this study conducted online surveys to the college students of 22 universities in Guangdong Province through electronic questionnaires during the outbreak period (February 2020), initial remission period (April 2020), and the effective control period (June 2020). A total of 35,516 valid subjects (age: 20.3±1.9, 73.9% female) who completed all three surveys were included in this study. The 5 items adapted from Pittsburgh Sleep Quality Index (PSQI) were used to assess insomnia symptoms from 5 aspects including difficulty initiating sleep, difficulty maintaining sleep, early morning awakening, sleep duration, and subjective sleep quality; the ninth item of the 9-item Patient Health Questionnaire PHQ-9 was used to measure suicidal ideation. The 9th item of the 9-item Patient Health Questionnaire (PHQ-9) was used to assess SI. The 2-item Patient Health Questionnaire (PHQ-2 ≥ 3), the Chinese 7-item Generalized Anxiety Disorder Scale (GAD-7 ≥ 10), and the 6-item Event Impact Scale (IES-6) were used to measure other psychological factors such as depression, anxiety, and stress symptoms. Different subgroups of insomnia symptoms were obtained through latent profile analysis, and multiple logistic regression was used to analyze the influencing factors of insomnia symptoms and the relationship between s insomnia symptoms and suicidal ideation. **Results** (1) The prevalence rates of c (from 7.8% to 8.5%) and suicidal ideation (from 7.6% to 10.0%) in college students continued to increase during the epidemic. (2) We have also identified five groups of insomnia symptoms trajectories: 82.8% (n =29,395) of the cohort met the criteria for sleep problems at neither of the three waves, and these students were classified as resistance group; 1.8% (n =649) met the criteria at all three waves and were classified as chronic-dysfunction group. Meanwhile, 11.3% (n =4004) met the criteria at only one wave, 4.1% (n =1468) at any combinations of two waves (T1 and T2, T1 and T3, or T2 and T3). Among these participants, 5.8% were delayed-dysfunction group, and 5.0% were recovery group. In addition, 4.6% was relapsing/remitting group: 3.7% of the sample showed no sleep problems at T1 and onset at T2, while remission at T3; 0.9% showed insomnia symptoms at T1 with remission at T2, while relapse at T3. (3) Urban residence, history of sleep problems, mental health problems (having depression, anxiety, stress symptoms), ever using alcohol, higher level of negative coping, and low level of social support were significantly positively correlated with the risk of insomnia symptoms. At the same time, good family functions might decrease the likelihood of developing insomnia symptoms in at least one of the non-resistance waves. (4) After controlling for demographic variables and variables related to mental health problems, college students' insomnia symptoms and insufficient sleep time (<6 hours/day) were

significantly related to the increased risk of suicidal ideation at cross-sectional and two months later (all ORs > 2.47). Also, insomnia symptoms and s insufficient sleep time predicted the onset and maintenance of suicidal ideation. **Conclusion** College students have different trajectories of insomnia symptoms during pandemic lockdown, special attention should be paid to students with the risk factors noted above. College students with insomnia symptoms have significantly increased suicidal ideation. Early assessment and treatment of sleep disturbance may be an essential strategy for preventing and intervening in SI in individuals after exposure to the special public health emergency of COVID-19.

***Keywords*:** Insomnia Symptoms，Suicidal Ideation, Mental Health, College Students, COVID-19, Cohort Study

COVID-19 期间大学生群体抑郁症状亚组的潜在类别分析

罗聪[1] 黎家鸿[1] 刘立力[1] 黄安迪[1] 汪夏永[1] 陈熔宁[2]（通讯作者） 赵静波[1,2]（通讯作者）

1 南方医科大学公共卫生学院心理学系，广州，510515

2 南方医科大学公共卫生学院心理健康教育与咨询中心，广州，510515，mingtian@smu.edu.cn

摘 要 **背景** 新冠疫情对学生的身心健康产生了持久而严重的影响。因此，识别疫情期间高风险心理健康的人群和确定相关的风险因素至关重要。**方法** 本研究于 2021 年 6 月 10 日至 18 日对广东省 6 所学校大学生进行问卷调查，共收集有效问卷 6309 份；采用患者健康问卷（PHQ-9）来评估抑郁症状，并用潜在类别分析来识别抑郁亚组，用无法忍受不确定性量表 (IUS) 和一般人口统计学变量来评估风险因素；用逻辑回归方法探索不同抑郁亚组的相关风险因素。**结果** （1）根据潜在类别分析确定了 4 个潜在亚组："低症状组（2244 人，35.57%）"、"中度症状组（1323 人，20.97%）"、"重度症状低自杀风险组（1128 人，17.88%）"、"重度症状高自杀风险组（1614 人，25.58%）"；(2) IU 高的学生更有可能报告更严重的自杀意念(OR=14.14, p<0.001)；(3)女性更容易出现抑郁症状(OR=1.55,p<0.001),但男性一旦出现抑郁症状，则其症状更严重(OR=0.73,p<0.001)；(4)运动较少、未接种疫苗，家庭经济受疫情影响较严重的学生更有可能出现严重的抑郁症状。 **结论** 疫情期间，有效识别高风险心理健康人群，尤其是具有自杀风险的抑郁症状亚组人群，有利于进行有针对性的心理干预。

关键词 心理健康，大学生，抑郁，无法忍受不确定性，潜在类别分析

Subgroups of depressive Symptoms determined by a Latent Class Analysis in a Chinese College Students Population during COVID-19

Cong Luo[1], Jiahong Li[1], Lili Liu[1], Andi Huang[1], Xiayong Wang[1], Rongning Chen[2] and Jingbo Zhao[1,2]

1 Department of Psychology, School of Public Health, Southern Medical University, Guangzhou 510515, China

2 Mental Health Education and Counseling Center, School of Public Health, Southern Medical University, Guangzhou 510515, China

Abstract:

Background: The ongoing epidemic continues to exert a lasting impact on the physical and mental health of students. Therefore, it is crucial to identify the related risk factors and target populations with a high risk of mental health issues.

Method: A sample of 6309 participants from 6 colleges in Guangdong Province, China was recruited from June 10 to 18, 2021. Depressive symptoms were assessed using the Patient Health Questionnaire and risk factors were assessed using the Intolerance of Uncertainty (IU) scale and demographics. Data analysis consisted of chi-square test, latent class analysis, and Multinomial Logistic Regression.

Result: (1) Four latent subgroups were identified: “low-symptom group (2244, 35.57%),” “moderate-symptom group (1323, 20.97%),” “major-symptom with low-risk of suicide group (1128, 17.88%),” and “major-symptom with high-risk of suicide group (1614, 25.58%).” (2) Students with high IU were more likely to report severe suicidal ideation (OR=14.14, p<0.001,). (3) Although females were more likely to have depressive symptoms (OR=1.55, p<0.001,), but that of male may be server once they had depressive symptoms (OR=0.73, p<0.001,). (4) The students with severe depressive symptoms were likely to be non-exercise, uninfected area, unvaccinated and severer epidemic impact on family economy.

Conclusion: Our findings offer valuable data support for identifying subgroups that are particularly susceptible to developing depressive symptoms during the epidemic. These results have important implications for mental health interventions and the formulation of public health policies.

Keywords： COVID-19, latent class analysis, intolerance of uncertainty, depressive symptoms, mental health

新冠疫情期间无法忍受不确定的潜在剖面分析与心理症状的关系研究

马子杰[1] 陈玉菁[1] 邓一帅[1] 罗聪[1] 刘立力[1] 黄安迪[1] 汪夏永[1] 黎家鸿[1] 赵静波[1,2]（通讯作者）

1 南方医科大学公共卫生学院心理学系，广州，510515

2 南方医科大学公共卫生学院心理健康教育与咨询中心，广州，510515，mingtian@smu.edu.cn

摘 要 **背景** 无法忍受不确定性（intolerance of uncertainty, IU）是指个体难以忍受模糊的，不确定情境的素质倾向，也是一种常见的跨诊断特质。鉴于学生群体在心理症状上存在的易感性，本研究旨在探讨新冠疫情期间大学生 IU 的个体特征，以及不同 IU 特征组中的心理症状差异和风险因素。**方法** 采用方便抽样方法，本研究于 2021 年 6 月 10 日至 18 日通过问卷星向广东省内 22 所大学发放线上调查问卷。研究纳入有效被试 86767 名（年龄：20.3±1.6，60.1%为女性）。使用 8 条目患者健康问卷（PHQ-8≥10），广泛性焦虑量表(GAD-7≥10），失眠自评量表（YSIS≥22）及 PHQ-9 中的第九项测量抑郁症状、焦虑症状、失眠症状和自杀意念，并计算心理症状的流行率。使用 IUS-12 来测量无法忍受不确定性，并通过潜在剖面分析得到不同的IU 亚组。使用逻辑回归来分析 IU 组的风险因素。**结果**（1）潜在剖面分析得到两个亚组：高 IU 组（39.1±5.1，62.1%）、低 IU 组（25.0±5.7，37.9%）。高 IU 组中 62.9%为女性，51.4%为新生。此外，浏览疫情相关信息时间较长的学生，以及主观报告受疫情影响程度大的学生，在高 IU 组中占比更高。（2）与低 IU 组相比，高 IU 组的学生在所有心理症状上的得分较高，流行率也较高（高 IU 组 vs. 低 IU 组：抑郁：12.0% vs. 1.9%，焦虑：5.5% vs. 0.9%，失眠：10.8% vs. 2.6%，自杀意念：21.5% vs. 8.4%）。（3）女性、低年级学生、主观感受到严重的疫情影响，以及每天浏览疫情相关信息超过 3 小时是高 IU 组的风险因素。**结论** 在疫情期间，无法忍受不确定程度较高的学生表现出更糟糕的心理状况，尤其需要关注女性、低年级学生、感受疫情影响更严重的学生，以及长时间寻求疫情相关信息的学生。针对高 IU 群体采取有针对性的措施，是改善他们

的心理状况的关键路径。
关键词　无法忍受不确定性，心理健康，大学生，潜在剖面分析，新冠肺炎病毒

The association between subgroups of Intolerance of Uncertainty and mental health symptoms among Chinese college students during the COVID-19 pandemic: a cross-sectional study using Latent Profile Analysis

Zijie Ma[1], Yujing Chen[1], Yishuai Deng[1], Cong Luo[1], Lili Liu[1], Andi Huang[1], Xiayong Wang[1], Jiahong Li[1], Jingbo Zhao[12]

1 Department of Psychology, School of Public Health, Southern Medical University, Guangzhou 510515, China

2 Mental Health Education and Counseling Center, School of Public Health, Southern Medical University, Guangzhou 510515, China

***Abstract*:**

Background Intolerance of uncertainty (IU) is the inability to withstand uncertainty, which is a common transdiagnostic factor in mental disorders. Vulnerability to mental symptoms has been found in the student population. Thus, the current study aimed to explore the differences of mental symptoms between IU's subgroups and associated risk factors in Chinese college students during the COVID-19 pandemic. **Methods** A cross-sectional study was conducted online among 86,767 college students (mean age = 20.3 years, SD = 1.6; 60.1% female) in 20 schools in Guangdong province between June 10 and June 18, 2021. In this study, rates of depression (PHQ-8), anxiety (GAD-7), insomnia (YSIS), and suicidal ideation (SI, 9th item of PHQ-9) were measured. Intolerance of Uncertainty Scale (IUS) was used to measure IU. Latent profile analysis was used to classify different IU groups. Logistic regression identified risk factors. **Results** In our study, the high IU group (IUS: 39.1±5.1, 62.1% sample) and the low IU group (IUS: 25.0±5.7, 37.9% sample) were identified. In the high IU group, 62.9% were females and 51.4% were freshmen. The proportion of students surfing longer on COVID-19 information and those perceiving more impact from COVID-19 were higher in the high IU group. Furthermore, the high IU group scored higher in all mental symptoms. The prevalence rates of mental symptoms were also higher in the high IU group (high vs. low: 12.0% vs. 1.9% for depression, 5.5% vs. 0.9% for anxiety, 10.8% vs. 2.6% for insomnia, and 21.5% vs. 8.4% for SI). Females, students in the earlier academic year, those perceiving severe impacts and surfing more than 3 hours/day of COVID-19 information were at risk of high IU. **Conclusion** Our findings showed that students with high IU were associated with worse mental symptoms during the COVID-19. Females, younger students, those perceiving more impacts, and seeking more pandemic-related information tend to be more intolerant of uncertainties. Thus, re-establishing a sense of social certainty, taking actions to target the high IU groups and improve their mental well-being is imperative during pandemics.

***Keywords*:** Intolerance of uncertainty, Mental health, College students, Latent profile analysis, SARS-CoV-2

新冠疫情暴发 37 个月大学生心理症状的系列横断面研究

赵静波[1,2]（通讯作者） 马子杰[1] 陈玉菁[1] 邓一帅[1] 刘立力[1] 黄安迪[1]

1 南方医科大学公共卫生学院心理学系，广州，510515

2 南方医科大学公共卫生学院心理健康教育与咨询中心，广州，510515，mingtian@smu.edu.cn

摘 要 **目的** 本研究探讨新冠疫情初期到乙类乙管期间，大学生心理症状的长期变化趋势及风险因素。**方法** 本研究使用问卷星向广东省 22 所高校全体在校学生发送了在线问卷，测量时间点分别为 2020 年 2 月（基线，COVID-19 暴发初期）、2021 年 9 月（基线后 19 个月，在校封控期）、2023 年 3 月（基线后 37 个月，乙类乙管期），在三个测量阶段分别回收有效问卷 164101、86767 和 130285 份。累计调查了 381,153 名大学生。通过计算抑郁（PHQ-8）、焦虑（GAD-7）、自杀意念(PHQ-9 第 9 条)、失眠（YSIS）、急性应激（IES-6）和疫情恐慌（CV-19FSS）的标准化率，本研究对三个阶段的心理症状流行率进行比较。多变量逻辑回归分析被用来探索乙类乙管期大学生心理症状的风险因素。**结果** 乙类乙管期，样本中学生年龄的中位数 (四分位差) 为 20 (19-21) 岁；样本中 58.9%为女性，94.4%为本科生，78.2%的学生经历了新冠感染。有 8.1% 和 8.4% 的学生报告家庭收入和个人发展层面受到来自疫情的重大影响；与新冠疫情初期时相比，焦虑、抑郁、失眠和自杀意念的流行率显著增加。失眠的增加幅度最低，增加了 9.1%；自杀意念的增长幅度最高，增加了 23.5%。相比之下，乙类乙管期间急性应激和新冠恐慌的流行率有所下降。由此可见，新冠疫情暴发 37 个月后大学生的心理状况仍然较差。逻辑回归的结果显示，经历新冠感染、报告疫情影响严重、采取过多或不采取新冠的预防措施都是心理症状的风险因素。**结论** 从新冠疫情暴发到乙类乙管期间，大学生的心理症状持续恶化。在乙类乙管期间，心理症状的流行率仍然较高。这提示，未来几年应该持续监测大学生心理状况、预防心理症状的产生并提供及时有效的心理干预。

关键词 心理健康，大学生，系列横断面调查，新冠肺炎

Mental Health Symptoms of College Students 37 Months After the Onset of the COVID-19 Pandemic: A serial cross-sectional study in Guangdong Province, China

Jingbo Zhao[12], Zijie Ma[1], Yujing Chen[1], Yishuai Deng[1], Lili Liu[1], Andi Huang[1]

1 Department of Psychology, School of Public Health, Southern Medical University, Guangzhou 510515, China

2 Mental Health Education and Counseling Center, School of Public Health, Southern Medical University, Guangzhou 510515, China

***Abstract*:**

Objective To measure long-term changing trends of mental symptoms and associated risk factors from the onset of the COVID-19 to the period that China manages COVID-19 with measures against Class B infectious diseases. **Method** Questionnaires were sent to all students from 22 universities in Guangdong using so-jump. We measured mental symptoms in February 2020 (baseline, the onset of COVID-19), September, 2021 (19 months after baseline, quarantine in school), March, 2023 (37 months after baseline, period that China manages COVID-19 with measures against Class B infectious diseases). 164101, 86767, and 130285 valid questionnaires were collected in

the survey at each measurement. In total, 381,153 students were surveyed. Prevalence of depression (PHQ-8) and suicidal ideation (9th item of PHQ-9), anxiety (GAD-7), insomnia (YSIS), acute stress (IES-6), fear (CV-19FSS) during the period that China manages COVID-19 with measures against Class B infectious diseases were standardized and compared with data from 18 and 37 months ago. Multivariate logistic regression analyses identified risk factors. **Results** During the period that China manages COVID-19 with measures against Class B infectious diseases, 130285 participants, 58.9% females, were included. Median (IQR) age was 20 (19-21) years. 94.4% were undergraduates and 78.2% students have been infected. 8.1% and 8.4% of students reported severe impact from COVID-19 on family income and personal development. Compared with the onset of COVID-19, rates of anxiety, depression, insomnia, and suicidal ideation were dramatically increased. Prevalence of insomnia increased by 9.1% for the least and suicidal ideation by 23.5% for the most. In contrast, the prevalence rates of acute stress and fear of COVID-19 decreased but was still high. Mental status remains poor when China manages COVID-19 with measures against Class B infectious diseases. Furthermore, students with COVID-19 infection, perceiving more impact from COVID-19, and those without or taking too many precautions were at risk of mental symptoms. **Conclusions** These results suggest a negative long-term change in mental symptoms of Chinese students from the onset of the COVID-19 to the period that China manages COVID-19 with measures against Class B infectious diseases. Thus, mental status of college students remains poor after the relaxation of COVID-19. Monitoring mental health, prevention and care access should be a priority in recent years.

Keywords： Mental health, College students, Serial cross-sectional study, SARS-CoV-2

不同不确定性耐受度的青少年中焦虑与抑郁的纵向关系：一项交叉滞后网络分析

叶灏贤[1] 马紫娟[1] 王东方[1] 刘文煦[1] 卜洛威[1] 范方[1]（通讯作者）

[1]华南师范大学心理学院/华南师范大学心理应用研究中心，广州，510631

通讯作者 E-mail: fangfan@scnu.edu.cn

摘 要

背景：已有研究表明，低不确定性耐受度，即无法耐受不确定性(intolerance of uncertainty,IU)是焦虑和抑郁的跨诊断风险因素，然而，尚无研究从症状层面上探讨不同 IU 水平对焦虑抑郁间相互关系的影响。本研究采用交叉滞后网络分析（CLPN），首次探讨 IU 对焦虑抑郁症状间因果关系的调节作用。

方法：根据 IU 量表得分，32331 名青少年被分为“高 IU 组”和“低 IU 组”。在 6 个月的时间间隔内，两组青少年先后完成两次焦虑症状与抑郁症状的自陈量表。基于 R 4.3.0 构建的四个横断面网络和两个交叉滞后网络被用以分析不同 IU 水平下焦虑抑郁症状间的横向与纵向关系。

结果：高 IU 组的青少年具有更高的“焦虑-抑郁”共病，体现在横向与纵向的“焦虑-抑郁”网络结构连接均更为紧密。在高 IU 组中，“难以控制担忧”对六个月后其他症状的预测作用最大，而“过度担忧”最容易受到六个月前其他症状的影响；在低 IU 组中，“容易急躁”与“精力减退”分别是预测作用最大与被预测作用最大的症状。

结论：IU 加剧了症状层面上的“焦虑-抑郁”共病，导致两者之间形成了更为复杂的相互触发关系。这一发现为了解焦虑抑郁症状之间相互关系的潜在机制提供了重要见解，突显了 IU 在“焦虑-抑郁”动态网络中的风险性作用。针对 IU 的干预有助于减少焦虑和抑郁的共病情况，同时，将“难以控制担忧”作为高 IU 青少年的核心干预目标可能最为有效，并有利于限制其他焦虑抑郁症状的未来发展。

关键词 焦虑，抑郁，不确定性耐受度，青少年，交叉滞后面板网络

The temporal relationships between anxiety and depression among adolescents with different levels of intolerance of uncertainty: A cross-lagged panel network analysis

Haoxian Ye [1]; Zijuan Ma [1]; Dongfang Wang [1]; Wenxu Liu [1]; Luowei Bu [1]; Fang Fan [1*]

[1] Centre for Studies of Psychological Applications, Guangdong Key Laboratory of Mental Health and Cognitive Science, Ministry of Education Key Laboratory of Brain Cognition and Educational Science, School of Psychology, South China Normal University, Guangzhou, China

Abstract:

Background: The transdiagnostic risk role of intolerance of uncertainty (IU) in the development of anxiety and depression has been acknowledged, but its effect on the symptom-level interrelationship between these two mental health problems remains unclear. This study aimed to investigate the casual associations between anxiety and depression symptoms using a cross-lagged panel network (CLPN) approach while examining the moderating influence of IU.

Methods: A total of 32331 adolescents were categorized into "high IU group" and "low IU group" based on their IU scores. They completed self-reported questionnaires on anxiety and depression twice over a 6-month period. Four cross-sectional networks and two cross-lagged panel networks, constructed based on R 4.3.0, were used to analyze the contemporaneous and temporal relationships between anxiety and depression symptoms at different IU levels.

Results: Adolescents with high IU exhibited a higher comorbidity of anxiety and depression, resulting in a more interconnected contemporaneous and temporal network structure of anxiety and depression symptoms compared to those with low IU. Specifically, in the high IU group, "uncontrollable worry" had the strongest predictive effect on other symptoms six months later, while "worry too much" was most susceptible to the influence of other symptoms six months prior. In the low IU group, "irritable" and "energy loss" were the symptoms with the highest predictive and influenced effects, respectively.

Conclusions: IU exacerbates the comorbidity of anxiety and depression at the symptom level, resulting in a more intricate mutually triggering relationship between the two. This finding provides valuable insights into the underlying mechanisms driving the interrelationship between anxiety and depression symptoms and highlights the risk role of IU in this dynamic. Interventions targeting IU could be beneficial in reducing the comorbidity of anxiety and depression, and "uncontrollable worry" may be a core intervention target for adolescents with high IU to prevent the development of additional anxiety and depression symptoms.

Keywords: Anxiety, depression, intolerance of uncertainty, adolescents, cross-lagged panel network

3.9 “决策心理学专业委员会”专题研讨会

中国民众捐赠行为的变迁趋势——基于年龄-时期-世代效应分析

王林欣[1]　林靓[1]　寇彧[1]（通讯作者）

1 北京师范大学发展心理研究院，北京，100875，通讯作者 E-mail（yu_kou1@163.com）

摘 要　社会文化环境会随着时期和世代的变化而变化，并塑造个人的亲社会行为。自改革开放 40 余年来，中国经济蓬勃发展的同时也面临社会阶层差距扩大、经济不平等加剧等问题，这些因素可能影响个体的亲社会行为。然而，过往研究大多基于横断历史元分析，探究合作行为的演变趋势。对于亲社会行为(如，捐赠行为)，特别是在中国经济快速发展时期下的变迁趋势尚付阙如。因此，本研究基于中国家庭追踪调查（China Family Panel Studies, CFPS）2010–2020 年的六期的成人和家庭经济问卷数据，采用分层交叉年龄-时期-世代分析，考察我国民众捐赠行为的时代变化，并检验经济不平等是否能解释时期效应。研究结果表明，捐赠行为在年龄上呈倒“U”型趋势。在控制人口学变量、社会关系变量和社会经济地位变量后，时期效应表明，我国民众的捐赠行为在 2010–2020 年间呈上升趋势，但加入基尼系数后，时期效应不显著。世代效应表明，在 1920 年至 2002 年出生的世代群体中，捐赠行为呈现 U 型趋势，即 1920-1926 年间出生的世代和 1978-1991 年间出生的世代呈现两个高峰，1958-1961 年间出生的世代处于低谷。在控制人均 GDP 增量后，基尼系数能够解释捐赠行为的时期效应。以上研究结果有助于理解中国民众的捐赠行为在不同年龄、时期和世代的变化趋势，并探讨经济不平等对时期效应的影响。

关键词　捐赠行为，经济不平等，社会变迁，年龄-时期-世代分析

The Trend of Donation Behavior in China: An Age-Period-Cohort Effects Analysis

Lin-Xin Wang[1]　Jing Lin[1]　Yu Kou[1]

[1] Institute of Developmental Psychology, Beijing Normal University, Beijing, 100875

***Abstract*：** Social and cultural environments change over periods and across generations, shaping individuals' prosocial behaviors. Over the past four decades of economic reforms in China, while the economy has experienced rapid growth, it has also faced challenges such as widening social disparities and increasing economic inequality, which may influence individuals' prosocial behaviors. However, most previous research on the evolution of cooperative behavior has been based on cross-temporal meta-analyses. There is a relative scarcity of studies examining the changing trends of prosocial behaviors, particularly donation behaviors, during the period of rapid economic development in China. To address this gap, this study utilized data from six waves of the China Family Panel Studies (CFPS) spanning from 2010 to 2020, including adult and household economic questionnaires. This study employed hierarchical APC-cross-classified random effects models (HAPC-CCREM) to investigate the donation behaviors’ period and cohort changes in China and examine whether economic inequality can explain the period effects. The results showed that donation behavior showed an inverted U-shaped trend in age. After controlling for demographic variables, social relationship variables, and socioeconomic status variables, period effects indicated a rising trend in donation behavior from 2010 to 2020 in China. However, when incorporating the Gini coefficient, the period effect was found to be not significant. Furthermore, the cohort effects revealed a

U-shaped pattern in donation behavior among generational cohorts born between 1920 and 2002, with two peaks observed in the 1920-1926 Cohort and 1978-1991 Cohort, while the 1958-1961 Cohort exhibited a valley pattern. After controlling for per capita GDP growth, the Gini coefficient could explain the period effects on donation behavior. Our findings contribute to understanding the changing trends of donation behavior across different ages, periods and cohorts in China, and explore the influence of economic inequality on the period effects.

Keywords：donation behavior, economic inequality, social change, age-period-cohort analysis

VR 模拟环境中见义勇为行为的性别差异研究

金可镂[1]，吴杰[1]，张燊[1]，古若雷[2,3]（通讯作者），刘超[1]（通讯作者）

1 北京师范大学心理学部认知神经科学与学习国家重点实验室教授和 IDG 麦戈文脑研究院，北京 100875,
通讯作者邮箱：liuchao@bnu.edu.cn

2 中国科学院心理研究所行为科学重点实验室，北京 100101

3 中国科学院大学心理学系，北京，100049

摘 要 英雄通常被视人类道德的顶峰，在个人生活、人际关系和文化层面都发挥着非常重要的作用。然而在自然情境下开展该类行为研究受到诸多限制，同时还存在一定的风险。本文创新性地将沉浸式虚拟现实技术应用于社会心理学研究中，探究了英雄行为的内在心理机制。研究表明在其他因素相同的情况下，男生相比于女生，更可能采取英雄行为；个体的亲社会取向的程度越高，个体采取英雄行为的概率越高。研究还发现了英雄行为性别差异的内在心理机制：越有同情心的女生越可能采取英雄行为，然而，对于男生而言，越冷血的男生反而越可能采取英雄行为。本文为理解英雄行为的心理机制，特别是性别差异的内在驱动机制带来了新的研究观点和理论基础。

关键词 虚拟现实，英雄行为，见义勇为，性别差异

Gender Differences in Heroic Behavior in VR-Simulated Environment

Chao Liu[1]

Kelou Jin[1,#], Jie Wu[1,#], Shen Zhang[1], Ruolei Gu[2,3,*], Chao Liu[1,4,5,*]

1 State Key Laboratory of Cognitive Neuroscience and Learning and IDG/McGovern Institute for Brain Research, Beijing Normal University, Beijing 100875, China,

2 CAS Key Laboratory of Behavioural Science, Institute of Psychology, Beijing 100101, China

3 Department of Psychology, University of Chinese Academy of Sciences, Beijing 100049, China

4 Center for Collaboration and Innovation in Brain and Learning Sciences, Beijing Normal University, Beijing 100875, China

5 Beijing Key Laboratory of Brain Imaging and Connectomics, Beijing Normal University, Beijing 100875, China

The first two authors contribute equally to the paper.

Abstract：Heroism is often seen as the pinnacle of human morality, playing an extremely important role in

personal life, interpersonal relationships, and cultural aspects. However, conducting research on such behaviors in real-life situations faces many restrictions and certain risks. This paper creatively applied immersive virtual reality technology to social psychological research, exploring the intrinsic psychological mechanisms behind heroic behavior. The results showed that under the same other conditions, males were more likely to engage in heroic behavior compared to females. The higher an individual's prosocial orientation was, the more likely they were to carry out heroic acts. The study also revealed the intrinsic psychological mechanisms behind gender differences in heroic behavior: the more empathetic females were, the more likely they were to engage in heroic behavior; however, for males, the more cold-blooded they were, the more likely they were to carry out heroic behavior. This paper brings new research perspectives and theoretical foundations for understanding the psychological mechanisms of heroic behavior, especially the intrinsic motivational mechanisms behind gender differences.
Keywords： virtual reality, heroic behavior, acts of bravery, gender differences

环境的严酷性和不确定性对个体合作行为的影响

李明晖[1] 饶俪琳[2, 3]（通讯作者）

1 中国人民公安大学犯罪学学院，北京，100038

2 中国科学院心理研究所，北京，100101

3 中国科学院大学心理学系，北京，100049，raoll@psych.ac.cn

摘 要 环境的严酷性和不确定性影响个体的心理和行为模式，使个体能够充分利用不利的环境。虽然环境对合作和亲社会行为的作用愈发受到关注，但是相关理论和实验结果仍然存在争议。本研究探索了环境的严酷性和不确定性对个体合作行为的影响。四个实验（$N = 2{,}763$）的结果表明，环境的严酷性与合作水平负相关。具体地，个体现在的生存环境越严酷，在独裁者博弈任务和利他行为量表上自我报告的合作水平越低（实验 1）。并且，在影响实际收益的独裁者博弈任务中，个体现在的生存环境越严酷，分配给他人的金钱越少（实验 2）。实验 3 和实验 4 探究环境严酷性与合作水平之间关系的中介效应。实验 3 使用利他行为量表测量合作水平，检验生命史策略、信任、共情和不确定性容忍度的平行中介模型。结果发现生命史策略的中介效应显著，即环境的严酷性越高，个体越倾向于使用快生命史策略，从而表现出更低的合作水平。信任、共情和不确定性容忍度的中介效应均不显著。实验 4 同时使用公共物品博弈任务和独裁者博弈任务，并分别检验生命史策略和分析式思维的平行中介模型。结果与实验 3 一致，在公共物品博弈任务和独裁者博弈任务下，生命史策略的中介效应均显著。分析式思维的中介效应均不显著。对于环境的不确定性，四个实验没有一致的结果。环境不确定性与利他行为量表测量的合作水平显著正相关，并且这一关系可以被不确定性容忍度中介，即个体经历的环境不确定性越高，对不确定的容忍度越低，进而合作水平更高（实验 1 和 3）。然而，环境不确定性与独裁者博弈任务和公共物品博弈任务测量的合作水平均没有显著相关（实验 1、2 和 4）。总之，研究结果表明环境的严酷性与合作水平负相关，这一关系被生命史策略中介，该结果部分支持生命史理论，与不确定管理观点不一致。环境的不确定性仅在特定的测量方式下与合作水平正相关，未来研究需进一步探索不确定性影响合作行为的边界条件。研究结果强调了成年个体的合作行为可能易受所处环境的影响，与行为生态学的观点一致。

关键词 合作行为，严酷性，不确定性，生命史策略，行为生态学

The effects of environmental harshness and uncertainty on cooperative behaviors

Ming-Hui Li [1] Li-Lin Rao [2,3]

1 School of Criminology, People's Public Security University of China, Beijing, China

2 Institute of Psychology, Chinese Academy of Sciences, Beijing, China

3 Department of Psychology, University of Chinese Academy of Sciences, Beijing, China

Abstract： Environmental harshness and uncertainty are associated with individuals' psychological and behavioral patterns, which allow individuals to optimize adaptation to adverse environments. Despite the growing interest in the role of environment on cooperation and prosocial behavior, there is ongoing controversy surrounding the theoretical framework and experimental findings for such effect. The current research investigated the effects of environmental harshness and uncertainty on individual differences in cooperation. Four studies (N = 2,763) found that environmental harshness was associated with lower level of cooperation. Specifically, individuals living in harsher environment showed lower level of cooperation on the dictator game and the self-report altruism behavior scale (Study 1). Moreover, in the context of the dictator game involving real monetary outcomes, environmental harshness was associated with reduced willingness to allocate money to others (Study 2). Studies 3 and 4 investigated possible mediators accounting for the relationship between environmental harshness and cooperation. Study 3 employed the self-report altruism behavior scale and examined the mediating effects of life-history strategy, trust, empathy, and tolerance of uncertainty using the parallel mediation model. We found that the life-history strategy mediated the relationship between environmental harshness and cooperation. It showed that individuals living in harsher environment tended to use faster life-history strategy, and thus showed a lower level of cooperation. The mediating effects of trust, empathy, and tolerance of uncertainty were not significant. Study 4 employed the public goods game and the dictator game, and examined the mediating effects of life-history strategy and analytic thinking using the parallel mediation models. The results of Study 4 were consistent with Study 3. The mediating effects of life-history strategy on the relationship between environmental harshness and cooperation was significant for both the public goods game and the dictator game. The mediating effect of analytic thinking was not significant. For the effect of environmental uncertainty, the results were inconsistent. Environmental uncertainty was associated with higher level of cooperation measured by the self-report altruism behavior scale. The relationship was mediated by the tolerance of uncertainty. It appeared that people who experienced more uncertain environments were more intolerance of uncertainty, and accordingly, they exhibited greater cooperation. However, the relationship between environmental uncertainty and the level of cooperation measured by either the dictator game or the public goods game was not significant. Taken together, the findings partially support the life-history theory and are inconsistent with the uncertainty management perspective. Future research is needed to investigate the boundary conditions and contextual factors that shape the relationship between environmental uncertainty and cooperative behavior. These findings align with the principles of behavioral ecology, highlighting the role of the environment in shaping cooperative behaviors.

Keywords： cooperation, harshness, uncertainty, life-history strategy, behavioral ecology

大流行疾病威胁对信任的影响及其机制

刘玉童 [1,2] 张熙若 [1,3] 姚诗铭 [1,2] 王一凡 [1, 4] 张雯 [1, 2] 陈洁盈 [5]

穆妍（通讯作者）

1 中国科学院行为科学重点实验室，中国科学院心理研究所，北京，100101，中国
2 中国科学院大学心理系，北京，100101，中国
3 新南威尔士州立大学商学院，悉尼，2071，澳大利亚
4 大理大学心理系，大理，671003，中国
5 曼尼托巴大学商学院，温尼博格市，R3T 2N2，加拿大
通讯作者 muy@psych.ac.cn

摘 要 信任及其波动在人类社会中普遍存在。虽然不信任的后果对社会尤其在抗击疫情威胁方面具有巨大意义，但在疫情威胁是否以及如何影响信任方面仍存在许多不清楚之处。为了回答这个问题，我们在疫情爆发（研究 1）和 COVID-19 工作恢复阶段（研究 2 和 3）进行了一系列跨文化研究。这三项研究共同展示了感知的疫情威胁与信任（包括人际信任和组织信任）之间存在文化普遍的负相关关系，以及这一过程中宽恕信念的中介效应。为了进一步研究这三个因素之间的因果关系，我们操纵了不同水平的宽恕信念（研究 4）和疫情威胁（研究 5），揭示了它们之间进一步的因果联系。当前的研究结果阐明了疫情威胁对信任及其潜在机制的影响。

关键词 大流行疾病威胁，信任，公正世界信念，新冠疫情

The Collapse of Trust Amid Threats: The Mediating Role of Belief in a Just World

Yutong Liu[1, 2], Xiruo Zhang[1, 3], Shiming Yao[1, 2], Yifan Wang[1, 4], Wen Zhang[1, 2], Jieying Chen[5], Yan Mu[1, 2] （Corresponding Author）

1 CAS Key Laboratory of Behavioral Science, Institute of Psychology, Chinese Academy of Sciences, Beijing, 100101, China
2 Department of Psychology, University of Chinese Academy of Sciences, Beijing, 100049, China
3 Business School, University of New South Wales, Sydney, 2071, Australia
4 Department of Psychology, Dali University, Dali, 671003, China
5 Asper School of Business, University of Manitoba, Winnipeg, MB R3T 2N2, Canada

***Abstract*:** Trust and its fluctuations are ubiquitous in human societies. While the consequences of distrust have been of tremendous significance to society, especially in combating pandemic threats, much remains unclear about whether and how such threats would affect trust. To address this question, we conducted a series of cross-cultural studies during the outbreak (Study 1) and the work resumption stages of COVID-19 (Study 2 and 3). The three studies jointly demonstrated a culturally universal negative correlation between perceived pandemic threat and trust (including interpersonal trust and organizational trust), as well as the mediating effect of BJW in this process. To further examine the causal relationships among these three factors, we manipulated different levels of BJW (Study 4) and pandemic threats (Study 5), revealing further causal links between them. The current findings shed light on the impact of pandemic threats on trust and its underlying mechanisms.

***Keywords*:** pandemic threat, trust, belief in just world, COVID-19

一念天堂一念悬崖，中等收入群体的慈善捐赠困境

高凡[1] 谢晓非[2*]（通讯作者）
1 北京大学心理与认知科学学院，北京，100871
2 北京大学心理与认知科学学院，北京，100871，xiaofei@pku.edu.cn

摘 要 收入水平是参与慈善捐款程度的重要预测指标，但相关的研究包含很多矛盾的结果。本研究基于数据库挖掘分析，为收入与慈善捐赠之间的U型关系提供了新的证据和视角。收入和慈善捐赠之间的U型关系在四个数据库(CGSS, N=11765;CFPS, N=5750 追踪6年; WGI & WDI, N=132)中得到了复现。创新地采用响应面分析法排除收入流动性对慈善捐赠行为的影响，使收入阶层与慈善捐赠之间的关系更加稳定。结果显示出一种更为稳健的关系模式:随着收入水平的提高，慈善捐赠的相对水平先减少后增加。本研究试图对收入地位对亲社会的混合效应提供一个综合的视角，旨在提供一个基于现象学的分析视角来整合利他主义文献中的共识分歧，同时也从社会阶层语境的特征以及唯我主义和语境主义社会认知倾向的表现的角度提供一个可能的机制解释。

关键词 慈善捐赠，数据库分析，响应面分析，收入水平

Edge of cliffs and paradise, the giving dilemma of middle income status

Fan Gao[1], Xiaofei Xie[2*]
School of Psychological and Cognitive Sciences, Peking University, No. 5 Yiheyuan Rd, Haidian District, Beijing 100871, P.R. China.

Abstract: Current research, based on database mining analysis, presents novel evidence and perspectives on the U-shaped association between income and charitable giving. This U-shaped association between income and charitable giving is replicated in four databases(CGSS, N=11765;CFPS, N=5750 trace 6 years; WGI&WDI N=132). The response surface analysis method was innovatively adopted to exclude the influence of income mobility, leaving a more stable relationship between income class and charitable giving. The results show a more robust and solid pattern: as income levels rise, relative charitable giving first decreases and then increases. The current research attempts to provide an integrated perspective on the mixed effect of income status on prosociality and aims to offer a phenomenologically based analytical perspective to integrate the divergences of consensus in altruism literature, while also providing a possible mechanistic explanation.

Keywords: charitable giving, database analysis, response surface analysis, income level

两条大路通罗马：诉诸效能与诉诸共情募捐信息的相对有效性

赵远婕[1] 马京晶[1]（通讯作者）Danit Ein-Gar[2] Neal Roese[3]
1 北京大学国家发展研究院，北京，100871，jingjingma@nsd.pku.edu.cn
2 以色列特拉维夫大学科勒管理学院，特拉维夫，6997801
3 西北大学凯洛格商学院，芝加哥，60208

摘 要　在实践中，诉诸效能(即，旨在提升个体效能感知)和诉诸共情(即，旨在引发个体共情)是筹款人员常用的两种募捐信息策略。尽管过往已有诸多研究分别检验了效能与共情在驱动个体捐赠行为中的重要作用，并佐证了诉诸效能和诉诸共情两类募捐信息的有效性，然而，这两类研究之间几乎没有交叉。基于此，本研究以一种非常普遍，并且在慈善捐赠领域十分重要的思维方式——“最优化思维 (Maximizing Mindset)”为切入点，探索了最优化思维(vs.普通思维)对效能与共情这两个关键捐赠驱动因素的相对重要性的影响，以及对诉诸效能和诉诸共情两类募捐信息的相对有效性的影响和背后机制。

本研究包含四项实验：实验一是一项具有全国代表性的大样本问卷调研，通过测量参与者的最优化倾向及其主导捐赠驱动因素(共情 vs.效能)，本研究初步探索了最优化对效能与共情这两个关键捐赠驱动因素的相对重要性的影响。随后，实验二通过操纵参与者的最优化思维，检验了最优化思维（vs.普通思维)对诉诸效能和诉诸共情两类募捐信息的相对有效性的影响。接着，实验三和实验四分别通过操纵诉诸效能和诉诸共情信息的强度，探究了信息敏感度在最优化思维对这两类募捐信息的相对有效性的影响中的中介作用。本研究发现：最优化思维（vs.普通思维）将提升诉诸效能（vs.诉诸共情）募捐信息在促进个体捐赠中的相对有效性，这是由于采用最优化思维（vs.普通思维）的个体对效能相关信息更敏感，对共情相关信息则相对不敏感。

本研究发现兼具重要的理论意义和实践价值。一方面，本研究首次对效能与共情这两个捐赠驱动因素的相对重要性、以及诉诸效能和诉诸共情两类募捐信息的相对有效性进行了讨论和比较，深化了个体捐赠行为影响因素的理论研究，同时也丰富与加深了对最优化思维的理解；另一方面，本研究发现为慈善行业开展精准化沟通以提升筹款效率提供了重要的理论参考。

关键词　募捐信息，捐赠行为，共情，效能，最优化思维

基于人的主动决策和基于计算机的被动决策对结果评估的影响：来自主观报告和电生理的证据

徐四华（通讯作者） 陶瑞文　张灿　赵汉璇

上海外国语大学国际工商管理学院，上海，200083，通讯作者 E-mail: xusihua80@gmail.com

摘 要 人类总是为自己拥有自主决策的权利而感到自豪，但在数字生活中，人们有时候却只是被动地接受决策结果。例如，智能手机上的在线购物应用程序会提供默认选项，消费者通常不需要主动做出选择，而是被动地接受。这是为什么？难道是因为人们对这两种决策模式没有明显的偏好吗？为了回答该问题，本研究采用事件相关电位（ERPs）研究了决策者对在主动决策模式和在基于计算机被动决策模式下完成卡片赌博任务时的结果评估差异。主观报告的结果显示，相对于被动决策模式，决策者在主动决策模式中会付出更多的认知努力、产生更强的情感体验。对于被选中的卡片，我们观察到两种模式下的决策结果引起的 d-FRN 没有显著性差异，但在主动决策模式下的决策结果引起了比被动模式更大的 P300。对于未被选中的卡片，相比被动决策模式，在主动决策模式下的负性决策结果诱发了更大的 d-FRN。对 P300 分析显示，结果反馈、决策模式和相对（已选结果）价值之间存在相互作用。此外，被选中卡片的损失结果引起的 P300 部分中介了主观认知努力和对损失的负面情绪评价之间的关系。我们的研究结果表明，基于人的主动决策模式和基于计算机的被动模式对决策结果的评估存在差异，主动决策模式下的损失结果诱发了更强的大脑活动，且基于人的主动决策模式需要更多的认知努力，并伴随有更强的情感体验。

关键词 决策模式，被动决策，ERP，结果评估

Active vs. computer-based passive decision-making leads to discrepancies in outcome evaluation: Evidence from self-reported emotional experience and brain activity

Sihua Xu(Corresponding Author), Ruiwen Tao, Can Zhang, Hanxuan Zhao,
School of Business and Management, Shanghai International Studies University, Shanghai, 200083

Abstract ： People prefer active decision-making and induce a more positive affective state than computer-based passive mode, yet the modulation of decision-making mode on outcome evaluation remains unknown. The present study adopted event-related potentials (ERPs) to investigate the discrepancies in active and computer-based passive mode on outcome evaluation using a card gambling task. The subjective rating results showed that active mode elicited more cognitive effort and emotional experience than passive mode. For received outcomes, we observed no significant FRN effect on difference waveshapes (d-FRN) between the two modes, but active decision-making elicited larger P300 amplitudes than the passive mode. For unchosen card outcomes, the results revealed larger d-FRN amplitudes of relative valences (superior minus inferior) in responses to negative feedback in active mode than in passive mode. The averaged P300 results revealed an interplay among outcome feedback, decision-making mode, and relative valence, and the average P300 amplitude elicited by the received loss outcome partially mediated the relationship between subjective cognitive effort and negative emotion ratings on loss. Our findings indicate discrepancies between active and computer-based passive modes, cognitive effort, and emotional experience involved in outcome evaluation.

Keywords：decision-making mode, passive decision-making, ERP, outcome evaluation

社会关系影响双人风险决策的神经机制：一项基于 fNIRS 的超扫描研究

赵汉璇　徐四华（通讯作者）
上海外国语大学国际工商管理学院，上海，200083，通讯作者 E-mail: xusihua80@gmail.com

摘 要　当人们在与处于不同关系中的同伴共同进行团体决策的过程中，随着受益人由个体转向团体，人们往往会表现出不同的决策倾向。本研究结合基于 fNIRS 的超扫描技术，采用经典的仿真气球冒险任务（Balloon Analogue Risk Task, BART）来考察社会关系影响双人动态风险决策的脑间神经机制。本研究共招募了 50 对同性别的被试小组，并根据他们的认识时间和自我包含他人（Inclusion of Other in the Self, IOS）量表评分将其随机分到好友组和陌生组。在实验过程中，两名被试将被轮流指派到两个角色：决策者和观察者。决策者的一方通过选择吹大气球还是保存收益进行单次决策，而观察者的一方则在决策者进行决策时进行观看即可。本研究的行为结果表明，在和熟悉的朋友搭档进行合作决策时被试小组往往会呈现出损失厌恶的风险偏好。本研究的 fNIRS 结果表明，在感兴趣频段 1 上，在大脑右侧前额下回脑区（right inferior prefrontal gyrus, r-IFG）上，对于负反馈的结果加工时朋友关系组内两名被试的脑间活动同步性显著高于正反馈加工时两名被试的脑间活动同步性。在感兴趣频段 2 上，在大脑左侧前额下回脑区（left inferior frontal gyrus, l-IFG），朋友关系组内两名被试对于负反馈的结果加工时，脑间活动同步性显著高于正反馈加工时

两名被试的脑间活动同步性；陌生人关系组内两名被试加工负反馈的结果时，脑间活动同步性显著低于正反馈加工时两名被试的脑间活动同步性。在大脑额极脑区（medial frontopolar cortex, mPFC），朋友关系组内两名被试对于负反馈的结果加工时，脑间活动同步性显著高于正反馈加工时两名被试的脑间活动同步性。后续格兰杰因果分析的结果表明，在大脑左侧前额下回脑区（left inferior frontal gyrus, l-IFG），朋友关系组被试在从决策者到观察者方向上的因果方向性显著高于陌生人关系组被试在从决策者到观察者方向上的因果方向性。支持向量回归的结果表明，朋友组被试加工负反馈结果时的脑间活动同步性可以预测双方随后的风险偏好倾向，而陌生组被试加工正反馈结果时的脑间活动同步性可以预测双方随后的风险偏好倾向。

关键词　fNIRS，超扫描技术，脑间同步性，社会关系，风险决策

Neural Mechanism Underlying the Effect of Social Relationships on Group Decision-Making Under Uncertainty: An fNIRS-Based Hyperscanning Study

Hanxuan Zhao, Sihua Xu (Corresponding Author)
School of Business and Management, Shanghai International Studies University, Shanghai, 200083

Abstract：Humans may behave in different manners when making decisions with friends and strangers. Whether the interpersonal relationships affected the group decision-making under uncertainty in the real-time interaction remains unknown. Using the turn-based Balloon Analogue Risk Task (BART), the present study examined the group decision-making propensity under uncertainty with partners in different interpersonal relationships. Corresponding inter-brain synchronization (IBS) patterns at the prefrontal cortex (PFC) were also uncovered with the fNIRS-based hyperscanning approach. Behavioral results identified that dyads in the friend group exhibited the uncertainty-averse propensity when com- paring with the stranger group. The fNIRS results reported that feedback-related IBS at the left inferior frontal gyrus (l-IFG) and medial frontopolar cortex (mFPC) during different feedbacks was modulated by interpersonal relationships. The IBS at all channels in the PFC during the positive and negative feedbacks, respectively, predicted the decision-making propensity under uncertainty in the stranger and friend groups based on the support vector machine (SVM) algorithm. These findings demonstrated disparate behavioral responses and inter-brain synchronization patterns underlying group decision-making under uncertainty with partners in different interpersonal relationships.

Keywords：fNIRS, hyperscanning, inter-brain synchronization, social relationship, decision-making under uncertainty

Two Roads Lead to Rome: The Relative Effectiveness of Empathy vs. Efficacy in Inducing Donation

Yuanjie Zhao[1] Jingjing Ma[1] Danit Ein-Gar[2] Neal Roese [3]
1 National School of Development, Peking University, Beijing, 100871, jingjingma@nsd.pku.edu.cn
2 Coller School of Management, Tel Aviv University, Tel Aviv, 6997801

3 Kellogg School of Management, Northwestern University, Chicago, 60208

Abstract：In practice, efficacy-inducing and empathy-inducing are two types of fundraising appeals that charities commonly used to encourage charitable support. Numerous studies have underscored the importance of efficacy and empathy in driving donations and validated the effectiveness of these two types of appeals. Yet, a gap remains in the intersection of these research areas. Given this, our study introduces the concept of the 'Maximizing Mindset' as an entry point. We probe into how this mindset (vs. a neutral mindset) affects the relative importance of efficacy and empathy, the two key drivers for donations, as well as the relative effectiveness of efficacy-inducing and empathy-inducing appeals, and the underlying mechanisms.

Our research includes four studies: The first is a large-scale, nationally representative survey that initially investigates the impact of a maximizing tendency on the relative importance of efficacy and empathy in driving charitable giving. In the second study, we manipulate participants' mindsets to explore how the maximizing mindset (vs. a neutral mindset) affects the relative effectiveness of efficacy-inducing and empathy-inducing appeals. In the third and fourth studies, we manipulate the intensity of efficacy-inducing and empathy-inducing appeals to investigate the mediating role of information sensitivity in the impact of a maximizing mindset on the relative effectiveness of these two types of appeals.

Results indicate that a maximizing mindset (vs. a neutral mindset) increases the relative effectiveness of efficacy- inducing (vs. empathy-inducing) appeals. Moreover, the findings suggest that this effect is driven by information sensitivity, showing that a maximizing mindset (vs. a neutral mindset) increases one's sensitivity to efficacy-inducing appeals while decreasing one's sensitivity to empathy-inducing appeals, thus affecting their relative effectiveness.

The findings of this study offer important theoretical insights and practical implications. From a theoretical standpoint, our work is pioneering in its comparative discussion of the relative importance of efficacy and empathy as donation drivers, and the relative effectiveness of efficacy-inducing and empathy-inducing appeals. Not only does it contribute to research concerning fundraising appeals, charitable behavior, and the maximizing mindset, but it also offers practical implications that can aid fundraisers in amplifying the success of their initiatives.

Keywords：Fundraising appeal, Charitable behavior, Empathy, Efficacy, Maximizing

面孔吸引力影响经济决策的神经机制

尚俊辰[1]　张懿倬[1]　陈文锋[2]　傅小兰[3]（通讯作者）

1 东南大学人文学院医学人文学系，南京，211189

2 中国人民大学心理学系，北京，100872

3 中国科学院心理研究所，北京，100101，通讯作者 E-mail：fuxl@psych.ac.cn

摘 要　千百年来，人类对于美的追求从未止步过。面孔吸引力影响人类的经济决策，实验室实验和现场实验的结果都表明高吸引力面孔可诱发"美貌溢价"效应，即漂亮的人比相貌一般的人在社会交往中更占优势，得到更多的资源。电生理研究进一步揭示高吸引力面孔在决策过程中能诱发较大的晚期正成分，并激活伏隔核、眶额叶皮层、腹侧纹状体等与奖赏加工有关的脑区。进化理论、经济学理论和社会心理学理论则从不同视角予以阐释，进化理论主要从遗传基因和择偶动机的角度解释人们在经济决策中对不同面

孔吸引力的对象表现出的差异，这种差异往往受到决策中互动双方性别的影响。经济学家们基于真实经济情境和劳动市场中对于外貌的歧视和偏见，认为长相好看的人工作表现也会更优，提出了“基于偏好的歧视”和“统计性歧视”。社会心理学则认为刻板印象理论可以解释面孔吸引力偏好。其中获得实验证据支持最多的是进化理论，但是其无法解释少数研究报告的“美貌惩罚”效应，即美貌不仅并非利器，还可能造成经济上的亏损。未来的研究应设法创新研究范式或者多范式结合多模态脑成像技术，尝试建立完善系统的理论解释体系，构建面孔吸引力的动态连续变化模型，深入探究真实经济决策情境以提升研究的外部效度，更全面地阐释面孔吸引力影响经济决策的神经机制。

关键词　面孔吸引力，经济决策，美貌溢价，进化理论，美貌惩罚

The effect of facial attractiveness on economic decision-making and its neutral mechanism

Junchen Shang [1], Yizhuo Zhang [1], Wenfeng Chen [2], Xiaolan Fu [3]*

1 Department of Medical Humanities, School of Humanities, Southeast University, Nanjing

2 Department of Psychology, Renmin University of China, Beijing

3 Institute of Psychology, Chinese Academy of Sciences, Beijing

Abstract： For thousands of years, human beings have never stopped in their pursuit of beauty. Facial attractiveness influences human’s economic decision-making. Results of laboratory and field experiments suggested that attractive faces induce a “beauty premium” effect. That is, beautiful people are more advantageous in social interactions and get more resources than people with average looks. Electrophysiological studies have further revealed that attractive faces elicited greater late positive components in decision-making and activated brain regions involved in reward processing such as the nucleus accumben, orbitofrontal cortex, and ventral striatum. Evolutionary theory, economic theory, and social psychological theory provide explanations of this effect from different perspectives. Evolutionary theory explains differences in people's performance in economic decision making towards objects of differential face attractiveness mainly in terms of genetic and mate selection motivations, which are often influenced by the gender of the two interacting parties in the decision. Economists suggested “taste-based discrimination” and “statistical discrimination”, such that attractive people also perform better at work, based on real economic situations and labor market discrimination and bias against physical appearance. Social psychology, instead, argues that stereotype theory can explain face attractiveness preferences. The evolutionary theory has received the most support from experimental evidence. However, it fails to explain the “beauty penalty” effect. That is, beauty is not only not a good tool, but can also cause financial losses. Future researches should apply new paradigms, or integrate multiple paradigms combining with multimodal brain imaging technology to establish a more systematic theoretical model, construct a dynamic and continuous changing model of face attractiveness, and explore decision-making in real economic situations for higher external validity, in order to comprehensively explain the neural mechanism of the influence of facial attractiveness on economic decision-making.

Keywords： facial attractiveness, economic decision-making, beauty premium, evolutionary theory, beauty penalty

社会排斥对风险决策和模糊决策的不同影响：来自电生理的证据

陶瑞文　赵汉璇　张灿　徐四华（通讯作者）

上海外国语大学国际工商管理学院，上海，200083，通讯作者 E-mail: xusihua80@gmail.com

摘 要 社会排斥作为一种普遍存在的社会联结破坏现象，会损耗个体的认知资源，导致人们不能理性地进行决策。风险决策和模糊决策都与人类的生活息息相关，但目前并不清楚社会排斥是否以及如何影响风险决策和模糊决策。因此，本研究基于事件相关电位（ERPs）技术，采用幸运轮盘任务（wheel- of- fortune task）来考察社会排斥影响风险决策和模糊决策的神经机制差异。本研究共招募了 60 名被试，通过看图启动任务将其随机分为社会排斥组和社会接纳组。接着进行一项轮盘博弈任务，分为 “风险决策”和“模糊决策”两部分，任务顺序在被试间随机平衡。本研究的行为结果表明，社会排斥情境下，模糊决策的反应时显著大于风险决策；但在社会接纳情境下模糊决策和风险决策的反应时差异不显著。本研究的 ERP 结果表明，在选择阶段，在社会接纳情境下，风险决策比模糊决策诱发更强的 Cue-P3 波幅；社会排斥情景则使决策类型诱发的 Cue-P3 波幅差异不显著。在结果评估阶段发现，社会排斥情景下，只有风险决策中的无收益比收益诱发更强的 FRN 波幅；社会接纳情境下，无论是风险还是模糊决策后，无收益均比收益诱发更强的 FRN。对 P300 分析显示，两种社会情境下，风险决策和模糊决策后的收益和无收益结果引起的 P300 波幅没有显著性差异。我们的研究结果表明，在选择阶段和结果评估早期阶段，社会排斥对风险决策和模糊决策产生了不同的影响，并为此提供认知神经科学层面的依据。

关键词 社会排斥，风险决策，模糊决策，ERP，结果评估

Distinct neural dynamics of social exclusion in decision making under risk and ambiguity: An ERP study

Ruiwen Tao, Hanxuan Zhao, Can Zhang, Sihua Xu (Corresponding Author),
School of Business and Management, Shanghai International Studies University, Shanghai, 200083

Abstract：Social exclusion is ubiquitous in everyday life, impairs individuals' cognitive resources and lead to difficulties in making rational judgements and decisions. Decisions under uncertainty can be further divided into decisions under risk in which outcome probabilities are known, and decisions under ambiguity in which outcome probabilities are ill-defined or unknown. However, whether and how risk and ambiguity are dissociated in terms of neural dynamics during social exclusion context remains unclear. The present event-related potential (ERP) study addressed these issues by asking participants to perform a wheel-of-fortune task during a risky decision and an ambiguous decision under social exclusion and social inclusion contexts. Behavioral results identified slower reaction time in ambiguous decision in the social inclusion context when comparing with risky decision. However, this effect was absent in the social exclusion context. The ERPs results reported that the cue-P3 was more enhanced during the choice phase in the risky decisions when comparing with the ambiguity decisions only in the social inclusion contexts but not in the social exclusion contexts. During the outcome evaluation phase, the results revealed that in the social inclusion context, the FRN amplitudes following both risk decisions and ambiguous decisions were greater in the gain condition than those in the no-gain condition, whereas in the social exclusion context, this unstable effect was only observed following the risk decisions. The P300 was insensitive to the gain condition and no-gain condition following risk and ambiguous decisions in both social exclusion and social inclusion contexts. These findings demonstrated the neural dissociation between risk and ambiguity decision-making during social exclusion context, and further unfolded from the choice phase to the outcome evaluation phase.

Keywords：social exclusion, decision-making under risk, decision-making under ambiguity, ERP, outcome evaluation

博弈中赢家何以脱颖而出——来自行为和脑影像的证据

张裕煊[1] 张明明[2] 蔡丹[2] 崔丽莹[2]（通讯作者）

1 上海师范大学，上海，200234

2 上海师范大学教育学院心理系，上海，200234，zmm2019@shnu.edu.cn

上海师范大学教育学院心理系，上海，200234，caidan@shnu.edu.cn

上海师范大学教育学院心理系，上海，200234，cui720926@163.com

摘 要 竞争是人类社会互动的关键要素，在竞争中，个体不可避免地被区分为赢家或输家。然而，在社会竞争过程中，赢家与输家之间的人际神经机制仍不清楚。随着超扫描技术与“第二人称神经科学”方法的应用，为揭示社会互动过程中动态的脑机制提供了可能。因此，为了更好地理解人际竞争中群体脑活动的动态性和复杂性，揭示竞争行为背后的神经过程。本研究招募 54 名参与者，两两配对完成一个基于“石头-剪刀-布”游戏的计算机任务，同时使用功能性近红外光谱成像仪器记录任务期间两名被试前额叶和颞顶联合区域的神经活动。任务结束后，根据被试的博弈结果筛选出二人组中的赢家和输家。脑影像的分析结果显示：赢家和输家在左侧额极皮层-左侧背外侧前额叶皮层、左侧额极皮层-左侧额下回皮层、右侧背外侧前额叶皮层-右侧背外侧前额叶皮层等区域的脑间同步显著增强，且赢家的神经活动先于输家发生变化。格兰杰因果分析发现二人组之间的影响是单向的，即在博弈关系中赢家到输家的信息流向显著强于输家到赢家的信息流向。此外，脑间同步与赢家采取的博弈策略（博弈转变）显著相关。综上，赢家先于输家出现的脑活动变化和随之产生的脑间同步，以及在脑际信息流向上的优势可能是竞争中赢家脱颖而出的潜在脑机制。同时，在任务过程中，当赢家的策略转变与输家的优势策略一致时，人际神经活动耦合增强。我们的发现揭示了在社会互动情境下竞争活动中赢家与输家之间独特的人际神经模式。

关键词 竞争，超扫描，赢家与输家，脑间同步，近红外光谱成像

How Winners Emerge in Competition: Evidence from Behavior and Neuroimaging

Zhang Yuxuan; Zhang Mingming; Cai Dan; Cui Liying

Department of Psychology, College of Education, Shanghai Normal University, Shanghai 200234, China

***Abstract*：** Competition is a key aspect of human interaction and competition inevitably leads to the division of individuals into either winners or losers. However, the interpersonal neural mechanism of winner and loser during competitive interactions remains unclear. The advent of hyperscanning techniques and the adoption of a second-person neuroscience framework offer promising avenues for elucidating the intricate cerebral mechanisms involved in social interactions. Therefore, in order to advance our comprehension of the intricacies and dynamics between two brains, as well as to uncover the neural mechanisms involved in competition, a total of fifty-four participants were enlisted for the study and paired into dyads. These dyads then completed a computer task around the ‘Rock-paper-scissors’ game. Functional near-infrared spectroscopy (fNIRS) was used to record both members’ neural activity in the prefrontal cortex (PFC) and temporal-parietal junction (TPJ) regions during the task. After the task ended, we identified winners and losers in the dyads based on participant performance. The

results showed that winners and losers had significantly larger inter-brain synchrony (IBS) in the left frontopolar cortex-left dorsolateral prefrontal cortex, left frontopolar cortex-left Inferior frontal gyrus, and right dorsolateral prefrontal cortex-right dorsolateral prefrontal cortex, and neural activity changes of winners preceded the onset of losers. Granger causality analyses revealed the influence between dyads was unidirectional and was significantly stronger from the winners to the losers than the other direction. In addition, the IBS was significantly associated with the winners' shift strategy. All these findings suggest that brain activity differences, consequent IBS and preponderant inter-brain information flow between winners and losers, potentially serve as the fundamental neural mechanisms contributing to the emergence of winners. Furthermore, when the winners' strategy shifted in line with the dominant strategy of the losers, interpersonal neural activity coupling was enhanced. Our findings demonstrate a distinctive neural pattern of interpersonal dynamics between winners and losers in the context of natural interactions.

Keywords： competition, hyperscanning, winner and loser, inter-brain synchrony, fNIRS

3.10 “老年心理学专业委员会”专题研讨会

社交媒体使用与老年人生活满意度：一个有调节的中介模型

李颖聪 [1,2]　邵景进 [1,2]

1 西南大学心理健康教育研究中心，重庆，400715

2 西南大学心理学部，重庆，400715，jingjinshao@126.com

摘 要：已有研究表明社交媒体使用有助于提升老年人的生活满意度，但其潜在影响机制仍有待探索。为系统考察社交媒体使用是否通过线上和线下社会联结的中介作用而影响老年人生活满意度，以及线上和线下社会联结的中介作用是否受到孤独感和躯体功能障碍的调节，以最受中国老年人欢迎的社交媒体平台——微信为例，采用社交媒体使用强度量表、线上和线下社会联结量表、生活满意度量表（SWLS）、UCLA 孤独感量表 8 条目简化版（ULS-8）、日常生活能力量表（ADL）对 232 名中国老年人（$M = 65.28$，$SD = 6.77$）进行调查。研究结果表明：（1）线上社会联结和线下社会联结在社交媒体使用和老年人生活满意度之间起到中介作用；（2）孤独感对线上社会联结在社交媒体使用和老年人生活满意度间中介效应的前半路径起调节作用，线上社会联结的中介作用仅在孤独感较高的老年人中显著，即对于高孤独感老年人，社交媒体使用强度越高，线上社会联结越强；（3）躯体功能障碍对线下社会联结在社交媒体使用和老年人生活满意度间中介效应的前半路径起调节作用，线下社会联结的中介作用仅在躯体功能障碍程度较高的老年人中显著，即对于高躯体功能障碍老年人，社交媒体使用强度越高，线下社会联结越强。该研究结果有助于更好地了解社交媒体使用“如何”以及“何时”影响老年人生活满意度，为数字化时代提升老年人的生活满意度提供有益借鉴。

关键词：社交媒体使用，生活满意度，社会联结，孤独感，躯体功能障碍

Social Media Use and Life Satisfaction among Older Adults: A

Moderated Mediation Model

Yingcong Li[1,2], Jingjin Shao[1,2]

1Centre for Mental Health Education, Southwest University, Chongqing, 400715

2 Faculty of Psychology, Southwest University, Chongqing, 400715

***Abstract*:** Previous studies have demonstrated that social media use (SMU) benefits older adults' life satisfaction, however, the underlying mechanisms of this relationship have not been fully explored. This study focused on WeChat, the most popular social media platform among Chinese older adults, to examine whether SMU affects older adults' life satisfaction through the mediating role of online and offline social connectedness, and whether these mediating processes are moderated by loneliness and functional disability. Using Social Media Usage Intensity Scale, Online and Offline Social Connectedness Scales, Satisfaction with Life Scale (SWLS), the 8-item simplified version of UCLA Loneliness Scale (ULS-8), and Activities of Daily Living Scale (ADL), a questionnaire survey was conducted among 232 Chinese older adults (M = 65.28, SD = 6.77). The results showed that: (1) Online and offline social connectedness mediated the relationship between SMU and the life satisfaction of older adults; (2) Loneliness moderated the first half of the mediating effect of online social connectedness between SMU and older adults' life satisfaction, with the mediating effect of online social connectedness being significant only among older adults experiencing high levels of loneliness. That is, for older adults with high levels of loneliness, higher intensity of SMU was associated with stronger online social connectedness. (3) Functional disability moderated the first half of the mediating effect of offline social connectedness between SMU and older adults' life satisfaction, with the mediating effect of offline social connections being significant only among older adults with high levels of functional disability. That is, for older adults with high levels of functional disability, higher intensity of SMU was related to stronger offline social connectedness. These findings contribute to a better understanding of how and when SMU influences the life satisfaction of older adults, providing valuable insights for enhancing the life satisfaction of older adults in the digital age.

***Keywords*:** social media use, life satisfaction, social connectedness, loneliness, functional disability

老年人短视频 APP 使用和自评健康的关系：主观社会支持的中介作用和媒介素养的调节作用

萧峻华[1]，宋婉煜[1]，朱心怡[2]，龚先旻[3]，尹述飞[1](通讯作者)

[1]湖北大学心理学系，武汉，430000，yinshufei121@163.com

[2]中国科学院心理研究所，北京，100101

[3]香港中文大学心理学系，香港，999077

摘 要 随着信息科学技术的快速发展，越来越多的老年人开始使用网络和短视频应用(Application, APP)。但目前关于短视频 APP 使用与老年人自评健康之间的关系及其作用机制还不够清晰。本研究旨在构建一个有调节的中介模型，探讨使用短视频 APP 与老年人自评健康的关系及主观社会支持和媒介素养在其中的作用。对 319 位老年人展开问卷调查，以每周使用时间测量短视频 APP 使用，以主观健康测量老年人的健康水平，采用社会支持评定量表、媒介素养量表测量老年人的主观社会支持和媒介素养。通过 SPSS21.0 和

SPSS 宏 process 程序对数据进行分析。结果发现： (1) 短视频 APP 每周使用时间正向预测老年人的主观健康水平($b = 0.38, p < .001$)；(2) 主观社会支持在两者关系间起中介作用，95%的 Bootstrap 置信区间为[0.03, 0.10]，中介效应占比 25.93%；(3) 仅对于媒介素养较低的老年人而言，短视频 APP 每周使用时间正向预测主观社会支持($b = 0.36, p < 0.01$)，中介路径成立。本研究提示未来开展老年人（特别是媒介素养较低的老年人）健康和幸福感方面的干预研究，可以考虑涉及短视频 APP 使用方面的内容。
关键词 网络使用，自评健康，积极老化

Short-Form Video Application Use and Self-Rated Health among Older Adults: The Mediating Role of Perceived Social Support and the Moderating Role of Media Literacy

JunHua Xiao[1], Wanyu Song[1], Xinyi Zhu[2], Xianmin Gong[3], Shufei Yin[1*]
[1]Department of Psychology, Faculty of Education, Hubei University, Wuhan, China
[2]Institute of Psychology, Chinese Academy of Sciences, Beijing, China
[3]Department of Psychology, The Chinese University of Hong Kong, Hong Kong, China

Abstract：Although short-form video applications (apps) are increasingly popular among older adults, little research has investigated the relationship between their use of such apps and health outcomes. The present study aims to investigate this relationship while also examining the mediating role of perceived social support and the moderating role of media literacy. Three hundred and nineteen older adults completed our questionnaire. The results showed that short-form video app use had a positive association with self-rated health among older adults, and the association was mediated by perceived social support. Moreover, the positive association between short-form video app use and perceived social support was observed in older adults with lower (but not higher) levels of media literacy. Future interventions aimed at promoting the health and well-being of older adults (especially those with lower media literacy) should consider teaching their participants to appropriately use short-form video apps.
Keywords：internet usage, self-rated health, active aging

情景记忆和错误记忆影响价值决策的年老化效应

王俭勤
复旦大学心理学系，上海，200433，wjq@fudan.edu.cn

摘 要　随着年龄的增长，老年人的记忆功能逐渐衰退，主要表现为情景记忆水平的下降，以及错误记忆水平的上升。记忆对于指导个体的决策具有重要作用，目前鲜有研究关注老年人记忆功能的改变对其决策的影响。对这一问题的回答有助于揭示记忆影响决策的年老化模式，并为将来开发提升老年人决策质量的手段提供依据。本研究采用系列实验，同时考察了情景记忆和错误记忆影响决策偏好的年老化机制。实验一结合了错误记忆 DRM 范式和奖励学习范式，实验二则将类别错误记忆范式和奖励学习相结合，同时比较了青年组和老年被试组基于经验的价值决策模式。实验一和实验二均发现，老年组被试对奖励经历的情景记忆显著低于青年组，且在随后的决策任务中，老年组被试对学习阶段奖励过的图片的决策偏好显

著低于青年组被试，说明老年被试的情景记忆衰退使得其决策表现显著下降。对于错误记忆而言，老年组的错误记忆水平与青年组相当（实验一）甚至更低（实验二），因此老年组被试基于错误记忆的决策偏好表现为显著低于青年组被试。对记忆水平和决策偏好二者进行相关分析发现，记忆水平能显著地预测青年人的决策偏好，但不能很好地预测老年人的决策偏好。以上结果表明，老年人记忆功能的下降是其决策表现下降的重要机制，且记忆对决策的直接影响在老年人群体中表现为一定程度的分离效应。

关键词　错误记忆，情景记忆，价值决策，年老化，

Aging Effects on the Impact of Episodic Memory and False Memory on Decision-making

Jianqin Wang
Department of Psychology, Fudan University, Shanghai, 200433, jq@fudan.edu.cn

***Abstract*：** As people age, their episodic memory declines and meanwhile, their false memory level increases. Recent research has shown the critical role of episodic memory in experience-based decision-making. An unanswered question is, how would the decline of episodic memory and increase of false memory impact older adults' decision-making. Answering this question could help uncover the aging pattern of memory based decision-making, and have practical implications in exploring interventions on how to improve older adults' decision-making performance. The current study conducted a series of experiments to examine the role of episodic memory and false memory in decision-making in older adults. Experiment 1 combined the false memory DRM paradigm and the reward learning task, while Experiment 2 combined the categorical false memory paradigm and reward learning, in order to investigate the aging pattern of experience-based value decision-making via testing both younger and older adults. Both Experiment 1 and Experiment 2 found that older adults had significantly lower episodic memory for past rewarding experiences than younger adults, and in the follow-up decision-making task, older adults' decision-making preferences for rewarded pictures were significantly lower than that of younger adults, suggesting that the decline of episodic memory might lead to worse performance in decision-making in older adults. For false memory and decision-making, older adults had equivalent level of false memory with younger adults (Experiment 1) or even lower false memory rates (Experiment 2), which led to significantly fewer false memory-based decisions than younger adults. Correlational analyses revealed that, memory level can significantly predict the decision-making preferences in younger but not older adults. The above findings suggest that the deficit of memory function in older adults is a potential mechanism underlying their decreased decision-making performance, and a dissociation between memory and decision-making emerges in older adults.

***Keywords*：** False Memory, Episodic Memory, Decision-making, Aging

价值对情景记忆老化的影响

王宝玺 王雪静 盘汝忆
江西师范大学心理学院，南昌，330022，wangbaoxi@126.com
摘 要 随着年龄的增长，老年人的情景记忆存在不同程度的老化。鉴于老年人的回想能力受损而熟悉性保存完好，价值对老年人来源记忆的影响是基于熟悉性还是回想有待进一步探讨。由于不同类型的来源记忆所占用的认知资源的不同，可能导致价值对老年人来源记忆影响存在差异。本研究探讨价值对来源记忆和联结记忆等不同类型的情景记忆的影响及其相关机制。本研究设计两个实验探究在无意编码条件下价值对来源记忆的影响。实验 1 使用了对认知资源需求较低的内在来源任务探究价值对来源记忆的影响。实验 1 使用了对认知资源需求较高的外在来源任务探究价值对来源记忆的影响。实验 1 发现无论是青年人还是老年人的高价值条件下的项目记忆成绩显著高于低价值条件。对于来源记忆，两个年龄组在记得条件下对高价值的来源记忆再认成绩显著高于低价值材料的来源记忆，而在知道条件下对低价值的来源记忆再认成绩显著低于高价值。实验 2 发现在两个年龄组中，高价值材料的项目记忆成绩显著高于低价值，而高低价值材料之间的来源记忆成绩没有显著差异。结果表明，价值对老年人来源记忆影响依赖于来源记忆的类型，在内部来源条件下，高价值材料的项目记忆和来源记忆都高于低价值材料，价值对来源记忆的促进作用基于回想过程。但是在外部来源条件下，价值仅仅促进了项目记忆而对来源记忆没有影响。价值对不同来源记忆影响存在差异可能是因为不同来源记忆任务对认知资源的占用情况不同导致的。
关键词 价值，情景记忆，回想，熟悉性，记忆老化

The effect of value on episodic memory in older adults

Baoxi Wang, Xuejing Wang, Ruyi Pan
School of Psychology，Jiangxi Normal University, NanChang
***Abstract*:** While memory generally declines with increasing age, aging has varied effects on different types of episodic memory in older adults. Whether the effect of value on episodic memory in older adults is based on familiarity or recollection needs to be further explored, given that recollection is impaired and familiarity is well preserved in older adults. Differences in the cognitive resources occupied by different types of episodic memory may lead to different effects of value on episodic memory in older adults. The study examines the effects of value on different types of episodic memory and their related mechanisms. Two experiments were used to explore the effects of value on source memory, respectively. Experiment 1 explores the effects of value on source memory under incidental encoding condition. Experiment 1 used an intrinsic source task with a low demand for cognitive resources to explore the effect of value on source memory. Experiment 2 used an extrinsic source task with a high demand for cognitive resources to explore the effect of value on source memory. Experiment 1 found that item memory performance was significantly higher in the high-value condition than in the low-value condition for both young and older adults. For source memory, both age groups had significantly higher recollection scores for high-value source memory in the remembering condition than for low-value material, and significantly lower recollection scores for low-value source memory in the knowing condition than for high-value. Experiment 2 found that item memory performance was significantly higher for high-value materials than for low-value in both age groups, while there was no significant difference in source memory performance between high and low-value materials. The results indicated that the effect of value on source memory in older adults depended on the type of source memory, that item memory and source memory were higher for high-value materials than for low-value materials in the intrinsic source condition, and that the facilitating effect of value on source memory was based on the recollection. In the external source condition, however, value only facilitated item memory without having an effect on source memory. Differences in the effect of value on different source memories may result from the

different occupation of cognitive resources by different source memory tasks. This may be due to the resource demands of the different source memory tests.

***Keywords*:** value, episodic memory, recollection, familiarity, memory aging

老助老模式的作用机制：来自心理-行为-脑间同步性的证据

黄润玉[1] 梁紫微[1] 蔡林[2] 耿文泽[1] 彭学睿[34] 岑雨珊[1] 喻婧[1]（通讯作者）

1 西南大学心理学部，重庆，400715

2 Center for Evolutionary Cognitive Sciences, Graduate School of Arts and Sciences, The University of Tokyo

3 Chair of Lifespan Developmental Neuroscience, Faculty of Psychology, Technische Universität Dresden, Dresden, Germany

4 Centre for Tactile Internet with Human-in-the-Loop, Technische Universität Dresden, Dresden, Germany

摘 要 随着老龄化加剧，中国 60 岁及以上老年人口增至 2.64 亿，而同时，服务于老年群体的青年活跃志愿者人数约 14.27 万，志愿者与受助者在数量上呈现严重供需不平衡。因此，鼓励老年人成为志愿者，帮扶同龄人，或将成为缓解该人力资源紧张的有效方式之一。本研究从心理、行为、神经证据三个层面探究老助老模式与传统青助老模式的差异及潜在机制，揭示老助老的可行性与科学性。研究通过问卷调查、行为实验、近红外超扫描展开，探讨 1) 老助老模式跨人群、跨任务的接受度；2) 老助老与青助老模式的实际帮扶效果，及该效果如何受任务特征的调节(认知相关 vs.情绪相关)；3) 两种模式在人际神经同步性（INS）上的差异，及该差异对行为结果的影响。研究一考察老年人(n = 210)、家属(n = 567)、社区工作者(n = 108)三类人群在两类任务(认知相关 vs. 情绪相关)中对帮扶模式的偏好。结果显示，在认知相关任务中，老年人和社区工作者都更倾向于青助老模式，家属未表现出明显偏好；在情绪相关任务中，家属更倾向于老助老模式，而老年人和社区工作者未表现出明显偏好。研究二考察不同模式对老年受助者(n = 122)的帮扶效果差异，及任务类型的调节作用。结果显示，在认知相关任务——智能手机教学活动中，青助老组的老年人使用智能应用的正确率更高；在情绪相关任务——情感疏导活动中，老助老对老年人情绪的改善作用更明显，其消极情绪得分更低、积极情绪得分更高。研究三采用近红外超扫描技术，对比老助老和青助老模式中，志愿者-受助者的人际神经同步性(INS)，挖掘不同模式行为表现差异的神经生理证据。结果显示，在简单任务中，两种模式未出现行为差异；在困难任务中，老助老组的学习成绩显著高于青助老组。在人际神经同步性上，出现与行为结果相吻合的模式。中介分析表明，不同帮扶模式通过人际神经同步性影响了老年人的学习行为表现。综上，本研究对老助老模式行为效果及机制进行探讨，为该模式提供了多层次科学依据，助力创新型养老服务的建设。

关键词 老助老，老年志愿者，任务特异性，超扫描，近红外脑功能成像

The mechanism of action of the old-help-old model: evidence from psycho-behaviour-brain synchrony

Run-Yu Huang[1], Zi-Wei Liang[1], Lin Cai[2], Wen-Ze Geng[1], Xue-Rui Peng[3], Yu-Shan Cen[1], Jing Yu[1*]

1 Faculty of Psychology, Southwest University, Chongqing, China

2 Center for Evolutionary Cognitive Sciences, Graduate School of Arts and Sciences, The University of Tokyo

3 Chair of Lifespan Developmental Neuroscience, Faculty of Psychology, Technische Universität Dresden, Dresden, Germany

Centre for Tactile Internet with Human-in-the-Loop, Technische Universität Dresden, Dresden, Germany

Abstract：With the intensification of ageing, China's old adults aged 60 and above has increased to 264 million, while at the same time the number of young active volunteers serving the older adults is about 142,700, reflecting a serious imbalance between volunteers and beneficiaries. Therefore, encouraging older people to volunteer and help their peers may be one of the effective ways to alleviate the shortage of human resources. This study explores the differences and potential mechanisms between the old-help-old model and the traditional youth-help-old model from three levels of psychological, behavioural and neurological evidence, and demonstrates the feasibility and scientificity of the old-help-old model. The study was conducted using questionnaire surveys, behavioural experiments, and NIRS-based hyperscanning to examine 1) the acceptability of the old-help-old model across populations and tasks; 2) the behavioral effect of old-help-old and youth-help-old, and how this effect is regulated by task characteristics (cognitive vs. emotional); 3) differences in interpersonal neural synchrony (INS) between the two models and the effect of this difference on behavioural outcomes. Study 1 investigated the preference of older people (n = 210), family members (n = 567) and community workers (n = 108) in two types of tasks (cognitive vs. emotional). The results showed that in the cognitive tasks, both the older people and the community workers tended to prefer the youth-help-old, while the family members showed no obvious preference. For the emotional tasks, families tended to old-help-old model, while older adults and community workers showed no clear preference. Study 2 examined the helping effect of different models on older recipients (n = 122) and the moderating effect of task type. The results showed that in the cognitive task - smart phone teaching activity, the older adults in youth-help-old group had a higher correct rate of using smart applications. In the emotion-related task - emotional counselling activity, the effect of old-help-old on the older adults' mood was more obvious, and the negative emotion score was lower and the positive emotion score was higher. Study 3 compare the interpersonal neural synchrony (INS) of the volunteer-recipient in the old-help-old and youth-help-old models, and to examine the neurophysiological evidence for differences in behavioural performance between the models. The results show that in the simple task there is no difference in behaviour between the two modes; in the hard tasks the learning performance of the old-help-old group was significantly higher than that of the youth-help-old group. Patterns of INS are consistent with behavioural outcomes. Mediation analysis showed that different models influenced the learning behaviour of older people through INS. These results confirm the feasibility of old-help-old model and provide evidence for brain activity.

Keywords：old-help-old, old adult volunteers, task-specific, hyperscanning, fNIRS

3.11 “护理心理学专业委员会”专题研讨会

第二受害者护士心理创伤的潜在剖面分析及与创伤后成长的关系：一项横断面研究

孙连荣[1] 叶旭春[2]（通讯作者）

1 上海师范大学天华学院，上海

2 中国人民解放军海军军医大学护理系，上海，200433，ye_xch8639@163.com

摘 要 尽管不良事件会使护士成为第二受害者（Second Victoms, SVs）并经历心理创伤，但它们也能为护士提供职业发展的机会。辨别第二受害者护士心理创伤的潜在类别并探讨各类别与创伤后成长

（Posttraumatic growth, PTG）的关系，对建立有效的第二受害者支持系统具有重要的理论价值和现实意义。为了分析第二受害者护士心理创伤的潜在类别，并研究各类别与个人特质和创伤后成长的关联，本研究收集 523 名中国第二受害者护士的人口学资料、心理创伤和创伤后成长分数并采用潜在剖面分析法（Latent quality analysis, LPA）进行数据分析。结果显示第二受害者护士的心理创伤可分为三个潜在类别：C1 为高痛苦感知-高支持组（70.1%）；C2 为高痛苦感知-中度支持组（23.8%）；C3 为低痛苦感知-低支持组（6.1%）。与 C3 相比，C1 和 C2 具有显著的职称效应；C2 的创伤后成长分数是三个类别中最低的。聚焦职称较低的护士并关注其心理需求是促进第二受害者护士心理康复和创伤后成长的有效策略。
关键词 护士，第二受害者，创伤后成长，潜在剖面分析

A latent profile analysis of second victim nurses' psychological trauma and its relationship with their posttraumatic growth: A cross-sectional study in China

Sun Lianrong[1], Ye Xuchun[2]
Tianhua College， Shanghai Normal University,Shanghai
Department of Nursing, Naval Medical University, Shanghai

Abstract: Although adverse events can cause nurses to become second victims (SVs) and experience psychological trauma, they can also provide opportunities for professional development. Exploring the categories of SV nurses' psychological trauma and the connection to their posttraumatic growth (PTG) has great academic value and practical significance for building an effective SV support system. To analyze potential categories of psychological trauma in SV nurses and investigate its association with personal information and PTG. In this study, 523 Chinese SV nurses' demographic information, psychological trauma, and PTG were surveyed. Data statistics were performed using latent quality analysis (LPA). SV nurses' psychological trauma can be divided into three potential categories: C1, high distress with high perceived support (70.1%); C2, high physical and mental distress with moderate perceived support (23.8%); and C3, low distress with low perceived support (6.1%). Compared with C3, C1 and C2 have a significant professional title effect; C2's PTG was the lowest of the three categories. Anchoring nurses with low professional titles and focusing on their psychological needs is an effective strategy for promoting SV nurses' psychological rehabilitation and PTG.

Keywords: nurse, second victim, posttraumatic growth, latent profile analysis

遭受工作场所暴力后急诊护士综合抗逆力干预的可行性、可接受性和有效性研究

廖俪雯[1] 王琳[1]（通讯作者）
1 上海交通大学护理学院，上海，200025
1 上海交通大学护理学院，上海，200025，E-mail：wanglsd@shsmu.edu.cn

摘 要 目的:本研究旨在探讨综合性抗逆力干预对遭受工作场所暴力后急诊护士抗逆力提升的可行性、可接受性和有效性，为未来进一步临床应用提供依据，以维护护理团队的整体身心健康。方法:采用类实验性研究设计和混合式研究方法，于 2022 年 11 月-2023 年 4 月通过整群抽样选取上海市某三级甲等医院两所院区 71 名遭受工作场所暴力的急诊护士作为研究对象，试验组 35 名，对照组 36 名。试验组接受为期 4 个

月的 8 次综合抗逆力干预，对照组予以常规心理干预。量性资料收集时间点为干预前和干预后，采用一般资料调查表、中文版抗逆力简表、认知情绪调节量表和特质应对方式问卷进行现场收集。同时在干预后对 9 名急诊护士开展半结构式访谈以收集其对干预方案的看法和体验，以评估该综合抗逆力干预方案的可行性和可接受性。量性资料分析采用 SPSS26.0，质性资料分析采用内容分析法。结果:共 71 名遭受过工作场所暴力的急诊护士完成干预研究，完成率 100%。试验组 26 名急诊护士完成了 6 次以上的干预课程（74.3%），35 名急诊护士均完成了家庭作业（100%）。量性研究结果显示，干预前两组急诊护士的一般资料、抗逆力、情绪调节策略和应对方式得分均无统计学意义（p 均＞0.05）。干预后，试验组抗逆力和积极应对方式得分较干预前提高，消极应对方式和非适应性情绪调节策略得分较干预前降低，差异具有统计学意义（p 均＜0.05）。同时，干预后试验组抗逆力、情绪调节策略和应对方式得分均较对照组有所改善，但差异无统计学意义（p 均＞0.05）。干预前后对照组抗逆力、情绪调节策略和应对方式得分均无统计学意义（p 均＞0.05）。质性研究结果显示，试验组急诊护士对该方案表现出积极评价，具体可归纳为愉快的参与体验、抗逆力的提升、情绪调节和应对能力的提升三个主题。结论:综合抗逆力干预具有良好可行性、可接受性和有效性，可提高遭受工作场所暴力后急诊护士的抗逆力、改善其情绪调节策略、提升其积极应对工作场所暴力的能力。我国护理管理者应重视工作场所暴力对护士身心健康和职业发展的影响，积极采取措施减轻工作场所暴力的后遗症。未来可将该综合抗逆力干预方案整合至护士职前教育或继续教育中，进一步扩大临床应用对象以促进全体护士的身心健康，推动护理团队的稳定健康发展。

关键词　综合抗逆力干预，工作场所暴力，急诊护士，心理健康，混合方法

Effect, feasibility, and acceptability of a comprehensive resilience intervention program in emergency nurses exposed to workplace violence

Liao LW, Wang L

School of Nursing, Shanghai Jiaotong University, Shanghai, No. 227, South Chongqing Road

***Abstract*：Objective：** This study aimed to test the feasibility, acceptability, and effect of a comprehensive resilience intervention in emergency nurses exposed to workplace violence. This study would provide a basis for further clinical application in the future and promote maintaining the physical and mental health of overall nurses.**Methods：** This is a quasi-experimental study with mixed methods. This study was performed from October 2022 to April 2023. 71 emergency nurses exposed to workplace violence from tertiary-level general hospitals in Shanghai were recruited and assigned to the intervention group (n=35) and control group (n=36). The intervention group received the comprehensive resilience intervention program. The control group received the general psychological intervention. The quantitative data was measured using the Chinese version of the Resilience Scale (CD-RISC-10), the Cognitive Emotion Regulation Questionnaire (CERQ), and the Trait Coping Style Questionnaire (TCSQ) at baseline and after intervention. In addition, we conducted semi-structured interviews with 9 participants from the intervention group to test the feasibility and acceptability of the program. SPSS26.0 was used for data analysis. The qualitative data was analyzed using content analysis methods. **Results:**71 participants completed our intervention (100%). 26 participants in the intervention group completed more than six courses (74.3%). All participants in the intervention group completed the homework (100%). The quantitative study showed that before the intervention, no significant differences in demographics, resilience, emotion

regulation strategies, and coping were observed between the two groups (all p > 0.05). Comparing the scores before and after the intervention, the scores of resilience and positive coping in the intervention group were significantly improved, and the score of maladaptive emotion regulation strategies and negative coping was significantly decreased (all p < 0.05). Compared with the control group, the scores of all variables were improved, but the differences were not statistically significant (all p > 0.05). For the control group, there was little change in all variables (p > 0.05). The qualitative data showed that the emergency nurses demonstrated a positive evaluation of the program, which could be categorized into three themes: joyful engagement experience, improvement in resilience, and improvement in emotional regulation and coping skills.**Conclusion:** The comprehensive resilience intervention program was effective, feasible, and acceptable in increasing resilience, improving emotion regulation strategies, and enhancing their ability to cope with workplace violence in emergency nurses exposed to workplace violence. Emergency departments and managers should emphasize the impact of workplace violence on nurses' well-being and career development and actively take measures to mitigate the sequelae of workplace violence. This comprehensive resilience intervention program could be integrated into the training of nurses, whether they are just starting or continuing their education. This will enable nurses better to promote both their own physical and mental health and that of their nursing team, leading to a stable and healthy work environment.

Keywords：comprehensive resilience intervention, workplace violence, emergency nurses, mental health, mixed methods

心理负荷在 ICU 女性护士组织支持和职业倦怠间的中介效应分析

杨洁[1]　刘晓芯（通讯作者）[2]　居馨星[2]　成钰娜[3]

1 上海市胸科医院日间手术病房，上海，200030

2 上海市胸科医院护理部，上海，200030，通讯作者 E-mail：lxx1018@hotmail.com

3 上海交通大学护理学院，上海，200025

摘要 目的 了解 ICU 女性护士组织支持、心理负荷及职业倦怠现状，并探讨三者关系。**方法** 采用方便抽样法，于 2023 年 4 月-5 月选取上海市三所三级甲等医院的 174 例 ICU 女性护士，采用一般资料调查表、组织支持感问卷、NASA 任务负荷指数量表、职业倦怠量表进行问卷调查。**结果** ICU 女性护士组织支持感总分（54.25±12.39）分，心理负荷总分（75.14±14.75）分，职业倦怠总分（41.28±16.14）分，组织支持与心理负荷、职业倦怠呈负相关（均 $P<0.05$），心理负荷与职业倦怠呈正相关（$P<0.05$），心理负荷在组织支持与职业倦怠间起部分中介作用，间接效应占总效应的 34.35%。**结论** ICU 女性护士组织支持、心理负荷和职业倦怠均处于中等水平；心理负荷在 ICU 女性护士组织支持和职业倦怠之间起部分中介作用。护理管理者应提供多样化的组织专业支持，可设计干预项目以减轻工作负荷感受，并提高自我评价，进而改善 ICU 女性护士职业倦怠水平。

关键词：ICU 女性护士，组织支持，心理负荷，职业倦怠，中介效应

Mediating effect of mental workload between organisational support and job burnout among female ICU nurses

Yang Jie[1]　Liu Xiaoxin[2]　Ju Xinxing[2]　Cheng Yuna[3]

1 Day surgery Ward, Shanghai Chest Hopstial, Shanghai, 200030

2 Nursing Department, Shanghai Chest Hopstial, Shanghai, 200030. E-mail: lxx1018@hotmail.com

3 School of Nursing, Shanghai Jiao Tong University, Shanghai, 200025

Abstract **Objective** To understand the status quo of organizational support, mental workload and job burnout of female nurses in ICU, and explore the relationship among them. **Methods** A total of 174 female ICU nurses from three grade-A hospitals in Shanghai were selected by convenience sampling method from April to May 2023. General data questionnaire, organizational support questionnaire, National Aeronautics and space administration task load index(NASA-TLX) and job burnout scale were used to conduct questionnaire survey. **Results** The total scores of organizational support, mental workload and job burnout of female nurses in ICU were (54.25±12.39) , (75.14±14.75) and (41.28±16.14) respectively. Organizational support was negatively correlated with mental workload and job burnout (all $P < 0.05$). There was a positive correlation between mental workload and job burnout ($P < 0.05$). Mental workload played a partial mediating role between organizational support and job burnout, and the indirect effect accounted for 34.35% of the total effect. **Conclusion** The organizational support, mental workload and job burnout of ICU female nurses were all at medium level. Mental workload plays a partial mediating role between organizational support and job burnout of ICU female nurses. Nursing managers should provide diverse organizational professional support, and can design intervention programs to reduce workload perception and improve self-evaluation, which in turn will improve the level of job burnout among female ICU nurses.

Keywords: Female ICU nurses, Organizational support, Mental workload, Job burnout, Mediating effect

护士工作场所欺凌与自杀的关系：基于不同维度及亚型分析

肖意苹[1]　张烜[1]　吕苒[2]　曹枫林[1]（通讯作者）

1 山东大学护理与康复学院，济南，250012，通讯作者 E-mail: caofenglin2008@126.com

2 山东大学口腔医院，济南，250012

摘 要　**目的：**探讨护士工作场所欺凌的不同维度及亚型与自杀的关系。 **方法：**采用方便抽样法从山东省四所三甲医院选取 3026 名护士作为研究对象。采用负性行为问卷-修订版和自杀行为问卷-修订版评估护士的工作场所欺凌情况及自杀风险。使用潜在类别分析识别护士工作场所欺凌的不同亚型，使用多元 logistic 回归探讨工作场所欺凌的总分、不同维度及不同亚型与护士自杀风险的关系。 **结果：**研究发现，工作场所欺凌总分越高，护士报告自杀的可能性越大（OR=1.037；95%CI：1.030，1.043），工作场所欺凌三个维度中仅组织不公与自杀呈显著关联（OR=1.223；95%CI：1.149，1.302）。本研究共识别出工作场所欺凌的五个亚型，即低欺凌组（52.25%）、中欺凌组（9.35%）、高欺凌组（17.02%）、超负荷组（10.67%）和不匹配组（10.71%）。与低欺凌组相比，中欺凌组（OR=5.935；95%CI：4.183，8.420）、高欺凌组（OR=5.577；95%CI：4.112，7.566）、超负荷组（OR=3.506；95%CI：2.426，5.067）和不匹配组（OR=3.333；95%CI：2.300，4.828）的护士报告自杀的可能性更大。此外，护士的 BMI 指数高（OR=1.040；95%CI：1.001，1.081）、女性（OR=2.295；95%CI：1.283，4.106）和经历过精神心理疾病、重大躯体疾病或头部受伤史（OR=3.383；95%CI：2.163，5.292）与护士报告自杀的可能性呈正相关，已婚（OR=0.733；95%CI：0.536，1.002，*P*=0.051）与护士报告自杀的可能性呈负相关。 **结论：**护士遭受的工作场所欺凌与自杀关系密切，医院管理者要重视护士的工作环境，及时识别自杀的高风险人群并采取合适的干预措施。

关键词　工作场所欺凌,自杀,护士,潜在类别分析

Relationship between workplace bullying and suicide among nurses: analyses based on different dimensions and subtypes

Xiao Yiping[1], Zhang Xuan[1], Lyu Ran[2], Cao Fenglin[1]
1.School of Nursing and Rehabilitation, Shandong University, Jinan 250012
2. Stomatological Hospital of Shandong University, Jinan 250012

***Abstract*：** **Objective:** To explore the relationship between different dimensions and subtypes of workplace bullying and suicide among nurses. **Methods:** A total of 3026 nurses from four tertiary hospitals in Shandong Province were recruited by convenience sampling method. The Negative Acts Questionnaire Revised and Suicidal Behaviors Questionnaire Revised were used to assess the workplace bullying and suicide risk of nurses. Latent class analysis was used to identify the different subtypes of workplace bullying, and multivariate logistic regressions were used to explore the association of the total score, different dimensions and different subtypes of workplace bullying and the suicide risk of nurses. **Results:** A higher total score on workplace bullying is associated with an increased likelihood of nurses reporting suicide (OR=1.037; 95%CI: 1.030, 1.043). Among the three dimensions of workplace bullying, only organizational injustice was positively correlated with suicide (OR=1.223; 95%CI: 1.149, 1.302). Five subtypes of workplace bullying were identified including “low bullying type” (52.25%), “moderate bullying type” (9.35%), “high bullying type” (17.02%), “overloaded type” (10.67%), and “mismatch type” (10.71%). Compared with the “low bullying type”, “moderate bullying type” (OR=5.935; 95%CI: 4.183, 8.420), “high bullying type” (OR=5.577; 95%CI: 4.112, 7.566), “overloaded type” (OR=3.506; 95%CI: 2.426, 5.067) and “mismatch type” (OR=3.333; 95%CI: 2.300, 4.828) exhibit a greater likelihood of reporting suicide. In addition, nurses who have a higher BMI (OR=1.040; 95%CI: 1.001, 1.081), are female (OR=2.295; 95%CI: 1.283, 4.106) and have a history of mental illness, major physical illness, or head injury (OR=3.383; 95%CI: 2.163, 5.292) were positively associated with the likelihood of a nurse reporting suicide, and married (OR=0.733; 95%CI: 0.536, 1.002, *P*=0.051) was inversely associated with the likelihood of a nurse reporting suicide. **Conclusions:** Workplace bullying is closely related to suicide among nurses. Hospital managers should pay attention to the work environment of nurses, identify high-risk groups of suicide in time, and take appropriate intervention measures.

***Keywords*：** workplace bullying, suicide, nurses, latent class analysis

网络情境下房颤患者及家属的需求分析

吴清[1,2]　王沛[2]（通讯作者）
1 上海交通大学护理学院，上海，200025
2 华东师范大学教育学部，上海，200032，通讯作者 Email: wangpei1970@163.com

摘 要 **目的：**分析真实网络情境下房颤患者及家属的房颤相关需求，并构建房颤相关需求分类模型。**方法：**收集房颤相关 QQ 群、微信群近 5 年的群聊信息，以及知乎和新浪微博中经“房颤”或“导管消融”认证的账号和百度房颤贴吧中的房颤相关信息，形成研究资料。基于 Python 自然语言处理技术，应用 Jieba、Pandas、NumPy 对收集的文本进行预处理后，结合 TF-IDF 算法进行关键词提取、词频分析以获取房颤相关需求，采用神经网络构建需求分类模型。**结果：**累计获取网络分析文本 536786 字。文本分析结果显示，词频分析和 TF-IDF 算法进行关键词的分析结果基本一致，词频排在前 15 的分别是“治疗”、“手术”、“消融”、“成功率”、“心悸”、“复发”、“医院”、“原因”、“担心”、“发作”、“症状”、“心律失常”、“检查”、“药物”、“心房

[1] 本研究受国家自然科学基金项目（72104078），上海交通大学医学院护理学科建设项目（学科骨干人才项目）和上海交通大学护理学院高阶专科护理基地建设项目资助。

变大”。基于神经网络的模型结果显示，房颤患者及家属的需求可以分为“临床表现信息”、“诊断信息”、“治疗信息”、“预后信息”、“自我管理信息”、“活动信息”、“心理支持”、“社会支持”，预测准确率为 78.6%。**结论：**房颤患者及家属的需求存在共性，主要关注手术相关的治疗信息，尤其是导管消融术、术后复发、症状控制等效果信息，其次患者还关注就诊医院、情绪、发病症状及药物治疗相关信息。房颤患者及家属需求分类模型能较好识别患者的需求，有助于后续进行精准的需求支持。
关键词：房颤，患者，需求，TF-IDF 算法，分类模型

Needs analysis of patients with atrial fibrillation and their families in the context of the Internet

Qing Wu[1,2] Pei Wang[2] (Corresponding author)
1 School of Nursing, Shanghai Jiao Tong University, Shanghai, 200025
2 Faculty of Education, East China Normal University, Shanghai, 200032
E-mail: wangpei1970@163.com

***Abstract*：Objective:** To analyze the needs of patients with atrial fibrillation (AF) and their families in the context of the Internet, and to build a classification model of the needs of atrial fibrillation. **Methods:** The information related to AF on the QQ group, WeChat group, the accounts certified by "atrial fibrillation" or "catheter ablation" in Zhihu and Sina Weibo, as well as Baidu's AF post bar were collected. Based on Python natural language processing technology, Jieba, Pandas and NumPy were applied to pre-process the collected texts, and then keyword extraction and word frequency analysis were carried out in combination with TF-IDF algorithm to obtain the needs of patients with AF and their families. A need classification model was constructed by neural network. **Results:** A total of 536,786 words of network analysis text were obtained. The results of text analysis showed that the results of word frequency analysis and TF-IDF algorithm for keyword analysis were basically consistent. The top 15 of word frequency were "treatment", "operation", "ablation", "success rate", "palpitation", "recurrence", "hospital", "reason" and "fear", "attack", "symptoms", "arrhythmia", "test", "drug" and " atrial enlargement". The model based on neural network showed that the needs of patients with AF and their families could be divided into "clinical information", "diagnosis information", "treatment information", "prognosis information", "self-management information", "activity information", "psychological support" and "social support", and the prediction accuracy was 78.6%. **Conclusions:** Patients with AF and their families have common needs. They mainly pay attention to surgical treatment information, especially information about the effects of catheter ablation, postoperative recurrence, and symptom control, and they also take notes of hospital information, symptoms and drug treatment information. The need classification model could identify the needs of patients, which contributes to the subsequent accurate demand support.

***Keywords*：** atrial fibrillation, patient, need, TF-IDF algorithm, classification model

肢体功能障碍患者对康复机器人使用意愿影响因素模型的构建与验证

毕轩懿，叶旭春（通讯作者）

海军军医大学护理系，上海，200433，通讯作者 E-mail（ye_xch8639@163.com）
（国家自然科学基金面上项目资助，编号 71974196）

摘 要 **目的：**从用户、机器人、环境及人-机器人交互四方面特征构建并验证肢体功能障碍患者对康复机器人的使用意愿影响因素模型，以期为工业 4.0 时代背景下推动康复护理事业的高质量发展、应对全生命周期的健康挑战提供指导。**方法：**采用便利抽样法，对 204 名肢体功能障碍患者进行问卷调查，并采用结构方程模型验证肢体功能障碍患者对康复机器人的使用意愿影响因素模型。**结果：**对 204 名肢体功能障碍患者的调查结果显示：（1）肢体功能障碍患者对康复机器人使用意愿得分为（4.66±1.41）分，各变量得分由高到低依次为社会影响、感知价值、感知有用性、系统质量、感知愉悦、个体创新性、感知易用性和感知风险；（2）不同年龄、学历、康复机器人使用经验和对机器人相关新闻的关注程度的肢体功能障碍患者对康复机器人使用意愿得分的差异具有统计学意义；（3）结构方程模型和中介效应分析结果显示，模型拟合指数均达到理想标准，感知易用性、感知价值、感知愉悦和感知风险可直接预测肢体功能障碍患者对康复机器人的使用意愿，而个体创新性、系统质量、社会影响和感知有用性仅能间接预测患者使用意愿。**结论：**本研究构建并验证了肢体功能障碍患者对康复机器人的使用意愿影响因素模型，使用意愿受多方面特征的影响，后续应重视患者、机器人设计、环境等多方面因素的优化来提升患者的使用意愿。

关键词 肢体功能障碍患者，康复机器人，使用意愿，影响因素模型

Development and validation of the influencing factor model of usage intention to rehabilitation robots in patients with limb dysfunction

Bi Xuanyi, Ye Xuchun*
Department of Nursing, Naval Medical University, Shanghai, 200433

***Abstract*：** **Objective:** This study aims to develop and validate the influencing factor model of usage intention to rehabilitation robots in patients with limb dysfunction from four characteristics (user, robot, environment, and human-robot interaction). It is expected to provide a reference for promoting the high-quality development of nursing and addressing health challenges across the life cycle in the context of Industry 4.0. **Methods:** A cross-sectional survey was conducted by the convenience sampling method among patients with limb dysfunction, and structural equation modeling was applied to explore the paths of four characteristics on patients' usage intention to rehabilitation robots. **Results:** The survey on 204 patients with limb dysfunction showed that: (1) patients with limb dysfunction scored (4.66±1.41) on usage intention to rehabilitation robots, with the highest to lowest scores on each variable being social influence, perceived value, perceived usefulness, system quality, perceived enjoyment, personal innovativeness, perceived ease of use, and perceived risk; (2) the difference in usage intention scores among patients of different ages, education, experience in using rehabilitation robots, and attention to robot-related news were statistically significant; (3) The results of the structural equation modeling and mediating effect analysis showed that the model fit indices all met the ideal criteria, and perceived ease of use, perceived value, perceived enjoyment and perceived risk could directly predict the usage intention to rehabilitation robots in patients with limb dysfunction, while personal innovativeness, system quality, social influence, and perceived usefulness only indirectly predicted the usage intention. **Conclusion:** The influencing factor model of usage intention to lower limb rehabilitation robots in patients with limb dysfunction was developed and validated. Further studies should place more emphasis on the optimization of multiple factors such as patient, robot design,

and environment to enhance patients' usage intention.

***Keywords*：** Patients with limb dysfunction, Rehabilitation robots, Usage intention, Influencing factor model

基于价值感知的养老机器人接纳态度：一项扎根理论研究

周祎敏[1] 姚宇哲[1] 叶旭春[1]（通讯作者）

1 海军军医大学护理系，上海，200433，通讯作者 E-mail（ye_xch8639@163.com）

（国家自然科学基金面上项目资助，编号 71974196）

摘 要 **目的** 探索我国文化背景下，社区中老年人对养老机器人基于价值感知的接纳态度机制。**方法** 运用格拉泽传统扎根理论方法论,对 22 名社区中老年人进行深入半结构访谈，并借助质性分析软件 NVivo 获得资料进行编码分析和理论性编码分析。**结果** 共得到 308 个概念编码，析出 12 个相关范畴，其核心范畴为“中老年人的养老机器人价值感知”。分析发现社区中老年人对养老护理机器人的价值感知可分为期望价值和感知价值两部分，每部分又包含功能价值、情感价值和符号价值三个维度。中老年人对养老机器人价值感知的情境在于社会变迁中的智慧养老现实需要，包括家庭养老功能削弱，社会养老资源不足和社会科技助力。动机在于养老观念转变，基于代际关系转变、重新审视养儿防老和将养老视作人生新起点。另一个动机为个人需求，包括维持健康需求、情感陪伴需求和自我表达需求。条件在于人机信任，源自中老年人的体制性信任和技术信任。协变量为中老年人面对机器人的弱势身份感知，表现为技术焦虑和控制感低。偶发事件为机器人要素和多元外部环境支持，前者包括技术成熟度、机器人价格和机器人外观，后者包括技术反哺、同辈学习和政府激励。结果为中老年人基于期望价值和感知价值形成的养老机器人接纳态度，包括基于高期望-高感知价值形成的积极态度，低期望-高感知价值形成的认可态度，高期望-低感知形成的观望态度，低期望-低感知形成的排斥态度。 **结论** 本研究构建了基于价值感知的养老机器人接纳态度理论框架，为机器人感知价值和态度研究拓宽了视角，对将机器人引入社区养老生活具有实践指导意义。

关键词 机器人；养老机器人，居家养老，质性研究，扎根理论

Adoption attitude of robots for aged care based on perceived value：a grounded theory research

Zhou Yimin1, Yao Yuzhe1, Ye Xuchun1*

School of Nursing， the Naval Medical University， Shanghai 200433， China

Abstract*： *Objective *To explore Adoption attitude of robots for aged care based on perceived value among older adults in communities in our cultural context.* ***Methods*** *The present study conducted semi-structured interviews under the guidance of Glaser's classical grounded theory. A total of 22 middle-aged and older adults were selected to be study subjects by purposive and theoretical sampling. The data collected were subsequently analyzed in Nvivo using substantive and theoretical codes.* ***Results*** *According to this present study, a total of 338 conceptual codes*

were obtained, that could be categorized into 12 themes, and a theoretical framework of perceived value in an attitude toward robots in aged care aging among middle-aged and older adults was constructed. The value perception of middle-aged and elderly people in the community toward robots for aged care could be divided into two parts: desired value and perceived value, each containing three dimensions: functional value, emotional value, and symbolic value. The context of value perception laid in the practical need for smart aging in social change, which meant weakened family elderly care function, insufficient social elderly care resources, and the development of social technology. The cause of value perception——"changes in the value of aged care" was defined as people's viewpoints for no longer relying on children, shifting in intergenerational relations, and expecting to pursue their own happiness in old age. As the other cause, "personal needs" included maintaining health, emotional support, and self-worth expression. The condition was human-robot trust, stemming from the institutional and technological trust. The covariance was perceived vulnerable identity, as evidenced by technology anxiety and a lack of control. The contingencies were robot factors including technological maturity, the price of the robot, and its appearance image, and environment support including child support, peer support, and government support. The consequence was acceptance attitude according to the judgment of expected value and perceived value of robots, and there were four attitudes of acceptance developed, including positive attitudes based on high expected-high perceived value, recognized attitudes based on low expected-high perceived value, wait-and-see attitudes based on high expected-low perceived value, and rejected attitudes based on low expected-low perceived value. ***Conclusion*** *This study constructed a theoretical framework of the adoption attitude of robots for aged care based on perceived value, which broadened the perspective for the research on perceived value and attitude of robots, and provided practical guidance for provides a theoretical basis for guiding the integration of robots into elderly life.*

Keywords：*robotics, eldercare robot, aging in place, qualitative study, grounded theory*

虚拟现实技术在 ICU 患者中应用的可行性分析：一项混合研究

居馨星[1] 蒋莉[2] 刘晓芯[1]（通讯作者）

1 上海交通大学医学院附属胸科医院护理部，上海，200030

2 上海交通大学医学院附属胸科医院 ICU，上海，200030

通讯作者邮箱：lxx1018@hotmail.com

摘 要 **目的** 初步探讨虚拟现实（Virtual Reality, VR）技术在 ICU 患者中的可用性和易用性，挖掘患者对 VR 的态度和使用意愿，为 VR 在 ICU 的应用和推广提供依据。**方法** 采用混合方法研究的解释性序列设计，先后收集定量数据和定性数据。定量研究采用方便抽样法，于 2023 年 1 月—5 月选取上海市某三级甲等医院 ICU 患者 50 例进行自身前后对照的 VR 干预性研究，探索 VR 在 ICU 患者中的应用效果；定性研究采用方便抽样法，选取定量研究中的 10 名患者进行半结构式访谈，挖掘 ICU 患者在使用 VR 的过程和体验。**结果** 定性研究结果：32 例（64%）患者有效完成干预，干预后 ICU 患者在疼痛、疲乏、抑郁和焦虑得分有明显降低，整体舒适度评分显著上升（P＜0.05），在血压、心率、呼吸和血氧饱和度干预前后均并无统计学差异（P＞0.05），技术接受程度条目均分为 3.90±0.62 分，且整体不适得分位于无症状到轻微之间。定性研究结果： 分别得出 ICU 患者对 VR 持积极态度、VR 对患者体验有独特价值、实施 VR 干预受多因素

影响以及实施 VR 技术具备安全保障四个主题。**结论** ICU 患者对 VR 持积极评价，可显著改善其情绪状态，优化整体舒适度，是安全、有效、易用的干预方法。可系统化构建干预策略以精准化筛选个体、科学化干预时长和频次提升 VR 的可用性；提高硬件舒适度、内容满足个体偏好等方式提高 VR 的易用性，从而推动 VR 成为在 ICU 患者心理干预的切实可行、行之有效的干预方式。
关键词 虚拟现实，ICU，舒适度，干预，可行性研究

Feasibility Analysis of Virtual Reality Technology Application in ICU Patients: A Mixed-Methods Study

Xin Xinxing Ju[1], Li Jiang[2], Xiaoxin Liu[1] (Corresponding Author)
1 Department of Nursing, Shanghai Chest Hospital, Affiliated Shanghai Jiao Tong University School of Medicine, Shanghai 200030, China
2 ICU Department, Shanghai Chest Hospital, Affiliated Shanghai Jiao Tong University School of Medicine, Shanghai 200030, China
Corresponding Author Email: lxx1018@hotmail.com

Abstract: Objective: This study aimed to explore the feasibility and usability of Virtual Reality (VR) technology in ICU patients, investigate patients' attitudes towards VR, and their willingness to use it, thereby providing evidence for the application and promotion of VR in ICU settings. Methods: A mixed-methods explanatory sequential design was used to collect both quantitative and qualitative data. Convenience sampling was employed for the quantitative study, and from January to May 2023, 50 ICU patients from a tertiary grade A hospital in Shanghai were included in a pre-post comparison study of VR intervention to explore its effects in ICU patients. For the qualitative study, convenience sampling was used to select 10 patients from the quantitative study for semi-structured interviews, aiming to explore the process and experiences of ICU patients using VR. Results: Qualitative study results showed that 32 patients (64%) successfully completed the intervention. After the intervention, ICU patients exhibited a significant reduction in pain, fatigue, depression, and anxiety scores, with a significant increase in overall comfort rating ($P<0.05$). There were no statistically significant differences in blood pressure, heart rate, respiration, and blood oxygen saturation before and after the intervention ($P>0.05$). The technology acceptance level scored an average of 3.90±0.62, and the overall discomfort score ranged from asymptomatic to mild. The qualitative study yielded four themes: positive attitudes towards VR, unique value of VR in patient experiences, multifactorial influence on VR intervention implementation, and the safety assurance of VR technology. Conclusion: ICU patients evaluated VR positively, as it significantly improved their emotional state and overall comfort, representing a safe, effective, and user-friendly intervention method. To enhance VR usability, systematic intervention strategies can be developed to accurately select individuals, optimize intervention duration and frequency based on scientific evidence. Hardware comfort and personalized content preferences can be improved to enhance VR usability, making it a feasible and effective psychological intervention for ICU patients.

Keywords: Virtual Reality, ICU, Comfort, Intervention, Feasibility Study

母亲童年不良经历对婴儿忽视的作用:多视角研究

张烜[1]　肖意苹[1]　曹枫林[1]（通讯作者）

[1] 山东大学护理与康复学院，济南，250012
通讯作者：caofenglin2008@126.com
摘 要 本研究从多个角度探讨了母亲童年不良经历对婴儿忽视影响的代际传递效应。研究对象为中国山东省济南市某三级医院门诊儿童保健科的产后母亲和婴儿（N = 550）。首先，本研究估计了母亲童年期不良经历与婴儿忽视的总体关系。其次，探讨了 14 种母亲童年期不良经历对婴儿忽视的累积效应和独立效应。最后，确定了 4 种母亲童年期不良经历的模式，并探讨了不同模式与婴儿忽视的关系。主要有三个发现：第一，有儿童期不良经历的母亲其婴儿，比没有童年期不良经历母亲的婴儿受到更多的忽视。第二，有三种或更多童年期不良经历亚型母亲的婴儿最容易被忽视，且母亲童年期躯体忽视对婴儿的忽视的影响最大。第三，“中等母亲童年期不良经历”组和“高母亲忽视和不良同伴关系”组的婴儿比“低母亲童年期不良经历”组的婴儿经历了更严重的忽视。这些结果表明，早期不良经历影响了未来的养育行为，比如婴儿忽视。
关键词 童年期虐待，童年期逆境，婴儿，母亲，忽视

Role of Maternal Adverse Childhood Experiences on Infant Neglect: A Multi-Perspective Approach

Xuan Zhang[1] Yiping Xiao[1] Fenglin Cao[1] (Corresponding Author)
[1]School of Nursing and Rehabilitation, Shandong University, Jinan, Shandong Province, China
Abstract: We explored the intergenerational transmission effects of maternal adverse childhood experiences (ACEs) and infant neglect from various perspectives. The participants were postpartum mothers and infants (*N* = 550) from the outpatient child health care department of a tertiary hospital in Jinan, Shandong Province, China. First, we estimated the association of overall maternal ACEs with child neglect. Second, we explored the cumulative and independent effects of 14 types of maternal ACEs on infant neglect. Finally, we identified different patterns of 14 maternal ACEs and explored the association between the different patterns and infant neglect. There were three main findings. One, infants born to mothers with ACEs were subjected to more neglect than those born to mothers without ACEs. Two, infants born to mothers with three or more subtypes of ACEs experienced the most neglect; maternal childhood physical neglect had a substantial adverse effect on infant neglect. Three, infants in the “median maternal ACEs” and “high maternal neglect and poor peer relationship” groups experienced more severe neglect than those in the “low maternal ACEs” group. These results suggest that early life experiences substantially impact future parenting behaviors, such as infant neglect.

Keywords: childhood maltreatment; child adversity; infant; mother; neglect

生活方式因素与妊娠期抑郁症状、焦虑症状的关联：单独效应及累积效应

黄永棋[1] 曹枫林[2]（通讯作者）
1 山东大学护理与康复学院，济南，250012
2 山东大学护理与康复学院，济南，250012，caofenglin2008@126.com

摘 要

目的

（1）分别探讨饮食质量、睡眠质量、体力活动、久坐以及吸烟史、饮酒史与妊娠期抑郁症状和焦虑症状的关联，并采用 XGBoost 识别与抑郁症状和焦虑症状关联最强的生活方式因素；

（2）探讨多种生活方式对妊娠期抑郁症状和焦虑症状的累积效应。

方法

本研究为横断面研究，纳入 851 位孕妇，使用爱丁堡产后抑郁量表和广泛性焦虑量表评估孕妇的抑郁症状和焦虑症状，使用中国孕妇膳食指南依从性指数、匹兹堡睡眠指数量表、丹麦体力活动量表、久坐 2 域量表、自编吸烟史、饮酒史问卷分别评估饮食质量、睡眠质量、体力活动、久坐、吸烟史、饮酒史。采用二元 logistic 回归，分别探讨多种生活方式因素与妊娠期抑郁症状、焦虑症状的关联，采用极端梯度提升识别与抑郁症状和焦虑症状关联最强的生活方式因素。计算累积的不良生活方式风险评分，使用二元 logistic 回归探讨累积的生活方式风险评分与抑郁症状和焦虑症状的关系。

结果

（1）本研究中妊娠期抑郁症状和焦虑症状的发生率分别为 19.3%和 4.8%。

（2）单独效应：暴露于饮食质量较差（*OR*=2.010，95% *CI*：1.318~3.066）、睡眠质量较差（*OR*=2.263，95% *CI*： 1.329~3.852）、体力活动水平较低（*OR*=1.621，95% *CI*：1.102~2.384）与报告妊娠期抑郁症状的可能性更高相关。XGBoost 显示，与妊娠期抑郁症状关联最强的是体力活动，其他依次是睡眠质量，饮食质量，久坐，饮酒史，吸烟史。

暴露于睡眠质量较差（*OR*=5.940，95% *CI*：2.736~12.896）、体力活动水平较低（*OR*=2.103，95% *CI*：1.056~4.187）与报告妊娠期焦虑症状的可能性更高相关。XGBoost 显示，与妊娠期焦虑症状关联最强的是睡眠质量，其他依次是体力活动，久坐，饮食质量，饮酒史，吸烟史。

（3）累积效应模式显示（0~1 个为参照组）

1）有 2~3 个（*OR*=2.515，95% *CI*: 1.679~3.769）/ ≥ 4 个（*OR*=5.126，95% *CI*: 2.220~11.835）不良生活方式因素的孕妇报告妊娠期抑郁症状的可能性更高。

2）有 2~3 个（*OR*=2.194，95% *CI*：1.037~4.646）/≥ 4 个（*OR*=5.243，95%*CI*：1.455~18.897）不良生活方式因素报告妊娠期焦虑症状的可能性更高。

结论 睡眠质量差、体力活动水平低及报告多种不良生活方式因素的女性可能是妊娠期抑郁症状和焦虑症状的高风险人群。

关键词　妊娠期抑郁症状，妊娠期焦虑症状，生活方式，单独效应，累积效应，极端梯度提升

Association of lifestyle factors with depressive symptoms and anxiety symptoms during pregnancy: separate and cumulative effects

Yongqi HUANG, Fenglin Cao

School of nursing and rehabilitation, Shandong University, Jinan, 250012

***Abstract*：**

Objectives：

(1) To explore the associations of diet quality, sleep quality, physical activity, sedentary behavior, and history of smoking and alcohol consumption with depressive and anxiety symptoms in pregnancy, and to identify the lifestyle factors most strongly associated with depressive and anxiety symptoms using XGBoost;

(2) To explore the cumulative effects of multiple lifestyles on depressive symptoms and anxiety symptoms in

pregnancy.

Methods：

This was a cross-sectional study that included 851 pregnant women. The Edinburgh Postnatal Depression Scale and Generalized Anxiety Scale were used to assess the depressive and anxiety symptoms of pregnant women, and the Chinese Dietary Guidelines Compliance Index for Pregnant Women (CDGCI-PW), the Pittsburgh Sleep Quality Index (PSQI), the Danish Physical Activity Scale, Sedentary Behavior Two Domain Questionnaire (SB2D), and self-administered smoking and alcohol history questionnaires were used to assess the quality of diet, sleep, physical activity, sedentary behavior, smoking history, and alcohol history of pregnant women. Binary logistic regression was used to explore the associations between various lifestyle factors and depressive and anxiety symptoms during pregnancy, and extreme gradients were used to identify the lifestyle factors most strongly associated with depressive and anxiety symptoms. Cumulative adverse lifestyle risk scores were calculated, and binary logistic regression was used to investigate the association between cumulative lifestyle risk scores and depressive and anxiety symptoms.

Results：

(1) The prevalence of depressive symptoms and anxiety symptoms during pregnancy in this study was 19.3% and 4.8%, respectively.

(2) Separate effects: exposure to poorer diet quality (OR=2.010, 95% CI: 1.318-3.066), poorer sleep quality (OR=2.263, 95% CI: 1.329-3.852), and lower levels of physical activity (OR=1.621, 95% CI: 1.102-2.384) were associated with a higher likelihood of reporting depressive symptoms in pregnancy. XGBoost showed that the strongest association with depressive symptoms in pregnancy was physical activity, followed by quality of sleep, quality of diet, sedentary behavior, history of alcohol consumption, and history of smoking. Exposure to poorer sleep quality (OR=5.940, 95% CI: 2.736 to 12.896), and lower levels of physical activity (OR=2.103, 95% CI: 1.056 to 4.187) were associated with a higher likelihood of reporting symptoms of anxiety during pregnancy. XGBoost showed that the strongest association with symptoms of anxiety during pregnancy was sleep quality, and the others, in order of importance, were physical activity, sedentary lifestyle, diet quality, alcohol consumption history, and smoking history.

(3) The cumulative effect model showed that (0-1 for the reference group)

(1) Pregnant women with 2-3 (OR=2.515, 95% CI: 1.679-3.769) / ≥ 4 (OR=5.126, 95% CI: 2.220-11.835) adverse lifestyle factors were more likely to report depressive symptoms during pregnancy.

2) Pregnant women with 2 to 3 (OR=2.194, 95% CI: 1.037~4.646)/ ≥ 4 (OR=5.243, 95% CI: 1.455~18.897) adverse lifestyle factors were more likely to report symptoms of anxiety during pregnancy.

Conclusion： Women who have poor sleep quality, low level of physical activity, and report multiple adverse lifestyle factors may be at high risk for depressive symptoms and anxiety symptoms during pregnancy.

***Keywords*：** depressive symptoms in pregnancy, anxiety symptoms in pregnancy, lifestyle, separate effect, cumulative effects

孕妇产前抑郁 EPDS 和 PHQ-9 量表评估的异同比较

刘文婷[1]、殷彩欣[2]、肖超群[3]、王钰莹[1]、肖菊兰[4]、陈瑜*[1]

[1]南方医科大学护理学院，广州，510515，通讯作者 958977423@qq.com

[2]广州妇女儿童医疗中心国家中南部地区儿童医疗中心妇产科，广州，510623

[3]南方医科大学南方医院妇产科，广州，510515

[4]深圳市人民医院，深圳，518000

摘要：背景 围产期抑郁症受到越来越多的关注。然而，对抑郁症的网络结构的详细研究仍然缺乏。本研究的目的是从网络的角度来研究爱丁堡产后抑郁量表（EPDS）和患者健康问卷（PHQ-9）之间的异同。**方法** 于 2020 年 8 月-2022 年 3 月进行横断面研究。研究按照流行病学观察性研究报告进行撰文。研究共招募了 2484 名孕妇。所有参与者都完成了 EPDS 和 PHQ-9 量表的评估。主要使用网络分析方法进行统计分析，并构建了两个网络模型：EPDS 模型和 PHQ-9 模型。**结果** 使用 EPDS 和 PHQ-9 量表进行产前抑郁检出率分别为 30.2%和 28.2%。在 EPDS 量表网络结构中，EPDS 第 8 条目“悲伤或痛苦”节点（强度= 1.2161）是最中心的节点，而 EPDS 第 10 条目“自残”节点（强度= 0.4360）是最小的中心节点。在 PHQ-9 量表网络结构中，第 4 条目“疲劳”节点（强度= 0.9815）是最中心的节点，而第 9 条目“自杀”是最小的中心症状（强度= 0.5667）。对于这两种模型来说，“悲伤”都是一个重要的中心症状。**结论** 心理症状在 EPDS 量表评估抑郁症时可能更重要，而身体症状在 PHQ-9 量表评估抑郁症时可能更有影响力。对于 EPDS 和 PHQ-9 量表来说，“悲伤”都是一个重要的中心症状，这表明它可能是未来进一步的母亲抑郁干预的最重要的目标。

关键词：孕妇，抑郁症，网络分析，EPDS，PHQ-9

Comparison of the EPDS and PHQ-9 in the assessment of depression among pregnant women: Similarities and differences

Wenting Liu[1], Caixin Yin[2], Chaoqun Xiao[3], Yuying Wang[1], Xiao Julan[4], Yu Chen*[1]

[1]School of Nursing, Southern Medical University, Guangzhou, 510515, corresponding author Email 958977423@qq.com.

[2]Department of Obstetrics and Gynecology, Guangzhou Women and Children’s Medical Center National Children’s Medical Center for South Central Region, Guangzhou, 510623.

[3]Department of Obstetrics and Gynecology, Nanfang Hospital of Southern Medical University, Guangzhou, 510515.

[4]Shen Zhen People's Hospital, Shenzhen ,518000.

***Abstract*：Objective** Perinatal depression has attracted increasing attention. However, a detailed investigation of the network structure of depression is still lacking. We aim to examine the similarities and differences between the Edinburgh Postnatal Depression Scale (EPDS) and Patient Health Questionnaire (PHQ-9) from a network perspective. **Methods** A cross-sectional study was conducted from August 2020 to March 2022. We followed the STROBE checklist to report our research. Pregnant women (n = 2484) were recruited. All participants completed the EPDS and PHQ-9. We mainly used network analyses for statistical analysis and constructed two network models: the EPDS and PHQ-9 models. **Results** The detection rates of prenatal depression measured by the EPDS and PHQ-9 were 30.2% and 28.2%, respectively. In the EPDS network, the EPDS8 ‘sad or miserable’ node (strength = 1.2161) was the most central node, and the EPDS10 ‘self-harming’ node (strength = 0.4360) was the least central node. In the PHQ-9 network, the PHQ4 ‘fatigue’ node (strength = 0.9815) was the most central node, and PHQ9 ‘suicide’ was the least central symptom (strength = 0.5667). For both models, ‘sad’ acted as an important central symptom. **Conclusions** Psychological symptoms may be more important in assessing depression using the EPDS, while physical symptoms may be more influential in assessing depression using the PHQ-9. For both the EPDS and PHQ-9, “sad” was an important central symptom, suggesting that it may be the most important

target for further maternal depression interventions in the future.

Keywords：Pregnant women, depression, network analysis, EPDS, PHQ-9

基于“肠-脑”轴探究肠道菌群在产前抑郁发生中的作用机制

刘燕群[1]（通讯作者）

1 武汉大学护理学院妇幼健康研究中心，武汉，4300071

摘 要　产前抑郁是在孕期一种以抑郁、哭泣、悲伤、易怒或自杀等一系列症状为特征的心理障碍。产前抑郁是孕期最常见的精神障碍之一，全球发病率为 20.7%，不仅严重影响孕妇的健康，还会对婴儿造成许多不良健康影响，如宫内生长受限、出生体重过低、早产和认知行为问题。目前在孕妇群体中，母体肠道菌群通过调节色氨酸代谢影响大脑功能和情绪的机制尚未完全阐明。本研究的目的是探讨妊娠期肠道菌群变化对产前抑郁症发生的影响，研究色氨酸在母体肠道菌群与产前抑郁之间的潜在中介作用。本研究共有 73 名孕妇参加，将爱丁堡产后抑郁量表(EPDS)得分 10 分为产前抑郁的临界点，并收集了人口学资料、粪便和血浆样本。采用高通量 Illumina 测序 16S rRNA V3-V4 基因序列分析肠道菌群，使用液相色谱-质谱分析法测定了血浆氨基酸浓度。采用 SPSS 进行数据分析，使用 SPSS 中 process 插件的模型 4 建立了中介模型。结果发现产前抑郁组与对照组之间肠道菌群α-和β-多样性无显著差异。产前抑郁组与对照组两组之间血浆色氨酸浓度有显著差异。母体肠道菌群中 *candidatus_soleaferia* 菌属和 *Enterococcus* 菌属是产前抑郁的保护因素，*Lachnospiraceae_NC2004_group* 菌属是产前抑郁的危险因素。色氨酸在肠道菌群中 *Enterococcus* 菌属与产前抑郁之间起到了中介作用。孕妇产前抑郁与妊娠期间肠道菌群组成的改变有关，而色氨酸作为 5-羟色胺的前体可能介导了这一途径。未来的研究需要确定和了解与这种关系相关的代谢途径中的特定代谢物和限速酶。

关键词　产前抑郁，妊娠，肠道菌群，肠脑轴，色氨酸代谢

Exploring the mechanism of gut microbiota in prenatal depression based on the “gut-brain” axis

Yanqun Liu[1,*]

1 Center for Women and Children Health and Metabolism Research, Wuhan University School of Nursing, Wuhan, 430071

Abstract: Prenatal depression is a psychological disorder during pregnancy characterized by a range of symptoms such as depression, crying, sadness, irritability, or suicide. Prenatal depression is one of the most common mental disorders during pregnancy, with a global incidence of 20.7%, which not only seriously affects the health of pregnant women, but also causes many adverse health effects on the baby, such as intrauterine growth restriction, low birth weight, preterm birth, and cognitive behavioral problems. At present, the mechanism by which maternal gut microbiota affects brain function and mood by regulating tryptophan metabolism has not yet been fully elucidated. The purpose of this study was to investigate the influence of gut microbiota changes during pregnancy on the occurrence of prenatal depression, and to investigate the potential mediating role of tryptophan

between maternal gut microbiota and prenatal depression. There were 73 pregnant women enrolled in this study. An Edinburgh Postpartum Depression Scale (EPDS) score of 10 was considered the cut-off value for prenatal depression. We collected demographic information, fecal and plasma samples. The gut microbiota was profiled using V3-V4 gene sequence of 16S rRNA, and plasma amino acids were analyzed. The mediation model was investigated by using the model 4 in the process procedure for SPSS. There was no significant difference in the α- and β-diversity of gut microbiota between the prenatal depression group and comparison group. The plasma tryptophan concentration was significantly different between two groups. *Candidatus_Soleaferrea* and *Enterococcus* were protective factors for prenatal depression, and *Lachnospiraceae_NC2004_group* was a risk factor. Tryptophan was a mediator between *Enterococcus* in gut microbiota and prenatal depression. Maternal prenatal depression was associated with altered gut microbiota composition during pregnancy, and tryptophan as a precursor of 5-HT may potentially mediate this pathway. Future research is needed to identify and understand the specific metabolites and rate-limiting enzymes in the metabolic pathways that link this relationship.

***Keywords*:** prenatal depression, pregnancy, gut microbiota, gut-brain axis, tryptophan metabolism

3.12 “网络心理专业委员会”专题研讨会

问题性网络使用与倦怠的关系：一项三水平元分析

毛佩佩 [1,2] 孙晓军 [1,2,3]（通讯作者）蔡志慧 [1,2] 陈必忠 [1,2]

1 华中师范大学心理学院，武汉，430079

2 青少年网络心理与行为教育部重点实验室，武汉，430079

3 中国基础教育质量监测协同创新中心华中师范大学分中心，武汉，430079，sunxiaojun@ccnu.edu.cn

摘 要 倦怠指个体的一种心理状态，通常表现为情绪耗竭、人格解体和低效能感特征，包括学业倦怠、工作倦怠等类型。不仅对个体的学习成绩或工作效率产生负面影响，还会危害他们的心理健康，甚至引发问题行为。众多研究表明问题性网络使用与倦怠的关系密切，但尚未得出一致的结论。一些研究发现两者呈显著正相关，而另一些研究发现两者相关不显著，甚至一些研究在问题性网络使用与倦怠的不同维度上得出了不一致的结果。本研究归纳整合了相关实证研究，运用三水平元分析技术系统探讨问题性网络使用与倦怠的关系，并通过调节效应分析考察群体、地区、问题性网络使用类型、倦怠维度、倦怠测量工具、性别及文章发表年份的调节作用。通过文献检索与筛选，获得 42 项研究和 103 个效应量，共包含 54121 名被试。随机效应模型分析结果表明，问题性网络使用和倦怠呈中等程度正相关（$r = 0.265$）。调节效应分析结果表明，群体的调节作用显著，问题性网络使用与倦怠的关系强度在学生群体显著高于员工群体；倦怠维度的调节作用显著，问题性网络使用与情绪耗竭和人格解体显著正相关，而与低效能感相关不显著；倦怠测量工具的调节作用显著，使用学业倦怠问卷（LBQ）、马斯拉赫倦怠量表-学生调查（MBI-SS）和学业倦怠量表（SBI）比使用马斯拉赫倦怠量表（MBI）和马斯拉赫倦怠量表-一般调查（MBI-GS）来评估倦怠的研究与问题性网络使用的相关性更强，其它变量均不存在显著调节作用。未来研究可以通过追踪调查进一步揭示问题性网络使用和倦怠的因果关系，并及时引导个体合理使用网络，降低其倦怠水平。

关键词 问题性网络使用，倦怠，三水平元分析，调节效应分析

The Association between Problematic Internet Use and Burnout: A Three-level Meta-Analysis

MAO Peipei[1,2]; SUN Xiaojun[1,2,3]; CAI Zhihui[1,2]; CHEN Bizhong[1,2]
1 School of Psychology, Central China Normal University, Wuhan 430079
2 Key Laboratory of Adolescent Cyberpsychology and Behavior (CCNU), Wuhan 430079
3 Beijing Normal University Collaboration Innovation Center, Wuhan 430079,
sunxiaojun@ccnu.edu.cn

***Abstract*:** Burnout was described as a psychological syndrome and generally composed of three symptoms, namely, emotional exhaustion, depersonalization, and reduced personal accomplishment, and included academic burnout, work burnout, and other types. It had a negative impact on individual's academic achievement and work performance, as well as leading to mental health problems and some problematic behaviors. A number of studies have shown that the problematic internet use is closely related to burnout, but there is still no consistent conclusion. Some studies found that there was a significant positive correlation between problematic internet use and burnout, while other studies revealed that there was no significant correlation between the two variables, and even some studies reported inconsistent results regarding the associations between problematic internet use and burnout in different dimensions. This study synthesized relevant empirical studies and performed a three-level meta-analysis to investigate the association between problematic internet use and burnout, and to explore if some study characteristics (e.g., population, country, type of problematic internet use, dimension of burnout, measure of burnout, gender and publication year) could have contributed to the inconsistent findings across individual studies. A total of 42 studies, 103 effect sizes, and 54,121 participants were identified through literature search. The results of random effects model analysis showed a significant positive and moderate correlation between problematic internet use and burnout (r = 0.265). Furthermore, we found that this association was moderated by population, dimension of burnout, and the measure of burnout. Specifically, students with high levels of problematic internet use suffered from more burnout than employees, and problematic internet use was significantly positively related to emotional exhaustion and depersonalization, but was not significantly associated with reduced personal accomplishment, and the strength of this association was stronger for the studies that assessed burnout with LBQ, MBI-SS, and SBI than in those studies that measured with MBI and MBI-GS. Other variables did not have a moderating effects on the association between problematic internet use and burnout. It is possible for future research to investigate the causal relationship between problematic internet use and burnout through longitudinal surveys and to assist individuals to use the internet in a reasonable manner in order to reduce their level of burnout.

***Keywords*:** problematic internet use, burnout, three-level meta-analysis, moderator analysis

父母心理控制与青少年手机依赖的关系：自我概念清晰性的中介作用和学校连结的调节作用

张元灏[1,2] 陈倩[1,2] 陆琴[1,2] 周宗奎[1,2]（通讯作者）
1 青少年网络心理与行为教育部重点实验室，武汉，430079
2 华中师范大学心理学院，武汉，430079，zhouzk@ccnu.edu.cn

摘 要 近年来，青少年手机依赖问题备受关注，手机依赖会严重危害青少年的身心发展。因此，有必要探究青少年手机依赖的风险和保护因素。目前已有不少研究从家庭因素探究青少年手机依赖的原因，其中父母心理控制负向预测青少年手机依赖，父母心理控制作为一种侵入型的消极教养方式，是指父母通过爱的撤回、诱发内疚感和焦虑、限制表达等方式侵扰子女的思想和情感，从而使孩子遵循父母意愿的养

育行为。已有研究表明，父母心理控制会对青少年心理社会适应产生严重消极影响，并增加其手机依赖的风险，但其内在作用机制还不清晰，尤其是从学校层面和个人层面对父母心理控制与青少年手机依赖内在机制的探索仍较为匮乏。因此，本研究构建一个有调节的中介模型，考察父母心理控制与青少年手机依赖的关系。采用《父母心理控制量表》、《手机依赖量表》、《自我概念清晰性量表》和《学校联结量表》对 990 名青少年被试进行调查。结果表明，在控制性别和年龄后，（1）父母心理控制与手机依赖呈显著正相关，且二者都与自我概念清晰性和学校联结呈显著负相关；（2）父母心理控制可以直接影响青少年手机依赖，也可以通过自我概念清晰性的中介作用影响其手机依赖；（3）学校联结调节父母心理控制和自我概念清晰性的关系，即随着学校联结水平的提高，父母心理控制较低的青少年的手机依赖水平更低；但学校联结对父母心理控制与手机依赖的关系以及自我概念清晰性与手机依赖的关系的调节效应不显著。本研究发现，父母作为青少年的重要他人，其心理控制越多，会降低青少年的自我概念清晰性，最终导致其产生手机依赖；同时较高水平的学校联结能有效补偿父母心理控制对自我概念清晰性的不利影响，本研究揭示了学校联结在青少年手机依赖中的调节作用，对预防和干预青少年手机依赖提供了理论依据。

关键词　父母心理控制，手机依赖，自我概念清晰性，学校联结，青少年

The association between parental psychological control and adolescent cell phone dependence: The Mediating Role of Self-Concept Clarity and the Moderating Role of School Connection

Zhang Yuanhao [a,b]　Chen Qian [a,b]　Lu Qin [a,b]　Zhou Zongkui [a,b]

[a] Key Laboratory of Adolescent Cyber Psychology and Behavior, Ministry of Education, Wuhan 430079

[b] School of Psychology, Central China Normal University, Wuhan 430079

Abstract：In recent years, the problem of cell phone dependence among adolescents has attracted much attention, and cell phone dependence could seriously jeopardize the physical and mental development of adolescents. Therefore, it is necessary to explore the risk and protective factors of adolescent cell phone dependence. A number of studies have been conducted to explore the causes of adolescent cell phone dependence from family factors, in which parental psychological control negatively predicts adolescents' cell phone dependence. Parental psychological control, as an intrusive and negative parenting style, refers to parenting behaviors in which parents intrusively interfere with their children's thoughts and emotions by withdrawing love, inducing guilt and anxiety, and restricting expression, so as to make their children follow the wishes of their parents. It has been shown that parental psychological control could have a serious negative impact on adolescents' psychosocial adjustment and increase the risk of their cell phone dependence, but its intrinsic mechanism of action is unclear, especially the exploration of the intrinsic mechanism of parental psychological control and adolescents' cell phone dependence from the school level and the individual level is still relatively scarce. Therefore, this study constructed a moderated mediation model to examine the relationship between parental psychological control and adolescent' cell phone dependence. The Parental Psychological Control Scale, the Cell Phone Dependence Scale, the Self-Concept Clarity Scale, and the School Connection Scale were used to investigate 990 adolescent subjects. The results showed that after controlling for gender and age, (1) parental psychological control was significantly and positively related to cell phone dependence, and both were significantly and negatively related to self-concept

clarity and school connectedness; (2) parental psychological control could directly affect adolescents' cell phone dependence, and it can also affect their cell phone dependence through the mediating role of self-concept clarity; (3) school connectedness moderates the relationship between parental psychological control and self-concept clarity, i.e., as the level of school connectedness increases, adolescents with lower parental psychological control have lower levels of cell phone dependence; however, the moderating effect of school connectedness on the relationship between parental psychological control and cell phone dependence, and on the relationship between self-concept clarity and cell phone dependence, was not significant. The present study found that the more parental psychological control, the more it will reduce adolescents' self-concept clarity, which will eventually lead to their cell phone dependence; at the same time, a higher level of school connectedness can effectively compensate for the negative effect of parental psychological control on self-concept clarity. This study reveals the moderating effect of school connectedness in adolescents' cell phone dependence, and provides a theoretical basis for preventing and intervening adolescents' cell phone dependence. This study reveals the moderating role of school connection in adolescents' cell phone dependence and provides a theoretical basis for prevention and intervention.

Keywords：parental psychological control，cell phone dependence，self-concept clarity，school connection，adolescents

新冠疫情期间大学生的睡眠健康及其相关因素：一项纵向网络分析

何健康[1]　赵成佳[2]　徐慧慧[1]　赖炘懿[1]　杜铭煊[1]　胡海燕[1]　丁宁宁[1]　田雯雯[1]　赵文倩[1]　俞国良[2]（通讯作者）　张国华[1]（通讯作者）

1 温州医科大学心理系，温州，325035，zghcnu@wmu.edu.cn（张国华）

2 中国人民大学教育学院，北京，100872，yugllxl@sina.com（俞国良）

摘 要　背景：新冠肺炎疫情已被证明会影响民众的睡眠健康，并且造成心理困扰。研究表明，民众在疫情期间的睡眠健康状况普遍不佳，但较少研究涉及睡眠健康的影响因素和相互作用机制。此外，大多数与疫情相关的睡眠健康研究本质上是描述性的，主要集中在失眠频率和睡眠质量的自我报告，且很少有追踪研究。网络分析是一种检验变量间关系的分析方法。通过这种方法，可以发现多个变量的相关结构。本研究通过两次追踪调查，使用网络分析考察大学生睡眠健康的相关因素及其随时间变化的规律。

方法：分别于 2021 年 12 月（T1）和 2022 年 6 月（T2）对浙江温州的 1423 名大学生进行在线问卷调查。采用 IBM SPSS 统计软件进行描述性统计、正态和差异性检验。使用 R 语言进行网络分析，主要指标包括中心性和聚类系数。通过网络比较检验来分析睡眠健康相关因素的时间变化。

结果：两次调查中，大学生睡眠拖延、自我控制、情绪调节和问题性手机使用的水平显著升高，睡眠质量和生物节律的水平显著降低，而心理困扰的水平无显著变化。通过网络分析发现，生物节律、睡眠拖延和睡眠质量形成了一个稳定的网络结构，在两次调查中保持不变；情绪调节和心理困扰节点的强度、中间性和紧密性均有所增加，且两者之间的联系在 T2 时得到加强；自我控制节点网络中的强度和紧密性有所下降，而且与问题性手机使用、睡眠质量没有稳定的联系；问题性手机使用与睡眠拖延有关，但与生物节律、睡眠质量无关。

结论：本研究发现睡眠拖延在大学生的睡眠健康网络结构中处于中心地位，由于其中心性水平很高而且与生物节律、睡眠质量的强相关性，对其他相关因素可能产生很强的影响；问题性手机使用可能引发睡眠拖延，而自我控制可能对此产生调节作用。这些发现为了解新冠疫情期间中国大学生的睡眠健康及其影响因素提供了新的思路。在后疫情时代，有必要开展心理健康教育和心理干预，以改善大学生的睡眠健康、降低风险因素的影响。

关键词　新冠疫情，睡眠健康，问题性手机使用，网络分析

Sleep health and associated factors among undergraduates during the COVID-19 in China: A two-wave network analysis

Jiankang He[1], Chengjia Zhao[2], Huihui Xu[1], Xinyi Lai[1], Mingxuan Du[1], Haiyan Hu[1], Ningning Ding[1], Wenwen Tian[1], Wenqian Zhao[1], Guoliang Yu[2**], Guohua Zhang[1**]

[1] Department of Psychology, School of Mental Health, Wenzhou Medical University, Wenzhou 325035, China; zghcnu@wmu.edu.cn (G.Z.)

[2] School of Education, Renmin University of China, Beijing, 100872 China; yugllxl@sina.com (G.Y.)

***Abstract*:** *Background:* The COVID-19 pandemic has been proven had a dramatic impact on sleep health, and have caused psychological distress to the public. Preliminary research has shown that poor sleep health during the COVID-19 pandemic among the general population, little research has been carried out examining the interplay among broader dimensions and correlates of individual sleep health. Besides, the majority of COVID-19-related research on sleep health has been descriptive in nature and has concentrated on the frequency of self-reported insomnia symptoms and sleep quality. And there are few follow-up studies. Network analysis is a valuable method for examining the relationships between variables. Using this approach, studies can find out how interconnected variables from the same design are and how different structures relate to one another. The current two-wave longitudinal study investigated the pathways that underlie selected components of sleep health and their changes over time by using the network analysis.

Methods: A total of 1423 College students (80.60% female) in Wenzhou, China, participated the two-wave online survey in December 2021 (T1) and June 2022 (T2). Participants filled out a series of validated questionnaires. The IBM SPSS statistics was used to do descriptive statistics, and tests for normality and differences. Networks at T1 and T2 were estimated via Gaussian graphical models in the R software, and their temporal changes were compared through centrality and clustering measures. The difference between the two networks at T1 and T2 was performed by using the network comparison test.

Results: From T1 to T2, levels of sleep procrastination, self-control, emotion regulation and problematic smartphone use increased significantly, while levels of sleep quality and chronotypologies decreased significantly, and the level of psychological distress did not change notably. Through network analyses, chronotypologies, sleep procrastination, and sleep quality formed a spatially contiguous pattern that remain unchanged in both waves. Both the emotion regulation and psychological distress node increased its strength, betweenness, and closeness in the network, while the link between the two was strengthened at T2. The self-control node reduced its strength and closeness in the network, and it showed no lasting association with problematic smartphone use and sleep quality. Problematic smartphone use was connected to sleep procrastination, but not to chronotypologies and sleep quality during both waves.

Conclusions: Our research highlights the central position of sleep procrastination, which has a powerful effect on other related factors due to its high-intensity centrality and its strong correlation with chronotypologies and sleep quality. Specifically, the results suggest that problematic smartphone use may trigger sleep procrastination, which can be weakened by self-control. These findings shed new lights on understanding the development and influencing factors of sleep health during the COVID-19 among college students in China. Educational programs and psychological interventions are warranted to improve sleep health and reduce risk factors in the post pandemic era.

***Keywords*:** COVID-19, Sleep health, Problematic smartphone use, Psychological distress, Emotion

社交焦虑与手机冷落：一个有调节的中介模型

楚啸原[1] 陈雨欣[1,2] 阿拉法特·力提甫[1] 周杨[1] 谢笑春[3] 魏新益[4] 雷雳[5]（通讯作者）

1 北京邮电大学经济管理学院，北京，100876

2 中国人民大学社会与人口学院，北京，100872

3 东北师范大学心理学院，长春，130024

4 中国人民大学心理学系，北京，100872

5 中国人民大学教育学院，北京，100872，dr.leili@qq.com

摘 要 手机冷落是指个体在直接的人际互动中使用手机而冷落对方的行为，这一现象较为普遍。手机冷落行为不仅会对人际关系的质量产生消极影响，而且会降低人际对象的幸福感。已有研究主要关注手机冷落行为所带来的不良后果，而对手机冷落行为的潜在原因和内在机制的研究相对较少。因此，本研究基于使用与满足理论、补偿性网络使用理论、置换假说和社会阶层的社会认知理论，构建了一个有调节的中介模型，探讨了社交焦虑对手机冷落行为的影响及其作用机制——问题性社交网络使用的中介作用和家庭社会经济地位的调节作用。采用社交焦虑量表、社交网络成瘾倾向量表、手机冷落行为量表和家庭社会经济地位问卷对北京市两所大学的1379名被试进行了测试，其中男生816人（59.17%），女生563人（40.84%），平均年龄18.84岁（*SD* = 0.94）。研究结果显示，社交焦虑与手机冷落之间存在正相关关系；问题性社交网络使用在社交焦虑与手机冷落之间起着中介作用；而家庭社会经济地位在这一中介过程的前半段起到调节作用。具体而言，在家庭社会经济地位较低的大学生中，问题性社交网络使用在社交焦虑与手机冷落之间的中介作用更强。以上研究结果为理解手机冷落行为提供了新的视角，为干预和减少手机冷落行为提供了理论支持，具有重要的学术和实践意义。

关键词 社交焦虑，手机冷落，问题性社交网络使用，家庭社会经济地位，有调节的中介模型

Social anxiety and phubbing: A moderated mediating model

Xiaoyuan Chu[1*], Yuxin Chen[1,2], Alafate Litifu[1], Yang Zhou[1], Xiaochun Xie[3], Xinyi Wei[4], Li Lei[5*]

[1] School of Economics and Management, Beijing University of Posts and Telecommunications, Beijing, China

[2] School of Sociology and Population Studies, Renmin University of China, Beijing, China

[3] School of Psychology, Northeast Normal University, Changchun, China

[4] Department of Psychology, Renmin University of China, Beijing, China

[5] School of Education, Renmin University of China, Beijing, China, dr.leili@qq.com

Abstract：Phubbing describes the phenomenon of mobile phone use by an individual during a direct social interaction, which is not unfamiliar to most people. It harms relationships and reduces well-being of phubbees. However, little research has explored the potential causes and underlying mechanisms of phubbing. Existing studies have primarily focused on the adverse consequences of phubbing, often overlooking an important contributing factor, social anxiety. Thus, based on the uses and gratifications approach, the theory of compensatory internet use, the displacement hypothesis, and the social cognitive theory of social class, the present study examined whether social anxiety was positively related to phubbing, whether problematic social networking mediated the relationship, and whether the first path of this mediating process was moderated by family

socioeconomic status. This study collected anonymous data from 1,379 undergraduates (female = 563; male = 816; M_{age} = 18.84; *SD* = 0.94) through a questionnaire survey. Finding demonstrated that social anxiety was positively linked to phubbing, problematic social networking mediated the connection between social anxiety and phubbing, and family socioeconomic status played a moderating role in the first stage. Specifically, the indirect association between social anxiety and phubbing via problematic social networking was stronger for undergraduates with lower family socioeconomic status. Results provide another perspective for understanding phubbing, highlighting the significance of uncovering the underlying mechanisms and offering theoretical support for reducing phubbing behavior with significant academic and practical implications.

Keywords **：** social anxiety, phubbing, problematic social networking, family socioeconomic status, moderated mediating model

社会隔离感对问题性社交网络使用的影响：意向性自我调节与准社会关系的链式中介作用

李芊芊 [1,2]　周宗奎 [1,2]（通讯作者）

1 青少年网络心理与行为教育部重点实验室，武汉，430079

2 华中师范大学心理学院暨湖北省人的发展与心理健康重点实验室，武汉，400379，

通讯作者 E-mail zhouzk@ccnu.edu.cn

摘要 社交网络已经高度卷入人们的现实生活中，成为人们浏览信息、交流和娱乐必不可少的选择。大学生作为社交网络的主要用户，更容易产生问题性社交网络使用，这可能对其学习、心理和社会方面造成持久的伤害。根据“失补偿”理论，个体的上网行为是其在自身成长阶段中遇到了阻碍而出现的一种补偿心理和行为。社会隔离感是个体对自己的孤独或脱节的感知，它可能是问题性社交网络使用的预测因素。然而，个体可以通过自己体内自动修复，恢复自身的常态发展，进而产生正常的网络行为，意向性自我调节在其中起着重要作用。意向性自我调节指面对生活中可预期或不可预期的事件时，个体能够协调环境中的各种资源，根据自身能力选择合适的目标和策略。研究表明，压力性事件可以削弱个体的意向性自我调节。因此，社会隔离感可能通过削弱意向性自我调节影响问题性社交网络使用。此外，感到孤独、社交孤立或被拒绝的个体可能会导致更强烈的准社会关系。准社会关系即是个体与媒体人物之间的亲密感和关系感。较高的意向性自我调节可能会增加个体通过更有意识地使用社交网络并且发展准社会关系，进而可能导致问题性社交网络使用。因此，本研究主要探讨社会隔离感、意向性自我调节、准社会关系和问题性社交网络使用的关系，采用社会隔离感量表、意向性自我调节问卷、准社会关系量表和改编的 Facebook 成瘾量表，对 893 名大学生进行调查。结果发现：（1）社会隔离感和准社会关系显著正向预测问题性社交网络使用，意向性自我调节显著负向预测问题性社交网络使用；（2）中介效应分析显示，意向性自我调节和准社会关系在社会隔离感和问题性社交网络使用之间起部分中介作用。社会隔离感通过降低意向性自我调节，既能够直接增加问题性社交网络使用，又通过进一步减弱准社会关系进而减少问题性社交网络使用。结果表明，社会隔离感能够正向预测问题性社交网络使用，意向性自我调节在二者的关系中具有双刃剑效应。

关键词 社会隔离感，问题性社交网络使用，意向性自我调节，准社会关系

The Effect of Perceived Social Isolation on Problematic Social Network Use: Serial Mediating Role of Intentional Self-regulation

and Parasocial Relationship

Li Qianqian [a, b], Zhou Zongkui [a, b]

[a]Key Laboratory of Adolescent Cyberpsychology and Behavior(CCNU), Ministry of Education, ,Wuhan 430079, China;

[b] School of Psychology, Central China Normal University; Key Laboratory of Human Development and Mental Health of Hubei Province, Wuhan 430079, China.

Abstract：Social networks have become deeply intertwined with people's real lives, becoming an essential choice for browsing information, communication, and entertainment. As the primary users of social networks, college students are susceptible to the negative effects of problematic social network use, which can lead to persistent harm in their academic, psychological, and social domains. According to the compensation theory, an individual's online behavior is a compensatory psychological and behavioral response to obstacles encountered during their personal development. Perceived social isolation refers to an individual's perception of their loneliness or disconnection. It may serve as a predictive factor for problematic social network use. However, individuals can automatically repair themselves and restore their normal development, thereby generating normal online behavior. Intentional self-regulation plays an important role in this process. Intentional self-regulation refers to the ability of individuals to coordinate various resources in the environment and choose appropriate goals and strategies based on their abilities when facing predictable or unpredictable events in life. Research has shown that stressful events can weaken an individual's intentional self-regulation. Therefore, perceived social isolation may influence problematic social network use by weakening intentional self-regulation. In addition, individuals who feel lonely, socially isolated, or rejected may develop stronger parasocial relationships. Parasocial relationship refers to the sense of intimacy and relationality individuals experience with media figures. Higher levels of intentional self-regulation may increase individuals' use of social networks with more consciousness and the development of parasocial relationships, which can further lead to problematic social network use. Therefore, this study primarily explored the relationships among perceived social isolation, intentional self-regulation, parasocial relationships, and problematic social network use. 893 college students were investigated with Perceived Social Isolation Scale, Intentional Self-Regulation Questionnaire, Parasocial Relationship Scale, and an adapted Facebook Addiction Scale. The results revealed that: (1) perceived social isolation and parasocial relationship significantly positively predicted problematic social network use, while intentional self-regulation significantly negatively predicted problematic social network use; (2) The Mediating effect analysis showed that intentional self-regulation and parasocial relationship partially mediated the relationship between perceived social isolation and problematic social network use. Perceived social isolation can directly increase problematic social network use by reducing intentional self-regulation. On the other hand, it can also decrease problematic social network use by weakening parasocial relationship. The findings indicated that perceived social isolation positively predicts problematic social network use, and intentional self-regulation has a dual-edged effect in their relationship.

Keywords ： Perceived social isolation, Problematic social network use, Intentional self-regulation, Parasocial relationship

从网络视角理解智能手机成瘾及其相关因素

李睿[1]，孙岩[1]（通讯作者），冯雪[1]，陈婷[1]

1 辽宁师范大学心理学院，大连，116029，sunyan@lnnu.edu.cn

摘 要　背景与目的:截至 2022 年 12 月，中国互联网络信息中心发布的第 51 次《中国互联网发展状况统计报告》显示，中国通过智能手机上网的互联网用户为 10.65 亿，占比 99.8%。大学生智能手机成瘾是一个值得关注的问题。之前的研究已经确定了智能手机成瘾的风险因素，但很少有研究从网络的角度来探讨这个问题。因此，本研究利用网络分析来研究智能手机成瘾的核心症状，并分析了智能手机成瘾与其影响因素的相互关系。

研究方法:研究采用问卷调查法，在山东省的两所大学中共收集到 1438 份有效问卷。其中男生 633 人，平均年龄 19.19 岁，SD=1.084。本研究测量了智能手机成瘾及其相关因素，首先使用网络分析构建了智能手机成瘾的症状网络，然后将其他影响因素纳入网络中进行分析，最后采用网络对比检验对不同性别、低成瘾倾向组和高成瘾倾向组的影响因素网络进行比较。

结果与结论:本研究发现，大学生智能手机成瘾的核心症状为无手机恐惧症、孤独感、无手机的不舒服感、喜欢在线互动。被动性社交网站使用与智能手机成瘾关系最为密切。网络对比检验的结果显示，智能手机成瘾低倾向组和高倾向组的网络结构存在显著差异。这些结果从网络分析的角度扩展了前人的研究结果，未来对这些核心症状和关键因素的干预可能会使效果最大化，对于预防和干预大学生智能手机成瘾具有显著意义。

关键词　智能手机成瘾，网络分析，被动性社交网站使用

A network perspective on understanding smartphone addiction and related factors

Rui Li[1]，Yan Sun[1](Corresponding Author)，Xue Feng[1]，Ting Chen[1]
1 School of Psychology, Liaoning Normal University, Dalian, 116029
Corresponding Author E-mail: sunyan@lnnu.edu.cn

Abstract：*Background and aims:* As of December 2022, according to the 49th statistical report on Internet development in China issued by the China Internet Network Information Center, 1.065 billion Internet users access the Internet through smartphones in China, accounting for 99.8%. Smartphone addiction in university students is a concerning issue. Previous research has established risk factors for smartphone addiction, but few studies have explored this issue taking a network perspective. As such, this study capitalizes on network analysis to examine the core symptoms of smartphone addiction and the interaction with related factors.

Methods: 1438 participants (males = 633, mean age = 19.19, SD = 1.084) were included in the study. This study measured university students' smartphone addiction and its related factors. The collected data were analyzed using a network analysis method. The two networks from the different groups were compared using the network comparison test.

Results and conclusions:: This study found that phobia without a smartphone, loneliness, uncomfortableness without a smartphone, and comfort for online interaction were core symptoms of smartphone addiction in university students. Passive social networking sites use was most closely associated with smartphone addiction. The network comparison test showed the network structure had significant differences between the low and high groups of smartphone addiction tendency. These results extend the results of previous studies from the network analysis perspective. Future interventions on these core symptoms and vital factors may maximize the effect and be more inexpensive than current modalities.

Keywords：**S**martphone addiction, Network analysis, Passive social networking sites use

无法容忍不确定性与网络游戏成瘾：经验回避和非适应认知的序列中介作用

徐旋[1,2] 曹敏[1,2] 陈倩[1,2] 许放[1,2] 周宗奎[1,2]（通讯作者）

1 青少年网络心理与行为教育部重点实验室，武汉，430079

2 华中师范大学心理学院，武汉，430079，zhouzk@ccnu.edu.cn

摘 要 随着人们的娱乐从线下活动转为网络游戏，网络游戏成瘾成为了公众最为关切的心理障碍之一。对于网络游戏障碍的前因机制的探索逐步受到重视。近年来，新冠肺炎疫情、俄乌冲突等重大事件的发生，不断增加着个体生活中的不确定性。而对不确定性的容忍度，可能显著影响着个体的心理和行为。以往研究显示，无法容忍不确定性可能会导致过度游戏等非适应性问题的发生。然而,无法容忍不确定性预测网络游戏成瘾的作用和路径尚未明确。故本研究基于 I-PACE 模型和认知-行为模型，检验无法容忍不确定性和网络游戏成瘾的关系，以及经验回避和非适应认知的序列中介作用。本研究使用无法容忍不确定性量表（IUS-12）、网络游戏成瘾量表（IGD-20）、接纳与承诺量表（AAQ-II）和网络游戏非适应认知量表作为研究工具，共收集 1393 名中国网络游戏玩家（62.5%为男性，年龄范围为 14 至 51 岁）的有效数据。路径分析的结果表明，在控制被试的性别、年龄和游戏使用时间后，无法容忍不确定性能显著正向预测网络游戏成瘾；同时，经验回避和非适应认知的序列中介作用显著。这提示我们，个体的无法容忍不确定性程度越高，就越容易发展成为网络游戏成瘾。而对负面经验的习惯性回避和对网络游戏的扭曲认知，可能是无法容忍不确定导致网络游戏成瘾的中介机制。综上所述，害怕无法容忍不确定性的人可能更容易出现网络游戏成瘾问题。改善个体对负面体验的回避方式及矫正关于游戏的不适应认知，可能是有效的干预策略。

关键词 网络游戏成瘾，无法容忍不确定性，经验回避，非适应认知

Intolerance of Uncertainty and Internet Gaming Disorder: The Serial Mediation of Experiential Avoidance and Maladaptive Cognitions

Xu Xuan[1,2] Cao Ming[1,2] Chen Qian[1,2] Xu Fang[1,2] Zhou Zongkui[1,2,*]

1 Key Laboratory of Adolescent Cyberpsychology and Behavior (CCNU), Ministry of Education, Wuhan, China

2 School of Psychology, Central China Normal University, Wuhan, China

Abstract: As people's entertainment activities transition from offline to online gaming, Internet Gaming Disorder (IGD) has emerged as one of the most concerning psychological disorders in the public's eye. The exploration of the antecedent mechanisms of IGD has received increasing attention. In recent years, major events such as the COVID-19 pandemic and the Russia-Ukraine conflict have continuously increased uncertainty in individuals' lives. The tolerance for uncertainty may significantly impact individuals' psychology and behavior. Previous research has indicated that intolerance of uncertainty may lead to maladaptive issues, such as excessive gaming. However, the specific role and pathways through which intolerance of uncertainty predicts Internet gaming addiction remain unclear. Therefore, this study, based on the I-PACE model and cognitive-behavioral model, examined the relationship between intolerance of uncertainty and Internet gaming addiction, as well as the

sequential mediating roles of experiential avoidance and maladaptive cognitions. The study employed measures including the Intolerance of Uncertainty Scale (IUS-12), Internet Gaming Disorder Scale (IGD-20), Acceptance and Action Questionnaire (AAQ-II), and Internet Gaming Maladaptive Cognitions Scale. Valid data were collected from a total of 1393 Chinese online gamers (62.5% male), ranging in age from 14 to 51. Path analysis results, controlling for participants' gender, age, and gaming usage time, demonstrated that intolerance of uncertainty significantly and positively predicted Internet gaming addiction. Furthermore, the sequential mediating effects of experiential avoidance and maladaptive cognitions were significant. These findings suggest that individuals with a higher intolerance of uncertainty are more likely to develop Internet gaming addiction. Habitual avoidance of negative experiences and distorted cognitions about gaming may serve as mediating mechanisms linking intolerance of uncertainty to Internet gaming addiction. In conclusion, individuals who fear and are unable to tolerate uncertainty may be more susceptible to developing Internet gaming addiction. Targeting improvements in avoidance strategies for negative experiences and correcting maladaptive cognitions about gaming may be effective intervention strategies.

Keywords： Internet Gaming Disorder; Intolerance of Uncertainty; Experiential Avoidance; Maladaptive Cognitions

不同性别游戏玩家游戏动机对强迫性游戏消费的影响：社交资本的中介作用

许放[1,2] 牛更枫[1,2] 徐旋[1,2] 曹敏[1,2] 董柔纯[3] 周宗奎[1,2]（通讯作者）

1 青少年网络心理与行为教育部重点实验室，武汉，430079

2 华中师范大学心理学院，武汉，430079，zhouzk@ccnu.edu.cn

3 江苏第二师范学院，南京，210013

摘 要 电子游戏不仅成为人们日常生活中重要的娱乐方式，还产生了一个庞大的游戏产业和市场。研究发现，游戏中的消费行为可能与赌博存在一些类似的特征，购买后所带来的游戏奖励和成就更有可能使玩家出现强迫性购买的行为。基于使用满足视角，高游戏动机的个体更有可能产生过度的补偿，发展成了强迫性的游戏消费。但不同游戏动机对强迫性游戏消费的影响机制还不清楚，也不清晰游戏动机的性别差异是否会产生影响。本研究采用 PLS-SEM 探讨不同游戏动机对强迫性游戏消费的影响机制及性别的群组差异。研究采用游戏玩家类型问卷、社会资本量表、强迫性游戏消费量表对 571 名游戏玩家（男 323、女 248）进行调查，结果发现：（1）竞争动机正向影响强迫性游戏消费；（2）社交动机、能力动机、竞争动机、逃避动机、智力动机正向影响游戏社会资本，并通过游戏社会资本的中介正向影响游戏强迫性消费，故事动机与强迫性游戏消费无显著相关；（3）在性别差异方面，女性竞争动机对强迫性消费的正向影响大于男性，男性逃避动机对游戏社会资本的影响大于女性，并且逃避动机–游戏社交资本–强迫性游戏消费的路径对男性的影响大于女性。本研究基于使用满足视角，发现过高的游戏动机会对需要过度补偿，发展出强迫性游戏消费，并且高游戏动机的玩家也希望获得更高的游戏社交资本，高游戏社会资本会让玩家更加认同游戏的价值，有更高的消费意愿，同时也更容易让玩家更加沉浸在游戏的虚拟世界之中，渐渐失去对游戏消费的控制，发展成强迫性消费。另外，女性和男性游戏行为特征和游戏需要的差异，女性玩家更有可能为了顺利的游戏体验和社交需要导致强迫性消费，而男性玩家更可能为了满足逃避现实和沉浸于游戏中的需要导致强迫性消费。因此，在干预不同性别玩家的强迫性游戏消费时应采取不同的策略。未来研究可基于动机和游戏特征的差异探讨不同性别玩家强迫性游戏消费的保护因素，并对开展针对性的干预策略提供实践引导。

关键词　强迫性游戏消费，游戏动机，社会资本，性别差异

The impact of video game playing motivations on compulsive gaming buying in gamers of different genders: The mediating effect of social capital

Xu Fang [a,b] Niu Gengfeng [a,b] Xu Xuan [a,b] Cao Min [a,b] Dong Rouchun [c] Zhou Zongkui [a,b]

[a] Key Laboratory of Adolescent Cyberpsychology and Behavior (Central China Normal University), Ministry of Education, Wuhan, 430079

[b] School of Psychology, Central China Normal University, Wuhan, 430079

[c] Preschool Education School, Jiangsu Second Normal University, Nanjing 210013

***Abstract*:** Video games have not only emerged as a significant source of entertainment in people's everyday lives but have also generated an extensive gaming industry and market. Research has found that buying in games may share some similarities with gambling. The rewards and accomplishments acquired through in-game buying are more likely to contribute to compulsive buying behaviors among players. Based on the perspective on uses and gratifications, individuals with high motivations for video game playing are more susceptible to engaging in excessive compensatory behaviors that may lead to the development of compulsive gaming buying. However, the mechanisms by which motivations for video game playing influence compulsive in-game purchasing, as well as the potential impact of gender differences, remain uncertain. This study use PLS-SEM to explore the mechanisms of different video game playing motivations on compulsive gaming buying and examine gender differences. A questionnaire on The Trojan Player Typology, The Social Capital Scale and The Compulsive Gaming Buying Scale were used to survey 571 video games player (323 males, 248 females). The results indicate that (1) Competitors positively influences compulsive gaming buying; (2) Socializers, completionists, competitors, escapists, and smarty-pants positively impact compulsive gaming buying through the mediated variable of game-related social capital. Story-driven shows no significant correlation with compulsive gaming buying; (3) in terms of gender differences, the positive influence of competitors on compulsive consumption is greater among females than males, and the impact of escapists on game-related social capital is greater among males than females. Additionally, the path of escapists – game-related social capital – compulsive gaming buying has a greater effect on males than females. According to the perspective of uses and gratifications, suggests that individuals with high video game playing motivations are more likely to engage in compulsive gaming purchases as a form of excessive compensation. Additionally, individuals with strong video game playing motivations strive for increased game-related social capital. Increased game-related social capital enhances players' inclination to endorse the game's value, increases their willingness to engage in buying, and facilitates their immersion in the virtual gaming world, potentially leading to diminished control over gaming buying and the development of compulsive behavior. Furthermore, variations in gaming behavior characteristics and needs between female and male players indicate that females are more prone to engage in compulsive buying to enhance their gaming experiences and fulfill their social needs, whereas males are more inclined to engage in compulsive buying as an escapists in the game. Therefore, distinctive strategies should be employed to address compulsive gaming buying in players of different genders. Future research should aim to examine the protective factors related to compulsive gaming buying among players of different genders, considering variations in motivations and game characteristics, in order to offer practical guidance for targeted intervention strategies.

Keywords：compulsive gaming buying, video game playing motivations, social capital, gender differences

主播特征与大学生观看游戏直播成瘾和冲动打赏的关系：准社会关系、直播氛围和感知价值的中介作用

金斯妤 [1,2,3]　许放 [1,2,3]　朱安琪 [1,2,3]　袁子惠 [1,2,3]　牛更枫 [1,2,3]（通讯作者）

1 华中师范大学心理学院，武汉，430079

2 青少年网络心理与行为教育部重点实验室，武汉，430079

3 华中师范大学网络素养与行为研究中心，武汉，430079，niugfpsy@ccnu.edu.cn

摘 要　随着各种娱乐终端设备的普及，大学生使用电子游戏作为日常休闲娱乐活动已较为普遍，伴随着这一趋势，通过直播平台观看主播游玩电子游戏也变得日渐受欢迎，然而其负面影响也日益凸显，如观看直播成瘾和冲动打赏会对个体身心健康、人际关系和生活的其他方面造成不良影响。因此，大学生游戏直播观看行为及其影响因素也需要研究者更多关注。主播特征包括主播的个体特征(如吸引力、专业性)以及与观众的互动特征，是游戏直播的重要组成部分。主播特征作为刺激，所带来的身心激活能够促使个体产生一系列认知、情绪反应，观众能够感知到良好的直播氛围、高价值的直播内容以及与主播之间积极的准社会关系，从而满足观众的工具性需求和情感需求，并进一步增加其观看直播成瘾和冲动打赏的可能性。因此，本研究拟在大学生群体中探讨主播特征、心理需求满足和问题性游戏直播使用的关系及其内在作用机制——采用直播互动性量表、主播特征量表、准社会关系量表、直播场景氛围线索量表、感知价值量表、直播冲动消费量表和流媒体成瘾量表对 334 名大学生进行调查，采用偏最小二乘法进行分析，结果显示：(1)在主播个体特征、主播互动性、准社会关系、直播氛围、感知价值、冲动打赏、直播成瘾中，两两变量之间均呈显著正相关；(2)主播个体特征能显著正向预测直播成瘾；(3)直播成瘾能显著正向预测冲动打赏；(4)准社会关系和直播氛围在主播个体特征和直播成瘾关系中的中介作用显著；(5)准社会关系、直播氛围和感知价值在主播个体特征和冲动打赏关系中起完全中介作用；(6)准社会关系、直播氛围和感知价值在主播互动性和冲动打赏关系中起完全中介作用；(7)准社会关系、直播氛围和感知价值在主播互动性和直播成瘾关系中起完全中介作用。本研究以大学生为研究对象，以主播特征为切入，研究发现有助于深入揭示直播观看动机与问题性使用的内在机制，这是对以往研究的扩展和深化，也能为合理的游戏直播观看行为的塑造提供依据和思路。

关键词　问题性游戏直播使用、主播特征、使用满足理论、大学生

The association between Anchor characteristics and college students' problematic video game live streaming and impulse consumption: the mediating role of parasocial relationships, live atmosphere, and perceived value

Si-yu Jin[a, b, c], Fang Xu[a, b, c], An-qi Zhu[a, b, c], Zi-hui Yuan[a, b, c], Geng-feng Niu[a, b, c]

[a] School of Psychology, Central China Normal University, Wuhan, 430079

[b] Key Laboratory of Adolescent Cyberpsychology and Behavior (CCNU), Ministry of Education, Wuhan 430079

[C] Center for Research on Internet Literacy and Behavior, Central China Normal University, Wuhan 430079, China niugfpsy@mail.ccnu.edu.cn

Abstract：The increasing popularity of entertainment terminals has led to a rise in video game usage among college students for daily leisure and entertainment activities. Furthermore, the growing trend of watching anchors play video games through live broadcasting platforms has brought with it negative impacts such as addiction to live broadcasting and impulsive rewarding, which can have detrimental effects on individuals' physical and mental well-being, interpersonal relationships, and other aspects of life. Hence, it is imperative for researchers to pay more attention to college students' live game viewing behavior and the factors that influence it. The individual characteristics of the anchor (for example, attractiveness and professionalism) as well as their interaction with the audience, collectively referred to as anchor characteristics, play a crucial role in game live streaming. Anchor characteristics act as stimuli that trigger physical and mental activation in individuals, eliciting a range of cognitive and emotional responses. Viewers, in turn, perceive a favorable live broadcasting atmosphere, valuable content, and foster positive parasocial relationships with the anchors. These factors satisfy viewers' instrumental and emotional needs, potentially exacerbating their addiction to live broadcasting and impulsive rewarding. Therefore, this study intends to explore the relationship between anchor characteristics, psychological need fulfillment and problematic game live streaming use and its intrinsic mechanism of action in a group of college students - using the Live Streaming Interactivity Scale, the Anchor Characteristics Scale, the Parasocial Relationships Scale, the Live Streaming Scene Atmosphere Cues Scale, the Perceived Value Scale, the Live Streaming Impulsive Consumption Scale, and the Streaming addiction scale for 334 college students, and analyzed by partial least squares, the results show that (1) there is a significant positive correlation between the two two variables in anchor individual characteristics, anchor interactivity, parasocial relationship, live scene atmosphere, perceived value, impulse rewarding, and live streaming addiction; (2) individual characteristics of anchors can significantly and positively predict live streaming addiction; (3) live streaming addiction can significantly and positively predict impulse rewarding; (4) parasocial relationships and live atmosphere mediated significantly in the relationship between anchor individual characteristics and live addiction; (5) parasocial relationships, live atmosphere and perceived value fully mediated the relationship between anchor individual characteristics and impulse rewarding; (6) parasocial relationships, live atmosphere and perceived value fully mediated the relationship between anchor interactivity and impulse rewarding; and (7) parasocial relationships, live-streaming atmosphere and perceived value play a fully mediating role in the relationship between anchor interactivity and live-streaming addiction. Taking college students as the research object and anchor characteristics as the entry point, the findings of this study help to deeply reveal the intrinsic mechanism of live viewing motivation and problematic use, which is an extension and deepening of previous studies and can also provide the basis and ideas for the shaping of reasonable game live viewing behavior.

Keywords：problematic video game live streaming use, anchor characteristics, use and satisfaction theory, college students

父母低头行为对初中生短视频成瘾的影响：一个链式中介模型

柏忆[1] 王兴超[2]（通讯作者）

1 复旦大学社会发展与公共政策学院，上海，200433

2 山西大学教育科学学院，太原，wangxch9@126.com

摘 要　短视频成瘾指个体无法控制自己对短视频软件的使用，忽略其带来的负面的心理和社会后果的行为。在青春期早期，个体自我调节能力尚未发展成熟，较容易产生短视频成瘾行为。父母低头行为指父母在亲子互动的过程中因为过于沉浸手机使用而忽略子女的现象。作为一种消极的亲子互动行为，近年来父母低头行为已受到广泛的关注。本研究参考社会学习理论，对父母低头行为和初中生短视频成瘾的关系进行了探索，即当初中生感知到自己父母低头行为时，会采取模仿学习的行动，也将关注点转移到智能手机上并对其产生依赖。同时引入中介变量感觉寻求和自我控制，并对四个变量的互相作用机制进行模型构建和分析验证。本研究旨在考察父母低头行为对初中生短视频成瘾的影响，并分析感觉寻求和自我控制在其中的中介作用。对 1006 名初中生 (M = 13.00，SD = 0.90，女生 498 人，男生 508 人) 采用低头量表、简版感觉寻求问卷、简版自我控制问卷、短视频成瘾问卷进行调查。测量了父母低头行为、短视频成瘾、感觉寻求和自我控制 4 个变量。使用 SPSS 和 PROCESS 插件进行相关分析和路径分析。结果：（1）父母低头行为与感觉寻求呈显著正相关，与自我控制呈显著负相关。感觉寻求和自我控制之间也呈现显著负相关。此外，初中生短视频成瘾与父母低头行为和感觉寻求之间呈现显著正相关，与自我控制呈现显著负相关。（2）链式中介模型分析显示，父母低头行为不仅能够直接影响初中生短视频成瘾，也可以通过感觉寻求和自我控制间接对初中生短视频成瘾产生影响。具体而言，感觉寻求和自我控制在父母低头行为与初中生短视频成瘾之间分别起显著的中介作用。同时，感觉寻求与自我控制在父母低头行为与初中生短视频成瘾之间也起到显著的链式中介作用。可以看出，在预防和干预青少年尤其是初中生短视频成瘾问题中，需要重视父母低头行为，同时引导青少年减低感觉寻求，提高自我控制，从而减少短视频成瘾的发生。

关键词　短视频成瘾，父母低头行为，感觉寻求，自我控制，初中生

The Impact of Parental Phubbing on Junior High School Students' Short-form Video Addiction: A Serial Mediation Model

Bo Yi[1] Wang Xingchao[2]

1 School of Social Development and Public Policy, Fudan University, Shanghai, 200433

2 School of Educational Science, Shanxi University, Taiyuan

***Abstract*:** Short-form video addiction refers to the individual's inability to control their use of short-form video software, and ignore its negative psychological and social consequences. In people's early adolescence, the development of individual self-regulation ability is not that mature. So, teenagers are more likely to have short-form video addiction. Parental phubbing refers to the phenomenon that parents neglect their children because they are too immersed in mobile phone use in the process of parent-child interaction. and as a negative parent-child interaction behavior, parental phubbing has received widespread attention in recent years. This study explores the relationship between parental phubbing and junior high school students' short-form video addiction with reference to social learning theory, that is, when junior high school students perceive phubbing from parents, they will take imitation learning actions, and also shift their focus to smartphones and become dependent on them. At the same time, mediating variables sensation seeking and self-control are introduced, and the interaction mechanism of the four variables is modeled and analyzed. The purpose of this study is to examine the effects of parental phubbing behavior on junior high school students' short-form video addiction and to analyze the mediating roles of sensation-seeking and self-control in this context. 1006 junior high school students (M = 13.00, SD = 0.90, female: 498, male: 508) were surveyed using the parental phubbing Scale, the short version of the Sensation Seeking scale, the short version of the Self-Control scale, and the Short-form Video Addiction scale. Four variables were measured: parental phubbing, short-form video addiction, sensation seeking, and self-control. SPSS and PROCESS plug-ins were used to perform statistical analysis and pathway analysis. Results: (1) Parental phubbing was significantly positively correlated with sensation seeking and significantly negatively correlated with

self-control. There was also a significant negative correlation between sensation-seeking and self-control. In addition, junior high school students' short-form video addiction showed a significant positive correlation with parental phubbing and sensation seeking, and a significant negative correlation with self-control. (2) Serial-mediated model analysis showed that parental phubbing could not only directly affect junior high school students' short-form video addiction, but also indirectly affect junior high school students' short-form video addiction through sensation-seeking and self-control. Specifically, sensation-seeking and self-control played significant mediating roles in the relationship between parental phubbing and junior high school students' short-form video addiction. At the same time, the sensation of seeking and self-control in parental phubbing has a significant serial mediating effect between parental phubbing and the short-form video addiction of junior high school students. Conclusion: In the problem of short-form video addiction for junior high schoolers, the demand for intervention and prevention of short-form video addiction is as important as the demand for attention to parental phubbing, which at the same time leads to lower sensation in the children and higher self-control, and from this, less short-form video game addiction is produced.

***Keywords*:** short-form video addiction, junior high school students, parental phubbing, sensation seeking, self-control

奖赏类型对网络游戏成瘾者行为抑制的影响：来自 ERP 的证据

尹欣怡 谢笑春（通讯作者）

东北师范大学心理学院，长春，130024，xiexc713@nenu.edu.cn

摘 要 行为抑制是指个体对已形成的优势反应的主动压抑，行为抑制能力下降是成瘾的重要特征之一。双系统模型认为，奖赏失调和执行功能障碍共同导致了成瘾行为。物质成瘾的相关研究表明，奖赏能够提高抑制控制能力，进而缓解物质成瘾，但少有研究关注奖赏对网络游戏成瘾的作用。同时，诱因-易感理论提出，当成瘾相关奖赏作为动机时，能够促进对成瘾物的注意偏向，降低对自然奖赏的敏感性。以往研究通常是考察单一奖赏的作用，对不同类型奖赏的作用关注不足。因此，本研究将奖赏划分为金钱、社会和网络游戏奖赏三类，考察不同奖赏类型对网游成瘾者行为抑制的影响及作用机制。本研究利用《网络游戏障碍量表》（ISDS-SF9）对被试进行筛选，并在 Oddball 双选择任务前后设置线索和反馈阶段，创设四种奖赏情境，以风景图片为标准刺激，网络游戏截图为偏差刺激，结合行为和 ERP 技术记录数据。研究采用 2（被试类型：网络游戏成瘾组，对照组）×4（奖赏类型：无奖赏，金钱奖赏，社会奖赏，网络游戏奖赏）混合设计。结果发现：（1）行为结果显示，两组被试在行为抑制上无显著差异，但网游奖赏能够显著减少成瘾组的反应时代价，社会奖赏减少正常组的反应时代价。（2）脑电结果显示，网游成瘾组比对照组诱发的 N2 波幅更小，P3 波幅更大。（3）相较于其他奖赏条件，网游奖赏对成瘾组，社会奖赏对对照组均能诱发更小的 N2 波幅和更大的 P3 波幅。研究结果表明，网游成瘾者对网络游戏图片存在反应抑制缺陷；不同类型奖赏对行为抑制的提升程度不同：社会奖赏能显著提升对照组的行为抑制，网游奖赏能显著提升成瘾组的行为抑制能力。本研究结果有助于为网络游戏成瘾的预防和干预提供启示。

关键词 网络游戏成瘾，行为抑制，奖赏，ERP

Effect of reward type on Internet gaming disorder’s behavioral inhibition: evidence from ERPs

Xinyi Yin, Xiaochun Xie

School of Psychology, Northeast Normal University, Changchun

***Abstract*：** Behavioral inhibition refers to an individual's active repression of an established dominant response, and decreased behavioral inhibition is one of the key features of addiction. The dual-systems model suggests that reward dysregulation and executive dysfunction together contribute to addictive behavior. Existing research on substance addiction suggests that rewards can improve inhibitory control and thus improve addiction, but few researchers have focused on the role of rewards in Internet gaming disorder. Meanwhile, the causal susceptibility theory proposes that when addictive substance-related rewards serve as motivators, they can promote attentional bias toward the addictive substance and reduce sensitivity to natural rewards. Previous studies typically examined the role of a single reward, but ignored the effects of different types of reward. Therefore, the current study classified rewards into three categories: monetary, social, and online game rewards, and explored the effects of different reward types on behavioral inhibition and mechanisms of action in Internet gaming disorder. This study utilized the Internet Game Disorder Scale (ISDS-SF9) to screen subjects, set up cues and feedback stages before and after the Oddball double-choice task, created four types of reward situations, used landscape pictures as the standard stimulus and online game screenshots as the deviant stimulus, and combined behavioral and ERP techniques to record data. The study used a 2 (subject type: Internet gaming disorder, control group) × 4 (reward type: no reward, monetary reward, social reward, Internet game reward) mixed design. It was found that (1) behavioral results showed that there was no significant difference in behavioral inhibition between the two groups of subjects, but online game reward significantly reduced the cost of response time in the Internet gaming disorder and social reward reduced the cost of response time in the normal group. (2) EEG results showed that the online gaming addiction group induced smaller N2 wave amplitude and larger P3 wave amplitude than the control group. (3) Compared with other rewards, online gaming reward for the addiction group and social reward for the control group both induced smaller N2 wave amplitude and larger P3 wave amplitude. The findings suggest that Internet gaming disorder have a response inhibition deficit to Internet game pictures; different types of rewards enhance behavioral inhibition to different degrees, with social rewards significantly enhancing behavioral inhibition in the control group and Internet game rewards significant in the addicted group. The results of this study help to provide insights into the prevention and intervention of Internet gaming disorder.

***Keywords*：** Internet gaming disorder, behavioral inhibition, reward, ERP

关系欺负和女大学生游戏内冲动购买的关系：孤独感和非适应性认知的中介作用

张雨芒[1,2] 牛更枫[1,2,3,4](通讯作者） 宋快[1,2,4,5] 金斯妤[1,2] 杨文城[1,2] 史晓涵[1,2] 袁子惠[1,2]

1 华中师范大学心理学院，武汉，430079

2 青少年网络心理与行为教育部重点实验室，武汉 4300792

3 华中师范大学网络素养与行为研究中心，武汉，430079，niugfpsy@mail.ccnu.edu.cn

4 中国基础教育质量监测协同创新中心华中师范大学分中心，武汉 43007

5 湖北幼儿师范高等专科学校学前教育学院，鄂州 436032

摘 要 随着互联网和各种电子产品的发展与普及，网络游戏已经成为许多年轻人的主要休闲娱乐方式之一，网络购买和游戏内的冲动购买行为也随着这一趋势变得格外突出。许多游戏鼓励玩家不断进行游

戏内购买，这使得游戏公司获得收益的主要方式，并且购买各种虚拟商品可以直接或是间接地改善玩家的游戏体验，鼓励了玩家的游戏内的购买行为。除此之外，女性游戏玩家的数量也在急剧增加，她们比男性有更高的强迫购买率和更强的网上购买意图，并且她们相对来说也更易受到来自同龄人的关系欺负。女性游戏玩家和她们的行为特征吸引了大量的研究关注，成为了研究热点对象。在这种背景下，本研究旨在探讨女大学生关系欺负与游戏内冲动购买之间的关系，以及这一关系的潜在发生机制。研究人员招募了 465 名女大学生，并要求被试完成一组问卷，从而对被试的关系欺负、感知孤独感以及非适应性认知和冲动购买倾向的水平进行评估。研究结果表明：(1)女大学生的关系欺负与游戏内冲动购买呈正相关；(2)女大学生的孤独感和非适应性认知在这一关系中起显著的调节作用，其中包括了两条中介路径：非适应性认知的独立中介效应、孤独感和非适应性认知的序列中介效应。这些发现加深了我们对于同伴欺凌给女大学生带来的消极影响、女性网络游戏内冲动购买行为和女性玩家的游戏行为的理解，从而为健康和合理的游戏行为的发展提供有效的指导。

关键词　关系欺负，游戏内冲动购买，孤独感，非适应性认知，女大学生

The association between relational victimization and impulsive in-game buying among female college students: The mediating roles of loneliness and maladaptive cognitions

Yumang Zhang[a,b] , Gengfeng Niu[a,b,c,d*] , Kuai Song[a,b, d,e], Siyu Jin[a,b] , Wencheng Yang[a,b] , Xiaohan Shi[a,b], Zihui Yuan[a,b]

a School of Psychology, Central China Normal University, Key Laboratory of Human Development and Mental Health of Hubei Province, Wuhan 430079, China

b Key Laboratory of Adolescent Cyberpsychology and Behavior (CCNU), Ministry of Education, Wuhan 430079, China

c Center for Research on Internet Literacy and Behavior, Central China Normal University, Wuhan 430079, Chinaniugfpsy@mail.ccnu.edu.cn

d Central China Normal University Branch, Collaborative Innovation Center of Assessment toward Basic Education Quality, Wuhan 430079, China

e School of Preschool education, Hubei Preschool Teachers College, Ezhou, 436032, China

Abstract： Online games have become one of the main ways of entertainment for many youths, virtual buying and impulsive in-game buying have also become prominent along this trend. Besides, the number of female gamers has been increasing drastically, attracting much research attention. Against this background, the current study aimed to examine the association between relational victimization and in-game impulsive buying among female college students, as well as the underlying mechanism. A sample of 465 female college students was recruited to complete a set of questionnaires assessing the relational victimization, perceived loneliness, as well as the maladaptive cognitions and impulse buying tendency associated with online games. Results indicated that: (1) relational victimization was positively associated with impulsive in-game buying; (2) loneliness and maladaptive cognitions significantly mediated this relation, which contained two mediating pathways – the independent mediating effect of maladaptive cognitions, and the sequential mediating effect of loneliness and maladaptive cognitions. These findings deepen our understanding of the influences of being victimized by peers, impulsive buying in games and females' game usage, providing suggestions for the development of healthy and reasonable

gaming behaviors.

***Keywords*：** Relational victimization, Impulsive in-game buying, Loneliness, Maladaptive cognitions, Female college students

重要他人 ICT 态度、中小学生 ICT 态度与数字素养：一项潜在剖面分析

葛文静[1, 2] 牛更枫[1, 2,3] 孙晓军[1,2,3,4]（通讯作者）

1 华中师范大学心理学院，武汉，430079

2 青少年网络心理与行为教育部重点实验室，武汉，430079

3 中国基础教育质量监测协同创新中心华中师范大学分中心，武汉，430079

4 华中师范大学网络素养与行为研究中心，武汉，430079，sunxiaojun@mail.ccnu.edu.cn

摘 要 现代信息和通信技术(Information and communication technologies, ICT)的广泛普及，使其已成为个体学习、生活、社交和工作中必不可少的一部分，并对个体适应数字生活带来了新的发展要求。数字素养指通过数字技术安全并适当地获取、管理、理解、整合、交流、评估和创造信息，以参与社会生产的能力。如何在个体发展过程中培育其良好的数字素养已成为广受关注的教育问题。科技生态亚系统理论认为个体发展中与数字媒体的交互过程会受到重要他人(父母和朋友)的多重影响，以往研究也表明重要他人的观念可能存在并不一致的情况。基于已有研究和科技生态压系统理论，本研究通过旨在通过潜在剖面分析探究重要他人 ICT 态度的不同类别和中小学生 ICT 态度及数字素养之间的关系。我们对 1544 名中小学生(年龄范围 9-19 岁，M_{age}=13.13， SD=2.54)进行问卷调查，通过潜在剖面分析识别了 5 个重要他人 ICT 态度的潜在类别：消极组(22.93%)；朋友消极，父母积极组(4.40%)；父母消极，朋友积极组(18.33%)；中立组(36.66%)；积极组(17.68%)。与理论假设一致，积极组报告了最积极的 ICT 态度和最高的数字素养水平，而消极组相反。消极组与朋友消极父母积极组在数字素养上不存在显著差异。然而，父母消极朋友积极组的社会情感素养水平显著低于朋友消极父母积极组。研究结果揭示了重要他人 ICT 态度在影响中小学生 ICT 态度和数字素养发展上的异质性，并发现了朋友在社会情感素养发展中的独特作用。

关键词 数字素养，ICT 态度，父母 ICT 态度，朋友 ICT 态度，潜在剖面分析

Significant Others' ICT Attitude and Students' ICT Attitude and Digital Literacy: A Latent Profile Analysis

Wenjing Ge[1,2], Gengfeng Niu[1,2,3], Xiaojun Sun [1,2,3,4]*

1 School of Psychology, Central China Normal University, Wuhan, 430079, China

2 Key Laboratory of Adolescent Cyberpsychology and Behavior (CCNU), Ministry of Education, School of Psychology, Central China Normal University, Wuhan, 430079, China

3 Central China Normal University Branch, Collaborative Innovation Center of Assessment toward Basic Education Quality, Wuhan, 430079, China

4 Center for Research on Internet Literacy and Behavior, Central China Normal University, Wuhan, 430079, China, sunxiaojun@mail.ccnu.edu.cn

***Abstract*：** In the current digital age, the widespread availability of Information and Communication

Technologies (ICT) has made them an indispensable part of individual learning, daily life, social interactions, and work. This has brought about new developmental demands for individuals to adapt to the digital environment. Digital literacy refers to the ability to safely and appropriately access, manage, understand, integrate, communicate, evaluate, and create information through digital technologies for active participation in society. Cultivating good digital literacy during individual development has become a highly relevant educational concern. The ecological techno-subsystem theory posits that individuals' interactions with digital media during their development are influenced by significant others (such as parents and friends) in multiple ways. Previous research has also suggested that significant others may hold diverse views on digital media usage. Building upon previous research and the ecological techno-subsystem theory, this study aimed to examine how significant others (parents and friends) contribute to the formation of students' ICT attitudes and digital literacy using Latent profile analysis (LPA). A total of 1544 Chinese students (age range 9-19 years, *M*age=13.13, *SD*=2.54), participated in the study. The LPA identified five distinctive profiles of significant others' ICT attitudes: *Negative* (22.93%), *Negative from friends. positive from parents* (4.40%), *Negative from parents, positive from friends* (18.33%), *Neutral* (36.66%), and *Positive* (17.68%). Consistent with the theoretical hypothesis, the *Positive* profile exhibited the most positive ICT attitudes and the highest level of digital literacy, while the *Negative* profile displayed the opposite pattern. There were no significant differences in digital literacy between the *Negative* and *Negative from friends, positive from parents* profiles. However, the Social-emotional literacy scores of the *Negative from friends, positive from parents* were significantly lower than those of *Negative from parents, positive from friends* profile. These findings shed light on the distinctiveness and heterogeneity of significant others' ICT attitudes in shaping students' development of digital literacy.

Keywords： Digital literacy, ICT attitudes, Parents' ICT attitudes, Friends' ICT attitudes, Latent Profile Analysis

信息囤积与信息处理偏差的关系：信息过载、身份气泡强化和不确定性容忍度的作用

白旭青 [1,2]　连帅磊 [2,3]　孙晓军 [1,2]（通讯作者）

1 华中师范大学心理学院，武汉，430079，sunxiaojun@ccnu.edu.cn

2 青少年网络心理与行为教育部重点实验室，武汉，430079

3 长江大学教育与体育学院，荆州，434023

摘 要　在信息化的时代背景下，数字信息资源对个体的生存和发展有着重要的意义。不幸的是，越来越多的个体在保存数字信息资源时迷失，如：害怕错过、积累过多、犹豫是否删除不必要的数字信息资源。研究者将这种不断保存、杂乱堆积且难以删除数字信息资源的倾向称为信息囤积，并将其视为非适应性的信息使用行为。在规避风险动机的驱动下，大量研究探讨了信息囤积的影响因素和机制，却忽略了信息囤积对个体心理的影响，尤其是对信息加工的影响。信息存储载体发生的变化可能对个体的信息处理产生一系列的连锁反应。以往研究发现了个体信息处理的“谷歌效应”，即个体对存储地址的记忆对存储好于对存储内容本身的记忆。这表明基于数字设备的信息使用行为会对个体的信息处理产生影响。然而，在非适应性的信息使用行为和信息处理之间仍然存在研究空白。信息处理偏差已逐渐成研究者关注的焦点，其是指个体在信息选择过程中倾向于选择与自己观点一致的信息。信息处理偏差会导致个体做出错误的判断、加剧群体极化和羊群效应。因此，探讨信息囤积对信息处理偏差的影响至关重要。尽管许多间接证据表明信息囤积和信息处理偏差之间存在正相关，但信息囤积如何导致信息处理偏差以及是否存在边界条件仍不清

楚。根据信息生态系统理论，信息、信息环境和信息人会对个体的信息处理产生影响。其中，过载的信息、身份气泡强化的信息环境、不确定性容忍度的信息人可能成为信息囤积和信息处理偏差中的关键中介或调节因素。研究以 717 名大学生为被试，采用问卷法对相关变量进行测量。结果显示：（1）信息囤积与信息处理偏差之间显著正相关。（2）信息过载和身份气泡强化在信息囤积和信息处理偏差之间起中介作用。（3）不确定性容忍度调节了信息囤积和信息处理偏差、信息过载和信息处理偏差之间的关系。研究结果不仅有助于填补信息囤积对信息处理偏差影响的研究空白，还有助于引导个体合理利用信息资源并为个体信息处理偏差敲响警钟。

关键词　信息囤积，信息处理偏差，信息过载，身份气泡强化，不确定性容忍度

The relationship between information hoarding and information processing bias: The role of information overload, identity bubble reinforcement, and intolerance of uncertainty

Xuqing Bai[1,2], Shuailei Lian[2,3], Xiaojun Sun[1,2] (corresponding author)
1 School of Psychology, Central China Normal University, Wuhan, 430079
2 Key Laboratory of Adolescent Cyberpsychology and Behavior, Ministry of Education, Wuhan, 430079
3 College of Education and Sports Science, Yangtze University, Jingzhou Hubei, 434023

***Abstract*：** In the current information age, digital information resources have gained unprecedented significance for individuals. Unfortunately, more and more people are getting lost and losing control when it comes to saving digital information resources. They worry about missing out on digital information resources, accumulate an excessive number of similar resources, and are hesitant to delete unnecessary ones. Researchers refer to this phenomenon of continuously save, clutter and have difficulty deleting digital information resources as information hoarding, which is seen as a maladaptive information use behavior in the information age. Driven by risk-averse motives, numerous studies have examined influencing factors and mechanism of information hoarding. But few studies explore the impact of information hoarding on individual psychology, especially on individual information processing. What cannot be ignored is that in the information age, changes in information storage and use behaviors may bring about a series of chain reactions that affect individual information processing. Previous studies have found the "Google effect" of individual information processing, that is, individuals remember more about the address where the content is stored than the stored content. This indicates that the information storage and use behaviors based on digital devices has changed individual information processing. However, previous research pays less attention to the impact of maladaptive information use behavior on information processing. Information processing bias has gradually become a focal point among researchers, which refers that individuals tend to choose information that is consistent with their own views in the process of information selection. Information processing bias can lead to individuals making incorrect judgements, exacerbating group polarization and the herd effect. It is crucial to explore the influencing factors of information processing bias. Although much indirect evidence indicates a positive correlation between information hoarding and information processing bias, it remains unclear how information hoarding leads to information processing bias and for whom it applies. According to the information ecosystem theory, information, information environment, and informants can have an impact on an individual's information processing. Among them, information overload (information), identity bubble reinforcement (information environment), and intolerance of uncertainty (informants) may become key

mediators or moderators in information hoarding and information processing bias. Through the method of questionnaires, we measured and tested the proposed model in a sample of 717 validated participants. The findings showed that information hoarding was positively associated with information processing bias, that information overload and identity bubble reinforcement mediated this relationship, respectively. In addition, intolerance of uncertainty moderates the relationship between information hoarding and information processing bias, and information overload and information processing bias. These findings not only help to understand the mechanism of information hoarding on information processing bias, but also help to guide individuals to make rational use of information resources and sound the alarm for individual information processing bias.

Keywords **：** information hoarding, information processing bias, information overload, identity bubble reinforcement, intolerance of uncertainty

大学生手机成瘾与心理健康的关系：自尊与主观幸福感的链式中介作用

车翰博[1*]（通讯作者） 赵晓琪[1] 韩宠[2] 田静[3]

[1]辽宁师范大学教育学部，大连，116029，[*]通讯作者 E-mail:chbdhr@163.com

[2]鞍山师范学院教育与科学技术学院，鞍山，114000

[3]山西师范大学教育科学学院，太原，030000

摘 要 **目的：**大学生中普遍存在过度使用手机的现状。大学生过度使用手机会造成人际关系不良，产生孤独感和空虚感，影响大学生心理健康。因此本研究将探讨大学生手机成瘾对心理健康的影响机制，为大学生手机成瘾矫正及其抑郁、焦虑、压力和自身价值认识以及心理健康维护途径的探索提供科学依据。**方法：**本研究选取 912 名大学生，采用分层整群抽样法使用手机成瘾量表、自尊量表、主观幸福感量表和抑郁-焦虑-压力量表进行问卷调查，并对数据进行分析。有效被试手机成瘾总分为 58.05 士 15.34。手机成瘾者 92 人(10.08%),智能手机成瘾倾向者 210 人(23.03%),正常使用手机者人(66.89%)。各变量之间存在相关关系。基于此建立结构方程模型，**结果显示：**手机成瘾对抑郁、焦虑、压力的直接效应分别为 0.35、0.28、0.07，自尊对抑郁、焦虑、压力的直接效应分别为-0.32、-0.32、-0.12，主观幸福感对抑郁、焦虑、压力的直接效应分别为-0.25、-0.33、-2.70。自尊（β=-0.14,P<0.001）在大学生手机成瘾与抑郁之间存在中介作用；主观幸福感（β=-0.25,P<0.001）在大学生手机成瘾与抑郁之间存在中介作用；主观幸福感（β=-0.33,P<0.001）在大学生手机成瘾与压力之间存在中介作用；主观幸福感在（β=-0.33,P<0.001）大学生手机成瘾与压力之间存在中介作用；自尊与主观幸福感在大学生手机成瘾与抑郁、焦虑、压力之间存在链式中介作用。**建议：**为提高大学生心理健康水平，应从提高大学生自尊与主观幸福感入手，组织团体活动，提高学生自我认知水平，减少手机成瘾行为，实现学生的积极发展。

关键词 手机成瘾，心理健康，自尊，主观幸福感

The Relationship Between Mobile Phone Addiction and Mental Health among College Students: The Mediating Role of Self-esteem and Subjective Well-being

Che Hanbo [1*] (correspondent) Zhao Xiaoqi [1] Han Chong [2] Jing Tian [3]
[1] Department of Education, Liaoning Normal University, Dalian, 116029, * Corresponding author
E-mail: chbdhr@163.com
[2]School of Education and Science and Technology, Anshan Normal University, Anshan, 114000
[3] College of Education Science, Shanxi Normal University, Taiyuan, 030000

Abstract： Objective: Overuse of mobile phones is common among college students. Excessive use of mobile phones by college students will lead to bad interpersonal relationships, loneliness and emptiness, which will affect their mental health. Therefore, this study will explore the influence mechanism of mobile phone addiction on mental health of college students, and provide scientific basis for the correction of mobile phone addiction, depression, anxiety, stress, self-worth and the exploration of ways to maintain mental health. Methods: In this study, 912 college students were selected, and the stratified cluster sampling method was used to conduct a questionnaire survey with the Mobile Phone Addiction Scale, Self-esteem Scale, Subjective Well-being Scale and Depression-Anxiety-Stress Scale, and the data were analyzed. The total score of effective subjects with mobile phone addiction was 58.05 and 15.34. There are 92 mobile phone addicts (10.08%), 210 smartphone addicts (23.03%) and normal mobile phone users (66.89%). There is a correlation among the variables. Based on this, the structural equation model is established. The results show that the direct effects of cell phone addiction on depression, anxiety and stress are 0.35, 0.28 and 0.07 respectively, the direct effects of self-esteem on depression, anxiety and stress are -0.32, -0.32 and -0.12 respectively, and the direct effects of subjective well-being on depression, anxiety and stress are -0.25 and-0 respectively. Self-esteem (β=-0.14,P<0.001) mediates the relationship between cell phone addiction and depression. Subjective well-being (β=-0.25,P<0.001) mediates the relationship between mobile phone addiction and depression. Subjective well-being (β=-0.33,P<0.001) mediates the relationship between college students' cell phone addiction and stress. Subjective well-being plays an intermediary role between college students' cell phone addiction and stress (β=-0.33,P<0.001). Self-esteem and subjective well-being play a chain intermediary role between college students' mobile phone addiction and depression, anxiety and stress. Suggestions: In order to improve the mental health level of college students, we should start with improving their self-esteem and subjective well-being, organize group activities, improve their self-awareness level, reduce their addiction to mobile phones, and realize their positive development.

Keywords： Mobile phone addiction, Mental health, Self-esteem, Subjective well-being

数字反哺与老年人幸福感：主动使用社交媒体与社会隔离的中介作用

袁子惠 [1,2] 张雨芒 [1,2] 史晓涵 [1,2] 杨文城 [1,2] 金斯妤 [1,2] 牛更枫 [1,2,3]（通讯作者）
1 华中师范大学心理学院，武汉，430070
2 青少年网络心理与行为教育部重点实验室，武汉，430070
3 华中师范大学网络素养与行为研究中心，武汉，430070，niugfpsy@ccnu.edu.cn

摘 要 在当前社会，老龄化趋势日益加剧，由于面临身心功能衰退，老年人往往面临更多的健康和适应问题。当前信息社会，网络成为影响人们生活质量的重要因素，但老年人由于身体和认知能力的限制，他们在信息技术的使用上处于劣势，这会给其生活适应带来消极影响，降低老年人的幸福感。研究发现，代际互动能够提升老年人的自我价值感与幸福感，是促进积极老龄化的有效手段；家庭中自下而上技术传递有利于老年人弥合数字鸿沟。有学者将这种家庭中年轻世代在数字接入、使用和素养上对年长世代的教辅行为定义为数字反哺。但数字反哺对老年人幸福感的影响机制尚不清晰。基于此，本研究探讨了数字反哺与老年人幸福感的关系及其内在机制。研究采用数字反哺问卷、社交媒体主动使用问卷、社会隔离量表、幸福感量表对 544 位老年人（男性 216 人，女性 328 人）进行调查，结果发现：（1）数字反哺能显著正向影响老年人的幸福感；（3）社交媒体主动使用和社会隔离在其中的中介作用显著，且该中介作用包含了三条中介路径——社交媒体主动使用和社会隔离的单独中介作用，以及社交媒体主动使用和社会隔离的链式中介作用。

本研究基于归属需要理论，发现数字反哺与老年人的幸福感呈正相关。当老年人能够跨越技术障碍使用社交媒体，对于归属的需要会驱动着个体进行社会互动。而社交媒体主动使用产生的积极人际互动，满足了个体归属的需要，其产生的积极情绪能提升个体的幸福感。同时，数字反哺中产生的代际互动提供的联系感和归属感会降低老年人的社会隔离感促进老年人归属需要的满足，从而提升个体的幸福感。此外，社交媒体主动使用是一种主动的社会互动行为。而社会互动是建立和巩固的社会关系纽带的重要要素。而人际之间的互动能够满足个体对于社会接触与关系的需要，降低社会隔离。

本研究为深入揭示了数字反哺对幸福感的影响及其机制，并为网络时代提升老年人的幸福感，帮助老年人跨越数字鸿沟的干预措施提供了新视角和思路。

关键词 老年人，数字反哺，幸福感，社交媒体主动使用，社会隔离

Digital Feedback and Well-being among the elderly: The Mediating Role of Active Social Media Use and Social isolation

Zihui Yuan[1,2] Yumang Zhang[1,2] Xiaohan Shi[1,2] Wencheng Yang[1,2] Siyu Jin[1,2] Gengfeng Niu[1,2,3]

1 School of Psychology, Central China Normal University, Wuhan 430079, China

2 Key Laboratory of Adolescent Cyberpsychology and Behavior (CCNU), Ministry of Education, Wuhan 430079, China

3 Center for Research on Internet Literacy and Behavior, Central China Normal University, Wuhan 430079, China niugfpsy@mail.ccnu.edu.cn

Abstract：In society today, the trend of population aging is becoming more pronounced. Due to physical and mental decline, often experience more health and adaptation issues. In today's information society, the internet has become a significant factor impacting people's quality of life. However, due to physical and cognitive limitations, elderly people face disadvantages in using information technology, which negatively impacts their adaptation and reduces their well-being. Bottom-up technology transfer within families can help bridge the digital divide for elderly people. Scholars define this behavior, in which the younger generation assists the older generation in digital access, use, and literacy, as "digital feedback". However, the mechanism through which digital feedback affects the well-being of elderly people is not yet clear. This study explores the relationship between digital feedback and the well-being of elderly people, as well as its underlying mechanism. The research surveyed 544 elderly people (216 males, 328 females) using questionnaires on digital feedback, active social media use, social isolation, and well-being. The results showed that: (1) Digital feedback significantly and positively

influences the well-being of elderly people. (3) The mediating effects of active social media use and social isolation are significant, including separate mediating effects and chained mediating effects.

This study, based on the theory of the need to belong, finds a positive correlation between digital feedback and the well-being of elderly people. Overcoming technological barriers and using social media enables elderly people to engage in social interactions driven by the need for belongingness. The positive interpersonal interactions resulting from proactive use of social media satisfy the need to belong and enhance individual well-being. Additionally, the sense of connection and belonging fostered by intergenerational interaction in digital feedback can mitigate the social isolation experienced by elderly people, promote their satisfaction of the need to belong, and enhance individual well-being. Furthermore, active social media use involves active social interaction behavior. Interaction is crucial in establishing and strengthening social relationships. Interactions between individuals can fulfill the need for social contact and relationships, and alleviate social isolation.

This study reveals the profound influence of digital feedback on well-being and its mechanism, and offers new perspectives and approaches to enhance the well-being of elderly people in the digital age and bridge the digital divide.

Keywords：The elderly, Digital feedback, Well-being, Active social media use, Social isolation

不确定感对大学生网络利他行为的影响：疏离感和群体认同的作用

刘志青 刘玺玉 蔡若男 谢佳雯 郑显亮（通讯作者）

赣南师范大学教育科学学院，赣州，341000，zxl2004@sina.com

摘 要 随着信息技术的快速发展，网络已经成为人们生活中不可或缺的第二空间，因此研究者们越来越关注个体在网络上的心理机制和行为反应。网络利他行为是指个体在网络环境中表现出来的有利于他人和社会、且不期望得到任何回报的自觉自愿行为。但以往的研究多集中于积极因素对网络利他行为的影响，而较少关注个体消极因素对网络利他行为的影响,尤其是缺少不确定感等相关因素与网络利他行为的研究。因此，本研究基于风险和保护因素模型，以当代大学生为研究对象，通过 3 个实验考察不确定感对网络利他行为的影响及内在机制。实验 1 为单因素被试间实验设计，采用联想范式操纵个体不确定感并结合拟真情境测量其网络利他行为水平。实验 2 在实验 1 的基础上，考察疏离感在不确定感与网络利他行为间的中介作用。实验 3 为两因素被试间设计，采用最简群体分类范式和联想范式，操纵个体不确定感(高、低)和群体认同(高、低)，考察群体认同在其中所起的作用。研究结果表明：(1)高不确定感比低不确定感诱发了更少的网络利他行为；(2)高不确定感比低不确定感产生了更多的疏离感，疏离感在不确定感和网络利他行为之间起中介作用；(3)群体认同能调节不确定感对网络利他行为的影响，具体而言，高群体认同会削弱不确定感对网络利他行为的负向影响，而低群体认同者这种趋势并不明显。本研究从群体认同的视角揭示不确定感对网络利他行为的影响及其内在机制，表明处于自我同一性混乱的个体在高群体认同水平下能做出更多的适应性行为，为今后网络行为研究提供了相应的理论依据与实证支持。

关键词 不确定感，网络利他行为，疏离感，群体认同，大学生

The Effect of Uncertainty on Undergraduate's Internet Altruistic Behavior: The Role of Alienation and Group Identity

Liu Zhiqing, Liu Xiyu, Cai Ruonan, Xie Jiawen, Zheng Xianliang (Correspondence author)
School of Education and Science, Gannan Normal University, Ganzhou, 341000,
Email: zxl2004@sina.com

Abstract：With the rapid development of information technology, the Internet has become an indispensable second space in people's lives. Consequently, researchers are increasingly concerned about the psychological mechanisms and behavioral responses of individuals on the Internet. Internet altruistic behavior refers to conscious and voluntary helping behaviors exhibited by individuals online benefiting others without expecting anything in return. However, previous studies primarily focused on the influence of positive factors on Internet altruistic behavior, while giving less attention to the impact of individual negative factors on such behavior. Particularly, limited research conducted on the correlation between factors like uncertainty and Internet altruistic behavior. Therefore, this study aims to examine the effects of uncertainty on online altruistic behavior and its underlying mechanisms using a risk and protective factor model. Three experiments were conducted with contemporary college students as research subjects. Experiment 1 utilized a single factor between-subjects experimental design, manipulating individuals' uncertainty through an associative paradigm combined with a simulated situation to measure their level of Internet altruistic behavior. Based on Experiment 1, Experiment 2 explored the mediating role of alienation between uncertainty and Internet altruistic behavior. Finally, Experiment 3 employs a two-factor between-subjects design, manipulating individual uncertainty (high and low) and group identification (high and low) using a minimalist group categorization paradigm and an associative paradigm to examine the role of group identification. The findings suggest that: (1) high uncertainty induces less Internet altruistic behavior compared to low uncertainty; (2) high uncertainty could increase alienation, which mediates the relationship between uncertainty and Internet altruistic behavior; (3) group identity moderates the effect of uncertainty on online altruistic behavior. Specifically, high group identity mitigates the negative effect of uncertainty on online altruistic behavior, whereas this tendency is not observed among low group identifiers. This study reveals the influence of uncertainty on internet altruistic behavior and its internal mechanism from the perspective of group identity, showing that individuals in self-identity disruption can make more adaptive behaviors under high levels of group identity, which provides a corresponding theoretical basis and empirical support for future research on cyber-psychology.

Keywords：Uncertainty, Internet altruistic behavior, Alienation, Group identity, university student

网络警觉与大学生拖延的关系：心智游移和正念的链式中介作用

钟丹[1,2] 范艳蓉[1,2] 尹洁滢[1,2] 徐巾巾[1,2] 周宗奎[1,2]（通讯作者）

1 青少年网络心理与行为教育部重点实验室，武汉，430079

2 华中师范大学心理学院暨湖北省人的发展与心理健康重点实验室，武汉，400379，zhouzk@mail.ccnu.edu.cn

摘 要 随着移动互联网设备的不断发展，时空限制被打破，“永久在线、永久连接”（POPC）成为了可能。随 POPC 一同到来的，还有网络警觉。网络警觉指的是人们对网络内容时刻保持注意的心理状态，是一种心理上与网络的连接。身处网络随处可见的时代，网络警觉现象在人群中普遍存在。但是，目前仅有较少研究关注网络警觉及其影响后效。然而，网络警觉会占据人们的部分注意力，可能会对人们造成一些影响，其中，拖延行为可能是网络警觉对大学生产生的重要影响后效。而拖延不仅会阻碍大学生的学习，还会威胁其身心健康。因此，探讨网络警觉对大学生拖延的影响及其作用机制具有重要意义。本研究采用了网络警觉量表、简版一般拖延量表、简版正念注意觉知量表、心智游移量表对 855 名大学生进行了问卷

调查，探讨了网络警觉与大学生拖延的关系以及正念和心智游移在其中的链式中介作用。研究结果显示：（1）网络警觉能够显著正向预测大学生拖延；（2）心智游移能够在网络警觉与大学生拖延的关系中起到单独的中介作用；（3）正念能够在网络警觉与大学生拖延的关系中起到单独的中介作用；（4）心智游移和正念能够在网络警觉和大学生拖延间起链式中介作用。本研究揭示了网络警觉与大学生拖延的关系，还探讨了两者间的作用机制，这不仅拓展了网络警觉的相关研究，还为大学生拖延行为的有效预防和干预工作提供了一定的参考价值。

关键词　网络警觉，拖延，心智游移，正念，大学生

The effect of online vigilance on procrastination in college students: the chain mediating role of mind wandering and mindfulness

Zhong Dan[a b]　Fan Yanrong[a b]　Yin Jieying[a b]　Xu Jinjin[a b]　Zhou Zongkui[a b]

[a] Key Laboratory of Adolescent onlinepsychology and Behavior(CCNU), Ministry of Education, Wuhan 430079

[b] School of Psychology, Central China Normal University; Key Laboratory of Human Development and Mental Health of Hubei Province, Wuhan 430079

Abstract：With the continuous development of mobile Internet devices, time and space constraints have been broken, and "permanently online and permanently connected" (POPC) has become possible. Along with POPC came online vigilance. Online vigilance refers to the psychological state that people always pay attention to the network content, which is a psychological connection with the network. In an era where the Internet is everywhere, online vigilance is widespread among people. However, few studies have looked at online vigilance and its effects. However, online vigilance will occupy part of people's attention and may have some effects on people, among which, procrastination behavior may be an important aftereffect of online vigilance on college students. Procrastination will not only hinder college students' learning, but also threaten their physical and mental health. Therefore, it is of great significance to explore the influence of online vigilance on college students' procrastination and its mechanism. In this study, 855 college students were surveyed with the Online vigilance Scale, the Short General Procrastination Scale, the Short Mindfulness Attention Awareness Scale and the Mental Wandering Scale to explore the relationship between online alertness and procrastination of college students and the chain mediating role of mindfulness and mental wandering. The results show that: (1) Internet alertness can significantly positively predict college students' procrastination; (2) Mind wandering can play an independent mediating role in the relationship between online vigilance and procrastination of college students; (3) Mindfulness can play an independent mediating role in the relationship between online vigilance and procrastination of college students; (4) Mind wandering and mindfulness can play a chain mediating role between Internet alertness and procrastination of college students. This study reveals the relationship between online vigilance and procrastination of college students, and discusses the mechanism of action between the two, which not only expands the relevant research of online vigilance, but also provides a certain reference value for the effective prevention and intervention of college students' procrastination behavior.

Keywords：online vigilance, procrastination, mind wandering, mindfulness, college students

网络炫富信息接触与青少年攻击行为：妒忌的中介作用和贫富归因的调节作用

丁倩[1,2]　李明蔚[1]　张永欣[1]　李晓彤[1]　周宗奎[2*]（通讯作者）

1 信阳师范大学教育科学学院，信阳，464000

2 青少年网络心理与行为教育部重点实验室，武汉，430079，zhouzk@ccnu.edu.cn

摘 要　媒体信息接触对攻击行为的影响一直是一个热点研究问题，但现有的研究主要集中于暴力信息接触，对其他形式的媒体信息的作用知之甚少。由于财富不平等在世界各地日益加剧，网络炫富正成为一种普遍现象。网络炫富信息可能会影响青少年受众的心理与行为。本研究基于相对剥夺感理论，探讨了网络炫富信息接触对青少年攻击行为的影响，以及妒忌的中介作用和贫富归因的调节作用。采取方便抽样，在河南省、海南省的三个城市选择中学生 1483 名，被试平均年龄为 14.30 岁（标准差 = 1.54 岁）。被试在 15 分钟内完成了自编网络炫富信息接触问卷、妒忌量表、贫富归因问卷和青少年攻击行为量表。回归分析表明，在控制性别、年龄和主观社会阶层的条件下，网络炫富信息接触显著正向预测青少年攻击行为；妒忌在网络炫富信息接触与青少年攻击行为之间起中介作用；贫富归因调节该中介路径的前半段。具体来说，相对于低贫富外归因的青少年，该间接效应对高贫富外归因的青少年更加显著。本研究首次提出了网络炫富信息接触这一概念，并检验了网络炫富信息接触对青少年攻击行为的影响，为网络炫富信息接触影响青少年适应提供了实证依据。本研究的结果在一定程度上拓展了媒体信息接触影响攻击行为的现有结论，为未来研究提供了一些新的思考方向。

关键词　网络炫富信息暴露，妒忌，贫富归因，攻击

Exposure to flaunting wealth online and aggression in Chinese adolescents: Envy as mediator and attribution for the rich-poor gap as moderator

Ding Qian[1, 2], Li Mingwei[1], Zhang Yongxin[1], Li Xiaotong[1], Zhou Zongkui[2*]

1 School of Education Science, Xinyang Normal University, Xinyang 464000

2 Key laboratory of Adolescent Cyberpsychology and Behavior, Ministry of Education, Wuhan 430079

Abstract：The effect of media exposure on aggression has always been a trending issue, however, existing research mainly concentrated on violence exposure, little is known about other forms of media information. Since wealth inequality is increasing around the world, and flaunting wealth online is becoming a common phenomenon. Based on relative deprivation theory, this study explored the effect of exposure to flaunting wealth online on the aggression of teenagers, as well as the role of envy and attribution for the rich-poor gap. The sample consisted of 1483 adolescents with a mean age of 14.30 years (*SD* = 1.54). Participants completed anonymous questionnaires regarding exposure to flaunting wealth online, envy, attribution for the rich-poor gap, and aggression. Regression analysis in PROCESS indicated that, when controlling for gender, age and subjective social class, exposure to flaunting wealth online directly influenced aggression and also indirectly influenced aggression through the mediating effect of envy. Moreover, attribution for the rich-poor gap played a moderating role in the path of exposure to flaunting wealth online affecting envy. That is, the effect was more significant for adolescents high in

external attribution for the rich-poor gap relative to those low in external attribution. To the best of our knowledge, this study is the first to demonstrate empirical evidence for the adverse effects of exposure to flaunting wealth online. And, our findings add to extant understandings on new forms of media exposure that influence adolescent aggression.

Keywords：exposure to flaunting wealth online, envy, attribution for the rich-poor gap, aggression

基于解释性人工智能的心理健康问答感知有用性影响机制研究：精细可能性模型和数字化治疗联盟的理论视角

黄英辉[1] 董王昊[2] 周瑾宜[2] 王伟军[2]（通讯作者）

1 武汉理工大学管理学院 中国湖北省武汉市珞狮路 122 号 430070

2 华中师范大学心理学院，湖北省武汉市洪山区珞喻路 152 号，430079，wangwj@mail.ccnu.edu.cn

摘 要 近年来网络心理健康问答社区发展迅速，为公众提供了便捷、普惠且具有高度隐私保护的心理健康信息及服务。针对这种基于文本的异步心理健康问答服务的有效性和影响机制的研究尚且不足。本研究构建了一个心理健康问答情境下咨询师回答有效性的评估模型。首先，我们构建了包含 19682 条来访者求助及咨询师应答信息的问答数据集，以公众对咨询师回复的感知有用性作为咨询师问答质量的评价指标，采用适用于大规模问答文本分析的计算语言学和解释性人工智能（XAI）方法，建立咨询师回答感知有用性的可解释性预测模型；分析了求助者、咨询师及两者互动同步性三种来源的语言线索要素对回答的感知有用性的影响，并探讨了语言线索要素之间的交互效应。预测模型的性能评估结果显示，所构建的感知有用性预测模型的 RMSE 及 MAPE 值分别达到 0.8234、22.7288%。特征消融实验的结果表明，咨询师卷入度相关语言线索（回答的词数和响应时间）具有最大的预测力（R^2=0.1114），且情感联结、治疗任务一致性、治疗目标一致性等数字化治疗联盟相关语言线索能有效提高预测模型的效果。基于 SHAP 值（Shapley 可加性解释）的解释性分析结果表明，咨询师积极的情感表露、卷入度、治疗任务一致性及治疗目标一致性相关语言线索正向预测回答有效性。因果推断分析结果进一步显示，上述预测关系受到咨询师回答的词数和响应时间的显著影响。本研究利用了可解释性机器学习及因果推断方法，从精细可能性模型及数字化治疗联盟理论视角，解释并验证不同心理语言学线索在单次、异步网络心理健康问答效果的预测作用，发现了咨询师的卷入度及数字化治疗联盟相关语言线索对其回答质量的显著预测作用，验证了咨询师卷入度对数字化治疗联盟相关语言线索的异质性效应，为理解社会化问答情境下心理支持服务效果的影响机制，提高心理健康问答服务质量提供了理论和方法参考。

关键词 数字治疗联盟，精细可能性模型，解释性人工智能，心理健康问答，感知有用性

Research on the Mechanisms Influencing the Perceived Usefulness of Mental Health Q&A Based on XAI: An Integrated Perspective of Elaboration Likelihood Model and Digital Therapeutic Alliance

Yinghui Huang[1], Wanghao Dong[2], Jinyi Zhou[2], Weijun Wang[2](Corresponding author)

1 School of Management, Wuhan University of Technology, 122 Luoshi Road, Wuhan, Hubei Province, China, 430070

2 School of Psychology, Central China Normal University, 152 Luoyu Road, Hongshan District, Wuhan, Hubei Province, 430079
Corresponding author E-mail: wangwj@mail.ccnu.edu.cn

Abstract： The rapid development of online mental health Q&A communities provides the public with convenient, inclusive, and highly confidential mental health information and services. However, research on the effectiveness and mechanism of such text-based asynchronous mental health Q&A services is still inadequate. This study aims to construct a model to assess the effectiveness of counselors' responses in mental health Q&A scenarios. We compiled a Q&A dataset of 19,682 instances of helpseekers' inquiries and counselor responses, and used the perceived helpfulness of counselor responses as the evaluation for the quality of the counselor's response. We employed computational linguistics, machine learning, and causal inference methods suitable for large-scale Q&A text analysis to establish an interpretable predictive model for the perceived usefulness of counselors' responses. We analyzed the influences of help seekers, counselors, and the synchronicity of their interactions, as well as three types of language cues - Linguistic Inquiry and Word Count (LIWC), interaction synchronicity, and peripheral cues - on the perceived usefulness of the responses, and explored the interactive effects among these language cues. The performance of our predictive model showed that the Root Mean Square Error (RMSE) and Mean Absolute Percentage Error (MAPE) of the constructed perceived usefulness predictive model were 0.8234 and 22.7288% respectively. The results of the feature ablation indicated that the language cues related to counselor involvement had the greatest predictive power（R^2=0.1114）, and the language cues related to emotional connection, therapeutic task consistency, and therapeutic goal consistency associated with the digital therapeutic alliance could effectively improve the effectiveness of the predictive model. The analysis results based on Shapley Additive Explanations (SHAP) values further demonstrated a positive prediction of answer effectiveness by the language cues related to counselor involvement and emotional connection, therapeutic task consistency, and therapeutic goal consistency. Causal inference analysis results showed that the aforementioned predictive relationships are significantly influenced by the counselor's word count and response time difference. This research leverages explainable artificial intelligence methods to interpret and validate the predictive roles of various psycholinguistic cues in single-instance, asynchronous online mental health Q&A, from the perspectives of elaboration likelihood model and digital therapeutic alliance theory. It has found the significant predictive roles of counselor involvement and digital therapeutic alliance-related language cues on the Q&A quality, verified the heterogeneous effects of counselor involvement on digital therapeutic alliance-related language cues, providing theoretical and methodological references for understanding the mechanisms of influence on the effectiveness of psychological support services in social Q&A scenarios and improving the quality of mental health Q&A services.

Keywords： Digital Therapeutic Alliance, Elaboration Likelihood Model, Explainable Artificial Intelligence, Mental Health Q&A, Perceived Usefulness

小学生短视频观看及其影响的潜在转变分析：一项纵向研究

石晶晶[1,2,3]　刘勤学[1,2,3]（通讯作者）
1 青少年网络心理与行为教育部重点实验室，武汉，430079
2 华中师范大学心理学院，武汉，430079
3 人的发展与心理健康湖北省重点实验室，武汉，430079，qinxueliu@ccnu.edu.cn

摘 要　在当今短视频浪潮中，认知发展尚不完善的小学生比较容易接触到大量短视频并受其影响。

与更新换代较快的网络热词具有异曲同工之处，由于短视频简短且多样化、浓缩且碎片化和吸引力强的特点，小学生观看短视频的模式也可能随之发生转变，探究这一转变对于小学生的成长发展具有深刻价值。为了探讨我国小学生短视频观看模式、转变特点及其影响。本研究通过基于以个体为中心的潜在转变分析方法，采用基于内容的短视频曝光量表等工具对 2820 名 4 至 6 年级小学生进行间隔一年的两时间点追踪施测。主要结果如下：（1）小学生短视频观看可以分成三种类别：高短视频观看、亲社会短视频观看和低短视频观看。（2）小学生短视频观看类别在不同类别中的稳定程度和转变模式不同。近七成的高观看类别和亲社会短视频观看类别保持稳定，而仅有二成的低观看类别保持稳定。从 T1 到 T2，低观看类别呈现出两种转变模式，近五成向亲社会类别转变，近三成向高观看类别转变。此外，从 T1 到 T2，近三成的高观看类别和亲社会类别相互转变。（3）小学生短视频观看对认知、学业和心理健康发展具有持续稳定影响。高短视频观看类别最不利于小学生的认知、学业和心理健康发展，亲社会短视频观看类别最有利于小学生的成长发展。本研究为教育工作者如何正确对待短视频在儿童成长中扮演的角色提供了进一步启示，并为未来有效预防和干预奠定了实证基础，总的来说，在儿童短视频观看行为的发展转变中，教育工作者要格外关注低短视频观看类别，督促儿童把握好方向。

关键词　小学生，短视频观看,心理健康，影响后效，潜在转变分析

Latent Transition Analysis of Short Video Viewing and effects among Chinese Primary School Students: A Longitudinal Study

Jingjing Shi[1,2,3,], Qinxue Liu[1,2,3,*]

1 Key Laboratory of Adolescent Cyberpsychology and Behavior (CCNU), Ministry of Education, Wuhan 430079, China

2 School of Psychology, Central China Normal University, Wuhan 430079, China

3 Key Laboratory of Human Development and Mental Health of Hubei Province, Wuhan 430079, China

Abstract：In today's wave of short videos, primary school students with incomplete cognitive development are more likely to be exposed to and influenced by a large number of short videos. It is similar to the online hot words that have been updated quickly. Because of the characteristics of short videos, which are fragmented but condensed content, and short but diversified experience, and attractive, the mode of primary school students viewing short videos may also change. It is of profound value to explore this change for the growth and development of primary school students. In order to explore the short video viewing patterns, transformation characteristics and influence of primary school students in China. In this study, based on the personal-centered latent transition analysis, 2,820 primary school students from grade 4 to grade 6 were tested at two time points separated by one year by using content-based short video exposure scale and other measurements. The main results are as follows: (1) Primary school students' short video viewing can be divided into three classes: high short video viewing, prosocial short video viewing and low short video viewing. (2) Primary school students' short video viewing classes have different stability and transition patterns in different classes. Nearly 70% of the high viewing class and prosocial short video viewing class remain stable, while only 20% of the low viewing classes remain stable. From T1 to T2, the low viewing class showed two different transformation patterns, nearly 50% turned to the prosocial viewing class, and nearly 30% turned to the high viewing class. In addition, from T1 to T2, nearly 30% of the high viewing class and prosocial class changed with each other. (3) Primary school students' short video viewing has a sustained and stable influence on the development of cognitive, academic and mental health. The high short video viewing class is the most unfavorable to the cognitive, academic and mental health

development of primary school students, while the prosocial viewing class is the most beneficial to the growth and development of primary school students. This study provides further enlightenment for educators on how to correctly treat the role of short videos in children's growth, and lays an empirical foundation for effective prevention and intervention in the future. Generally speaking, in the development and transformation of children's short video viewing behaviors, educators should pay special attention to the low short video viewing class and help children to control the direction.

Keywords：Primary school students, short video viewing, mental health, effects, latent transition analysis

经过提示的 ChatGPT 能否实现有效的情感支持？基于机器学习的探索性研究

董王昊[1] 黄英辉[2] 周瑾宜[1] 王伟军[1]（通讯作者）
1 华中师范大学心理学院，湖北省武汉市洪山区珞喻路 152 号，430079，wangwj@mail.ccnu.edu.cn
2 武汉理工大学管理学院 湖北省武汉市洪山区珞狮路 122 号 430070

摘 要 情感支持(Emotional Support)旨在减少情感困扰，帮助求助者理解并克服所面临的挑战。人工智能能否为人类提供情感支持，是长久以来备受关注的话题。ChatGPT 是当前最具影响力的生成式人工智能，其突出的语言输出能力和前后文结合能力使得 AI 情感支持成为可能。本研究以 ChatGPT 为对象，通过设定专门的提示策略，发掘与验证其在情感支持中的能力。**研究一**：聚焦心理健康问答情景，目的在于探讨 ChatGPT 在单轮对话中的情感支持能力。基于由 10903 提问和 19682 回答组成的数据集，构建心理健康问答感知有用性的预测模型；通过特征敏感性分析及解释性机器学习方法，建立感知有用性的解释性模型，以识别影响感知有用性的关键性性语言线索及其影响方式，进而制定提示策略；然后采用统计分析方法比较提示之后的 ChatGPT 与人类咨询师在心理健康问答中的感知有用性。结果显示：在严重风险和中度风险问题上，提示后的 ChatGPT 达到了"人类咨询师"的平均水平（$p > 0.05$）；而对于低风险和无风险问题，提示后的 ChatGPT 已经超过了"人类咨询师"的平均水平（6.80%和 4.63%, $p < 0.001$）。**研究二**：聚焦基于文本的线上咨询情景，目的在于探讨 ChatGPT 在多轮对话中的情感支持能力。以一个公开发表的，经过人工标注的，包含 1300 个案例的情感支持会话数据集为研究材料。利用基于深度学习的自然语言处理模型（BERT-Integrated Attention LSTM Model，BIALM），建立会话策略预测模型和情绪强度预测模型。前者可对 ChatGPT 进行针对性会话策略提示，后者可用以评估 ChatGPT 会话的有效性。然后对提示后的 ChatGPT 和人类专家的情感会话有效性进行分析比较。结果发现：经过会话策略提示的 ChatGPT 的表现显著高于人类咨询师的平均水平（13.25%, $p < 0.001$）。最后，还对 ChatGPT 在不同问题类型上的表现进行了对比与探讨，并指明了存在的不足以及未来展望。总体上，本研究以计算社会科学为导向，初步证实了 ChatGPT 的情感支持能力，为 AI 在心理健康领域的运用提供了有力支持。

关键词 情感支持，人工智能，ChatGPT，提示工程，机器学习

Can Prompted ChatGPT Enable Effective Emotional Support? An Exploratory Study Based On Machine Learning

Wanghao Dong[1], Yinghui Huang[2], Jinyi Zhou[1], Weijun Wang[1](Corresponding author)
1 School of Psychology, Central China Normal University, 152 Luoyu Road, Hongshan District, Wuhan, Hubei Province, 430079

2 School of Management, Wuhan University of Technology, 122 Luoshi Road, Wuhan, Hubei Province, China, 430070
Corresponding author E-mail: wangwj@mail.ccnu.edu.cn

Abstract: Emotional support aims to alleviate emotional distress and assist individuals in understanding and overcoming the challenges they face. Whether artificial intelligence can provide emotional support to humans has been a long-standing and widely debated topic. ChatGPT, the most influential generative AI model, possesses remarkable language output and context comprehension capabilities, making AI emotional support feasible. The current research focuses on ChatGPT and employs specially designed prompt strategies to explore and validate its ability to provide emotional support. Study 1: Focusing on the context of mental health Q&A, aims to explore the emotional support capabilities of ChatGPT in single-turn dialogues. A predictive model for perceived usefulness is constructed based on datasets comprising 10,903 questions and 19,682 answers. Feature sensitivity analysis and explainable machine learning (XML) methods are employed to establish an interpretable model for perceived usefulness. This model identifies key linguistic cues and their impact on perceived usefulness, enabling the formulation of prompt strategies. Afterward, statistical analysis was employed to compare the perceived usefulness of prompted ChatGPT with that of human counselors. The results indicate that for high- and moderate-risk questions, prompted ChatGPT reaches the average level of "human counselors" ($p > 0.05$). However, for low- and no-risk questions, prompted ChatGPT even surpasses the average level of "human counselors" (6.80% and 4.63%, $p < 0.001$) in terms of perceived usefulness. Study 2: Focusing on the context of text-based online counseling, aims to explore the emotional support capabilities of ChatGPT in multi-turn dialogues. The research material consists of publicly available, manually annotated emotional support conversation datasets containing 1300 cases. Using a deep learning-based natural language processing model (BERT-Integrated Attention LSTM Model, BIALM), we establish two predictive models: a session strategy prediction model and an emotion intensity prediction model. The former is utilized to provide targeted session strategy prompts to ChatGPT, while the latter is employed to evaluate the effectiveness of ChatGPT's sessions. Subsequently, an analysis and comparison are performed on the emotional conversation effectiveness of prompted ChatGPT and human counselors. The results indicated that prompted ChatGPT's performance significantly surpasses the average level of human counselors (13.25%, $p < 0.001$) regarding emotional conversation effectiveness. Finally, the performance of ChatGPT on different question types is also compared and discussed, and deficiencies as well as future perspectives are indicated. Overall, driven by computational social science, our study has provided preliminary evidence of ChatGPT's emotional support capabilities, offering substantial support for the application of AI in the field of mental health.

Keywords: Emotional Support, Artificial Intelligence, ChatGPT, Prompt Engineering, Machine Learning

亲子的手机干扰感知差异对儿童手机成瘾的影响：以人为中心的视角

宋君瑶 [1,2,3]　刘勤学 [1,2,3]（通讯作者）
1 青少年网络心理与行为教育部重点实验室，武汉，430079
2 华中师范大学心理学院，武汉，430079
3 人的发展与心理健康湖北省重点实验室，武汉，430079，qinxueliu@ccnu.edu.cn

摘 要　随着数字技术深入人们的日常生活，儿童的行为塑造和发展等受到了信息技术环境的广泛而深刻的影响。从社会生态学的视角来看，家庭因素如父母自身的手机使用行为等会直接影响儿童对电子设备和网络技术的态度与行为。然而已有研究发现，父母和孩子对这类行为及其影响产生的主观感知并不相

同。因此为了探讨家长和儿童在亲子互动中手机干扰的感知差异性以及这种差异性可能带来的影响，本研究采用了潜在剖面分析方法，将 878 对（$N_{男}$=449，占比 51.1%；M_{age}=9.99 岁，SD_{age}=0.77）亲子所报告的亲子互动中的手机干扰作为整体进行分类，并且比较了不同类型的感知差异组与儿童手机成瘾的关系。研究结果发现：1）亲子感知到的手机干扰组合存在四种潜在类别：家长高估组（家长感知水平高，孩子感知水平较低；28.7%）、家长低估组（家长感知水平低，孩子感知水平较高；11.0%）、低手机干扰组（亲子感知水平均较低；51.2%）、高手机干扰组（亲子感知水平均较高；9.2%）；2）不同组别的儿童手机成瘾水平存在显著性差异，高手机干扰组的儿童在当时以及一年后的手机成瘾水平最高，家长低估组的儿童手机成瘾水平显著高于低科技干扰组，而家长高估组和低手机干扰组在两年的手机成瘾水平测验中均无显著性差异。结果表明，亲子互动中的手机干扰感知差异会影响儿童手机成瘾水平。本研究采用以人为中心的视角，运用潜在剖面分析方法探究了亲子间手机干扰感知差异的潜在类别，为手机干扰领域拓展新的研究内容；同时本研究验证了手机干扰感知差异对儿童手机成瘾的影响，为维护未成年人健康使用手机提供了家庭层面的教育启示。

关键词　亲子间的手机干扰，感知差异，潜在剖面分析，手机成瘾

The influence of parent-child perception of mobile phone interference on children's mobile phone addiction: Insights from the Person-Centered Approach

Junyao Song[1,2,3,] Qinxue Liu [1,2,3,*]

1 Key Laboratory of Adolescent Cyberpsychology and Behavior (CCNU), Ministry of Education, Wuhan 430079, China

2 School of Psychology, Central China Normal University, Wuhan 430079, China

3 Key Laboratory of Human Development and Mental Health of Hubei Province, Wuhan 430079, China

Abstract：As digital technology seeps into our daily lives, children's shaping behavior and development are widely and profoundly affected by the information-technology environment. According to social ecology, family elements such as parents' smartphone using behavior will directly affect children's attitudes and behaviors towards electronic devices and Internet technology. However, a substantial body of previous work has shown that there has a big different perceptions of such behaviors and its effects between parents and children have perceived. So we gathered a couple of 878 children-parent data (N_{boy}=449, 51.1%, M_{age}=9.99, SD_{age}=0.77) to investigated the parents-child perception difference of smartphone interference in interaction and the subsequent effects.The latent profile analysis was used for data analysis.

Results indicated that: 1) Latent profile analysis revealed 4 profiles of perceptional discrepancy. Profile 1, Parental overestimation group (parents reported higher level of Parent-child smartphone interference while child reported the lower level ） representing 28.7% of samples; Profile 2, Parental underestimation group (parents reported lower level of Parent-child smartphone interference while child reported the higher level ） representing 11.1% of samples; Profile 3, Low-interference group (both parents and child reported low level of Parent-child smartphone interference ） representing 51.2% of samples; Profile 4, High-interference group (both parents and child reported high level of Parent-child smartphone interference ） representing 9.2% of sample. 2)There were significant differences in the level of mobile phone addiction among different groups. Children in the High-interference group had the highest level of mobile phone addiction at that time and one year later; Children

in the Parental underestimate group reported a significantly higher level of mobile phone addiction than those in Low-interference group, while there was no difference between the Parental overestimation group and the Low-interference group in the two-year mobile phone addiction level test.

From the insights of the Person-Centered Approach, we explored profiles of perceptional discrepancy in parent-child smartphone interference by using latent profile analysis, which expanded new research content in the field of mobile phone interference. At the same time, this study focused on the influence of perceptional discrepancy in parent-child smartphone interference on children's mobile phone addiction, and provided a family-level education enlightenment for the maintenance of children's healthy use of mobile phones.

Keywords：Parent-child smartphone interference, Perceptional discrepancy, Latent profile analysis, Mobile phone addition

通用人工智能理论支持下抑郁症的心理学标记物识别

刘凯

渤海大学大学教育科学学院，锦州，121003，ccnulk@ccnu.edu.cn

摘 要　抑郁症病因始终是精神医学界和心理咨询界的共同关注重点和难点，但抑郁症的病理学机制至今不明，成为提升社会福祉的巨大挑战。作为人工智能领域近年迅速崛起的一支新生力量，通用人工智能（AGI）将人的大脑视为物理世界与主观精神世界影响的偶合体，认为生理和精神两个层面都存在诱发精神障碍症状的理论可能性。意味着也可能存在心理学标志物：在心理健康层面，精神问题的行为学症状表现也许与个体不良经验所构成的心理拓扑结构有关，从而衍生出某种特异性的稳定抽象结构。因此，假设抑郁个体主观精神世界中存在由其负性经验构成的心理拓扑结构——负性事件内联网络结构（即所谓“心结”），认为这是抑郁的心理病理学层面的关键致病因素。

本研究以抑郁症心理学病因探索为科学问题，以挖掘负性事件内联结构及其与抑郁程度的关系为目标。结合复杂网络分析方法，自编和开发负性事件内联结构测量问卷及移动程序后：首先，进行预实验，对程序的可使用性进行初步检验，并且初步提取内联结构要素。在此基础上，对负性事件内联结构理论假设和测量程序进行进一步完善。继而，进行抑郁与负性事件内联结构测量，并将实验组抑郁被试与对照组非抑郁被试的负性事件内联结构要素进行比较分析。最后，对抑郁的连续发展特征进行研究。

得到如下结论：

（1）负性事件内联结构 9 个关键指标析取成功，每个指标在非抑郁组与抑郁组均差异显著。

（2）最长闭合环代表指标，可作为一种心理学标志物预测抑郁发生。

（3）负性事件内联结构要素在连续不同严重程度抑郁组别间的差异，尽管并未全部达到统计显著，却初步印证了抑郁强度具有从“正常”到“疾病”更为宽广的的连续谱发展态势。

总体而言，当前心理健康问题需要重视，本研究发现不仅为抑郁的心理学标志物探索提供初步的测量与量化标准，也能为抑郁症的病理学研究提供新的理论思路及新的心理学诊断手段。

关键词　心理学标志物，复杂网络，负性事件，内联结构，抑郁症，连续谱，通用人工智能

Identification of Psychological Markers for Depression Supported by General Artificial Intelligence Theory

Liu Kai

Department of Educational Science, Bohai University, Jingzhou 121013, China

***Abstract*：** The etiology of depression has long been a major concern and challenge in the fields of psychiatry and psychological counseling. Despite ongoing research, the underlying pathophysiology of depression remains unclear, presenting a significant obstacle to improving social welfare. In recent years, Artificial General Intelligence (AGI) has emerged as a rapidly growing force in the field of artificial intelligence. AGI views the human brain as a coupling between the physical world and the subjective spiritual world, suggesting that there may be a theoretical possibility of inducing mental disorder symptoms at both physiological and psychological levels. This implies that there may also be psychological markers for depression: at the level of mental health, behavioral symptoms of mental problems may be related to an individual's psychological topological structure, which is formed by their negative experiences. This structure may give rise to specific, stable abstract structures.

It is hypothesized that depressed individuals have a psychological topological structure in their subjective spiritual world that is composed of negative experiences - referred to as the negative event internal network structure or "knots" - which is considered to be a key pathogenic factor at the psychological level of depression. This study aims to explore the relationship between negative event internal linkage structures and depression levels, with the goal of shedding light on the psychological etiology of depression. Using complex network analysis methods and self-developed measurement questionnaires and mobile programs for negative event internal linkage structures, the study first conducted pre-experiments to test the usability of the program and extract internal linkage structure elements. Based on these results, the theoretical hypothesis and measurement program for negative event internal linkage structures were further refined. Depression and negative event internal linkage structures were then measured and compared between depressed subjects in the experimental group and non-depressed subjects in the control group. Finally, the continuous development characteristics of depression were studied.

The study yielded several key findings: (1) Nine key indicators of negative event internal linkage structures were successfully analyzed, with each indicator showing significant differences between non-depressed and depressed groups. (2) The longest closed loop representative indicator can serve as a psychological marker for predicting the onset of depression. (3) While not all differences between elements of negative event internal linkage structures in continuous groups with varying severity levels of depression reached statistical significance, initial results suggest that depression intensity follows a broader continuous spectrum development trend from "normal" to "disease".

In conclusion, addressing current mental health issues is of utmost importance. The findings of this study provide not only preliminary measurement and quantification standards for exploring psychological markers for depression but also offer new theoretical insights and diagnostic tools for pathological research on depression.

***Keywords*：** psychomarker, complex network analysis, negative events, inner structure, depression, artificial general intelligence

3.13 "情绪与健康心理学专业委员会"专题研讨会

内感受与情绪加工的关联

魏高峡[1,2]（通讯作者） 沈浩冉[1,2] 何亚平[1,2] 盖力锟[1,2]

1 中国科学院心理研究所行为科学重点实验室，北京，100101

2 中国科学院大学心理学系，北京，100101

通讯作者：魏高峡 E-mail: weigx@psych.ac.cn

摘 要　近年来，内感受成为心理健康和精神健康领域的前沿研究方向。最近的具身认知理论同时也提出，情绪感知和情绪决策涉及到与情绪相关的对躯体内脏的感知和运动经验的重新唤起。因此，内感受作为大脑对自身身体的重要觉知过程，被认为能够直接影响情绪加工。另一方面，从临床实践上看，越来越多的临床证据标明，患有抑郁、焦虑、创伤后应激障碍、物质成瘾以及精神类疾病的个体出现情绪体验与加工异常的同时，往往伴随着内感受能力的受损。常用的抗抑郁药物被发现具有特异性的内感受调控的效果。诸多心理治疗技术，比如惊恐性障碍的内感受暴露疗法和正念训练均能直接影响内感受信息加工。以内感受为靶向目标的干预技术正成为心理疾病治疗的全新探索路径。

我们在研究一选取 40 名具有高、低述情障碍分数精神分裂症患者，采用基于心跳周期的情绪识别任务，探讨情绪识别是否为内感受影响述情障碍核心心理机制。研究二中，我们通过大样本的问卷调查，分别探究在成瘾人群、普通健康人群中内感受与情绪调节的关联。

研究一的结果发现，情绪识别在内感受影响述情障碍之间起到中介作用，内感受能力受损导致患者情绪识别能力出现缺陷，进一步导致述情障碍发生。研究二发现，药物成瘾者（n = 623）的内感受意识水平与情绪调节困难水平显著负相关(r = -0.122, p = 0.002)；在一较大样本的健康群体中(n = 1500)，内感受意识（MAIA）与认知重评得分显著正相关(r = 0.574, p < 0.001),在另一样本健康人群中(n = 553)，我们同样验证了，情绪调节（CERQ）与内感受能力的显著正相关（MAIA: r = 0.344, p < 0.001; BPQ: r = 0.481, p < 0.001）。这些结果证实了内感受与情绪加工之间的关系，同时也为未来以内感受为靶向目标的干预技术提供了依据。

关键词　内感受，情绪识别，情绪调节，情绪加工

The relationship between interoception and emotional processing

Wei Gao-Xia[1,2] Shen Haoran[1,2] He Yaping[1,2] Ge Li-Kun[1,2]

1 CAS Key Laboratory of Behavioral Science, Institute of Psychology, Beijing, 100101

2 Department of Psychology, University of Chinese Academy of Sciences, Beijing, 100101

Abstract：In recent years, interoception has emerged as a cutting-edge research direction in the fields of psychological and mental health. The recent theory of embodied cognition has also proposed that emotion perception and emotional decision-making involve the reactivation of emotion-related perceptions of visceral sensations and motor experiences. Therefore, as an important self-awareness process of the brain regarding one's own body, interoception is believed to directly influence emotional processing. On the other hand, from a clinical perspective, increasing clinical evidence indicates that individuals suffering from depression, anxiety, post-traumatic stress disorder, substance addiction, and other mental disorders often experience abnormal emotional experiences and processing, accompanied by impaired interoceptive abilities. Commonly used antidepressant drugs have been found to have specific effects on interoceptive regulation. Various psychological therapies, such as interoceptive exposure therapy for panic disorders and mindfulness training, can directly affect the processing of interoceptive information. Interventions targeting interoception are becoming a novel exploration path in the treatment of psychological disorders.

In our first study, we selected 40 schizophrenic patients with high and low levels of alexithymia scores and used a heartbeat-based emotion recognition task to investigate whether emotion recognition serves as a core psychological mechanism affected by interoception in alexithymia. In the second study, we conducted a large-scale questionnaire survey to explore the association between interoception and emotion regulation in both addiction and general healthy populations.

The results of the first study revealed that emotion recognition plays a mediating role in the relationship

between interoception and alexithymia. Impaired interoceptive ability led to deficient emotion recognition, which further contributed to the development of alexithymia. In the second study, we found a significant negative correlation between interoceptive awareness and emotion regulation difficulties in drug addicts (n = 623) (r = -0.122, p = 0.002). In a large sample of healthy individuals (n = 1500), we observed a significant positive correlation between interoceptive awareness (MAIA) and cognitive reappraisal scores (r = 0.574, p < 0.001). In another sample of healthy participants (n = 553), we similarly confirmed a significant positive correlation between emotion regulation (CERQ) and interoceptive abilities (MAIA: r = 0.344, p < 0.001; BPQ: r = 0.481, p < 0.001). These findings confirm the relationship between interoception and emotional processing while providing a basis for future interventions targeting interoception.

Keywords：interoception, emotion recognition, emotion regulation, emotion processing

内感受的测量及其与情绪健康的关系

闫俊利[1]　张雨晴[1]　吴琼[1]（通讯作者）

1 首都师范大学，北京，100048，qwu@cnu.edu.cn

摘 要　内感受(interoception)是指神经系统（中枢和外周）对身体内部信号（如心跳、呼吸、内脏等）的加工。内感受和情绪加工、感知以及调节之间的关系密切，内感受加工缺陷可能会导致包括焦虑抑郁等情绪问题的发生。已有研究表明，内感受意识可以预测特质焦虑，较高的抑郁水平对应较差的心跳内感受能力，具有良好内感受准确性的个体通常更易调节负性情绪。Wu et al.(2021)提出正念训练可以通过增强个体内感受注意有效降低负性情绪水平，因此对内感受的训练和干预有助于我们缓解负性情绪，并提升心理健康。

Garfinkel 内感受三维模型将内感受分为内感受准确性、内感受敏感性和内感受意识三个维度。本研究基于该模型比较呼吸内感受和心跳内感受在各维度内及维度间的关系，进而分析它们在预测负性情绪中的作用，其中，内感受准确性通过呼吸延迟探测任务(breath-delay detection task, BDT)和心跳探测任务(heartbeat detection task, HDT)来客观测量，BDT 要求个体分辨呈现的呼吸曲线与自身真实呼吸节律相比是否同步，HDT 要求个体分辨跳动圆圈与自身真实心跳频率相比是否同步，内感受敏感性通过自信心评分以及内感受准确度量表(IAS)、内感受注意量表(IATS)和身体知觉问卷中的身体觉察子量表(BPQ-A)三个量表进行测量，内感受意识通过信号检测论来计算内感受准确性和信心评分之间对应关系来量化。情绪健康的指标使用状态特质焦虑量表(STAI)，贝克抑郁自评量表(BDI-13)和正性负性情绪量表(PANAS)。本研究假设：1）BDT 在内感受三维度以及维度间关系上的表现均优于 HDT；2）相较于心跳内感受，呼吸内感受能够更好地预测负性情绪。

主要研究结果如下：1）BDT 三维度间存在显著的相关关系，其内感受敏感性、内感受意识维度均可预测内感受准确性，HDT 则不存在这样的对应关系；2）相较于心跳内感受，呼吸内感受能够更好地预测负性情绪，其中对焦虑情绪的预测效果最佳。这些结果表明 BDT 能够有效而可靠的客观测量内感受加工，并且能够较好的预测负性情绪，这为进一步阐明不同内感受通道与情绪或精神疾病之间的关系奠定基础，同时也为回答内感受与情绪之间的相互作用机制提供可能。

关键词　内感受，呼吸，心跳，焦虑，抑郁

Measurement of Interoception and Its Relationship with Emotional Well-being

Junli Yan[1] Qingyu Zhang[1]. Qiong Wu[1]
1 School of Psychology, Capital Normal University

Abstract：Interoception refers to the processing of internal bodily signals (such as heartbeat, breathing, and visceral sensations) by the central and peripheral nervous systems. There is a close relationship between interoception and the processing, perception, and regulation of emotions. Deficits in interoceptive processing may contribute to the occurrence of emotional problems, including anxiety and depression. Existing research indicates that interoceptive awareness can predict trait anxiety, and higher levels of depression are associated with poorer heartbeat interoceptive abilities. Individuals with better interoceptive accuracy are generally more adept at regulating negative emotions. Wu et al. (2021) proposed that mindfulness training can effectively reduce levels of negative emotions by enhancing individual attention to interoception. Therefore, training and interventions targeting interoception can help alleviate negative emotions and improve psychological well-being.

Garfinkel's three-dimensional model of interoception categorizes interoception into three dimensions: interoceptive accuracy, interoceptive sensitivity, and interoceptive awareness. This research study was based on this model and aimed to compare the relationships between breath-related interoception and heartbeat-related interoception within each dimension and between the dimensions. Additionally, the study sought to analyze their roles in predicting negative emotions. To objectively measure interoceptive accuracy, the study used the Breath-Delay Detection Task (BDT) and the Heartbeat Detection Task (HDT). In the BDT, individuals were asked to discern whether the presented breathing curves were synchronous with their actual breathing rhythm. In the HDT, individuals were asked to discern whether the displayed pulsating circles were synchronous with their actual heartbeat frequency. Interoceptive sensitivity was measured by confidence ratings, the Interoceptive Accuracy Scale (IAS), the Interoceptive Awareness Attention Scale (IATS), and the Body Perception Questionnaire (BPQ-A). Interoceptive awareness was quantified using signal detection theory to calculate the correspondence between interoceptive accuracy and confidence ratings. The indicators of emotional well-being used in the study were the State-Trait Anxiety Inventory (STAI), the Beck Depression Inventory-13 (BDI-13), and the Positive and Negative Affect Schedule (PANAS). The research hypotheses are as follows: 1) BDT will outperform HDT in terms of performance within each of the three dimensions of interoception and in their relationships between dimensions. 2) Compared to heartbeat-related interoception, breath-related interoception will better predict negative emotions.

The main findings of the research are as follows: 1) There were significant correlations between the three dimensions of the BDT. Both interoceptive sensitivity and interoceptive awareness dimensions could predict interoceptive accuracy. However, such corresponding relationships did not exist in the HDT. 2) Compared to heartbeat interoception, breath interoception was more effective in predicting negative emotions, with the best predictive effect seen for anxiety emotions. These results suggest that BDT is a reliable and effective objective measure of interoceptive processing. Moreover, it could better predict negative emotions, particularly anxiety. These findings laid the foundation for further understanding the relationships between different interoceptive domains and emotions or mental disorders. They also offer potential insights into the mechanisms of interaction between interoception and emotions.

Keywords：Interoception, Breathing, Heartbeat, Anxiety, Depression

心脑活动的双向交互-基于脑磁图的研究

张剑锋[1]，张艺卉[2]，秦鹏民[3]
1 脑疾病与认知科学研究中心，心理学院，深圳大学，深圳，518000，zhangjianfeng@szu.edu.cn

2 心理学院，华南师范大学，广州，510655
3 琶洲实验室，广州，510655

摘 要 引言：本研究的主要目标是探究内部心跳引发的脑活动与外部刺激之间如何交互的神经机制。理解这种交互机制对于理解心跳诱发活动的神经和功能意义至关重要。

方法：为了深入研究心跳引发的反应（HERs）与外部刺激（自我名词：SON）之间的相互作用，我们设计并进行了两个实验。在第一个实验中，我们的目标是确定 SON 的呈现是否能够调节 HERs。在第二个实验中，我们探索了自发 HERs 如何影响对 SON 的判断。

结果：实验结果显示了 HERs 和 SON 之间可双向交互。这两种交互作用在空间和时间模式上存在显著差异，表明涉及不同的神经通路。重要的是，我们的发现表明 HERs 和 SON 之间的相互作用无法通过听觉诱发反应、心脏活动或皮层兴奋性的变异来解释。

讨论：我们的研究结果对于加深我们对 HERs 和外部刺激（尤其是 SON）相互作用的神经机制的理解具有重要意义。值得注意的是，SON 对 HERs 的调节发生在 T 波后约 300 毫秒的时间点。相比之下，刺激前的 HERs 对 SON 的判断影响发生在更早的时间点，即 T 波后约 165 毫秒。此外，我们的空间分析显示，SON 引发的 HERs 调节主要出现在左侧颞顶联合区（TPJ），而与 SON 判断相关的前刺激 HERs 的差异主要出现在右侧 TPJ。

这些发现强调未来的研究需要更多关注调节 SON（以及其他刺激）对心跳引发的脑活动在不同信息处理阶段的影响。这些研究对于加深我们理解内感受相关活动如何影响我们的情绪与认知具有重要作用。

总结：我们的研究提供了有力的证据，表明个体自己的名字具有调节心跳引发的神经活动的能力，从而影响对自我的判断。两种相互作用所呈现的不同时间和空间模式，凸显了 HERs 和 SON 之间相互作用的复杂性。本研究显著推进了我们对心跳引发的脑活动在 SON 处理中的作用的理解，并引入了探索与外部刺激知觉的神经机制相关的新途径。这些发现为进一步研究人类大脑中内部和外部刺激之间如何交互提供了一定的启示。

关键词 内感受，心跳诱发响应，脑磁图，自我，心脑交互

Dual interaction between heartbeat-evoked responses and stimuli

Jianfeng Zhang [a], Yihui Zhang [b], Pengmin Qin [b, c]

[a] Center for Brain Disorders and Cognitive Sciences, School of Psychology, Shenzhen University,Shenzhen,China

[b] Key Laboratory of Brain, Cognition and Education Sciences, Ministry of Education; School of Psychology, Center for Studies of Psychological Application, and Guangdong Key Laboratory of Mental Health and Cognitive Science, South China Normal University, Guangzhou, China

[c] Pazhou Lab, Guangzhou, China

***Abstract*:**

Introduction:

In our study, our primary objective was to investigate the intricate neural mechanism underlying the interaction between internal heartbeat-evoked brain activity and external auditory stimuli, with a specific focus on a subject's own name (SON). Understanding this interaction is of utmost importance as SON plays a significant role in daily social communication and serves as a valuable indicator for detecting altered brain function in mental disorders and disorders of consciousness.

Methods:

To delve into the interaction between heartbeat-evoked responses (HERs) and SON, we designed and conducted two experiments employing rigorous methodologies. In the first experiment, our aim was to determine whether the presentation of SON could modulate HERs. In the second experiment, we sought to investigate the intriguing possibility of spontaneous HERs influencing the judgment of SON.

Results:

The outcomes of our experiments revealed a compelling dual interaction between HERs and SON. These interactions exhibited notable disparities in both spatial and temporal patterns, indicating the involvement of distinct neural pathways. Importantly, our findings established that the observed interactions between HERs and SON could not be accounted for by trial-by-trial variation in auditory-evoked response, cardiac activity, or cortical excitability.

Discussion:

The implications of our findings extend the current understanding of the neural mechanisms that underlie the intricate interaction between HERs and external stimuli, particularly SON. Notably, the modulation of HERs by SON was found to occur at approximately 300 ms after the T peak. In contrast, the influence of prestimulus HERs on SON judgment manifested in a much earlier period, approximately 165 ms after the T peak. Furthermore, our spatial analysis revealed that the SON-induced modulation of HERs was predominantly localized at the left temporoparietal junction (TPJ), whereas the disparities in prestimulus HERs associated with SON judgment were primarily observed in the right TPJ.

These novel findings underscore the need for future studies to devote increased attention to investigating the modulation of SON (as well as other stimuli) on heartbeat-induced brain activity at different information processing stages. Such investigations hold potential for enhancing our understanding of the neural mechanisms underlying perception and have promising implications for deciphering the neural processes of patients with mental disorders.

In conclusion, our study provides compelling evidence that a subject's own name has the capacity to modulate the neural activity of heartbeats, thereby exerting an influence on the judgment of SON. The distinct temporal and spatial patterns observed in the two types of interaction highlight the complexity of the interplay between HERs and SON, significantly advancing our understanding of the role of heartbeat-evoked brain activity in the processing of SON and introducing a new avenue for exploring the neural mechanisms associated with the perception of external stimuli. These findings pave the way for further investigations aimed at unraveling the intricate relationship between internal and external stimuli in the human brain, ultimately contributing to our knowledge of cognition and brain function.

Keywords：Intercption, Heartbseat-evoked responses, MEG, Self, Brain-heart interaction

慢呼吸调控焦虑情绪的作用：基于电生理的证据研究

罗倩[1] 位东涛[1*] 邱江[1*]

1 西南大学心理学部，重庆，400715

*通讯作者：位东涛:dongtao@swu.edu.cn；邱江：qiuj318@swu.edu.cn

摘 要 冥想和其他放松技巧都强调呼吸控制的重要性，以往研究发现慢呼吸可以通过增加副交感神经的活动水平影响身体内部器官的活动，从而降低压力或应激水平。基于动物的研究发现，慢呼吸不仅可以影响副交感神经系统，也能直接作用于大脑本身。焦虑是一种身心交互的疾病，表现为对未来不确定事件的过度担忧和自主神经系统的紊乱，已有研究发现焦虑水平与呼吸频率的关系。慢呼吸调节自主神经系统的活动的作用，为焦虑情绪的调节提供了可行的调控途径。尽管慢呼吸可以有效调节压力等情绪，但对慢呼吸调节焦虑情绪的心理和神经生理机制缺乏系统探究。

本研究在实验情境下探讨慢呼吸对焦虑情绪的调节作用，并揭示慢呼吸调控焦虑情绪的心理和神经生理机制。具体来说本研究将有节奏的呼吸任务与情绪预期任务相结合，探究慢呼吸调控焦虑情绪的作用，并通过频域和时频域的分析方法探究慢呼吸的神经活动特征，以及慢呼吸调控焦虑情绪的神经机制。27 名健康大学生参与实验，采用 2(呼吸频率:快呼吸，慢呼吸)×2(确定性：确定，不确定)被试内实验设计。实验任务包括两个阶段：呼吸练习阶段、情绪预期阶。在呼吸练习阶段依照指导音频进行呼吸，在情绪预期阶段以不确定线索诱发被试的焦虑情绪，并在观看负性刺激后进行效价和唤醒度评分。研究结果发现：（1）慢呼吸有效的降低了被试的焦虑情绪；与快呼吸条件相比，在慢呼吸条件下观看负性图片后所反应的效价和唤醒度水平更低。（2）慢呼吸增加了全脑的神经振荡活动；与快呼吸条件相比，慢呼吸条件下全脑 delta、theta、alpha 波段的功率值更高。（3）慢呼吸对焦虑情绪的神经振荡活动产生了显著的影响。频域分析发现慢呼吸降低了焦虑情绪 theta 波的功率值。时频-域分析发现在 500ms-1200ms，20-25Hz 慢呼吸条件下焦虑情绪的功率值呈较减少趋势，即去同步化特征。这些结果证实了呼吸活动对大脑活动的影响，并为慢呼吸调控焦虑情绪的作用提供了来自脑机制的新依据。

关键词 慢呼吸，焦虑情绪，EEG

The role of slow breathing in regulating anxiety: Evidence based on electrophysiology

Qian Luo[1],Dongtao Wei[12], Jiang Qiu[12]

1 Faculty of Psychology, Southwest University (SWU), Chongqing, 400715, China

2 Faculty of Psychology, Southwest University (SWU), Beibei District, Chongqing 400715, China.

E-mail: dongtao@swu.edu.cn(D. Wei), qiuj318@swu.edu.cn (J. Qiu)

Abstract: Meditation and other relaxation techniques emphasize the importance of breath control. Previous studies have found that slow breathing can lower stress or anxiety levels by increasing the activity of the parasympathetic nervous system, which affects the activity of internal organs. Animal-based research has also shown that slow breathing can directly impact the brain itself. Anxiety is a psychosomatic disorder characterized by excessive worry about uncertain future events and dysregulation of the autonomic nervous system. Previous research has found a relationship between anxiety levels and respiratory frequency. The role of slow breathing in regulating the activity of the autonomic nervous system provides a feasible regulatory pathway for regulating anxiety. Although the slow breathing can effectively regulate emotions such as stress, there is a lack of systematic exploration of the psychological and neurophysiological mechanisms of slow breathing in regulating anxiety.

This study investigates the regulatory effects of slow breathing on anxiety emotions through experimental methods, and reveals the psychological and neurophysiological mechanisms of slow breathing in regulating anxiety. Specifically, this study combines rhythmic breathing tasks with an emotion anticipation task to investigate the role of slow breathing in regulating anxiety. Frequency domain and time-frequency domain analysis methods

are used to explore the neural activity characteristics of slow breathing and the neural mechanisms of its impact on anxiety. Twenty-seven healthy college students participated in the experiment, this experiment adopted the within-subject experimental design of 2(respiratory rate: fast breathing, slow breathing) ×2 (certainty: certain, uncertain). The experimental tasks consisted of two stages: breathing practice and emotion anticipation . During the breathing practice stage, participants followed guided audio instructions for breathing. During the emotion anticipation stage, participants' anxiety was induced by uncertain cues, and valence and arousal ratings were obtained after viewing negative stimuli. The results of the study found that: (1) Slow breathing effectively reduced participants' anxiety. Compared to the fast breathing condition, participants experienced lower levels of valence and arousal after viewing negative images under the slow breathing condition. (2) Slow breathing increased global neural oscillatory activity. Compared to the fast breathing condition, slow breathing resulted in higher power values in the delta, theta, and alpha bands. (3) Slow breathing had a significant impact on the neural oscillatory activity of anxiety. Frequency domain analysis found that slow breathing reduced the power values of anxiety in the theta band. Time-frequency domain analysis found a decreasing trend in power values of anxiety in the 500ms-1200ms, 20-25Hz range under the slow breathing condition, indicating desynchronization. These findings confirm the influence of respiratory activities on brain functioning and offer new insights into the role of slow breathing in regulating anxiety based on brain mechanisms.

Keywords：Slow breathing, Anxiety, EEG

自杀干预热线青少年来电者的特征分析

安静

北京回龙观医院，北京大学回龙观临床医学院，北京，100096，angieanjing@bjmu.edu.cn

摘 要　探索心理援助热线青少年来电者的基本特征。方法：收集 2018—2021 年打入北京市心理援助热线的青少年来电者的一般人口学资料、主诉的问题，通过评估抑郁情绪、希望感、痛苦感和自杀风险（如，近两周和来电当下是否有自杀行为）来了解心理健康状况，并根据不同性别和来电时间进行分组比较。根据希望感、心理痛苦感和抑郁情绪得分的中位数，将连续变量转为分类变量，分别将其分为高和低两组。结果：共纳入 19 341 例青少年来电，9.8%的来电者近 2 周实施过自杀行为，在来电的时候正在实施自杀行为的占比 3.1%。近 2 周有自杀未遂和来电当时正在实施自杀行为的比例女性高于男性（P<0.001），既往有自杀未遂史（P<0.001）、高心理痛苦感（P<0.001）、高抑郁程度（P<0.001）和低希望感（P<0.001）的比例女性高于男性。正在实施自杀行为（P<0.001）、低希望感（P<0.001）、高抑郁程度（P<0.001）和既往有自杀未遂史（P<0.001）的来电者在凌晨打电话的比例高于其他时间。结论：女性和凌晨来电的青少年来电者心理健康状况相对更差，自杀风险更高。

关键词　心理援助热线，青少年，特征

Characteristics of adolescents who called the suicide intervention hotline

AN Jing, TONG Yongsheng

Beijing Huilongguan Hospital, Peking University Huilongguan Clinical Medical School, Beijing 100096, China，angieanjing@bjmu.edu.cn

***Abstract*: Objective:** To explore the characteristics and mental health status of adolescent callers of Beijing Psychological Support Hotline. **Methods:** General demographic data, reported themes of adolescent callers of the hotline from 2018 to 2021 were collected, mental health status was evaluated by the indicator of depression, hopefulness, psychological distress and suicide risk (for example, whether have suicide act currently or in past 2 weeks). Besides, the data between callers with different gender and the time they called the hotline was compared. Hopefulness, psychological distress and depression were divided into two groups (high and low) according to the median of these indicators. **Results:** A total of 19 341 calls were enrolled into the study. 9.8% of adolescent callers had committed suicide in the past two weeks, and 3.1% of them were committing suicide when they called. The proportion of attempted suicide and suicidal behavior in the last two weeks was higher in female callers than in male callers (P<0.001). The proportion of having attempted suicide in the past (P<0.001), high level of depression (P<0.001) and psychological distress (P<0.001), and low level of hopefulness (P<0.001) was higher in female callers than in male callers. The proportion of adolescent callers who were committing suicide (P<0.001), with lower level of hopefulness (P<0.001), higher level of depression (P<0.001), and history of attempted suicide(P<0.001) were higher in those calling in the early morning than in those calling at other time. **Conclusion:** It suggests that female adolescent callers and those who call in the morning may have worse mental health and higher suicide risk.

Keywords: psychological support hotline, adolescent, characteristics

不良童年经历与情绪问题和自伤的人群归因分数分析

万宇辉

安徽医科大学公共卫生学院，安徽，230032，2004500039@ahmu.edu.cn

摘 要　近年来，心理健康问题和自伤行为已被确定为疾病负担的主要原因。从 1990 年到 2019 年，全球因精神障碍导致的伤残调整生命年 (DALY) 的百分比从 3.1% 增加到 4.9%。因此，识别相关风险因素并采取相关行动格外重要。

不良童年经历（ACE）已被充分证明是个人不良心理健康结果的重要影响因素。ACE 是指个人可能经历的一系列创伤性事件，其中大部分源自周围环境。众所周知，ACE 与个人健康结果相关，其中不利的情况效果不仅包括心血管疾病、肥胖和糖尿病等身体健康问题，还包括抑郁、焦虑等心理健康问题。

本研究计算了中国中学生中由于 ACE 导致的不良后果的人群归因分数（Population Attributable Fraction, PAF）。PAF 是疾病负担研究中的常用指标，其大致含义是，假设人群的风险暴露降低至理想水平，预计可减少的患病人口数占实际患病人口数的比例。本研究发现，假设干预四个或更多 ACE 事件，PAF 的范围为 23.1%到 44.2%，对中学生中的情绪与自伤行为发生产生显著影响。此外，结果还显示，与女孩相比，低水平的 ACE 暴露可能对男孩产生保护作用，这与早期生活中的逆境与后来的健康功能之间存在的 J 形关系相吻合。总的来说，研究强调了 ACE 对青少年心理健康的影响以及考虑性别差异的重要性。

关键词　青少年，PAF，童年创伤，自伤，心理健康

Population attributable fractions of adverse childhood experiences for emotional problems and self-harming behaviors among middle school students in China

Yuhui Wan (Corresponding author)
Department of Maternal, Child & Adolescent Health, School of Public Health, Anhui Medical University, Anhui, China
E-mail: wyhayd@163.com

Abstract: In recent years, mental health problems and self-harming behaviors have been identified as the leading causes of disease burden. From 1990–2019, the percentage of global disability-adjusted life years (DALYs) due to mental disorders increased from 3.1 % to 4.9 %. More importance must be given to recognizing and protecting people from the risk factors of mental health conditions

The psychological theory of mental health has focused on how early life factors play a critical role in the risk of harmful mental health outcomes. Adverse childhood experiences are strongly proven to be impacting factors on individual poor mental health outcomes. ACEs refer to a series of traumatic events that individuals may experience in their first 18 years, most of which derive from their surroundings. It has been well established that ACEs are associated with individual health outcomes, where adverse effects include not only physical health issues such as cardiovascular disease, obesity and diabetes, but also mental health conditions like depression, anxiety and so on.

In recent years, the population attributable fraction (PAF) has been introduced to calculate the proportion of adverse outcomes that can be attributed to ACEs in the general population. PAF represents to what extent the outcomes could be alleviated if a risk factor was eradicated.

Our findings suggest that ACE-focused preventative measures may have a large impact on the population level. For six outcomes, PAFs ranged from 23.1 % to 44.2 % of four or more ACEs, meaning that for interventions targeted at four or more ACEs were beneficial to quite a few people. Interestingly, the results of hierarchical analysis show that low levels of ACE exposure were protective factors for boys across suicidal behaviors and emotional problems when compared with girls. This is in line with stress inoculation model, that a J-shaped relationship between early life stressors and later health function has been found.

In conclusion, the strong associations between ACEs and six outcomes among adolescents emphasized the significance of upstream intervention initiatives. Realizing the contribution of ACEs to mental health problems can help related professionals take effective measures to ease the burden of mental illness.

Keywords: Adverse childhood experiences; population attributable fractions; self-harming; mental health

从生物-心理-社会角度探究儿童自伤意念和行为的转变轨迹

张小芊 [1]
1 北京市石景山区五里坨医院，北京，100041，xiaoqian1211@163.com

摘 要　自伤意念和行为（Self-Injurious Thoughts and Behaviours，SITB）在儿童群体中的流行引发了公共卫生领域的关注。SITB 涵盖了自杀意念、非自杀性自伤和自杀尝试，对儿童的心理健康，神经发育，以及社会功能产生了深远的负面影响。尽管这一问题已引起学界和社会的广泛关注，但对于 SITB 在儿童中演变的影响因素的全面理解尚不明晰，亟待进一步研究。相关研究涉及公共卫生和社会福祉的关键议题，对于改善儿童心理健康，指导 SITB 相关预防干预策略的制定，最终降低 SITB 在儿童中的发生率至关重要。

本研究使用了来自“青少年脑与认知发展研究”（Adolescent Brain and Cognitive Development Study，简称 ABCD Study）的纵向数据，共纳入了 7,270 名儿童。根据生物-心理-社会理论框架，探究了儿童 1 年后 SITB 转变的多维度影响因素。在生物层面，本研究同时纳入了脑结构和脑网络；在心理层面，本研究考虑了 BIS/BAS 的作用，同时通过双因子模型提取了广泛性精神病理因子;在社会层面，研究纳入了学校支持和

家庭支持。最终，采用逐步回归分析探究了上述因素和 SITB 转变的关联，并通过敏感性分析检验上述因素的复杂交互对结局的影响。

研究结果表明，SITB 转变与大脑背外侧前额叶皮层（dorsal lateral prefrontal cortex, dlPFC）和后扣带皮层（posterior cingulate cortex, PCC）的结构改变，以及默认网络，背侧注意网络，腹侧注意网络（Ventral Attention Network，VAN）等脑网络之间的功能连接改变密切相关。此外，高行为抑制和高广泛性精神病理因子得分可能作为 SITB 转变的风险因素，而充足的家庭支持和学校支持则可能作为 SITB 转变的保护因素。

本研究澄清了特定生物、心理和社会因素在 SITB 发生中的先兆性，强调了它们在 SITB 发生方面的潜在预测价值。对这些因素的早期识别有望为未来的预防干预策略提供重要的指导，同时有助于有效应对自伤意念和行为所引发的紧迫公共卫生问题。

关键词　自伤意念和行为，生物-心理-社会角度，转变轨迹，儿童

The transition trajectories of self-injurious thoughts and behaviors among children from a biopsychosocial perspective

Xiaoqian Zhang[1,] Zaixu Cui[2]

1 Wulituo Hospital of Shijingshan District, Beijing, China, xiaoqian1211@tsinghua.edu.cn

2. Chinese Institute for Brain Research, Beijing, China

Abstract：Although self-injurious thoughts and behaviors (SITB) among children pose an imminent public health concern, the comprehensive understanding of SITB transitions remains unclear. Here we used the longitudinal data of 7,270 children from the Adolescent Brain and Cognitive Developments Study (ABCD Study). We found that SITB transitions are linked to altered cortical areas of the dorsal lateral prefrontal cortex and the posterior cingulate cortex and altered functional connectivity between the default mode and attention networks. Additionally, high behavior inhibition and general psychopathology (that is, p-factor) were identified as risk factors for SITB transitions, while the presence of robust family support and school support served as protective factors. Our study extends prior cross-sectional investigations by elucidating the temporal precedence of specific biopsychosocial factors, underscoring their potential predictive significance in SITB occurrence. Early identification of these factors holds great promise for targeted prevention, addressing the pressing public health concerns associated with SITB.

Keywords：Self-injurious thoughts and behaviors, p-factor, behavior inhibition, longitudinal

中国青少年非自杀性自伤行为研究现状

屈笛扬

1 清华大学万科公共卫生与健康学院，北京，100101，diyangqu@outlook.com

摘 要　非自杀性自伤行为(Non-suicidal self-injury, NSSI)是一个严重的公共卫生问题，指的是个体在没有自杀意图的情况下，故意破坏身体组织以达到特定目的的行为。NSSI 行为对个体健康具有长期的负面影响，会显著增加个体自杀风险。现阶段，国内的研究者已经对 NSSI 行为进行了大量研究，并强调了 NSSI 行为防治的紧迫性，亟需政府、社会机构、公共卫生专业人员、精神卫生医护人员、心理学专业人员和社会工作者的高度重视。本研究旨在国内既往相关研究的基础上，进一步总结归纳中国 NSSI 行为的流行病学现状、方法、危险因素以及预防和干预现状。

研究团队通过对2000年1月1日至2022年12月30日期间发表于Web of Science、Pubmed、PsychINFO、中国知网、维普以及万方平台的中英文文献的检索，最终确定了符合研究分析标准的文章（第一部分：256篇；第二部分：306篇；第三部分：13篇）。

研究一：提供了关于中国人群的NSSI流行率和方法特点的最新证据。涉及的研究共256项，时间跨度为2007年至2022年，覆盖了中国的28个省份。其中，广东省（N=44）、安徽省（N=39）、贵州省（N=24）、河南省（N=23）和湖北省（N=22）是研究数量较多的前五个省份。自2017年以来，中国在NSSI流行率和方法研究方面的数量显著增加。这一部分的研究成果有助于提高人们对NSSI防治重要性的认识，促进精神卫生服务的提供，并为了解NSSI在全球范围内的发展趋势提供了重要依据。

研究二：该部分从生理-心理-社会-生态系统的角度对中国人群的NSSI风险因素进行了系统性总结，最终得到了249个风险因素，涵盖了生理（如基因）、心理（如情绪痛苦）、家庭（如家庭经历）、社区环境（如低社会支持）和自然环境等五个层面。值得注意的是，单亲家庭、留守儿童、学业压力、乡村到城市的迁移经历等风险因素是社会变迁特有的风险因素。该研究首次基于综合的视角对中国人群的风险因素进行归纳总结，将有助于相关人员以更具成本效益的方式解决这一公共卫生问题。

研究三：对所有中国NSSI行为相关的预防和干预研究进行了回顾，从研究的出版数量、干预人群、干预策略进行了总结，并描述了综合的实证研究结果。研究发现，干预研究的数量仅为12项，这可能是因为本研究仅纳入概念上明确界定为非自伤性自杀（NSSI）行为的研究。此外，几乎所有相关研究都发表在2020年后，数量逐年增加，其中3/4的研究发表在2022年。这呼吁我们需要更多本土化的预防和干预项目，以期减少中国人群NSSI行为。

本研究从广泛的文献中综合证据，全面探讨基于中国人群的NSSI研究的趋势和发展方向。研究旨在更深入地了解中国NSSI行为的流行病学现状、方法、危险因素以及预防和干预现状。相较于荟萃分析，本篇综述同时涵盖了多种研究方法（如荟萃分析、定性研究）和研究设计（如纵向研究）。特别值得一提的是，国内的既往相关研究对中国多个群体的NSSI特征进行了深入描述，为中国人群NSSI行为的相关研究奠定了坚实的基础，也为本研究提供了重要的参考和支持。本研究在国内研究成果的基础上进行了总结归纳，以期为中国人群的NSSI行为现状提供更加新颖和全面的证据。

关键词　非自杀性自伤，预防，干预，综述，中国

Non-suicidal self-injury in Chinese adolescent population: a scoping review of prevalence, method, risk factors and preventive interventions

Diyang Qu

Vanke School of Public Health, Tsinghua University, Beijing, China, diyangqu@outlook.com

***Abstract*：** Non-suicidal self-injury behavior (NSSI) is a serious public health concern that requires immediate attention. Despite the high prevalence of NSSI among the Chinese population, there is a significant gap in research on the comprehensive picture of this field. Therefore, a scoping review was conducted to investigate the prevalence, methods, risk factors, and preventive intervention programs related to NSSI in China. The review found that the estimated lifetime prevalence of NSSI among Chinese youth population is alarmingly high at 24.7% (N = 1,088,433). Common methods of NSSI include scratching, hitting, and biting. Additionally, the review synthesized 249 risk factors based on the biopsychosocial-ecological framework, highlighting the urgent need for intervention. However, only 12 empirical studies focus on NSSI prevention or intervention programs were included. These findings underscore the necessity for more clinical practices and larger studies to identify effective

interventions and ultimately alleviate the burden of NSSI on the Chinese population.

Keywords：Non-suicidal self-injury, prevalence, method, risk factor, prevention, intervention, China

iTBS 干预改善伴自杀未遂青少年抑郁症自杀意念的研究

卢凤梅（通讯作者）

电子科技大学成都脑科学研究院临床医院，成都市第四人民医院，成都, fengmei_lu@126.com

摘 要 本研究旨在探索 iTBS 联合药物干预对伴自杀未遂青少年抑郁症的疗效及自杀意念的影响，选取成都市第四人民医院心理科病房的 45 例伴自杀未遂青少年抑郁症患者，随机分为 iTBS 组（n=23）及伪刺激组（n=22）。两组均采用常规的抗抑郁药物治疗，iTBS 组采用依瑞德经颅磁刺激仪，每天刺激 1 次，连续 5 天，为期两周。刺激部位为左侧背外侧前额叶，线圈放置与头皮平行。伪刺激组采用伪线圈，治疗参数与 iTBS 组相同。分别在治疗前、治疗 2 周后采用 HAMD-24、抑郁自评量表（SDS）以及贝克自杀意念量表中文修订版（BSI-CV）评估其临床疗效和自杀意念。两组治疗结束后的 HAMD-24 评分均显著降低（$p<0.001$）；相比于伪刺激组，iTBS 组治疗后的 SDS 和 BSI-CV 分数降低更显著（$p=0.001$）。iTBS 联合药物能够在两周内迅速改善患者的自杀意念和抑郁症状，可为 iTBS 干预降低青少年抑郁症自杀意念提供初步证据，提示 iTBS 是一种安全、耐受良好的药物辅助疗法，未来需要进一步大样本的随机双盲对照研究进行验证和推广。

关键词 iTBS，自杀未遂，自杀意念，青少年，抑郁

Effect of intermittent theta burst stimulation on suicidal ideation and depressive symptoms in adolescent depression with suicide attempt

Fengmei Lu

The Clinical Hospital of Chengdu Brain Science Institute, School of Life Science and Technology, University of Electronic Science and Technology of China, Chengdu 611731, China fengmei_lu@126.com

Abstract:

Background: Suicidal ideation is a serious symptom of major depressive disorder (MDD). Intermittent theta burst stimulation (iTBS) is a safe, effective brain stimulation treatment for alleviating suicidal ideation in adults with MDD. This study aimed to examine the clinical efficacy of iTBS on reducing suicidal ideation in adolescent MDD with suicide attempt.

Methods: In a randomized, sham-controlled protocol, a total of 10 sessions of iTBS was administrated to the left dorsolateral prefrontal cortex (DLPFC) in patients once a day for two weeks. The suicidal ideation and depressive symptoms were assessed using Beck Scale for Suicide Ideation-Chinese Version (BSI-CV), Hamilton Rating Scale for Depression (HAMD-24), and Self-rating Depression Scale (SDS) at baseline and after 10 treatment sessions. **Results:** Forty-five patients were randomized assigned to either active iTBS (n = 23) or sham group (n = 22). The suicidal ideation and depressive symptoms of the active iTBS group were significantly ameliorated over 2 weeks of treatment. Further, higher baseline SDS, HAMD-24 and BSI-CV scores in the active iTBS group were associated with greater reductions. Limitations: A larger sample size and double-blinded clinical trial should be conducted to verify the reliability and reproducibility.

Conclusions: The current study suggested that daily iTBS of the left DLPFC for 2 weeks could effectively and safely alleviate suicidal ideation and mitigate depression in adolescent MDD, especially for individuals with relatively more severe symptoms. Although caution is warranted, the findings could provide further evidence for the effectiveness and safety of iTBS in clinical practice.

Keywords： iTBS; suicide attempt; suicide ideation; adolescent; depression

中国“生命守门人”青少年自杀预防干预研究

陈润森（通讯作者）

清华大学万科公共卫生与健康学院，北京，100101, runsenchen@tsinghua.edu.cn

摘 要

背景：青少年的自杀问题是全球关注的重大公共卫生问题。学校是青少年生活的重要场所，基于学校的预防性干预项目可以有效减轻潜在的青少年自杀风险。生命守门人培训(Life Gatekeeper training)是一种广泛使用的自杀预防性干预策略，已被发现可以有效地增加受训者与自杀相关的知识素养、减少对自杀的污名化、提高受训者的自杀干预意愿和识别、沟通与转介高自杀风险者的技能，但目前还未在中国进行本土化实践。因此，本研究系统开发了首个中国本土化的生命守门人培训，通过培训师培训(Train the trainer)的模式进行推广，旨在为学校教师提供生命守门人相关知识和技能从而减少青少年的自杀风险。

方法：采用整群随机对照的方式，在中国某乡村城市抽取了 84 所学校，随机将 42 所学校分为干预组，42 所学校为等待对照组，学校的所有班主任教师参与本研究，干预组教师接受为期一天的八节生命守门人培训并完成前后测问卷，对照组教师同步完成两次问卷收集，一共 3646 名教师参与了本研究，最终共 3312 名教师完成了 6 个月追踪问卷(男性=34.6%，M*age*=37.1)，其中干预组 1527 名，对照组 1785 名。本研究的主要干预变量通过四个问卷来收集：自杀污名化量表(Stigma of Suicide Scale ,SOSS)、自杀知识素养量表(Literacy of Suicide Scale ,LOSS)、自杀干预意愿量表和干预自我效能感量表(Willingness to Intervene Against Suicide Questionnaire ,WIS)，采用广义估计方程模型(Generalized estimating equation, GEE)分析时间和组别效应。

结果：干预前后的结果为：生命守门人干预显著降低了受训教师对自杀的污名化(β=-2.57，SE=0.54，p<.001)，提高了自杀相关的知识素养(β=1.70，SE=0.21，p<.001)、干预自我效能感(β=6.97，SE=1.19，p<.001)，以及干预意愿(β=5.34，SE=0.81，p<.001)。六个月追踪数据与干预前对比结果为：生命守门人干预依然显著降低了受训教师对自杀的污名化(β=-1.60，SE=0.47，p=.001)，提高了自杀相关的知识素养(β=1.63，SE=0.18，p<.001)，干预自我效能感(β=5.71，SE=0.98，p<.001)，以及干预意愿(β=4.21，SE=0.76，p<.001)。

结论：本研究表明，首个本土化的中国生命守门人培训可以有效减少受训教师对自杀的污名化，提高教师自杀相关的知识素养、干预自我效能感以及干预意愿，并能够保持较为长期的干预效果。这证实了生命守门人项目在中国教师群体中实施的有效性，以及培训师培训方式在推广时的可行性。我们希望这项研究能够推动中国开发更多基于实证依据并符合文化特点的生命守门人培训，从而减少中国青少年自杀风险。

关键词　生命守门人培训；自杀；中国青少年；实施科学；学校干预项目

Effectiveness of a localised and systematically developed gatekeeper training program in preventing suicide among Chinese adolescents

Runsen Chen
Vanke School of Public Health, Tsinghua University, Beijing, China, runsenchen@tsinghua.edu.cn

Abstract：

Background: The issue of suicidal risks among adolescents has garnered significant global attention due to its implications for public health. The early identification of individuals at risk of suicide is a critical step to mitigate such risks through timely interventions as addressed by the ideation-to-action framework of suicide theories. In this case, schools can effectively take action to mitigate potential suicidal risks, particularly teachers who could be trained to recognize and address early warning signs of suicidal risks through a gatekeeper program. The Life Gatekeeper training program was systematically developed to equip school teachers with knowledge and skills to identify and intervene with students at risk of suicide. The current study aims to examine the effectiveness of this training program in rural China.

Methods: In a clustered randomized controlled trial conducted in a rural Chinese city, 84 schools were selected. These schools were randomly divided into an intervention group (42 schools) and a waitlist control group (42 schools). All homeroom teachers in the schools participated in this study. Teachers in the intervention group received a one-day, eight-session Life Gatekeeper training. A total of 3,646 teachers participated in this study, with 3,312 teachers ultimately completing the 6-month follow-up questionnaire (male=34.6%, M*age*=37.1). Among these, 1,527 were in the intervention group, and 1,785 were in the control group. The primary intervention outcomes in this study were collected through four questionnaires: Stigma subscale of the Stigma of Suicide Scale (SOSS), the short-form Literacy of Suicide Scale (LOSS), the perceived behavior control subscale and the willingness to intervene subscale of the Willingness to Intervene Against Suicide Questionnaire (WIS). Generalized Estimating Equation (GEE) models were employed to analyze the effects of time and group on these variables.

Results: Compare the results pre- and post intervention, the Gatekeeper intervention significantly reduced stigma against suicide (β=-2.57, SE=0.54, p<.001), increased suicide literacy (β=1.70, SE=0.21, p<.001), perceived competence (β=6.97, SE=1.19, p<.001), and willingness to intervene (β=5.34, SE=0.81, p<.001). the results pre-intervention and at the six-month follow-up, the Gatekeeper intervention also significantly reduced stigma against suicide (β=-1.60, SE=0.47, p=.001), increased suicide literacy (β=1.63, SE=0.18, p<.001), perceived competence (β=5.71, SE=0.98, p<.001), and willingness to intervene (β=4.21, SE=0.76, p<.001). The intervention lasted for six months.

Conclusion: This study showed a significant reduction in stigma against suicide, and significant improvement in suicide literacy, perceived competence, and willingness to intervene among gatekeepers over time, and the training effects were sustained at a six-month follow-up. This study confirms the effectiveness of the newly developed Life Gatekeeper program, as well as the feasibility of delivering the gatekeeper training program via the train the trainer modality in China. We hope this study could pave the way to more evidence-based, and culturally adapted gatekeeper training programs China.

Keywords: gatekeeper training; suicide; Chinese adolescents; implementation science; school based prevention program

3.14 “心理学脑成像专业委员会”专题研讨会

心理学实证研究中被试的代表性：基于 1000 篇中文论文的元研究

岳磊[1,2]，左西年[3,4]，胡传鹏[1]（通讯作者）

1 南京师范大学心理学院，南京，210097，hcp4715@hotmail.com

2 资阳环境科技职业学院，资阳，641300

3 北京师范大学认知神经科学与学习国家重点实验室，北京，100875

4 国家基础学科公共科学数据中心，北京，100190

摘 要 心理学旨在理解人类的心理和行为。在科研实践中，科学心理学的研究结论在多大程度上能够推广到所有人类，很大程度上依赖于其样本是否能够代表全人类。然而，全球科学心理学研究中，大多数研究中的被试都是选修心理学课程的本科生，且他们大多来自西方的、受教育的、工业化的、富裕的和民主的国家或地区，这些特征被称为“WEIRD”(Henrich et al., 2010)。被试缺乏多样性和代表性，一方面限制了心理学对于人类心理和行为的完整描绘，另一方面影响了心理学研究的可推广性。为解决这一问题，许多研究者呼吁和参与了大规模的国际合作项目，并希望借此收集到更多来自非 WEIRD 区域的样本和数据。大规模的国际合作项目确实增加了样本的地域多样性和样本数量。然而，来自非 WEIRD 区域的被试是否能代表被调查区域的当地人口却是未知。为了理解这一问题，本研究从心理学报、心理科学、中国临床心理学杂志、心理发展与教育、心理与行为研究这五本中国主流学术期刊于三个不同时期（2008 年，2017~2018 年，2020~2021 年）所发表的论文中抽取 1000 篇实证研究，提取其被试信息。同时对大规模国际合作项目（比如：Many Labs projects , the Human Penguin Project, PSA）中报告的中国被试特征进行提取，以理解当前心理学实证研究中被试样本的现状，并将其与全国第七次人口普查数据进行比较。本研究结果提供了中国心理学参与者的真实情况，本研究也将讨论解决中国和全球代表性问题的潜在方案。

关键词 元科学，样本代表性，WEIRD，推广性

Representativeness of subjects in empirical research in psychology: A meta-research based on 1000 Chinese papers

Lei Yue[1,2], Xi-Nian Zuo[3], Hu Chuan-Peng[1]

1 School of Psychology, Nanjing Normal University, Nanjing, China, 210097

2 Ziyang College of Environmental Science and Technology, Ziyang, China, 641300

3 State Key Laboratory of Cognitive Neuroscience and Learning, Beijing Normal University, Beijing, China, 100875

4 National Basic Science Data Center, Beijing, China, 100190

Abstract: Psychological science aims at understanding human mind and behaviour. In the practice of scientific research, the extent to which the findings of scientific psychology can be generalized to all human beings relies heavily on the representativeness of its samples. However, most of subjects of global psychological studies are undergraduate students who take psychology courses from “Western, Educated, Industrialized, Rich, and Democratic” countries or regions. These characteristics are referred to as "WEIRD" (Henrich et al., 2010). The lack of representativeness in psychological science limits our understanding of the whole picture of human mind and behavior and may influence generalizability of studies conclusion. To address this issue, Many researchers have called for and participated in large-scale international collaborative projects with the hope of collecting more samples and data from non-WEIRD regions. Large-scale international collaborative projects indeed increase the geographical diversity and sample sizes. However, it is unknown whether subjects from non-WEIRD regions are

representative of the local population in the surveyed regions. To understand this problem, in this study, 1,000 empirical studies were extracted from papers published in five mainstream Chinese academic journals, namely, *Acta Psychological Sinica*, *Journal of Psychological Science*, *Chinese Journal of Clinical Psychology*, *Psychological Development and Education*, *Psychological and Behavioral Studies Psychological Journal*, in three different periods (2008, 2017~2018, and 2020~2021) to extract their subjects' information. The characteristics of Chinese subjects reported in large-scale international collaborative projects (e.g., Many Labs projects , the Human Penguin Project, PSA) were also extracted to understand the current status of the subject samples in current empirical research in psychology, and compared with data from the Chinese 7th census data. The results will provide a realistic picture of Chinese subjects in psychology, and we will discuss potential solutions to the issue of representativeness in both China and worldwide.

Keywords：Meta-science, Sample representativeness, WEIRD, Generalizability

理论-数据驱动视角下的影像计算精神病学与社会互动研究

陈骥[1,2*] 温雅岚[1] 潘亚峰[1] 金婧雯[3]

1 浙江大学心理与行为科学系，杭州，310058

2 浙江大学医学院附属第四医院精神科，义乌，322000

3 香港大学心理学系，香港

* 通讯作者: 陈骥(ji.chen@zju.edu.cn)

摘 要 精神障碍严重影响了患者的社会功能和生活质量。精确诊断和有效治疗精神障碍一直是重大的科学问题及社会问题。目前，多模态数据及人工智能方法被应用于精神障碍研究，利用脑影像数据和机器学习技术构建精神障碍的诊断分类器得到了广泛关注。基于对精神分裂症患者脑-症状学/亚型关联模式的研究，以及先前相关文献的回顾，我们提出利用机器学习模型的分类准确率来(1)识别稳健的生物学标志物(2)提示 DSM 精神障碍之间的分类学关系，并运用无监督和半监督机器学习方法(3)定义（跨诊断)疾病亚型与维度。文章同时强调了脑影像机器学习研究中的常见陷阱，如"过拟合"，导致模型难以泛化推广。这为精神障碍生物标志物的鉴定、诊断异质性和跨诊断共病性关键问题的有效解析带来借鉴。采用机器学习模型，我们发现社会情感脑网络稳可以健预测精神分裂症患者的认知症状维度；精神障碍，尤其是在自闭症和精神分裂症中，社会认知与人际交互异常具有跨诊断、高共发性特点。然而，尽管机器学习在亚型甄别、预警预测和生物标志物识别等方面具有重要价值，数据驱动模型较难直接用于解析精神障碍患者异常行为的认知过程和神经机制。我们近期在 Lancet Psychiatry 提出人际计算精神病学的理论和方法，以精神分裂症为例，基于双人听音联合按键任务范式，采用贝叶斯预测编码框架解析患者社会互动异常的动态认知机制。通过主动推理模型，基于可观测行为推断处于隐藏状态的认知过程。我们分析得到模型特定参数可较好地复现精神分裂症患者真实场景人际互动按键的异态模式，并提示患者感觉衰减和运动功能异常可能为潜在机制。

关键词 机器学习，精神影像，社会互动，人际计算精神病学，精神分裂症

Data- and Theory-Driven Modeling in Psychiatric Neuroimaging and Social Dysfunctioning Research

Ji Chen[1,2*], Yalan Wen[1], Yafeng Pan[1], Jingwen Jin[3]

[1] Department of Psychology and Behavioral Sciences, Zhejiang University, Hangzhou, China

[2] Department of Psychiatry, The Fourth Affiliated Hospital, Zhejiang University School of Medicine, Yiwu, Zhejiang, China

[3] Department of Psychology, The University of Hong Kong, Hong Kong SAR, China

Email: ji.chen@zju.edu.cn

Abstract: Mental illness poses significant challenges to society. The effective diagnosis and treatment of mental disorders remain major concerns in the field. Recent psychiatric research highlights the use of artificial intelligence techniques. Computational psychiatry, which leverages multi-view data and multi-level computations, aims to improve the understanding, prediction, and treatment of mental disorders. As a promising approach, it at least has two branches, data-driven and theory-based modeling. By our machine learning studies in schizophrenia as well as reviewing data-driven classification and prediction models in psychiatric research, we refined several new perspectives in this direction: 1) Accuracies from classification models as the dependent variable to select informative brain features 2) these Accuracies to inform nosological relationships between disorders 3) Data-driven consolidation using unsupervised and semi-supervised approaches to dissect heterogeneous disorders. Common pitfalls in this line of research, such as overfitting, have also been highlighted to help establish generalizable machine learning models. While data-driven approaches have demonstrated their value in guiding diagnostics and treatments, it is not readily by these methods to dissect the neurocognitive mechanisms underlying anomalistic behaviors. Theory-based approaches, in contrast, are designed for such purposes, and can help unravel hidden states that drive specific processes. We focused on social functioning impairment, which is a central psychopathology in many mental disorders. In our investigation of this aspect, two-person paradigms and Bayesian active inference are proposed to dissect the abnormal interactional processes in schizophrenia. In particular, through parameters tuning in the active inference model, we successfully replicated the manifold anomalistic social coordination patterns seen in patients with schizophrenia, which suggested that a failure of sensory attenuation and an impaired motor function would be the potential mechanisms.

Keywords： Machine learning, Neuroimage, Interpersonal computational psychiatry, Schizophrenia, social coordination

心理科学和医学研究的可重复性实践：一项元科学研究

李威[1] 石丽萍[1]（通讯作者） 冯正直[1]（通讯作者） 陈志毅[1,2]（通讯作者）

1 第三军医大学医学心理系医学心理实验中心，重庆，400038

2 认知与人格教育部重点实验室，重庆，400715

通讯作者 E-mail：石丽萍（shiliping@tmmu.edu.cn），冯正直（fzz@tmmu.edu.cn），陈志毅（chenzhiyi@tmmu.edu.cn）

摘 要

背景 “可重复性危机”在心理科学和临床医学领域的爆发让研究者们直面科学研究的可靠性。近年来，许多期刊更新了数据可用性政策，鼓励研究人员共享研究数据。这一举措使同行研究者得以验证科学结果的可靠性，但其可行性和实践性仍有待商榷。因此，本研究以元科学方法系统性地探究了心理科学、医学领域期刊对于研究数据可用性的实践，以澄清其是否可用于解除这一危机。

方法 选取 ClarivateTM 数据库中 Journal Citation Reports(JCR) 1 区精神病学/心理学（n_1=219）和临床医学领域（n_2=931）期刊，对期刊官网作者须知部分数据共享和数据可用性声明的要求进行编码，并形成数据可用性等级（例如，mandatory），并记录了期刊 2021 年影响因子、出版社等信息。

结果 （1）在心理学期刊中，10.96% (24/219) 的期刊要求作者共享研究中产生的数据，38.36%（84/219）的期刊要求提供数据可用性声明，8.22%(18/219)的期刊要求作者共享数据并提供数据可用性声明。在临床医学期刊中，12.8%（119/931)）的期刊要求作者共享研究中产生的数据，42.15%（392/931）的期刊要求提供数据可用性声明，9.13%（85/931）的期刊要求作者共享数据并提供数据可用性声明。（2）期刊数据可用性等级在不同出版社中的分布存在差异。在心理学领域中，Elsevier 出版社要求作者共享数据的期刊比例最高（17/48, 35.42%）；APA(19/26, 73.08%)、Wiley(20/32, 62.50%)、Oxford(6/11, 54.54%)超过半数期刊要求作者提供数据可用性声明；在数据可用性等级中，Elsevier 评级为“Mandatory”的期刊比例最高（9/48, 18.75%）。在临床医学领域中，Nature 出版社要求作者共享数据的期刊比例最高(16/32, 50%)；Nature、BMJ、BMC 出版期刊均强制要求作者提供数据可用性声明；在数据可用性等级中，Nature 出版期刊“Mandatory”评级比例最高(16/32, 50%)。（3）心理科学期刊数据可用性等级与影响因子(2021JIF)相关不显著，而医学领域期刊数据可用性等级与 2021JIF 呈现正相关关系($r=0.198$, $p<0.01$)，其影响因子越高的期刊，数据可用性等级越高。

结论 心理科学和医学对于数据可用性的要求并不严格；绝大多数期刊遵循自愿原则，更加考验作者对于开放科学的重视程度和“自我纠偏”意识。这可能会阻碍心理科学和医学领域解除“可重复性危机”的政策实践。

关键词　可重复性，数据可用性声明，数据共享，元研究综述

Practices of Pursuing Reproducibility from “Data Availability Statements” in Psychological and Medical Science: A Systematic Meta-Research Review

Wei Li [1], Liping Shi [1*], Zhengzhi Feng[1*], Zhiyi Chen [1,2*]

[1] Experimental Research Center of Medical and Psychological Science (ERC-MPS), School of Psychology, Third Military Medical University, Chongqing, China, 400038

[2] Key Laboratory of Cognition and Personality, Ministry of Education, Chongqing, China, 400715

* Corresponding at Liping Shi (shiliping@tmmu.edu.cn) , Zhengzhi Feng (fzz@tmmu.edu.cn) and Zhiyi Chen (chenzhiyi@tmmu.edu.cn)

***Abstract*:**

Background

The outbreak of the "reproducibility crisis" in the field of psychological science has compelled researchers to confront and reflect on the reliability of psychological research. Meanwhile, in the thriving landscape of evidence-based medicine, the emergence of the "reproducibility crisis" in the medical science has raised similar concerns regarding fraud medical conclusions. In recent years, many journals have updated their policies about data availability and encouraged researchers to disclose their research data. This initiative enables peer researchers to test the credibility of scientific results and hopefully serves as a helpful way to mitigate the "reproducibility crisis". Despite promising solution and substantial efforts in the whole academia, it remains quite scarce for whether and how such changes and promotions are actually practical and workable. Therefore, the present study capitalized on this systematic meta-research review to investigate practices of these policies concerning data availability of these academic journals in the fields of psychological and medical science, favoring to clarify whether these data availability statements are practical to address the "reproducibility crisis".

Methods

We selected all Psychiatry/Psychology journals ($n_1=219$) and Clinical Medicine journals ($n_2=931$) from JIF

Quartile 1 as ranked by the Journal Citation Reports (JCR) that provided by Clarivate™. Subsequently, the requirements related to data sharing (DS) and data availability statement (DAS) in the author guidelines section claimed by journal's official document were coded. Based on this, we synthesized the data availability requirements (DAR) classification into four levels (i.e., not mentioned, reccomended, required or mandatory). Additionally, we collected data of journal impact factor (JIF) and publishers of each journal to quantitatively examine the correlative roles of these journals' characteristics to practices of DAS.

Results

Among 219 journals in the field of Psychological science, 10.96% (24/219) of journals enforce mandatory data sharing, 38.36% (84/219) of journals require a data availability statement, and 8.22% (18/219) of journals mandate both data sharing and the provision of a data availability statement. Among 931 journals in the field of Medical science, 12.8% (119/931) of journals enforce mandatory data sharing, 42.15% (392/931) of journals require a data availability statement, while only 9.13% (85/931) of journals mandate both data sharing and the provision of a data availability statement. The distribution of research data availability varies among different publishers. In the field of Psychological science, Elsevier has the highest proportion of journals that require authors to share data at 35.42% (17/48). More than half of the journals from APA (19/26, 73.08%), Wiley (20/32, 62.50%), and Oxford (6/11, 54.54%) require authors to provide a data availability statement. With the rating of data availability requirement, 18.75% (9/48) of Elsevier journals are rated as "Mandatory", which is the highest proportion. In the field of Medical science, Nature series exhibits the highest proportion of journals (16/32, 50.00%) that enforce mandatory data sharing in policies. All journals published by Nature (n_{Nature}=32), BMJ (n_{BMJ}=24), and BMC (n_{BMC}=62) enforce the provision of a data availability statement as a compulsory requirement for authors. With regards to DAR rating, Nature demonstrates the most substantial proportion of "Mandatory" level(50.00%, 16/32). In Psychological science, there is no significant correlation between the journal's data availability requirement (DAR) and the 2021 JIF. However, in the field of Medical science, it shows a slightly positive correlation between DAR and JIF ($r = 0.198$, $p<0.01$), indicating that higher impact factor journals tend to have higher data availability ratings.

Conclusion

The journals' Data availability requirements in the fields of Psychological and Medical science are generally lenient. The vast majority of journals encourage data sharing and recommend data availability statements, highlighting authors' commitment to open science and their awareness of "self-correction". This may hamper the policy practices to ameliorate "reproducibility crisis" in the psychological and medical scientific ecosystem.

Keywords：Reproducibility, Data availability statement, Data sharing, Meta-research review

全球突发公共卫生事件期间心理健康问题估计的元分析证据质量回顾

柳雪荣 [1,2]，李威 [1,2]，王垚芝 [2,5]，张乾宇 [1,3]，沈畅 [1,3]，雷璟玉 [1]，詹雨 [1]，李延言 [1]，陈志毅 [1,2,4]（通讯作者）

1 陆军军医大学 医学心理系,重庆 400038;

2 陆军军医大学 医学心理实验研究中心 400038;

3 重庆大学 管理学院，重庆 400044;

4 西南大学 心理学部，重庆 400715;

5 四川师范大学 教育科学学院，成都 610066;

通讯作者：陈志毅 (chenzhiyi@tmmu.edu.cn)

摘 要　背景：全球性突发公共卫生事件不仅直接威胁着人类的身体健康，也给人类的精神健康带来了前所未有的沉重负担。为了防止患者、一线医务人员和受封锁人群之间潜在的公共精神卫生问题，相关的公共决策应以可靠和科学的临床循证证据为指导，特别是使用元分析，来明确主要精神卫生问题的患病率。尽管惊人增长的元分析证据提供了相当大的贡献和及时的循证支持，但这些证据是否在实际中可靠和可复制，以有效地指导国际关注的突发公共卫生事件的决策，尚未得到清楚的验证。方法：本研究遵循系统评价和荟萃分析的首选报告项目(Preferred Reporting Items for Systematic Reviews and Meta-Analyses, PRISMA)指南，进行了一项系统的元研究，以检查以往研究的偏倚风险(Risk of bias, ROB)，并对近期国际关注的突发公共卫生事件(2003 年 1 月 1 日至 2023 年 3 月 1 日)中主要精神健康问题的患病率进行了荟萃分析研究，主要包括抑郁、焦虑、睡眠问题、创伤后应激障碍和压力相关症状。文献检索在 Web of Science、PubMed、Scopus、Cochrane 和 Google Scholar 数据库中进行。而偏倚风险的系统回顾(Risk of Bias in Systematic Reviews, ROBIS)从研究选择、数据收集、研究评价、证据综合和单个研究的偏倚风险五个方面对 ROB 进行评估。结果：在当前的元研究综述中，我们主要关注了与三项公共卫生事相关的 109 项元分析：COVID-19 (K= 103, n= 22,019,975)，SARS (K= 4, n= 62,882)和埃博拉病毒病(K=2, n=4,192)。以 COVID-19 为例，2020 年 5 月至 2023 年 3 月期间发表的 COVID-19 研究，其数据涵盖了 25 个国家，其中中国、伊朗、加拿大、美国、英国、西班牙、印度、埃塞俄比亚、孟加拉国、澳大利亚、巴西、法国等国家占主导地位。而通过对 COVID-19 进行 ROBIS 评估，69.90%(72/103)的 meta 分析估计被评为高偏倚风险。而这些风险主要来自于是不可用的数据可用性 68.93%(71/103)和缺乏敏感性分析 85.43%(88/103)。此外，只有 44.66 %(46/103)的元分析研究提供了技术上可重复的数据和材料。结论：数量激增的元分析为国际关注的突发公共卫生事件如何阻碍心理健康提供了富有成效的证据，但我们应该对这些发现中存在的潜在偏见和可重复性问题保持谨慎。

关键词　元分析，全球性突发公共卫生事件，心理健康，偏倚风险

Retrospective appraise to meta analytic evidence quality on estimates of mental health problem during global emergent public health events

Xuerong Liu [1,2] , Wei Li [1,2] , Yaozhi Wang [2,5] , Qianyu Zhang [1,3] , Chang Shen [1,3] , Jingyu Lei [1] , Yu Zhan [1], Yanyan Li [1], and Zhiyi Chen [1,2,5*]

1 School of Psychology, Third Military Medical University, Chongqing, China

2 Experimental Research Center for Medical and Psychological Science, Third Military Medical University, Chongqing, China

3 School of Management, Chongqing University

4 School of Psychology, Southwest University, Chongqing, China

5 College of Education Science, Sichuan Normal University, Chengdu, China

* Corresponding at Zhiyi Chen (chenzhiyi@tmmu.edu.cn)

***Abstract*:**

Background

Global emergent public health events not only directly threaten human's physical health but also heavily brings out unprecedented mental health burdens. To address potential public mental health problems across patients, front-line medical staffs and peoples under lockdown restriction, many public policy-makings are guided by massive clinical evidence-based evidences clarifying prevalence of major mental health problems, particularly

in meta-analytic estimates. Despite considerable contributions and timely evidence-based supports, startling rising meta-analytic evidences, it remains unclear whether these evidences are practically reliable and reproducible to effectively direct policy-making in Public Health Emergency of International Concern (PHEIC-related) events.

Method

This study followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guideline to conduct a systematic meta-research review to examine the risk of bias (ROB) and to reproduce meta-analytic studies for prevalence of main mental heath problems recent PHEIC-related events (Jan 1, 2003 - March 1, 2023), including depression, anxiety, sleep problems, post-traumatic stress disorder, and stress-related symptoms. Literature search was carried out across Web of Science, PubMed, Scopus, Cochrane and Google Scholar databases,. The ROBIS (Risk of Bias in Systematic Reviews) was utilized to assess ROB by following five aspects: Study Selection, Data Collection, Study Appraisal, Synthesis of Evidence and Risk of Bias in Individual Studies.

Result

In the current meta-research review, we captured three PHEIC events including 109 meta-analytic estimates: Corona Virus Disease 2019 (COVID-19) (K = 103, n = 22,019,975), Severe acute respiratory syndrome coronavirus disease (SARS) (K = 4, n = 62,882), and Ebola virus disease (K=2, n=4,192). Taking COVID-19 as an example, articles on COVID-19 were published from May 2020 to March 2023, covering data from 25 countries, particularly dominating in China, Iran, Canada, USA, England, Spain, India, Ethiopia, Bangladesh, Australia, Brazil, France and others. By using ROBIS assessments for COVID-19, 69.90 % (72/103) of meta-analytic estimates were rated to expose high overall ROB. Main sources of ROB are found in unworkable data availability 68.93%(71/103) and lack of sensitivity analysis85.43%(88/103). Furthermore, only 44.66 % (46/103)meta-analytic studies provided data and materials to be technically reproducible.

Conclusion

Though the rocketing number of meta-analytic evidences contributed well to guide public policy-makings for diluting ensuing mental health burdens or even problems that the PHEIC-related public events brought out, more than a half of these evidences are concerned for being exposed on high ROB. Poor technical reproducibility.may hamper the evidence-based confidence for these meta-analytic estimates.

Keywords: Meta-analysis; Public Health Emergency of International Concerns; Mental health; risk of bias

3.15“心理学质性研究专业委员会”专题研讨会

过渡或让渡：独生子女婚育抉择的解释学探究

毛晓清

新乡学院，新乡，453002

摘 要　自 1979 年开始推行计划生育政策，我国目前已有超 1.7 亿独生子女。他们从出生便拥有父母“独一份”的爱，在独生子女成长过程中面临婚育抉择时，他们会自然过渡还是让渡于他者的期待，他们有哪些考虑并如何做出抉择。本研究采用个体深度访谈的方式收集资料，使用解释学的方法分析资料，探索独生子女的婚恋与生育观及应对方式。通过滚雪球和网络邀请两种抽样方式，邀请符合条件的 9 位独生子女各进行 50-70 分钟的半结构式访谈，音频转录文字共计约 20 万字。基于解释学分析的理论与方法，使用 Nvivo.12 软件作为辅助性工具，对资料进行开放式编码与主题聚合，聚合出四个核心主题及其相关

主题：（1）独生子女的婚育抉择，独生子婚育抉择为目标适宜型与资源拥有型，独生女婚育抉择为情感相融型与迷茫纠结型；（2）独生子女原生家庭关系为纠缠、聚合、分寸与疏离；（3）独生子女原生家庭与外界关系分为父系为主、母系为主和距离原则三种类型，其中独生女与母系为主的家族关系较密切。研究结果发现，独生子女的婚育抉择属于建构性多元化问题，建构性是由于未婚未育的独生子对婚育存在现实考量，独生女存在情感要求与期待；已婚独生子在生育方面向往“多子多福”，已婚独生女表现为迷茫与纠结。多元化是基于独生子女原生家庭内外部的关系，包括内部亲子关系与外部家族与社会关系。独生子女在婚育抉择方面存在性别差异，应对方式存在个体差异。

关键词　独生子女，婚育选择，解释学分析

·本研究得到西北师范大学研究生科研资助项目(2022KYZZ-B036)的支持。

Transition or cession: a hermeneutic inquiry into the marriage and parenting choices of only-child family

Mao Xiaoqing
Xinxiang University, Xinxiang,453002

Abstract：Since the implementation of the family planning policy in 1979, there are now more than 170 million only-child family in China. They have had their parents' one-and-only love since birth. When only-child family face marriage and parenthood decisions during their growth, will they naturally make the transition or give in to the expectations of others, and what considerations do they have and how do they make their choices. This study used individual in-depth interviews to collect data and interpretive methods to analyze the data, exploring only-children's views on marriage and parenthood and their coping styles. Through two sampling methods, snowballing and online invitations, nine eligible only-child family were invited to conduct semi-structured interviews of 50-70 minutes each, with audio transcribed text totaling approximately 200,000 words. Based on the theory and method of hermeneutic analysis, Nvivo.12 software was used as an auxiliary tool to conduct open coding and thematic aggregation of the data, and four core themes and their related themes were aggregated: (1) marriage and parenthood choices of only-children, marriage and parenthood decisions of only-children were of the type of goal-suitability and resource-ownership, and marriage and parenthood choices of only-children were of the type of emotional compatibility and the type of perplexity and tangledness; (2) the relationship of only-children's family of origin was of entanglement, aggregation, and confusion; and (3) the relationship of only-child family on origin was of the type of entangled, aggregated, and tangled. Relationships are entangled, aggregated, measured and detached; (3) the origin and external relationships of only-child family are categorized into three types: paternal-dominated, maternal-dominated and distance-principle, with the only child having a closer relationship with the maternal-dominated family. The results of the study found that the marriage and parenting choices of only-children belong to the problem of constructive pluralism, which is due to the fact that unmarried and childless only-children have realistic considerations about marriage and parenthood, and only-children have emotional requirements and expectations; married only-children aspire to "many children, many blessings", and married only-children are confused and entangled. Diversity is based on the relationships within and outside the only child's family of origin, including internal parent-child relationships and external family and social relationships. There are gender differences in only-children's marriage and parenting choices and individual differences in their coping styles.

Keywords：Only child, marital choice, hermeneutic analysis

心理学取向叙事研究在大陆的现状及发展趋势

——基于 CiteSpace 的知识图谱分析

何承林[1,3] 舒跃育[1] 郑剑虹[2, 3]

1 西北师范大学心理学院，兰州，730070

2 岭南师范学院心理学系暨心理传记学与生命叙事研究所，湛江，524048

3 广东省特殊儿童发展与教育重点实验室，湛江，524048，zjhong@sina.com

摘 要 本文以中国知网（CNKI）为主要数据源，通过其他多种渠道补充数据共选入分析 245 篇论文，借助 EXCEL 办公软件和 CiteSpace6.1R2 可视化软件，分别绘制发文数量的时间分布、作者及机构合作、发文期刊统计、关键词聚类时间图谱以及热点突现词探测。研究表明：（1）大陆心理学领域首篇叙事研究文章发表于 2003 年，叙事研究在心理学领域的发文量呈上升态势，后十年的增长要比前十年的增长态势迅速，特别是学位论文的增加（在 245 篇文献中学位论文 122 篇，占比 49.80%）直接推动了叙事心理研究的持续发展。（2）心理学领域叙事研究作为一种研究范式已在全国范围内的高校、研究机构、逐渐受到认可，其发表的文章被心理学主流杂志所接受。（3）在研究方法方面，大陆叙事心理学研究在资料收集方面大部分（53.06%）的论文主要采用的是半结构式访谈。少数采用了叙事访谈、生命故事访谈，部分学位论文采用了多种方法。分析方法方面主要是采用叙事分析（68.57%），偶有主题分析和多种方法混合使用。（4）在研究内容上前 10 个聚类集群为职业认同、自我叙说、教师成长、生命故事、生命叙事、自我认同、幼儿园、故事、大学生、自我，其中认同相关研究是主要内容及热点主题。（5）叙事心理研究的对象不断拓展，其中被主流忽视、被边缘化、被标签化的群体的故事受到较为广泛的关注，如对残障特教教师、聋人父母、幼儿园男教师 、男护士、同性恋 、聋童 、网瘾少年等群体的叙事心理研究。（6）我国大陆心理学取向叙事研究的发文量曲折增加，研究群体正不断壮大，研究内容有一定的创新但进步不明显，目前尚需克服合作零散、理念模糊、实践混乱、科学规范不够、新的研究热点缺乏等问题，未来研究应基于中国传统叙事资源构建具有本土化特色的叙事心理学理论，进一步推进叙事心理学的研究成果在叙事评估、特殊群体叙事、家族叙事、国家叙事等不同领域的拓展运用。

关键词 叙事心理学，叙事研究，叙事认同，中国大陆，知识图谱

He current situation and development trend of psychologically oriented narrative research in the Chinese mainland

—— Knowledge mapping analysis based on CiteSpace

HE Chenglin[1, 3] SHU Yueyu[1] ZHENG Jianhong[2, 3,*]

1 School of Psychology of Northwest Normal University, Lanzhou , 730070

2 Department of Psychology ＆ Institute of Psycho-biography and Life Narrative, Lingnan Normal University, Zhanjiang, 524048

3 Guangdong Provincial Key Laboratory of Development and Education for Special Needs Children, Zhanjiang, 524048, E-mail: zjhong@sina.com

Abstract： This article is based on the China National Knowledge Infrastructure (CNKI) as the main data source, supplemented by other channels to analyze a total of 245 research papers. With the help of EXCEL and CiteSpace6.1R2 visualization software, we have created visual representations of the time distribution of

publications, author and institution collaborations, journal statistics, keyword clustering timelines, and detection of emerging hot topics. The study reveals that: (1) The first narrative research article in mainland psychology was published in 2003. The number of narrative research articles in psychology has been increasing over the years, with a more rapid growth in the last decade compared to the previous one. In particular, an increase in thesis papers (122 out of 245 literature sources accounting for 49.80%) has directly contributed to the continuous development of narrative psychology research. (2) Narrative research in psychology has gradually gained recognition as a research paradigm among universities and research institutions nationwide. Articles published within this field have been accepted by mainstream psychological journals. (3) In terms of research methods, most narrative psychology studies conducted on mainland China (53.06% of papers analyzed) primarily utilize semi-structured interviews for data collection. A few studies employ narrative interviews or life story interviews while some thesis papers adopt multiple methods. As for analysis methods, narrative analysis is predominantly used (68.57%), occasionally combined with thematic analysis or other mixed methods. (4) The top ten clusters identified within the content analysis are occupational identity, self-narrative, teacher development/growth stories/tales/narratives/stories/life stories/self-identity/kindergarten/stories/university students/self-related themes; among them identity-related studies constitute major content areas and hot topics. (5) The scope of narrative psychological research continues to expand with increased attention given to narratives from marginalized groups that are often overlooked by mainstream society or labeled negatively such as special education teachers, deaf parents, male kindergarten teachers, male nurses, individuals with same-sex orientation, deaf children, and internet-addicted youth. (6) The number of publications on narrative research with a psychological orientation in mainland China has been fluctuating, and the research community is continuously growing. While there have been some innovative research findings, progress is not significant. Currently, it is necessary to overcome issues such as scattered collaboration, vague concepts, chaotic practices, insufficient scientific standards, and lack of new research hotspots. In the future, research should be based on traditional Chinese narrative resources to construct a narrative psychology theory with localized characteristics. Furthermore, efforts should be made to promote the application and expansion of research achievements in narrative assessment, narratives of special populations, family narratives, national narratives and other different fields.

***Keywords*：** narrative psychology, narrative research, narrative identity, Chinese mainland, knowledge mapping

跨文化经历与自我发展：李小龙的心理传记学研究

谢霞[1] 潘超[1] 许敏[1] 何傲[1] 舒跃育[2]（通讯作者）

1 西北师范大学心理学院心理传记学研究所，兰州，730070

2 西北师范大学心理学院心理传记学研究所，兰州，730070，shuyueyu@nwnu.edu.cn

摘 要 如何解决文化冲突所引发的一系列适应问题是当今跨文化生活的人们共同面临的挑战。以心理传记法探索李小龙成功的跨文化经历可以给我们一定的启发和思考。李小龙一直以功夫高手的形象闻名于世。令人不解的是，作为功夫影片的开创者，自幼酷爱武术的李小龙在大学期间不仅没有选择自己熟悉的表演专业，也没有选择喜爱且擅长的武术（体育），反而选择了与这两者看似毫无关系的哲学。

的确，电影和武术是李小龙童年生活的主题。因为在 18 岁之前，李小龙已经参演过 18 部中国香港华语电影，并师从咏春宗师叶问习武，获得了出色的武术比赛成绩。通常来讲，哲学与功夫是背道而驰的。这条让人迷惑不解的人生道路是如何将代表东方文化的武术与代表西方文化的电影进行了融合，并最终开创了功夫影片呢？

李小龙的成长经历是世界万千华裔的缩影。生活在不同社会文化规范下的人们所具有的心理与行为特征已深深地根植于当地的文化传统之中。与此同时，地域文化的差异与冲突所引发的一系列社会问题也是这类群体面临的共同困境。而以李小龙为例的心理传记研究，可以探究社会文化是以何种机制对个体的心理与行为特征产生着影响。本研究收集关于李小龙的众多公开的资料（采访、纪录片视频，书信，笔记），参照主题分析法对研究资料进行分析。

关键词　自我发展，李小龙，心理传记学，社会文化，功夫

Cross-cultural experience and self-development:

A psychobiographical study of Bruce Lee

Xie Xia　Pan Chao　Xu Min　He Ao　Shu Yueyu

Institute of Psychobiography, School of Psychology, Northwest Normal University, Lanzhou, P. R.China

Abstract：How to solve a series of adaptation problems caused by cultural conflict is a common challenge faced by people in today's cross-cultural life. Exploring Bruce Lee's successful cross-cultural experience through psychobiography can give us some inspiration and thinking. Bruce Lee has always been known as a Kung Fu master. It is puzzling that, as the pioneer of Kung Fu films, Bruce Lee, who had been loving Kung Fu since childhood, neither chose the performing arts major he was familiar with, nor chose the martial arts (sports) he loved and was good at. Instead, he chose the philosophy that seemed to have nothing to do with the two fields.

Indeed, movies and martial arts were the themes of Bruce Lee's childhood. Because before the age of 18, Bruce Lee had participated in 18 Chinese movies in Hong Kong, China, and learned martial arts from the Wing Chun master IP Man, obtaining excellent martial arts competition results. Generally speaking, philosophy is completely different from Kung Fu. How did this confusing path of life merge martial arts representing Eastern culture with movies representing Western culture, ultimately leading to the creation of Kung Fu films?

Bruce Lee's growth experience is a microcosm of thousands of the Ethnic Chinese in the world. The psychological and behavioral characteristics of people living under different social and cultural norms are deeply rooted in the local cultural traditions. At the same time, a series of social problems caused by regional cultural differences and conflicts are also common dilemmas faced by such groups. The psychobiographical research taking Bruce Lee as an example can explore the mechanism by which social culture affects individual psychological and behavioral characteristics. This study collected a large number of publicly available materials about Bruce Lee (interviews, documentary videos, letters, and notes) and analyzed the research data with reference to the thematic analysis method.

Keywords：Self-development, Bruce Lee, Psychobiography, Social Culture, Kung Fu

经历校园欺凌者创伤后成长的质性研究

丁乐馨[1]　　舒跃育[1]（通讯作者）

西北师范大学心理学院，心理传记研究所，兰州，730070，shuyueyu@nwnu.edu.cn

摘 要　　虽然校园欺凌造成了严重的身心伤害，但并不是所有遭遇校园欺凌的人都会永远笼罩在黑暗之下生活，有人堕入深渊，也有人在一段时间后得到恢复，还有人置之死地而后生，成长为更加强大的存

在。可见，伤害并非完全带来创伤，还有抗争之后的个体成长。创伤后成长 （posttraumatic growth，PTG）的过程关注受欺凌者的欺凌经历，以及他们是如何应对、创造意义并最终超越创伤经历的。本研究以积极成长为研究导向，从创伤后成长的新视角出发，采用质性研究的方式，主要关注校园受欺凌者的心理变化和成长，旨在探讨经历校园欺凌者创伤后成长的维度，探索创伤后成长的影响因素。具体采用主题访谈法收集原始资料，依据典型性原则选取研究对象。首先使用创伤后成长量表面向 100 位校园受欺凌者进行施测，将其创伤后成长得分进行排序，选取 PTGI 得分较高的 21 位被试进行一对一半结构式访谈，访谈提纲主要围绕 Tedeschi & Calhoun（1996）提出的创伤后成长五因素模型，质性分析软件采用 Nvivo 11.0。研究发现：经历校园欺凌的大学生的心理变化呈现三个阶段：（1）伤心欲绝期（2）心理成长的形成期（3）破茧成蝶期。创伤后成长结果有三个主题十五个亚主题：（1）主题一：个人力量增强，亚主题分别是增强自我效能感、自我调适能力提高、自我依靠感增强、自我提升、解决问题的能力提高和更乐观、自信；（2）主题二：人际体验的改变，亚主题分别是更能够表露和开放自己、同情心与利他意识的提升、社会支持系统增强、主动改善人际关系和与重要他人联系更紧密；（3）主题三：新的精神洞察力，其亚主题分别是更改的优先级、感恩之心、自我关爱和认知重组。创伤后成长的产生机制为积极的认知重评、主动应对、支持资源、自我暴露、模仿学习五个因素。无论是学生、学生家庭成员、学校管理者还是公众，每个人对反校园欺凌都负有责任，我们应对经历校园欺凌者创伤后成长有更加全面的认识，及时关注并给予他们更多帮助和多维度心理社会支持，维护未成年人的身心健康，促进其健康成长。

关键词　校园欺凌，心理变化阶段，创伤后成长，影响因素，主题分析

A Qualitative Study on the Post Traumatic Growth of People Experiencing School bullying

Abstract：Although School bullying has caused serious physical and mental damage, not all people who suffer from School bullying will live in the dark forever. Some people fall into the abyss, others recover after a period of time, and some people die and grow into more powerful beings. It can be seen that injury does not bring complete trauma, but also individual growth after resistance. The process of post traumatic growth (PTG) focuses on the bullying experiences of the victim and how they respond, create meaning, and ultimately transcend the traumatic experience. Guided by positive growth and starting from a new perspective of post-traumatic growth, this study focuses on the psychological changes and growth of campus bullies by qualitative research, aiming to explore the dimensions of post-traumatic growth of those who experience School bullying and explore the influencing factors of post-traumatic growth. Specifically, the thematic interview method is used to collect raw data and select research subjects based on the principle of typicality. First, 100 campus bullies were tested on the surface of post-traumatic growth, and their post-traumatic growth scores were ranked. Twenty one subjects with higher PTGI scores were selected for one-on-one Structured interview. The interview outline mainly focused on the five factor model of post-traumatic growth proposed by Tedeschi& Calhoun (1996). The qualitative analysis software was Nvivo 11.0. The research found that the psychological changes of college students who experienced School bullying took on three stages: (1) the heartbreaking stage, (2) the formation stage of psychological growth, and (3) the stage of breaking the cocoon into a butterfly. There are three themes and fifteen sub themes for post traumatic growth outcomes: (1) Theme 1: Personal strength enhancement, with sub themes including enhancing self-efficacy, self-adjustment ability, self-reliance, self-improvement, problem-solving ability, and being more optimistic and confident; (2) Theme 2: change of interpersonal experience. Subthemes are more able to reveal and open oneself, improve the sense of compassion and altruism, strengthen the social support system, actively improve interpersonal relationships and connect more closely with Significant other; (3) Theme 3: New spiritual

insights, with sub themes including changed priorities, gratitude, self care, and cognitive restructuring. The mechanism of post traumatic growth includes five factors: positive cognitive reappraisal, proactive coping, supportive resources, self exposure, and imitative learning. Everyone, whether students, student family members, school administrators or the public, is responsible for combating School bullying. We should have a more comprehensive understanding of the post-traumatic growth of those who experience School bullying, pay timely attention to and give them more help and multi-dimensional psychosocial support, maintain the physical and mental health of minors, and promote their healthy growth.

Keywords：School bullying, psychological change stage, post-traumatic growth, influencing factors, Thematic analysis

研究一个人有什么意义？——主体间性视角下的心理传记学解读

丁雪[1]　郭本禹[2]（通讯作者）

1 南京师范大学，南京，210024

2 南京师范大学心理系，南京，210024，snowy_927@sina.com

摘 要　虽然个案研究历史悠久，但国内学届对个案研究的认识尚存较大空间。作为个案研究中的典型代表，今日的心理传记学依然面临诸多不解与质疑。首当其冲的便是对单个案研究的价值质疑。研究单独个体能得出可推广的结论吗？没有无关变量的控制，研究结果如何保障其可靠性？研究为何作为心理学研究出现在心理学领域而不属于文学领域？面对这些来自主流心理学的拷问，心理传记学者给出了诸多角度思考与尝试。

第一种，方法建设的尝试。部分学者沿着科学心理学立场出发，积极推进心理传记的方法建设，不断提升其研究过程的可靠性，这条路径以 Alexande、Schultz 为代表；第二种，来到实证心理学的上下游，将心理传记学推入科学心理学理论发现的上游位置，以及推入验证科学心理学研究成果有效性的下游位置。这条路径以 Ponterotto 为代表；第三种，将心理学分区划片，主动为心理传记学划定合法区域。具体谈来，将心理学研究分为三大领域，适合所有人的研究，适合部分人、部分范围的研究以及适合具体个人的研究。这条路径以 Runyan 为代表。

第四种，深入主流心理学腹地，深入客观性、抽象性、普遍性的元心理学理论场域，以彻底消除理论中的主观性成分，追求理论的绝对普遍性为行动出发点，将心理传记学推入死地而后生。这条路径以 Atwood、Stolorow 为代表。前三种路径学界已经有所了解。我们择第四种建设路径作简要介绍。

关键词　主体间性（intersubjectivity），心理传记学，个案研究

What's the point of studying a person? Psychobiographical interpretation from the perspective of intersubjectivity

Ding Xu　GUO Benyu

1 Nanjing Normal University, Nanjing 210024, China

2 Department of Psychology, Nanjing Normal University, Nanjing 210024,

snowy_927@sina.com

Abstract：Although case study has a long history, there is still a large space for the understanding of case study in domestic scholars. As a typical case study, today's

psychobiography still faces many incomprehension and questions. The first is to question the value of individual case studies. Can the study of individual individuals draw generalizable conclusions? Without the control of irrelevant variables, how can the results be guaranteed to be reliable? Why does research appear in the field of psychology as psychological research and not in the field of literature? In the face of these interrogations from mainstream psychology, psychobiographers have given many perspectives and attempts.

The first is an attempt at method construction. Starting from the standpoint of scientific psychology, some scholars actively promoted the method construction of psychobiography and constantly improved the reliability of its research process. This path was represented by Alexande and Schultz. The second is to go upstream and downstream of positive psychology, pushing psychobiography into the upstream position of theoretical discoveries in scientific psychology and the downstream position of verifying the validity of scientific psychology research results. This path is represented by Ponterotto; The third is the partitioning of psychology and the active delineation of legal areas for psychobiography. To be specific, psychological research is divided into three major areas: research suitable for all people, research suitable for some people, partial range of research and research suitable for specific individuals. This path is represented by Runyan.

The fourth is to go deep into the hinterland of mainstream psychology, to go deep into the objective, abstract and universal meta-psychological theory field, to completely eliminate the subjective component of the theory, to pursue the absolute universality of the theory as the starting point of action, and to push the psychobiography into death. This path is represented by Atwood and Stolorow. The first three paths are well known. We choose the fourth construction path for a brief introduction.

Keyword：intersubjectivity, psychobiography, case study

国家高新区社区氛围的质性探索

岳童[1]　龙晖[2]

1 西南大学心理学部，重庆，400715

2 西南大学国家治理学院，重庆，400715，通讯作者 yue.suhong@163.com

摘 要　国家高新技术产业开发区是我国实施创新驱动发展战略的重要载体，在转变发展方式、优化产业结构、增强国际竞争力等方面发挥着重要作用。本研究采用开放式主题访谈的质性研究方法，对来自重庆、北京、苏州、上海、西安、深圳、武汉、成都、广州、合肥等地国家级高新区的 20 名科技人才和管理者进行了访谈，以期揭示高新区科技人才和管理者对氛围的主观感受及产生路径。研究表明：（1） 国家高新区科技人才和管理者理想的高新园区社区氛围结构，即包涵了管理氛围、生活氛围、人际氛围及创新氛围四个维度；（2）科技工作者对高新区氛围的感受主要体现在两点，一是与高新区社区氛围的交互作用过程中产生的对所在园区的心理感受，包括认同感、归属感和希望感三个方面，二是在良好的高新区社区氛围中，科技工作者自身也会产生心理感受上的良性循环，包括创业热情、自我肯定感和幸福感；（3）科技工作者所理解的氛围营造的功能主要体现在人才吸引安居功能和工作效率提升功能这两个方面。总之，本研究初步构建出高新区社区氛围的心理结构模型及其对人才聚集、成长的心理作用路径，这可以为高新区创新人才发展体制机制、优化人才发展环境、最大限度激发人才创新创业活力提供理论借鉴和政策参考。

关键词　国家高新技术产业开发区，社区氛围，开放式主题访谈

Qualitative Exploration of Community Climate in National High tech Zone

Yue Tong
(Faculty of Psychology, Southwest University, Chongqing 400715, China)
Long Hui
(College of State Governance, Southwest University, Chongqing 400715, China)

***Abstract*：** The National High tech Industrial Development Zone is an important carrier for China to implement the innovation driven development strategy, playing an important role in transforming the development mode, optimizing industrial structure, and enhancing international competitiveness. This study used a qualitative research method of open-ended thematic interviews to interview 20 scientific and technological talents and managers from national high-tech zones in Chongqing, Beijing, Suzhou, Shanghai, Xi'an, Shenzhen, Wuhan, Chengdu, Guangzhou, Hefei, and other regions, in order to reveal the subjective feelings and production paths of the atmosphere of scientific and technological talents and managers in high-tech zones. Research has shown that: (1) the ideal community atmosphere structure for high-tech talents and managers in national high-tech zones includes four dimensions: management atmosphere, life atmosphere, interpersonal atmosphere, and innovation atmosphere; (2) The feelings of technology workers towards the atmosphere of the high-tech zone are mainly reflected in two aspects. Firstly, the psychological feelings generated during the interaction with the community atmosphere of the high-tech zone towards the park, including a sense of identity, belonging, and hope. Secondly, in a good community atmosphere of the high-tech zone, technology workers themselves will also experience a virtuous cycle of psychological feelings, including entrepreneurial enthusiasm, self-affirmation, and happiness; (3) The function of creating an atmosphere as understood by technology workers is mainly reflected in two aspects: attracting talents to settle down and improving work efficiency. In summary, this study has preliminarily constructed a psychological structure model of community atmosphere in high-tech zones and its psychological impact path on talent aggregation and growth. This can provide theoretical reference and policy reference for the development mechanism of innovative talents in high-tech zones, optimization of talent development environment, and maximum stimulation of talent innovation and entrepreneurship vitality.

***Keywords*：** National High tech Industrial Development Zone, Community Climate, Open Thematic Interview

质性心理学视角下自闭症儿童母亲生命故事初探

李继波
岭南师范学院心理系，湛江，524048

摘 要　由于自闭症难以治愈，家长尤其是母亲承受着持续的高强度的心理压力。目前对自闭症儿童母亲的研究多采用量化研究的方法，而量化研究无法从微观层面对问题进行深入细致的描述和分析，并且容易忽略人类经验的动态性和丰富性。本研究直接以自闭症儿童母亲为研究主体，将母亲放置于其整个生

命历程中来了解，采用质性研究的方法来揭示自闭症儿童母亲生活经验的本质与意义。在这个过程中，特别重视母亲这个性别角色在自闭症儿童确诊前后的心路历程，以质性心理学为理解的视角，感受自闭症儿童母亲的苦辣酸甜。本研究的数据来自 15 位自闭症儿童母亲的生活故事，通过面对面的半构造访谈收集，使用修订的生活故事访谈法。该研究中的数据分析是一个混合了访谈、转录、备忘录撰写、成员检查、同行评审和研究人员反思的循环。采用主题分析法，从熟悉数据、生成初始代码、寻找专题、审查专题、确定和命名专题以及生成报告来确定数据集中的主题。自闭症儿童母亲的生命故事中呈现出六个主题：确诊前的幸福生活、确诊带来的心理应激、长期养育带来的压力、自我调整、社会支持、孩子的未来。文章进一步探究了自闭症儿童母亲认为她们仍然需要额外支持的地方，以及她们认为对自我调整有用的关键策略和资源。

关键词　自闭症，母亲，生命故事，主题分析，质性研究

A preliminary study on the life story of mothers of autistic children from the perspective of qualitative psychology

LI Jibo

Department of Psychology, Lingnan Normal University, Zhanjiang, 524048

***Abstract*:** As autism is difficult to cure, parents, especially mothers, are under constant and intense psychological stress. Most current research on mothers of children with autism uses quantitative studies, which are unable to describe and analyze the problem in depth and detail at the micro level, and tend to ignore the dynamics and richness of human experience. This study takes mothers of children with autism directly as the subject of the study, placing mothers in the context of their entire life course to understand them, and using qualitative research methods to reveal the nature and meaning of the life experiences of mothers of children with autism. In this process, special attention is given to the journey of the gender role of mother before and after the diagnosis of an autistic child, and qualitative psychology is used as a lens for understanding the bitterness and sweetness of mothers of autistic children. Data for this study came from the life stories of 15 mothers of children with autism, collected through face-to-face, semi-constructed interviews using the Revised Life Story Interview Method. Data analysis in this study was a mixture of interviews, transcription, memo writing, member checking, peer review, and researcher reflection cycles. Thematic analysis was used to identify themes in the dataset from familiarization with the data, generating initial codes, finding themes, reviewing themes, identifying and naming themes, and generating reports. Six themes emerge from the life stories of mothers of children with autism: a happy life before diagnosis, psychological stress from diagnosis, stress from long-term parenting, self-adjustment, social support, and the future of the child. The article further explores where mothers of children with autism believe they still need additional support, as well as key strategies and resources they find useful for self-adjustment.

***Keywords*:** Autism, Mothers, Life Stories, Thematic Analysis, Qualitative Research

教师教学效能感的潜类别增长轨迹

——基于解释性序列设计的混合研究

吴胤霖[1]　陈煦海[2]（通讯作者）

1 陕西师范大学心理学院，西安，710061

2 陕西师范大学心理学院，西安，710061，shiningocean@snnu.edu.cn

摘 要　目的：考察新教师入职三年(T3-T5)教学效能感的潜类别增长轨迹，以及入职前两年(T1-T2)的预测变量和入职第三年(T5)的结果变量的影响。方法：采用混合研究解释性序列设计，对 196 名中小学教师职初历时 3 年(T3-T5)的 3 次追踪测量，相邻时间点间隔 1 年，使用 Mplus7.4 对数据进行线性潜类别增长模型和二次函数型潜类别增长模型的差异分析,考察新教师入职三年教学效能感的潜类别增长轨迹；再回溯教师入职前两年(T1-T2)的职业态度，使用稳健三步法的 R3STEP 程序进行多元 Logistic 回归分析，探究教师入职前两年的职业认同感和职业使命感对教学效能感发展轨迹的作用；使用 DU3STEP 方法进行平均差异检验，探究教学效能感发展轨迹对入职第三年(T5)生活满意度和希望感的影响。在量化研究结果的基础上编制半结构化访谈提纲，采用目的抽样对 15 名教师进行访谈，使用 Nvivo11.0 对文字资料作三级编码分析，提取出类属和核心概念。结果：三分类的二次函数型潜类别增长模型为教师教学效能感发展轨迹的最优拟合模型，分别为“高效能-稳定”、“较高效能-稳定”、“中效能-下降-不稳定”；教师入职前两年的职业认同感、职业使命感能够显著跨时预测此后 3 年教学效能感的发展趋势；教师的教学效能感越高，教学效能感发展越稳定，就能获得越高的生活满意度和希望感；质性研究结果进一步分析了教师教学效能感的发展趋势及影响因素。

关键词　教学效能感，潜类别增长模型，混合研究

Trajectories of latent sub-category growth in teachers' sense of teaching efficacy: A mixed-methods explanatory sequential design

WU Yinlin, CHEN Xuhai

(School of Psychology, Shaanxi Normal University, 199 South Chang'an Road, Xi'an 710062, China)

***Abstract*：** **Objective:** To examine the latent sub-category growth trajectories of teaching efficacy among new teachers in their first three years (T3-T5) and the impact of predictive variables during the first two years (T1-T2) and outcome variables in the third year (T5) of their employment. **Methods:** A mixed-methods explanatory sequential design was employed, involving three waves of tracking measurements over a span of three years (T3-T5) for 196 primary and secondary school teachers. Using Mplus7.4, linear latent class growth models and quadratic latent class growth models were analyzed to explore the differences in growth trajectories of teaching efficacy among new teachers during their first three years of employment. The R3STEP procedure of robust three-step regression analysis was used to retrospectively examine teachers' professional attitudes during the two years prior to employment (T1-T2) and investigate the role of professional identity and mission in shaping the trajectory of teaching efficacy development. The DU3STEP method was utilized for mean difference testing to examine the impact of teaching efficacy trajectory on life satisfaction and hope in the third year of employment (T5). Based on the quantitative research findings, a semi-structured interview guide was developed, and purposeful sampling was conducted to interview 15 teachers. NVivo11.0 was used for three-level coding analysis of textual data to extract categories and core concepts. **Results:** The quadratic latent class growth model with three classes demonstrated the best fit for the trajectory of teachers' teaching efficacy development, categorized as "High-Stable Efficacy," "Moderately High-Stable Efficacy," and "Moderate-Decreasing-Unstable Efficacy." Teachers' sense of professional identity and mission during the first two years of employment significantly predicted the subsequent three-year trajectory of teaching efficacy. Higher levels of teaching efficacy were associated with more stable

development trajectories, leading to increased life satisfaction and hope. The qualitative research findings further analyzed the developmental trends and influencing factors of teachers' teaching efficacy.

Keywords：teaching efficacy, latent category growth model, mixed-methods

消除服务暗礁：应用心理专硕研究生心理疾病污名的叙事研究

田昊 [1,2] 王晓刚 [1]

1 西南民族大学教育学与心理学学院，成都，610014

2 西华师范大学教育学院，南充，637000，wxg@swun.edu.cn

摘 要 心理疾病污名是指个体在社会互动中对心理疾病患者存有的负面评价、消极情感体验和歧视倾向，也是心理健康服务过程中的最大“暗礁”。研究发现心理健康服务人员对心理疾病患者也存在不可忽视的污名，这不仅严重影响了患者的治疗和康复，还降低了其对从事自身职业的意愿和信心。新时代中国特色社会心理服务体系建设亟需大量的心理健康服务专业人员，应用心理专硕是这方面学历人才培养的重要阵地。然而，当前鲜有应用心理专硕人才培养单位关注学生的心理疾病污名改善问题，以及探讨人才培养课程、实习和实践等对学生心理疾病污名的作用机制。因此，本研究通过叙事研究的范式了解应用心理专硕研究生的心理疾病污名现状，探寻专业化学历教育对其心理疾病污名的影响，以提升学生的助人工作胜任力。

本研究采用三维度叙事研究法对教育部教指委应用心理专硕试点培养单位 5 位应用心理专硕研究生进行深度访谈并完成故事架构，探讨其从入学到成长为心理健康服务专业人员期间的心理疾病态度变化及影响因素，并探讨去污名化干预手段。结果发现：（1）学生的心理疾病态度在学习期间呈现出积极改变，这与其受到的专业教育有很大关联，尤其是所接受的心理健康课程教育和专业实习实践；（2）社会文化、重要他人、风险把控、教育机制、关键事件、人际亲疏、个人特质等因素是影响应用心理专硕研究生心理疾病态度的关键因素；（3）通过专业知识、自我觉察、专业督导、教育信息和即时化等具体办法可以干预其自身的心理疾病态度，降低心理疾病污名。

综上所述，本研究发现应用心理专硕研究生具有一定的心理疾病污名，并且随着专业化学历教育的推进，污名程度会随之降低。研究结果表明学历教育中的有效因子有助于降低心理疾病污名，试点培养单位开展的人才培养模式有助于培养学生树立积极的心理疾病观。

关键词 心理疾病态度，心理疾病污名，应用心理专硕，叙事研究

Eliminating service barriers: Professional development:A narrative study of the attitude of applied psychology to mental illness

Tian Hao，Wang Xiaogang

School of Education and Psychology, Southwest Minzu University, Chengdu

Abstract： Mental illness stigma refers to the negative evaluation, negative emotional experience, and discrimination that individuals have towards people with mental illness in social interactions.It also is the biggest hidden reef in mental health service. Previous studies have found that mental health service providers also stigmatize people with mental illness, which not only seriously affects the treatment and rehabilitation of patients, but also reduces their willingness and confidence to pursue their profession. The construction of social

psychological service system with Chinese characteristics in the new era urgently needs a large number of mental health service professionals, and the application of psychological master's degree is an important position for the cultivation of academic talents in this regard. However, few applied psychology talent training units pay attention to the improvement of students' attitude towards mental illness, and explore the mechanism of talent training courses, internships and practices on students' attitude to mental illness. Therefore, this study uses the paradigm of narrative research to understand the current situation of mental illness attitudes of applied psychology graduates, and explores the influence of professional academic education on their mental illness attitudes, so as to improve students' ability to help others.

In this study, a three-dimensional narrative research method was used to conduct in-depth interviews and complete the story structure of five master's degree students in applied psychology, discuss the changes and influencing factors of mental illness attitudes from entry to growth as mental health service professionals, and explore destigmatization interventions. The results found: (1) positive changes in attitudes towards mental illness, which was greatly related to their postgraduate education, especially curriculum education and professional internships; (2) Social culture, significant others, risk control, educational mechanism, key events, interpersonal affinity, and personal characteristics were the key factors affecting the attitude of the five graduate students in applied psychology to mental illness; (3) Through specific methods such as professional knowledge, self-awareness, professional supervision, educational information and immediacy, they can intervene in their own mental illness stigma.

In summary, this study finds that applied psychology master's degree students have a certain stigma of mental illness, and with the advancement of professional academic education, the degree of stigma will decrease. This shows that effective factors in academic education help reduce the stigma of mental illness, and that the talent cultivation model carried out by pilot training units helps cultivate students to establish a positive outlook on mental illness.

Keywords：mental illness attitude, mental illness stigma, Master of Applied Psychology, narrative inquiry

民族地区青少年国家认同：结构与影响因素

岳彩镇[1] 刘 将[2]

1. 贵州民族大学，贵阳，550025，通讯作者 yczpsychology@163.com

2. 云南师范大学教育学部，昆明，650500

摘 要 党的二十大报告指出：“深化爱国主义、集体主义教育，着力培养担当民族复兴大任的时代新人”。《新时代爱国主义教育实施纲要》明确指出，“要把青少年作为爱国主义教育的重中之重”。国家认同是国家凝聚力和向心力的重要体现，是爱国主义教育的核心之所在。因此，爱国主义必然以国家认同为基础和前提，爱国主义教育本质上是一种国家认同教育。本研究针对青少年国家认同的结构内涵、影响因素、建构过程和提升路径等主题，对 17 名学生进行结构式访谈。结果发现，青少年国家认同包括认知评价、情感依恋和行为倾向三个维度；在青少年国家认同形成过程中，知觉到的群际评价和时间连续性（如国家集体记忆、集体未来想象）起着重要作用；并且民族地区青少年对国家存在着显著的积极偏向。鉴于认同问题是青少年心理发展中的核心问题，本研究关于民族地区青少年国家认同的探讨，对于铸牢中华民族共同体意识具有重要的现实意义。

关键词 民族地区，青少年，国家认同，访谈法

National Identity of Adolescents in Ethnic Regions: Structure and Influencing Factors

YUE Caizhen
Guizhou Minzu University, Guiyang, 550025
LIU Jiang
School of Education, Yunnan normal University, Kunming 650500

Abstract: The 19th National Congress of the Communist Party of China pointed out the importance of "deepening patriotic and collectivist education, focusing on cultivating the new generation capable of shouldering the great responsibility of national rejuvenation." The "Outline of Patriotic Education in the New Era" clearly emphasizes the significance of prioritizing adolescents in patriotic education. National identity embodies the cohesion and centripetal force of a country, representing the core of patriotic education. Hence, patriotism is inherently based on and contingent upon national identity education. This study aims to explore the structural connotations, influencing factors, developmental process, and paths to enhance the national identity of adolescents. Structured interviews were conducted with 17 students. The results revealed that adolescents' national identity comprises three dimensions: cognitive evaluation, emotional attachment, and behavioral inclination. Perceived intergroup evaluations and temporal continuity (such as national collective memory and collective future imagination) play crucial roles in the formation of national identity among adolescents. Moreover, ethnic region adolescents exhibit a significant positive bias towards their nation. Considering that identity issues are fundamental in the psychological development of adolescents, this study's investigation into the national identity of adolescents in ethnic regions holds substantial practical significance in fostering the consciousness of the Chinese national community.

Keywords: Ethnic Regions, Adolescents, National Identity, Interview Method

中国人时间洞察力的质性探究

吴　娜[1]　岳　童[1]　傅安国[2]
1 西南大学心理学部，重庆，400715
2 海南大学国际商学院,海口,570228,通讯作者 naya1225@126.com

摘　要　时间洞察力是个体精准把控时间的品格。当前，西方学者对时间洞察力的概念化与研究均含糊不清，国内学者的客位化研究取向亦难以触及中国人时间洞察力的实质。文章以中国人的时间洞察力为切入点，采用基于深度访谈的扎根理论方法，运用访谈精英的取样策略，以学术精英、政治精英及企业精英为研究对象，构建出中国人时间洞察力的三维结构模型。研究表明：1）在中国人的时间洞察力中，过去、现在和未来是有机整合的，个体在心理时间的往返回荡中扫描而生成历史理性并用来指导实践，进而构建出一种可以克服“理想”与“现实”矛盾的人文时间；2）中国人的时间洞察力有一套极为独特的思考，认为历史会遵循某种规律(即“势”)而向前推进，掌握时机(时点)、把握火候(时距)并遵从规律(时序)便能因势利导获取成功；3）在中国人的时间洞察力中，个人的生命时间虽然有限，但是主动参与群体共业却可创造出“超时间”的意义，继而创造其生命永恒不朽之价值。这种升华生命情感的超时间观，可能是疗愈现代时间病症的儒家养分。

关键词　时间洞察力，人文时间取向，超时间观念，现代时间病症，扎根理论

Qualitative research into the “Time Perspective” of Chinese People

Wu Na
Faculty of Psychology, Southwest University, Chongqing 400715, China
Yue Tong
Faculty of Psychology, Southwest University, Chongqing 400715, China
Fu Anguo
International Business School, Hainan University, Haikou 570228, China

Abstract: Time perspective (TP) is the individual's character of accurately controlling time. Currently, both the conceptualization and research on TP by Western scholars are unclear, and the research orientation of domestic scholars also fails to grasp the essence of Chinese individuals' TP. Taking Chinese TP as the starting point, this article adopts a grounded theory approach based on in-depth interviews and employs a sampling strategy of interviewing elites, including academic elites, political elites, and business elites, to construct a three-dimensional structural model of Chinese TP. Results show that 1) in Chinese people’s TP, the past, present, and future are organically integrated, and individuals scan back and forth in mental time to generate historical rationality and obtain practical guidance for living, thus building a humanistic perspective of time that can overcome the contradiction between the “ideal” and “reality”; 2) in terms of TP, Chinese people have a unique way of thinking. They believe that history will follow a certain inner force (i.e., “momentum”) to move forward, and by mastering timing (temporal locus), grasping the duration and degree of time (temporal duration), and following the law (temporal succession), one can obtain success; (3) according to Chinese people’s TP, although an individual’s life span is limited, active participation in group work can create “super-temporal” meaning that has eternal value. This super-temporal perspective, which sublimates emotions experienced in life, may be the Confucian nutrient for healing the ills of modern life.

Keywords: time perspective, humanistic time orientation, super-temporal concept, modern time sickness, grounded theory

3.16 “心理学与社会治理专业委员会”专题研讨会

更高的经济不平等会导致更高的再分配偏向吗？不平等归因的调节作用

白洁
安徽大学哲学学院，合肥，230039，jbai@ahu.edu.cn

摘 要　经济不平等的增加一定会导致民众再分配偏向的增加吗？长期以来，经济不平等对再分配偏

向的影响备受研究者的关注，不过二者的关系目前还存在较大分歧。一些研究基于自利动机视角发现经济越不平等，民众的再分配偏向越高。然后也有研究发现随着经济不平等的增加，民众的再分配偏向并未随之增加。针对这一研究分歧，本研究基于公平认知视角的观点及相关研究发现，揭示出了贫富差距归因在二者关系中的调节作用。研究 1 基于问卷法，通过经济不平等感知量表、不平等归因问卷、再分配偏向量表对 676 名城乡居民展开了调查。结果发现对于持有较高外归因倾向的个体，经济不平等感知对再分配偏向正向预测作用显著；但对于持较高内归因倾向的个体，预测作用不显著。研究 2 进一步基于实验法验证了这一调节效应的因果关系。研究将 150 名成人被试随机分到低不平等外归因、高不平等外归因、低不平等外归因、低不平等内归因四种启动条件。结果发现在外归因启动条件下，经济不平等感知启动对再分配偏向存在正向影响效应；而在内归因启动条件下，经济不平等感知启动对再分配偏向的影响不显著。本研究为解决以往的研究分歧提供了一种思路，同时也为我国推动共同富裕的实践带来了社会治理启示：即不能以平均主义的眼光看待共同富裕，对于不公平的收入差距（由外部环境造成的，如灰色收入、垄断收入等）固然要缩小，但对于公平的收入差距（由个体内部因素造成的，如创新创业收入、公平竞争收入等），仍然要予以保护。如此，将能够满足民众的再分配需求，激发劳动积极性，并最终有助于共同富裕的实现。

关键词 经济不平等感知，不平等归因，再分配偏向，共同富裕

Does higher economic inequality cause higher support for redistribution? The role of attributions for inequality

BAI Jie

School of Philosophy, Anhui University, Hefei, 230039, China

Abstract：Does an increase in economic inequality necessarily lead to a rise in people's redistributive preferences? For a long time, researchers have paid much attention to the relationship between economic inequality and redistributive preferences, but it still needs to be clarified. Some studies based on the self-interest perspective found that the more unequal the economy, the higher the redistributive preferences of people. However, other studies have found that people's redistributive preferences have not increased with economic inequality. To solve these study controversies, from an ideology perspective, the present study uncovered that attributions for inequality could moderate the relationship between economic inequality and redistributive preferences. In study 1, we surveyed 676 adults, showing that perceived inequality correlated positively with redistributive preferences among people holding external attributions. In contrast, there was no significant relationship between perceived inequality and redistributive preferences among people holding internal attributions. In study 2, we experimented with 150 adults and primed both perceived inequality and attributions for inequality. The results were similar: the effect of primed perceived inequality on redistributive preferences was positive among people primed with external attributions but not significant among people primed with internal attributions. These findings provide an important solution to the controversies in previous studies and shed some light on how to realize common prosperity in China. Specifically, our government needs to implement policies to narrow income gaps resulting from external and unfair factors, such as gray and monopoly income. While for those income gaps resulting from internal and fair income factors, the government still needs to protect and encourage them, such as start-up and free competition income. This way, it will satisfy people's redistributive needs, stimulate labor enthusiasm, and help promote common prosperity eventually.

Keywords： perceived economic inequality, redistributive preferences, attributions for inequality, common prosperity

敬畏对不同社会阶层亲社会行为的影响及其机制

赵越[1]　胡小勇[1]（通讯作者）

1 西南大学心理学部，西南大学人格与认知教育部重点实验室，重庆，400715，huxiaoyong@swu.edu.cn

摘 要　敬畏是一种对浩瀚的刺激以及现有心理结构无法适应的刺激的情感反应。现有实证证据显示，作为一种积极的社会情感，敬畏可以通过激发小我感与真我感促使人们做出亲社会行为。然而，对于这种积极情绪将怎样具体作用于不同的社会阶层群体以发挥其亲社会效应，目前研究尚未得到明确结论。基于“大二”框架和社会阶层心理学的相关理论，本文以 724 名学生为被试，通过相关研究考察了敬畏对不同社会阶层个体亲社会行为的影响及其内在机制。结果发现，小我感和真我感在特质性敬畏和个体亲社会倾向之间起到中介作用；进一步分析发现，对于低阶层者而言，敬畏会更多地通过小我感促进亲社会行为的产生；而对于高阶层者而言，敬畏则更多地通过真我感促进亲社会行为。上述结果表明，敬畏对高低阶层者的亲社会行为均能产生积极的作用，只是背后所诱发的心理机制不同。以上研究结果有助于在一个系统的视角下解释敬畏作用于不同社会阶层群体亲社会行为的内在机制；对未来针对不同社会阶层者的心理特点充分发挥敬畏的积极干预作用并开发出有效的干预策略具有十分重要的参考意义，其结论可以为推进以慈善捐赠为核心的第三次分配战略的实施提供心理学建议，促进不同社会群体都参与分配的人人向善的社会氛围。

关键词　敬畏，社会阶层，小我，真我，亲社会性

The effect of awe on prosocial behaviors of different social classes and its mechanisms

ZHAO Yue[1], HU Xiaoyong[1]

1 Faculty of Psychology, Southwest University, Key Laboratory of Cognition and Personality, Ministry of Education, Chongqing 400715, China

Abstract：Awe is an emotional response to vast stimuli that challenge the current frames of reference and require a new schema to accommodate. The current empirical evidence suggests that awe, as a positive social emotion, can motivate prosocial behaviors by stimulating feelings of small self and authentic self. However, research has not yet reached a clear conclusion as to how this positive emotion would work specifically in different social class groups to exert its prosocial effects. Based on the "Big Two" framework and the relevant theory of social class psychology, this paper examines the effects of awe on the prosocial behaviors of individuals from different social classes and its underlying mechanisms through a correlation study with 724 subjects. It was found that the sense of small self and the sense of authentic self mediated the relationship between dispositional awe and prosocial tendencies; further analyses revealed that for lower class individuals, awe would be more likely to promote prosocial behaviors through the sense of small self, whereas for higher class individuals, awe would be more likely to promote prosocial behaviors through the sense of authentic self. The above results suggest that awe can have a positive effect on prosocial behavior in both high and low class groups, but the underlying psychological mechanisms are different. The above findings help to explain the underlying mechanisms by which awe acts on the prosocial behavior of different social class groups in a systematic perspective. It is a very important reference for the future development of effective intervention strategies to fully utilize the positive

intervention role of awe in response to the psychological characteristics of people from different social classes. Its conclusions can provide psychological recommendations for advancing the implementation of the third distribution strategy centred on charitable giving, and promote a social atmosphere in which different social groups participate in the distribution for the good of all.

Keywords：awe, social class, small self, authentic self, prosociality

站得高，看得远？社会阶层对长远目标追求的影响

王阳[1] 于泽坤[2] 郭永玉[1]（通讯作者）

1 南京师范大学心理学院，南京，210097，通讯作者 yyguo@njnu.edu.cn

2 中建八局第四建设有限公司，青岛，266000

摘 要 近年来，自媒体极大揭开了贫富群体不同生活现状的面纱，浸染着民众的心态及行为，部分个体沉迷追求短平快的娱乐、生活甚至成长模式。尤其是在大学这一相对自由的阶段，来自不同社会背景的大学生表现出截然不同的长远目标追求以及一系列行为表现。如何解释和尝试改变这一现状？本研究通过 3 个研究，逐步深入考察了社会阶层对大学生长远目标追求的影响作用及其过程。研究 1（N = 427） 基于问卷法，通过社会阶层指标、长远目标追求对在校大学生展开调查。结果发现社会阶层对长远目标追求的正向预测作用显著。研究 2（N = 247） 基于实验法，将被试随机分为高阶层启动组、低阶层启动组，来探索社会阶层影响长远目标追求的心理机制。结果发现公正世界信念在两者之间起到了中介作用，即相比于高社会阶层，低阶层大学生的公正世界信念更低，并因此表现出水平更低的长远目标追求。研究 3（N = 303） 进一步通过问卷法，考察阶层流动知觉在公正世界信念的中介机制中的调节作用。结果没有发现阶层流动知觉的调节作用，但再次验证了公正世界信念在社会阶层和长远目标追求之间的中介作用。本研究聚焦于社会认知因素对于大学生长远目标追求的影响，为厘清和改变大学生的认知行为表现、促进社会良性流动提供新的视角。

关键词 社会阶层，长远目标追求，公正世界信念，阶层流动知觉

Standing tall, seeing far? The impact of social class on the pursuit of long-term goals

WANG Yang[1] YU Zekun[2] GUO Yongyu[1]

1School of Psychology, Nanjing Normal University, Nanjing, 210097, China

2China Construction Eighth Engineering Division Fourth Construction Co., Ltd, Qingdao, 266000, China

Abstract: In recent years, the self-media has greatly unveiled the different living conditions of the rich and the poor, and has influenced the mentality and behavior of the public, with some individuals indulging in the pursuit of short and quick entertainment, life, and even growth patterns. Especially in the relatively free stage of university, college students from different social backgrounds show very different long-term goals and a series of behaviors. How to explain and try to change this situation? This study examined the role of social class in influencing college students' long-term goal pursuit and its process through three studies. In study 1, we surveyed 427 college students, showing that social class is correlated positively with long-term goal pursuit. In study 2, 247 college students were randomly divided into the high social class initiation group and the low

social class initiation group to explore the psychological mechanism of social class influencing long-term goal pursuit. We found just-world beliefs mediated between social class and long-term goal pursuit. Specifically, lower-class college students have lower just-world beliefs and, as a result, exhibit lower long-term goal-seeking than their higher social class counterparts. In study 3, to further examine the moderating role of perception of class mobility in the mediating mechanism of just world beliefs, we surveyed 303 college students. We did not find a moderating role for perception of class mobility, but again validated the mediating role of just world beliefs between social class and long-term goal pursuit. This study focuses on the influence of social cognitive factors on college students' long-term goal pursuit, providing new perspectives for clarifying and changing college students' cognitive-behavioral performance and promoting healthy social mobility.

Keywords: social class, long-term goal pursuit, belief in a just world, perception of class mobility

3.17 “文化心理学专业委员会”专题研讨会

自主原因与相依幸福感：重视关系的自主让人更幸福？

莫婉丽[1]　韦庆旺[2]（通讯作者）

1 深圳市福田区东海实验小学，深圳，518040

2 中国人民大学心理学系，北京，100872，weiqingwang@ruc.edu.cn

摘 要　基于自主原因理论和相互依存的幸福感概念，在中国集体主义文化背景中，考察不同类型自主原因与突出关系导向的相依幸福感的关系，并进一步探讨自主原因影响相依幸福感的潜在机制，以及探讨社会阶层在其中的作用。研究一考察相对个人自主原因、相对关系自主原因和相依幸福感的关系，以及考察目标努力和社会阶层在其中的作用。结果发现，相对个人自主原因和相对关系自主原因对相依幸福感的正向预测作用显著，目标努力的中介作用不显著，主观阶层显著负向调节了相对关系自主和相依幸福感的关系。研究二通过情境启动的方式启动被试追求目标的自主原因，发现相对个人自主原因和相对关系自主原因对相依幸福感存在显著的正向预测作用，目标努力在相对个人自主原因、相对关系自主原因和相依幸福感之间的中介作用显著，主观阶层显著负向调节了相对关系自主和相依幸福感的关系。本研究从关系视角出发，分析了关系层面的自主原因和关系导向的幸福感的关系，并揭示了自主原因影响相依幸福感的潜在机制和影响因素。

关键词　个人自主原因，关系自主原因，相依幸福感，社会阶层，目标努力

Autonomous reasons and interdependent happiness: Autonomy for relationships makes people happier?

WanLi Mo

(Shenzhen Futian Donghai Experimental Primary School, Shenzhen, China)

Qingwang Wei

(Department of Psychology, Renmin University of China, Beijing, China)

Abstract: Based on the theory of autonomous reasons and the concept of interdependent happiness, this

study examines the relationship between different types of autonomous reasons (personally autonomous reasons and relationally autonomous reasons) and interdependent happiness in the collectivist culture. And further explore the underlying mechanism of autonomous reasons affecting interdependent happiness and the moderating role of social class in the link between autonomous reasons and interdependent happiness. Study 1 examines the relationship between relatively autonomous reasons and interdependent happiness, as well as the role of goal effort and social class in it. The results showed that relative autonomous reasons had significant positive predictive effects on interdependent happiness, while goal effort had nonsignificant mediating effect, and social class significantly negatively mediated the relationship between relative relationally autonomous reasons and interdependent happiness. Study 2 is an experimental study, which manipulates the subjects' autonomous reasons through situational priming. The results found that relative personally autonomous and relative relationally autonomous reasons have positive effects on interdependent happiness, and goal effort has a significant mediating effect between relative personally autonomous reasons, relative relationally autonomous reasons and interdependent happiness. And social class significantly negatively moderates the relationship between relative relationally autonomous and interdependent happiness. These studies supplement the research on the relationship between autonomous reasons and relationship-oriented well-being, and reveals the underlying mechanism and influencing factors of autonomous reasons affecting interdependent happiness.

Keywords：personally autonomous reasons, relationally autonomous reasons, well-being, interdependent happiness, social class, goal effort

延续性感知和生命意义感对文化自豪的影响

吴良　　毕重增（通讯作者）

西南大学心理学部、心理学与社会发展研究中心，重庆，400715，通讯作者 E-mail: alphapsy@163.com

摘 要　死亡是生存的对立面。恐惧管理理论认为，一旦意识到死亡，人便会投入对文化群体，获得延续性保障，缓解死亡带来的焦虑和恐惧。文化自豪是个体因文化所获得的成就而产生的自豪感，作为一种积极的情绪体验，它不仅受到文化延续性的影响，还与自我延续性、自我生命意义有关。所以，与焦虑、担忧等负面情绪有关的死亡意识，有可能降低人们对于文化延续性的预期，进而减弱与文化相关的积极情绪体验，并且这一路径受到自我延续性和生命意义感的影响。为此，本文通过三个研究考察死亡恐惧与文化自豪感的关系，以及延续性感知和生命意义感在其中的作用。研究 1 采用问卷法探讨文化延续性作为中介变量、生命意义感作为调节变量的解释作用。结果发现：（1）死亡恐惧通过降低文化延续性，削弱文化自豪感；（2）生命意义感在文化延续性和文化自豪间起调节作用，低生命意义感个体的文化历史延续性感知对文化自豪的正向预测作用更显著。研究 2 采用死亡凸显范式，考察死亡恐惧对个体文化自豪感的影响以及文化延续性的作用。结果发现，死亡恐惧通过降低对文化延续性的预测，削弱文化自豪感。研究 3 采用死亡凸显范式，进一步考察死亡恐惧对个体文化自豪感的影响，文化延续性、自我延续性与生命意义感在其中的作用。结果发现：（1）文化延续性的中介作用不显著；（2）生命意义感对文化延续性的调节效应显著，低生命意义感个体的文化延续性对于文化自豪感正向预测作用更强；（3）自我延续性对死亡恐惧的调节效应显著，低自我延续性的个体，死亡恐惧对于文化自豪感的负向预测作用显著，高自我延续性的个体，死亡恐惧对于文化自豪感的预测作用不显著。总体而言，死亡恐惧威胁文化延续性感知，进而降低了文化自豪感；生命意义感、自我延续性的调节作用则揭示了死亡意识与自我感知对个体文化情绪体验的影响，验证了自我与文化之间的相互关系。

关键词　恐惧管理理论，文化自豪，文化延续性，自我延续性，生命意义感

The Influence of Perception of Continuity and Meaning of Life on Cultural Pride

Liang Wu Chongzeng Bi
Faculty of Psychology, Southwest University, Chongqing, 400715, China

***Abstract*:** Terror management theory (TMT) proposed that when recognizing the fact that death is inevitable, individuals hope that their life will continue in some form. Researchers argued that joining culture can give individuals this sense of continuity and buffer their fear of death. Cultural pride is an emotional product of individuals' interaction with culture, influenced by the historical achievement of culture and related to perceived self-perpetuation and meaning of life. Awareness of death leads to a rise in negative emotions such as anxiety and worry, reduces people's expectations of cultural continuity, and then diminishes positive emotions toward culture, but this process may be influenced by perceived self-perpetuation and meaning of life. To this end, this paper investigates the relationship between fear of death and cultural pride as well as the factors that underlie it through three studies.

Study 1 used a questionnaire to examine the effect of fear of death on cultural pride and constructed a moderated mediation model to explore the explanatory role of cultural continuity as a mediating variable and meaning of life as a moderating variable. The results found that (1) fear of death reduced cultural pride by decreasing cultural continuity, (2) meaning of life moderated the effect of cultural continuity on cultural pride, and the positive predictive effect of cultural continuity on cultural pride was more significant for individuals with a low sense of meaning of life compared to individuals with a high sense of meaning of life. Study 2 examined the impact of fear of death on people's cultural pride and investigated the explanatory role of cultural continuity on cultural pride by using mortality salience (MS). The results found that the mediating effect of cultural continuity between fear of death and cultural pride was significant, i.e., fear of death weakened cultural pride by decreasing the prediction of cultural continuity. Study 3 used the same MS to examine the role of fear of death on individual cultural pride and the effect of cultural continuity, and to explore whether meaning of life and self-perpetuation moderate the role of fear of death on cultural pride. The results found that (1) effects between the MS group and the control group on cultural pride were not significant; (2) meaning of life moderated the effect of cultural continuity on cultural pride, the positive predictive effect of cultural continuity on cultural pride was stronger for individuals with low meaning of life compared to those with high meaning of life; (3) the moderating effect of self-perpetuation was significant, and for individuals with low self-perpetuation, the negative predictive effect of fear of death on cultural pride was significant, while for individuals with high self-perpetuation, the predictive effect on cultural pride was not significant.

Overall, these results suggest that individuals' cultural pride is influenced by fear of death, mainly because perceived cultural continuity is threatened, while the moderating effects of meaning of life and self-perception reveal that death, self-perception, and cultural worldview work together to influence individuals' emotional experience of culture, validating the assumption of interaction between individuals and culture.

***Keywords*:** Terror management theory, Cultural pride, Cultural continuity, Self-perpetuation, Meaning of life

感知经济社会发展对文化自信的影响：文化包容度的中介作用

董俊莹 李永雪 毕重增（通讯作者）

西南大学心理学部、心理学与社会发展研究中心，重庆，400715，alphapsy@163.com

摘 要　经济社会发展不仅是发生于文化内的社会变迁，也改变文化的认知和评价。本文探讨文化包容度随经济社会发展而影响文化自信的作用路径。研究一采用问卷法获得 396 名调查对象的感知经济社会发展和文化包容度的数据，结果发现经济社会发展对个体的文化自信具有显著正向预测作用，且文化包容度中介了感知经济社会发展对文化自信的影响；主观社会经济地位调节了经济社会发展对文化自信的影响，当主观社会经济地位较低时，经济社会发展对文化自信的影响更为明显。与研究一中静态的文化包容度不同，研究二将文化包容度也作为社会变迁变量，探讨文化包容变迁感是否在感知经济社会发展对文化自信的影响上具有解释力；研究收集了 458 名调查对象的数据，结果在概念水平验证了研究一的发现，文化包容变迁感也是感知经济社会发展对文化自信作用的中介因素；主观社会经济地位没有起到调节作用。两个研究的结果说明经济社会发展的主观感知转化为文化自信是以包容性文化观念及其变迁为桥梁的。感知社会经济发展对文化自信的作用模式的确认对于理解社会变迁与文化观念的关系提供了新证据。

关键词　感知经济社会发展，文化自信，文化包容度，社会变迁,主观社会经济地位

The Influence of Perceived Economic and Social Development on Cultural Self-Confidence: The Mediating Role of Cultural Inclusion

Junying Dong　Yongxue Li　Chongzeng Bi
Faculty of Psychology, Southwest University, Chongqing, 400715, China

Abstract：Economic and social development not only occurs within culture, but also influences people's perception and evaluation of culture. This paper explores the pathway through which cultural inclusion influences cultural self-confidence along with economic and social development. In Study 1， participants (n = 396) were asked to complete self-report questionnaires. The results illustrate that perceived economic and social development significantly exert a direct effect on cultural self-confidence and indirect effect on cultural self-confidence through the mediation of cultural inclusion. Subjective socio-economic status moderates the influence of perceived economic and social development on cultural self-confidence; when subjective socio-economic status is low, the effect is more pronounced. In Study 2, the cultural inclusion is not static but rather a variable that reflects social change. The aim is to explore whether changes in perceived cultural inclusion also mediate the influence of perceived economic and social development on cultural self-confidence. 464 participants were recruited online to complete self-report questionnaires, and the results validate what was found in Study 1 at the conceptual level. The perceived change in cultural inclusion is also a mediator, but subjective socioeconomic status does not play a moderating role. The results of the two studies suggest that the perception of economic and social development translates into cultural self-confidence through the concept of cultural inclusion and its change as a bridge. The identification of the influence of perceived economic and social development on cultural self-confidence provides new evidence for understanding the relationship between social change and cultural perceptions.

Keywords： Perceived economic and social development, Cultural self-confidence, Cultural inclusion, Social changes, Subjective socioeconomic status

未来环保者身份认同:基于社会认同理论的未来工作自我概念

王艇
西南石油大学经济管理学院,成都，610500

摘 要 中国文化强调集体主义和“天人合一”。受此影响，人们也通常从社会情景、人与自然关系的角度定义自己。同时，中国文化也具有长期导向的特征，使得人们关注和看着未来。在工作情景中，员工会基于对未来工作自我的积极期望，形成未来工作自我概念。基于中国文化情景上述特征和未来工作自我的概念，以及社会认同理论，本研究提出未来环保者身份认同的概念。未来环保者身份认同是组织中社会认同的一种形式，指员工在思考和展望未来工作情景中自己与自然环境的关系时，将自我归类到环保者，并由此产生的未来工作自我概念。通过三个研究验证未来工作自我概念。研究 1 依据未来工作自我清晰度测量范式、环保者身份认同、社会身份认同等量表题目发展未来环保者身份认同量表。通过探索性因素分析对量表进行了初步修订，在此基础上，研究结果表明未来环保者身份认同具有良好的因素结构。研究 2 通过验证性因素分析进一步验证了研究 1 所修订的未来环保者身份认同量表的因素结构。研究 3 进一步发现了未来环保者身份认同显著影响员工绿色行为。研究结论初步支持了未来环保者身份认同的概念。最后，研究讨论了未来环保者身份认同的理论和实践意义。包括未来环保者身份认同概念与中国文化的关系，对未来工作自我和社会认同理论的贡献，及其在组织绿色发展背景下的现实意义。

关键词 中国文化，社会认同，未来工作自我，未来环保者身份认同

Future Pro-Environmental Identity： A Social Identity-Based Future Work Self Concept

Ting Wang

(School of Economics and Management, Southwest Petroleum University, Chengdu, China)

Abstract: Chinese culture is characterized by values of collectivism and “the harmony between man and nature”. As a result of this cultural influence, individuals tend to define themselves in terms of their relationships with society and nature. Meanwhile, Chinese culture is long-term oriented, people tend to focus on the future and value long-term interests. In the workplace, employees can develop their future work self from their work-related hopes and aspirations. Drawing on these Chinese characteristics and the concept of future work, this study introduces the concept of Future Pro-Environmental Identity (FPEI). FPEI, a form of social identity in an organization, refers to individuals’ self-categorization as being environmentalists when envisioning their future work scenarios. This research conducted three studies to test the concept of FPEI. Study 1 utilized measures of future work salience, pro-environmental self-identity, and social identity to develop the FPEI measure. Exploratory factor analysis (EFA) was employed for item refinement. The refined measure had a good factor structure. Study 2 confirmed FPEI’s factor structure through confirmatory factor analysis (CFA). Study 3 further reveals that FPEI is positively related to employees’ green behavior. The evidence across three studies thus supported the conception of FPEI. Finally, this research discusses FPEI’s theoretical and practical implications, including its relationships with Chinese culture, its contributions to future work self conception and social identity theory, as well as its practical implications for organizations’ green development.

Keywords：Chinese culture, social identity, future work self, future pro-environmental identity

大学生文化自信对主观幸福感的影响：有调节的中介模型

韩淼[1 2] 邓雨虹[1] 张艳红[1 2]（通讯作者）

1 长江大学教育与体育学院，湖北荆州，434023

2 长江大学社会心理研究中心，湖北荆州，434023
通讯作者：张艳红，E-mail: zhangyanhong1998@163.com

摘 要 全球化趋势所带来的文化交融与文化冲突使人们对本土文化产生了许多思考，文化自信作为各国文化交融或冲突的关键议题之一更是受到诸多关注。文化自信是一个多维的、动态的、复杂的结构，包含个体对文化的归属感、积极评价以及对文化活动的卷入程度。主观幸福感是个体依据自我内化的标准对其生活质量做出的整体性判断，包括生活满意度、积极情绪和消极情绪三个维度。为探究文化自信对主观幸福感的影响，本研究依据社会认知内容的二维度理论、社会比较理论及依恋理论等理论构建了一个有调节的中介模型，来考察文化自信对个体主观幸福感的影响及作用机制。方法：采用文化自信问卷、主观幸福感问卷、文化依恋问卷及亲子关系问卷，对全国各高校的 504 名大学生进行调查，被试平均年龄在 17～24 岁之间(20.74±1.20)，其中男生 113 人(22.40%)，女生 391 人(77.6%)。结果发现：(1)文化自信、主观幸福感、文化依恋、亲子关系四个变量之间呈现显著正相关。(2)文化自信能直接正向预测主观幸福感，还能通过文化依恋的中介作用对主观幸福感产生影响。(3)亲子关系能够调节文化自信与文化依恋之间的关系，即调节中介路径的前半段。结论：本研究验证了大学生文化自信通过文化依恋影响主观幸福感并受到亲子关系调节作用的效应机制，揭示了文化因素与家庭因素的相互作用，为深入理解文化自信与幸福感之间的关系提供了理论支持和实证证据。同时，文化自信与良好的亲子关系产生交互作用，这也为家庭教育提供了新思路，要树立文化自信与家庭教育相结合的意识，使得个体对文化产生更深的情感联结和认同，从而更好地提升国民的文化自信和主观幸福感。

关键词 文化自信，主观幸福感，文化依恋，亲子关系

The influence of college students' cultural confidence on subjective well-being: A moderated mediation model

Miao Han[1 2] Yuhong Deng[1] Yanhong Zhang[1 2]
1 College of Education and Sports Sciences, Yangtze University, Jingzhou, Hubei,434023
2 Social Psychology Research Center of Yangtze University, Jingzhou, Hubei,434023
Corresponding: Yanhong Zhang, E-mail: zhangyanhong1998@163.com

Abstract: The trend of globalization has brought about cultural intermingling and cultural conflicts that have led people to think a lot about local cultures, and cultural confidence, as one of the key topics of cultural intermingling or conflicts among countries, has received much attention. Cultural confidence is a multidimensional, dynamic, and complex structure, which includes the individual's sense of belonging to the culture, positive evaluation, and the degree of involvement in cultural activities. Subjective well-being is a holistic judgment on an individual's quality of life based on self-internalized criteria, including three dimensions: life satisfaction, positive emotions and negative emotions. In order to investigate the effect of cultural confidence in subjective well-being, this study constructed a moderated mediation model based on theories such as the two-dimensional theory of social cognitive content, the social comparison theory and the attachment theory to examine the effect of cultural confidence in individuals' subjective well-being and its mechanism of action. Methods: The cultural confidence questionnaire, subjective happiness questionnaire, cultural attachment questionnaire and parent-child relationship questionnaire were used to survey 504 college students from various universities across the country, with the average age of the subjects ranging from 17 to 24 years old (20.74±1.20), of which 113 were male students (22.40%), and 391 were female students (77.6%). The results found that (1) there was a significant positive

correlation between the four variables of cultural confidence, subjective well-being, cultural attachment, and parent-child relationship. (2) Cultural confidence can directly and positively predict subjective well-being, and can also have an impact on subjective well-being through the mediating role of cultural attachment. (3) Parent-child relationship can moderate the relationship between cultural confidence and cultural attachment, that is, moderating the first half of the mediation path. Conclusion: This study verifies the effect mechanism that college students' cultural confidence affects subjective well-being through cultural attachment and is moderated by parent-child relationship, reveals the interaction between cultural factors and family factors, and provides theoretical support and empirical evidence for a deeper understanding of the relationship between cultural confidence and well-being. At the same time, cultural confidence interacts with good parent-child relationship, which also provides new ideas of family education to establish the awareness of the combination of cultural confidence and family education, so as to make individuals have a deeper emotional connection and identification with culture, and thus better enhance the cultural confidence and subjective well-being of nationals.

Keywords: cultural confidence, subjective well-being, cultural attachment, parent-child relationship

大学生感知父母文化社会化与文化自信的关系：父母情感温暖与社会责任感的链式中介作用

陈鏊昕[1 2]　陈心怡[1]　张艳红[1 2]（通讯作者）

1 长江大学教育与体育学院，湖北荆州，434023

2 长江大学社会心理研究中心，湖北荆州，434023

通讯作者：张艳红，E-mail: zhangyanhong1998@163.com

摘 要　经济全球化使世界各国人民交往日益密切，带来机遇的同时也带来了挑战，而文化是一个国家、一个民族的灵魂，文化自信已成为各国备受关注的议题。大学生群体作为新生力量、国家的年轻一代，在接受新事物时也受到了新信息的冲击，多元文化的交流碰撞使得他们的价值观念发生一定转变，较为盲目地追捧外来文化。而父母是孩子学习重要信念和技能的关键社会化中介，父母对孩子的文化教养，对于塑造大学生的文化自信起着十分重要的作用。然而，国内对父母文化社会化方面研究较少，多关注移民家庭或跨种族收养者，暂未将其与本国主流文化建设联系起来。因此，本研究基于心理学角度，从我国大学生感知父母文化社会化和文化自信现况出发，采用问卷法，对大学生感知父母文化社会化对文化自信的影响及其作用机制进行探讨。方法：采用文化自信问卷、感知父母文化社会化问卷、父母情感温暖问卷、社会责任感问卷，对全国各高校 517 名大学生进行调查，其中男生 212 人，女生 275 人。结果发现：(1)感知父母文化社会化能够正向预测文化自信;(2)社会责任感能够在感知父母文化社会化和文化自信的正向影响中起到部分中介作用;(3)父母情感温暖与社会责任感能够在感知父母文化社会化和文化自信的正向影响中起到链式中介作用。结论：本研究验证了父母情感温暖与社会责任感在大学生感知父母文化社会化与文化自信中的链式中介作用，从心理学角度出发为文化自信领域研究提供了实证数据支持。研究不仅促进了文化社会化这一概念的本土化，也有助于为改善大学生与父母的亲子关系和增强社会责任感提供实践指导。

关键词　父母文化社会化，文化自信，父母情感温暖，社会责任感

The relationship between college students' perception of parental cultural socialization and cultural confidence: The chain mediating effect of parental emotional warmth and social

responsibility

Zanxin Chen[1 2] Xinyi Chen[1] Yanhong Zhang[1 2]
1 College of Education and Sports Sciences, Yangtze University, Jingzhou, Hubei,434023
2 Social Psychology Research Center of Yangtze University, Jingzhou, Hubei,434023
Corresponding: Yanhong Zhang, E-mail: zhangyanhong1998@163.com

Abstract: Economic globalization has led to increasingly close communication among people from all over the world. It is not only an opportunity, but also a challenge, and culture is the core of a country and a nation. Cultural confidence has become a topic of great concern for all countries. As a new force and the young generation of the country, college students are also affected by new information when accepting new things, and the multicultural exchange and collision have caused a certain change in their values, and they are more blindly pursuing foreign cultures. Parents are the key socialization mediators for children to learn important beliefs and skills, and parents' cultural upbringing of children plays a very important role in shaping the cultural confidence of college students. However, there is little research on the socialization of parents' culture in China, and more attention is paid to immigrant families or interracial adopters, and it has not been linked to the construction of mainstream culture in the country. Therefore, based on the perspective of psychology, this study uses the questionnaire method to explore the influence and mechanism of college students' perception of parental cultural socialization on cultural confidence from the perspective of psychology. Methods: The cultural confidence questionnaire, the parental cultural socialization questionnaire, the parental emotional warmth questionnaire and the social responsibility questionnaire were used to survey 517 college students across the country, including 212 boys and 275 girls. The results show that: (1) perceiving parental cultural socialization can positively predict cultural confidence; (2) social responsibility can play a partial mediating role in perceiving the positive influence of parental cultural socialization and cultural confidence; (3) parental emotional warmth and social responsibility can play a chain mediating role in perceiving the positive influence of parental cultural socialization and cultural confidence. Conclusion: This study verifies the chain mediating role of parental emotional warmth and social responsibility in college students' perception of parental cultural socialization and cultural confidence, and provides empirical data support for the research on cultural confidence from the perspective of psychology. The research not only promotes the localization of the concept of cultural socialization, but also helps to provide practical guidance for improving the parent-child relationship between college students and parents and enhancing their sense of social responsibility.

Keywords: parents cultural socialization, cultural confidence, parental emotional warmth, social responsibility

3.18 "积极心理学专业委员会"专题研讨会

中国大学生敬畏情绪的心理结构：基于网络分析方法

吕一超[1,2] 陶言强[1,2] 刘翔平[1,2] 徐前[3] 张潮[3]（通讯作者）
1. 北京师范大学心理学部，北京，100000
2 应用实验心理北京市重点实验室，北京，100000
3 山西师范大学教育科学学院，山西太原，030000，zhangchao951217@163.com

摘 要　敬畏(awe)指当我们面对那些广阔的、浩大的，以及超越我们当前理解范围的事物时产生的惊异的情绪体验。以敬畏原型理论及扩展模型为指导，敬畏情绪包括浩大感(vastness)、连通感(connectedness)、渺小感(tininess, small-self)、自我削弱感(self-diminishment)、服从感(compliance)、顺应需要(need for accommodation)、身体感觉(physical sensations)以及时间知觉变化(altered time perception)八个维度特征。同时，敬畏又可以分为积极敬畏和消极敬畏两大变体，二者具有不同的情绪特征和评价。然而，尚未有研究探究不同敬畏情绪的心理网络结构。因此，本文采用网络分析方法，初步构建并比较中国大学生不同敬畏情绪(积极敬畏和消极敬畏)的偏相关网络结构，评估不同网络中各个维度的强度中心性(expected influence)、中介中心性(betweenness)以及接近中心性(closeness)，并测试了网络结构和中心性指标的稳定性和准确性。

研究采用单因素被试间设计，1318 名被试随机观看积极敬畏、消极敬畏或中性情绪视频，而后完成情绪操纵检验量表和敬畏情绪问卷。网络分析表明，积极敬畏和消极敬畏的网络结构有显著差异($p < .05$).在积极敬畏网络中，除浩大感和身体感觉之间为负相关($r = -0.218$)之外，其余有效连线均为正相关($0.023 \leq r \leq 0.422$)；其中，连接最强的三组维度分别为浩大感和渺小感($r = 0.422$)、服从感和身体感觉($r = 0.386$)、浩大感和连通感($r = 0.348$)。服从感是强度中心性和接近中心性最强的维度，服从感、浩大感以及身体感觉为中介中心性最强的三个维度。而在消极敬畏网络中，所有有效连线均为正相关($0.011 \leq r \leq 0.552$)；其中，连接最强的三组维度分别为浩大感和渺小感($r = 0.552$)、服从感和身体感觉($r = 0.358$)、服从感和连通感($r = 0.322$)。浩大感具有最强的强度中心性，而自我削弱感具有最强的中介中心性和接近中心性。同时，无论是积极敬畏网络还是消极敬畏网络，网络结构和中心性指标均表现出较好的稳定性和准确性。识别不同变体敬畏的网络结构，有助于理解敬畏情绪的内在机制，对于更广泛地、更深刻地体验敬畏情绪有重要意义。

关键词　积极敬畏 消极敬畏 网络分析　浩大感　服从感

The Structure of Positive and Negative Awe Emotions among Chinese University Students: A Network Analysis

Lv Yichao[1,2]　Yanqiang Tao[1,2]　Xiangping Liu[1,2]　Qian Xu[3]　Chao Zhang[3](Corresponding author)

[1]Faculty of Psychology, Beijing Normal University, Beijing, China, 100000

[2]Beijing Key Laboratory of Applied Experimental Psychology, National Demonstration Center for Experimental Psychology Education, Beijing, China, 100000

[3]School of Education Science, Shanxi Normal University, Taiyuan, Shanxi, 030000

Abstract：Awe refers to a unique emotional experience that arises when individuals encounter vast, grand, and incomprehensible phenomena beyond our current understanding. Guided by the prototype theory and expanded model of awe, awe emotions can be characterized by eight dimensions: vastness, connectedness, tininess (or small-self), self-diminishment, compliance, need for accommodation, physical sensations, and altered time perception. Awe also can be categorized into two variants: positive awe and negative awe, each with distinct emotional features and evaluations. However, there is limited research exploring the psychological network structure of different awe emotions. Therefore, using network analysis, this study preliminarily construct and compare the partial correlation network structures of positive and negative awe emotions among Chinese university students, examine the strength centrality (expected influence), betweenness centrality, and closeness centrality of each dimension in the networks are evaluated, and tests the stability and accuracy of networks.

A single-factor between-subjects design was employed, involving 1318 participants who were randomly assigned to watch videos inducing positive awe, negative awe, or neutral emotions. Subsequently, participants completed manipulation check measures and an awe emotion questionnaire. Network analysis revealed significant differences in the network structures between positive and negative awe ($p < .05$). In the positive awe network, all

valid connections, except for a negative correlation between vastness and physical sensations (r = -0.218), were positive ($0.023 \leq r \leq 0.422$). The three strongest connections in this network were vastness and tininess (r = 0.422), compliance and physical sensations (r = 0.386), and vastness and connectedness (r = 0.348). Compliance exhibited the highest strength centrality and closeness centrality, while compliance, vastness, and physical sensations were the top three dimensions with the highest betweenness centrality. In the negative awe network, all valid connections were positive ($0.011 \leq r \leq 0.552$). The three strongest connections in this network were vastness and tininess (r = 0.552), compliance and physical sensations (r = 0.358), and compliance and connectedness (r = 0.322). Vastness displayed the highest strength centrality, while self-diminishment exhibited the highest betweenness centrality and closeness centrality. Additionally, both positive and negative awe networks demonstrated good stability and accuracy in terms of network structure and centrality indices. Exploring the network structures of distinct awe variants enhances our understanding of the underlying mechanisms behind awe emotions and has profound implications for enriching the experience of awe on a broader and deeper level.

Keywords：positive awe, negative awe, network analysis, vastness, compliance

敬畏对网络欺凌中积极旁观者行为的影响

管江悦[1] 李汝勇[1] 刘敏[2] 张潮[1]（通讯作者）

1 山西师范大学教育科学学院，太原，030032，zhangchao951217@163.com

2 山西工程职业学院，山西太原，030000，364080783@qq.com

摘 要　背景：网络欺凌会降低受欺凌者的幸福感，导致个体抑郁症、社交焦虑和低自尊水平。网络欺凌中的积极旁观者行为能够有效降低欺凌事件的发生频率，减轻受欺凌者的负性情绪及其带来的负面影响，是预防欺凌事件的重要组成部分。敬畏是一种表明个体处于安全环境的信号，能够为亲社会行为的发生创造相当理想的环境。敬畏表现出的自我超越特质能够使个体在面对网络欺凌事件时增强个体与他人的社会连接，提高其积极旁观者行为的出现概率。目的：本研究试图构建一个有调节的中介模型，考察共情在敬畏对网络欺凌中积极旁观者行为的影响中的中介作用以及未来自我连续性对这一过程的调节作用，为提高积极旁观者行为出现的概率提供实证依据。方法：研究使用网络欺凌中旁观者行为量表-积极旁观者行为分量表、特质敬畏情绪分量表、人际反应指针问卷、未来自我连续性问卷对 303 名大学生进行施测。结果：（1）敬畏与积极旁观者行为显著正相关($r = 0.326, p < 0.01$)，敬畏与共情显著正相关($r = 0.337, p < 0.01$)，共情与积极旁观者行为显著正相关($r = 0.226, p < 0.01$)，敬畏与未来自我连续性显著正相关($r = 0.395, p < 0.01$)，共情与未来自我连续性显著正相关($r = 0.182, p < 0.01$)；（2）共情在敬畏与积极旁观者行为中起中介作用(效应值＝ 0.04, 95CI: 0.008~0.07)；（3）敬畏对共情的中介路径会受到未来自我连续性的正向调节作用(交乘项 B＝ 0.09, $t = 2.61, p$ ＜ 0.01)，敬畏对积极旁观者行为的直接路径会受到未来自我连续性的正向调节作用(交乘项 B＝ 0.11, $t = 2.26, p$ ＜ 0.05)。结论：敬畏能够通过共情影响网络欺凌中的积极旁观者行为，且敬畏对共情的中介路径和对积极旁观者行为的直接路径均会受到未来自我连续性的正向调节。

关键词　网络欺凌中积极旁观者行为，敬畏，共情，未来自我连续性

The Effect of Awe on Active Bystander Behavior in Cyberbullying

Jiangyue Guan　Ruyong Li　Liu Min　Chao Zhang(Corresponding author)

1 College of Education Science, Shanxi Normal University, Taiyuan, 030000，

zhangchao951217@163.com

2 Shanxi Engineering Vocational College，Taiyuan，030000，364080783@qq.com

Abstract: Background: Cyberbullying decreases the well-being of the bullied, leading to individual depression, social anxiety, and low self-esteem levels. Active bystander behavior in cyberbullying can effectively reduce the frequency of bullying incidents, alleviate the negative emotions of the bullied and their negative consequences, and is an important component of bullying prevention. Awe is a signal indicating that an individual is in a safe environment and can create a fairly ideal environment for pro-social behavior to occur. The self-transcendent trait exhibited by awe can enable enhance individuals' social connections with others when faced with cyberbullying incidents, enhancing the probability of their active bystander behavior. Objective: The study sought to construct a moderated mediation model to examine the mediating role of empathy in the effect of awe on active bystander behavior in cyberbullying and the moderating role of future self-continuity on this process to provide an empirical basis for increasing the probability of emergence of active bystander behavior. Methods: The study was administered to 303 college students using Bystander Behavior Scale in Cyberbullying-Active Bystander Behavior Sub, Dispositional Positive Emotions Scale-Dispositional Awe Sub, Interpersonal Reactivity Index-C and Future Self-Continuity Questionnaire. Results: After controlling gender and age, (1) Awe had a significantly positive correlation effect on active bystander behavior ($r = 0.326$, $p < 0.01$), awe had a significantly positive correlation effect on empathy ($r = 0.337$, $p < 0.01$), empathy had a significantly positive correlation effect on active bystander behavior ($r = 0.226$, $p < 0.01$), awe had a significantly positive correlation effect on future self-continuity ($r = 0.395$, $p < 0.01$), and empathy had a significantly positive correlation effect on future self-continuity ($r = 0.182$, $p < 0.01$); (2) empathy could play an intermediary role in the relationship between awe and active bystander behavior ($\beta = 0.04$, 95CI: 0.008~0.07); (3) The mediating role of empathy in the relationship between awe and active bystander behavior will be positively regulated by future self-continuity ($B = 0.09$, $t = 2.61$, $p < 0.01$), and the direct predictive effect of awe on active bystander behavior was positively regulated by future self-continuity ($B = 0.11$, $t = 2.26$, $p < 0.05$). Conclusion: Awe can influence active bystander behavior in cyberbullying through empathy, and this relationship is moderated by future self-continuity.

Keywords: Active bystander behavior in cyberbullying, Awe, Empathy, Future self-continuity

自然对无聊的影响：敬畏和生命意义感的链式中介作用

张恺敏　赵若晨　蔺哲子　张潮（通讯作者）

山西师范大学教育科学学院，太原，030000

通讯作者 E-mail: zhangchao951217@163.com

摘 要　进入现代社会，人们的无聊感伴随着社会的快速进步出现激增。城市高楼林立，人们终日生活在钢筋水泥和霓虹闪烁的都市环境中。网络高度发达，人们的工作和学习早已和网络深度绑定，手机上各类社交媒体和海量信息常常使人疲于应对。大量的研究结果发现,身处重复、单调、压抑的现代环境中,人们会频繁感到无聊和空虚。长期的无聊体验将会导致个体的注意力涣散,造成各种认知错误，严重影响人们的精神状态。更严重的情况下还会转化为精神疾病，如抑郁症。根据亲生命性假说和复愈性环境理论，人类与自然环境之间存在着天然的联结，自然环境不仅为我们维持生存提供了必需的物质条件，同时也储存了现代生活所需要的心理资源，对我们维持健康、平衡身心状态至关重要。自然是否能降低无聊？这一问题目前还没有相关的实证研究。因此，本研究试图探讨自然和无聊的关系，拓展能够降低无聊的影响因素，为深受无聊困扰得人群提供有效的解决办法。**目的：**本研究试图探讨自然对无聊的影响及其心理机制。**方法：**本研究分为两个部分。研究一招募 250 个大学生，利用问卷调查的方法，探讨自然接触的频率和无聊的关系。研究二招募 150 个被试，使用数方块任务诱发无聊，采用观看图片范式将被试分为自然组和中性组，因变量为无聊得分、敬畏得分和生命意义感得分。采用被试间前测后测实验设计。**预期结果：**自然

的主效应显著，相比于观看中性图片的被试，观看自然图片的被试的无聊后测得分更低，敬畏和生命意义感的得分更高。自然能够降低无聊感，自然也可以通过敬畏和生命意义感的链式中介作用对无聊产生影响。

关键词 自然，无聊，敬畏，生命意义感

The Influence of Nature on Boredom: The Mediating Role of Awe and Sense of Meaning in Life

ZHANG Kaimin ZHAO Ruochen LIN Zhezi ZHANG Chao
College of Education Science, Shanxi Normal University, Taiyuan, 030000
Corresponding Author: Zhang Chao Email :zhangchao951217@163.com

***Abstract*：** With the advent of modern society, people's sense of boredom has increased significantly alongside rapid social progress. In the midst of towering skyscrapers, individuals spend their days in urban environments dominated by concrete, steel, and flickering neon lights. The internet has become highly developed, and people's work and study have become deeply intertwined with the online world. Various social media platforms and an overwhelming amount of information on mobile phones often leave individuals exhausted. Numerous research findings have revealed that individuals in repetitive, monotonous, and oppressive modern environments frequently experience boredom and emptiness. Prolonged experiences of boredom can lead to a scattered attention span, resulting in various cognitive errors and severely affecting individuals' mental state. In more severe cases, it can even manifest as mental illnesses such as depression. According to the biophilia hypothesis and the restorative environment theory, there is a natural connection between human beings and the natural environment. The natural environment not only provides the necessary material conditions for our survival but also stores the psychological resources needed for modern life, which are crucial for maintaining a healthy and balanced state of body and mind. Can nature reduce boredom? Currently, there is no empirical research specifically addressing this question. Therefore, this study aims to investigate the relationship between nature and boredom, as well as to explore factors that can mitigate boredom. The goal is to provide effective solutions for individuals who are deeply affected by boredom, offering them practical ways to overcome this state of mind. **Objective:** This study aims to explore the influence of nature on boredom and its psychological mechanisms. **Methods:** The study consists of two parts. Study 1 recruited 250 college students and employed a questionnaire survey to investigate the relationship between the frequency of nature exposure and boredom. Study 2 recruited 150 participants and induced boredom using a number-square task. The participants were divided into a nature group and a neutral group using a picture viewing paradigm. The dependent variables were scores of boredom, awe, and sense of meaning in life. A between-subjects pretest-posttest experimental design was employed. **Expected results:** The main effect of nature is significant. Compared to participants who viewed neutral pictures, those who viewed nature pictures had lower scores of boredom in the posttest, and higher scores of awe and sense of meaning in life. Nature can reduce feelings of boredom and also exert an influence on boredom through the mediating effects of awe and a sense of meaning in life.

Keywords: Nature, boredom, awe, sense of meaning in life.

敬畏对性别刻板印象的影响

李汝勇 安梦娟 薛镜谷 张潮（通讯作者）

山西师范大学教育科学学院，太原，030032，zhangchao951217@163.com

摘 要　刻板印象是人们对社会群组知识、观念期望构成的认知结构。刻板印象能够帮助个体更快地了解认识新环境，更好地生存。同时，刻板印象形成对内外群体产生了不良影响，如标签化、污名化等，影响个体成长发展。敬畏（awe）作为一种自我超越情绪，情绪产生时个体与周围环境连接感增强，更加关注周围人事物。研究表明，敬畏可以改变个体的认知，与群体联系感更紧密。因此本研究假设敬畏可以减少个体的性别刻板印象。综上，本研究首先验证了敬畏与刻板印象的关系，探究了对刻板印象的影响及其内在机制。研究一（N=200）采用特质敬畏量表（DPES-awe）和青少年性别刻板印象量表（ASS）检验了本土环境下个体的性别刻板印象，探究其与个体特质性敬畏的关系。研究结果表明，大学生群体存在性别刻板印象。同时，特质敬畏的个体表现更低的性别刻板印象，两者呈现负相关。研究二（N=180）采用被试间实验设计 3 敬畏（高敬畏 VS 低敬畏 VS 中性）x2 刻板印象（积极 VS 消极），使用视频诱发目标情绪，通过 IAT 内隐联想任务测量被试对性别刻板印象的作用，并检验自我超越的作用。结果表明：（1）与愉悦和中性情绪相比，状态敬畏能够显著增强积极刻板印象（即内群体的刻板印象），减弱消极刻板印象（即对外群体的刻板印象）；（2）状态敬畏的自我超越感更强，相比于中性与愉悦情绪；（3）状态敬畏对刻板印象的影响中，自我超越起到中介作用。

关键词 敬畏，性别刻板印象，自我超越

The impact of awe on gender stereotypes

Li Ruyong　An Mengjuan　Xue Jinggu　Zhang Chao(Corresponding author)
College of Education Science, Shanxi Normal University, Taiyuan, 030031
Corresponding Author Email :zhangchao951217@163.com

Abstract：Stereotype is the cognitive structure formed by people's knowledge and expectations of social groups. Stereotypes can help individuals understand new environments faster and survive better. At the same time, the formation of stereotypes has a negative impact on the internal and external groups, such as labeling and stigmatization, which affect the growth and development of individuals. Awe (awe) is a self-transcendence emotion. When the emotion arises, the individual's sense of connection with the surrounding environment increases, and he pays more attention to the people and things around him. Research has shown that awe can alter an individual's perception of a greater sense of connection to a group. Therefore, this study hypothesizes that awe can reduce individual gender stereotypes. To sum up, this study first verified the relationship between awe and stereotypes, and explored the impact on stereotypes and its internal mechanism. Study 1 (N=200) used the Trait Awe Scale (DPES-awe) and the Adolescent Sex Stereotype Scale (ASS) to examine the gender stereotypes of individuals in the local environment, and to explore their relationship with individual trait awe.The results of the study show that there are gender stereotypes in college students. At the same time, individuals with trait awe showed lower gender stereotypes, and the two showed a negative correlation. Study 2 (N=180) adopts the experimental design between subjects 3 awe (high awe VS low awe VS neutral) x2 stereotype (positive VS negative), using video to elicit target emotions, and measuring subjects' perception of The role of gender stereotypes and examining the role of self-transcendence. The results showed that: (1) Compared with pleasant and neutral emotions, state awe can significantly enhance positive stereotypes (that is, in-group stereotypes) and weaken negative stereotypes (that is, out-group stereotypes); (2) state awe Compared with neutral and pleasant emotions, self-transcendence has a stronger sense of self-transcendence; (3) Self-transcendence plays a mediating role in the effect of state awe on stereotypes.

Keywords：awe，gender stereotype，self-transcendence

敬畏对社会善念的影响：道德提升感和共情的中介作用

王小慧　侯东月　布雅静　张潮（通讯作者）
山西师范大学教育科学学院，山西太原，030000，zhangchao951217@163.com

摘 要　社会善念指个体在人际交往中善意关注、尊重并保护他人的选择需要和权力的倾向。依据相互依赖理论，高社会善念的个体在与他人相互依赖的情况下，会尽可能让对方拥有对自己作出选择的控制权。从个人的角度来说，表现出社会善念行为可以给他人留下好印象，有利于人际交往与合作；从整个社会角度来说，社会善念属于亲社会行为的一种，着眼于日常生活中的低成本付出，有助于构建良好的社会关系以及和谐的社会环境。敬畏作为一种积极情绪，能够促使个体感知到更加浩大广阔的外界，会增强个体对他人和社会的善意，使得个体对自身的关注程度降低，从而产生利他动机，表现出更多的亲社会行为。因此，敬畏可能会影响个体的社会善念。道德提升感是指个体看到他人的道德行为时，欣赏他人的美德并感到自己的道德情操被提升，而产生的一种积极道德情绪。道德提升感会增强个体的亲社会行为动机，对社会善念具有一定的预测作用。共情指个体感知或想象其他人的情感，并体验到其他人感受的心理过程。共情-利他假说认为，在共情的作用下，个体会实施更多的助人行为，并提高其社会善念水平。为调查敬畏对社会善念的影响以及是否存在道德提升感和共情的中介机制，本研究采用特质性敬畏量表、社会善念量表、道德提升感量表和人际反应指针量表对某大学学生进行调查。预期研究结果为：(1)敬畏正向预测社会善念；(2)道德提升感和共情在敬畏和社会善念之间起中介作用。

关键词　敬畏 社会善念 道德提升感 共情

The Influence of Awe on Social Mindfulness: The Mediating Role of Moral Elevation and Empathy

Wang Xiaohui, Hou Dongyue, Bu Yajing, Zhang Chao(Corresponding authour)
School of Education Science, Shanxi Normal University, Taiyuan, 030032

Abstract：Social mindfulness refers to the tendency of individuals to kindly pay attention to, respect and protect the choice needs and rights of others in interpersonal communication. According to the codependency theory, when individuals with high social mindfulness are interdependent with others, they will try their best to let the other person have control over their choices. From the individual's point of view, showing good social behavior can leave a good impression on others, which is conducive to interpersonal communication and cooperation. From the perspective of the whole society, social mindfulness belongs to a kind of prosocial behavior, focusing on low-cost efforts in daily life, which helps to build a good social relationship and a harmonious social environment. As a positive emotion, awe can promote individuals to perceive the wider world, enhance their goodwill toward others and society, and reduce their attention to themselves, thus generating altruistic motives and displaying more prosocial behaviors. Thus, awe may affect the social mindfulness of individuals. The sense of moral promotion refers to a positive moral emotion generated when an individual sees the moral behavior of others, appreciates the virtue of others and feels that his own moral sentiment has been promoted. The sense of moral elevation can enhance the motivation of prosocial behavior and has a certain predictive effect on social mindfulness. Empathy is the mental process by which an individual perceives or imagines the emotions of another person and experiences what the other person feels. The empathy-altruism hypothesis holds that under the influence of empathy, individuals will carry out more helpful behaviors and improve their level of social mindfulness. In order to

investigate the influence of awe on social mindfulness and whether there is an intermediary mechanism between moral elevation and empathy, this study used the trait awe scale, social mindfulness scale, moral elevation scale and interpersonal response indicator scale to investigate students in a certain university. The expected results are: (1) Awe positively predicts social mindfulness; (2) Moral elevation and empathy play a mediating role between awe and social mindfulness.

Keywords：awe　social mindfulness　moral elevation　empathy

敬畏对中学生校园欺凌行为的影响——自我概念和生命意义的链式中介作用

布雅静　蔺哲子　王小慧　张潮（通讯作者）
山西师范大学教育科学学院，太原，030000，zhangchao951217@163.com

摘 要 近年来，国内校园欺凌事件频发，深受社会的广泛关注。校园欺凌事件不仅对中学生的身心健康产生了极大的危害,且形成的创伤会伴随一生。研究发现，脾气暴躁、易怒的学生实施欺凌行为的频率最高，并且会吸引有不成熟慕强心理的学生加入形成小团体。敬畏作为一种尊敬和恐惧并含的复杂情绪，会使个体产生深刻的“小我”体验，个体的感知从以自我为中心转变为一个更广阔的框架，使个体对生命意义产生深刻思考，并且抑制个体的负面行为。中学生正处于自我概念和生命意义形成的关键时期，两者都会促使个体形成健全人格，拥有更温良的性格，以此减少校园欺凌行为。目的：本研究基于敬畏的小我理论和积极行为扩展理论，探讨敬畏对初中生校园欺凌行为的影响，以及自我概念和生命意义的链式中介作用。方法：将 378 名初中生分为两组，实验组使用敬畏材料激活敬畏情绪，对照组不激活敬畏情绪，并采用敬畏体验量表(Awe Experience Scale, AWE-S)、生命意义感量表(MLQ)、自我概念量表和攻击行为量表进行问卷调查。预期结果：（1）敬畏、自我概念、生命意义与攻击行为两两呈显著负相关；（2）自我概念和生命意义在敬畏对中学生攻击性行为中起链式中介作用。本研究启示我们学校心理健康教育可以注重学生的敬畏教育，发展学生的自我概念和生命意义感，来降低校园欺凌事件的发生。

关键词 敬畏，自我概念，生命意义，攻击行为

The Impact of Awe on School Bullying in Middle School Students: A Chain Mediating Role of Self-Concept and Meaning in Life

BU Yajing　LIN Zhezi　WANG Xiaohui　ZHANG Chao(Corresponding Author)
College of Education Science, Shanxi Normal University, Taiyuan, 030031
Corresponding Author Email :zhangchao951217@163.com

Abstract：In recent years, domestic campus bullying incidents have occurred frequently and have received widespread attention from the society. Campus bullying incidents not only do great harm to the physical and mental health of middle school students, but also cause trauma that will last a lifetime. The study found that short-tempered, irritable students reported the highest levels of bullying and attracted immature, obsessive students

to form cliques. Awe, as a complex emotion containing both respect and fear, will cause individuals to have a profound "ego" experience, and the individual's perception will change from self-centered to a broader framework, allowing individuals to think deeply about the meaning of life, And inhibit the negative behavior of the individual. Middle school students are in a critical period of forming self-concept and meaning of life, both of which will promote the individual to form a sound personality and have a more gentle personality, so as to reduce campus bullying. Objective: Based on the ego theory of awe and the extended theory of positive behavior, this study explores the influence of awe on campus bullying behavior of junior high school students, as well as the chain mediating effect of self-concept and meaning of life. Methods: 378 junior high school students were divided into two groups. The experimental group used awe materials to activate the awe emotion, and the control group did not activate the awe emotion. The Awe Experience Scale (AWE-S) and the meaning of life scale (MLQ), Self-Concept Scale and Aggressive Behavior Scale. Expected results: (1) Awe, self-concept, meaning of life and aggressive behavior are significantly negatively correlated in pairs; (2) Self-concept and meaning of life play a chain mediating role in the relationship between awe and aggressive behavior of middle school students. This study reveals that our school mental health education can focus on students' reverence education, develop students' self-concept and sense of life meaning, and reduce the occurrence of school bullying incidents.

Keywords：awe，self-concept，meaning of life，aggressive behavior

失依儿童中复杂性创伤后应激症状的异质性表现

梁一鸣　孙悦　彭雅楠　席居哲（通讯作者）

华东师范大学心理与认知科学学院，华东师范大学附属精神卫生中心，上海市心理健康与危机干预重点实验室，上海, 200062 通讯作者 Email: jzxi@psy.ecnu.edu.cn

基金信息：上海市启明星计划扬帆专项（22YF1411600）

摘 要　背景：复杂性创伤后应激障碍(CPTSD)是近年来新确立的精神疾病诊断，被认为与童年期创伤密切相关。然而在困境儿童群体中详细探讨 CPTSD 症状表现的研究十分匮乏。失依儿童在我国一般指事实无人抚养儿童，数量不容小觑，且很多经历多种童年期创伤。本研究旨在描述中国失依儿童群体中 CPTSD 的现状，探究该群体中 CPTSD 症状的异质性表现。

方法：本研究收集了来自湖南省桂阳、新田两县的 244 名失依儿童（9 到 16 岁，45.49%女孩），使用 UCLA 创伤后应激障碍量表中的童年期创伤经历筛查表测量童年期创伤史，国际创伤问卷（ITQ）评估 CPTSD 症状。使用潜在剖面分析估计该群体内中 CPTSD 症状表现的亚组。

结果：失依儿童中存在 3 种 CPTSD 症状表现的亚组：低症状组（29.10%）、阈下 CPTSD 组（40.16%）和 CPTSD 组（30.74%）。低症状组的 PTSD 和 DSO 症状水平都很低，功能损伤也很轻；阈下 CPTSD 组的特点是症状得分接近检出标准，但功能损伤的水平明显低于检出标准；CPTSD 组的儿童同时具有高水平的 PTSD 和 DSO 症状，且具有超过检出标准的功能损伤。此外，人际暴力类型的创伤是失依儿童 CPTSD 症状最重要的风险因素，其次是意外事故类型的创伤。此外，就读于高年级具有一定保护作用，女孩有更高概率出现在 CPTSD 组。

结论：这些发现描绘了中国失依儿童群体中 CPTSD 的现状，并揭示了暴露于复杂性创伤的儿童群体具有与社区群体不同的 CPTSD 症状特点。人际暴力是 CPTSD 的重要风险因素也支持了国际疾病分类第 11 次修订版对于 CPTSD 在创伤类型上的界定。

关键词　失依儿童，困境儿童，复杂性创伤后应激障碍，潜在剖面分析

Complex posttraumatic stress symptoms among Chinese unaccompanied children: A latent profile analysis

Yiming Liang, Yue Sun, Yanan Peng, Juzhe Xi (Corresponding author)
Shanghai Key Laboratory of Mental Health and Psychological Crisis Intervention, Affiliated Mental Health Center (ECNU), School of Psychology and Cognitive Science, East China Normal University, Shanghai, 200062, China, Correspondence: jzxi@psy.ecnu.edu.cn

Abstract: Background: Complex post-traumatic stress disorder (CPTSD), a newly established psychiatric diagnosis in recent years, is considered to be closely related to childhood trauma. However, there is a paucity of studies detailing the symptoms presentation of CPTSD in child populations with high trauma exposure. According to the Chinese government, facto unsupported children and are defined as children whose parents are both seriously disabled or ill, serving a sentence of imprisonment, under compulsory isolation, under other measures of restriction of personal freedom, or missing; or children whose one parent is dead or missing and the other parent is in the above circumstances. The number of such children is considerable, and many of them have experienced various forms of childhood trauma. Therefore, this study aimed to describe the current situation of CPTSD in a group of facto unsupported children in China, to investigate the heterogeneous manifestations of CPTSD symptoms in this group.

Methods: This study collected 244 children (9 to 16 years old, 45.49% girls) from Guiyang and Xintian counties in Hunan Province. Trauma exposure was measured by the UCLA-PTSD scale and CPTSD symptoms was measured by the International Trauma Questionnaire (ITQ). Latent profile analysis was used to identify subgroups of CPTSD symptom presentation among unsupported children.

Results: We identified three subgroups with heterogeneity in CPTSD symptom presentation in the study sample: a low-symptom group (29.10%), a sub-threshold CPTSD group (40.16%), and a CPTSD group (30.74%). The low-symptom group had low level of PTSD and DSO symptoms and mild functional impairment. The sub-threshold CPTSD group had PTSD and DSO symptoms which were close to the cut-off score, but the level of functional impairment was significantly lower than the cut-off score. Children in the CPTSD group had high levels of both PTSD and DSO symptoms, as well as functional impairment that exceeded the cut-off score. Interpersonal violence was also found to be the most important risk factor for CPTSD symptoms, followed by accidents, with a protective effect of attending higher grades and girls being more likely to belong to the CPTSD group.

Conclusion: These findings provide a concrete picture of the current status of CPTSD in the Chinese unsupported child population, reveal that the child population exposed to complex trauma has very different symptom presentation compared to the community population. Interpersonal violence is an important risk factor for complex post-traumatic stress disorder (CPTSD), which support the International Classification of Diseases, 11th revision's definition of CPTSD.

Keywords: unsupported children, children at risk, complex post-traumatic stress disorder, latent profile analysis

网络受欺凌与初中生攻击倾向的关系：一个有调节的中介模型

卞小华[1] 李叶青[2] 严世龙[1] 王心语[1] 刘俊升[2,3]（通讯作者） 席居哲[2,3]（通讯作者）
1 郑州师范学院教育科学学院，心理与行为科学国际联合实验室，郑州，450044

2 华东师范大学心理与认知科学学院，华东师范大学附属精神卫生中心，华东师范大学涵静书院积极教育(中国)中心，上海学校心理健康教育名师(席居哲)工作室，上海市心理健康与危机干预重点实验室，上海，200062　通讯作者：jsliu@psy.ecnu.edu.cn; jzxi@psy.ecnu.edu.cn

3 上海市长宁区精神卫生中心，上海，200355

基金信息：河南省哲学社会科学规划项目(2021BJY043)、河南省重点研发与推广专项（科技攻关）项目（222102320009）、河南省外国专家项目（HNGD2023037）

摘 要　随着网络技术的发展，网络已成为我国青少年进行社交的重要工具。在享受网络带来便利的同时，青少年也遭到网上骚扰、谩骂等网络受欺凌行为，网络受欺凌逐渐成为威胁学生身心健康的重要风险因子。大量研究发现，有网络受欺凌经历的青少年更容易出现攻击倾向等外化问题与焦虑、抑郁等内化问题。同时，网络受欺凌者也会出现愤怒反刍等情绪失调问题。根据一般压力理论，在面对消极情绪时，青少年会出现更多的问题行为。自我同情恐惧是指个体认为自己不值得被同情，并出现害怕同情自己的情绪。有学者发现同情恐惧与自伤行为呈正相关，并影响青少年的心理健康。综上，本研究探讨初中生网络受欺凌和攻击倾向的关系，以及愤怒反刍在其中发挥的中介作用和自我同情恐惧发挥的调节作用。本研究采用网络受害问卷、攻击倾向问卷、愤怒反刍量表和自我同情恐惧量表对 510 名来自青海省海东市民和县三所初中的初中生（平均年龄=13.67 岁，37%的被试为男性）进行调查，并采取基于潜调节的方法建立结构方程模型。结果发现：（1）网络受欺凌和攻击倾向呈显著的正相关；（2）愤怒反刍在网络受欺凌和攻击倾向间起中介作用；（3）自我同情恐惧在中介模型中起调节作用，调节了后半路径。结果有助于分析网络受欺凌影响初中生攻击倾向的深层原因并采取恰当的干预策略，减少愤怒反刍对青少年攻击行为的负面影响。

关键词　网络受欺凌，攻击倾向，愤怒反刍，自我同情恐惧

The relationship between cybervictimization and aggression of junior high school students: a moderated mediation model

Xiaohua Bian[1],Qingye Li[2] ,Shilong Yan[1], Xinyu Wang[1], Junsheng Liu[2,3](Corresponding author) ,Juzhe Xi [2,3](Corresponding author)

1 School of Educational Science, International Joint Laboratory of Behavior and Cognitive Science, Zhengzhou Normal University, Zhengzhou, Henan 450044, China

2 S Shanghai Key Laboratory of Mental Health and Psychological Crisis, Affiliated Mental Health Center (ECNU), Positive Education China Academy (PECA) of Han-Jing Institute for Studies in Classics, Juzhe Xi's Master Workroom of Shanghai School Mental Health Service, School of Psychology and Cognitive Science, East China Normal University, Shanghai, 200062, China. Correspondence: jsliu@psy.ecnu.edu.cn; jzxi@psy.ecnu.edu.cn

3 Shanghai Changning Mental Health Center, Shanghai 200335, China

Fund：The program of philosophy and social sciences in Henan Province（2021BJY043）; The Key research & development and promotion projects in Henan Province（222102320009）;Foreign Expert Project in Henan Province（HNGD2023037）

Abstract： With the development of internet technology, the Internet has become an essential tool for socializing among teenagers in our country China. While enjoying the convenience brought by the Internet, teenagers are also subject to online harassment, verbal abuse, and other forms of cybervictimization. Cybervictimization has gradually become a significant risk factor threatening students' mental and physical health.

Numerous studies have found that teenagers who have experienced cybervictimization are more prone to externalizing problems such as aggression and internalizing problems like anxiety and depression. At the same time, cybervictimization perpetrators may experience emotional disturbances like anger rumination. According to the general strain theory, when facing negative emotions, teenagers may exhibit more problematic behaviors. fear of self-compassion refers to individuals believing that they are not worthy of sympathy and experiencing fear of being pitied by others. Some scholars have found a positive correlation between fear of self-compassion and self-harming behaviors, which can affect teenagers' psychological well-being. In this study, we explore the relationship between cybervictimization and aggression among junior high school students, as well as the mediating role of anger rumination and the moderating role of fear of self-compassion .In this study, 510 students (average age =13.67 years old, 37% were male) from three middle schools in Minhe County, Haidong City, Qinghai Province were investigated using the Cybervictimization Scale, Aggression Questionnaire, Anger Rumination Scale, and Fear of fear of self-compassion. A structural equation model was established based on the method of latent moderation. The results showed that: (1) there was a significant positive correlation between cyberbullying and aggression tendencies; (2) anger rumination played a mediating role between cybervictimization and aggression; and (3) fear of self-compassion acted as a moderator in the mediation model, moderating the latter path. These findings help to analyze the underlying reasons for how cyberbullying affects junior high school students' aggression and implement appropriate intervention strategies to reduce the negative impact of anger rumination on adolescent aggressive behavior.

Keywords：cybervictimization, aggression, anger rumination, fear of self-compassion

留守和流动儿童孤独感与感知社会支持的关系：基于网络分析的比较

金佳露[1] Guangzhe Frank Yuan[2] 赵嘉琦[1] 安媛媛[1]（通讯作者） 程选[1]

1 南京师范大学心理学院，南京, 210097 通讯作者 Email: anran220@163.com

2 South Carolina SmartState Center for Healthcare Quality, Arnold School of Public Health, University of South Carolina, Columbia, SC, United States

基金信息：国家社会科学基金青年项目（20CSH068）

摘 要 本研究聚焦于留守和流动儿童的孤独感与感知社会支持的关系。首先，通过网络分析的方法，分别构建留守和流动儿童孤独感网络结构，考察留守和流动儿童各自最核心的孤独感表现并进行比较；其次，分别构建留守和流动儿童孤独感与感知社会支持的联合网络结构，识别并比较对留守和流动儿童各自孤独感最具保护作用的感知社会支持要素，分析可能的机制原因。

本研究选取江苏省徐州市、盐城市和南京市的四所小学四至六年级共 241 名留守儿童和 285 名流动儿童进行施测，施测时间为 2018 年 12 月。基于儿童孤独感量表(CLS)和社会关系网络问卷(NRI)，通过网络分析方法，分别构建留守和流动儿童孤独感及孤独感与感知社会支持的网络模型并进行比较。

结果发现：(1)留守儿童最核心的孤独感表现为“没有人跟我一块玩”、“我感到寂寞”和“我有许多朋友（反向计分）”；流动儿童最核心的孤独感表现为“我感到寂寞”、“我有许多朋友（反向计分）”和“需要帮助时我无人可找”；(2)联合网络中，对留守儿童孤独感最具保护作用的感知社会支持要素是“这个人会为我排解烦恼”和“这个人会告诉我，说我擅长做某事”；对流动儿童孤独感最具保护作用的感知社会支持要素是“当我在学习（生活）上遇到问题时，这个人会帮我解决”和“这个人会使我觉得自己很重要”。

研究结果表明，留守和流动儿童在核心的孤独感表现上存在异同；在感知社会支持要素中，情感支持

和工具性支持分别对缓解留守和流动儿童孤独感最具关键作用，而肯定价值对两群体积极的心理适应均具有重要意义。

关键词　留守儿童，流动儿童，孤独感，社会支持，网络分析

The relationship between loneliness and perceived social support among left-behind and migrant children: Comparison based on network analysis

Jialu Jin[1]　Guangzhe Frank Yuan[2]　Jiaqi Zhao[1]　Yuanyuan An[1]　Xuan Cheng[1]

1 School of Psychology, Nanjing Normal University, Nanjing, 210097, China

Correspondence Email: anran220@163.com

2 South Carolina SmartState Center for Healthcare Quality, Arnold School of Public Health, University of South Carolina, Columbia, SC, United States

Abstract: The current study focused on the loneliness and the protective role of perceived social support among left-behind and migrant children. Firstly, the study built the network structures of loneliness of left-behind and migrant children respectively through network analysis, to investigate their core loneliness performance and compare their similarities and differences. Then, the study built joint network structures between loneliness and perceived social support among left-behind and migrant children respectively, to identify and compare the most protective factors of perceived social support for loneliness, and analysis its possible mechanism reasons.

A total of 241 left-behind children and 285 migrant children from grades 4 to 6 from four primary schools in Xuzhou, Yancheng and Nanjing, Jiangsu province participated in the study. The questionnaire survey was conducted in December 2018. Based on the Children's Loneliness Scale (CLS) and Network of Relationships Inventory (NRI), this study built and compared the network structures of loneliness and the joint network structures between loneliness and perceived social support of left-behind and migrant children respectively through network analysis.

The results showed that (1) The most core loneliness performance in left-behind children were “I don't have anyone to play with”, “I'm lonely” and “I have lots of friends (reverse scoring)”, and the most central loneliness performance in migrant children were “I am lonely”, “I have lots of friends (reverse scoring)” and “There's nobody I can go to when I need help”. (2) In the joint network structures, the perceived social support factors that have the most protective effect on left-behind children's loneliness were “This person will solve my troubles” and “This person will tell me what I am good at”, and the perceived social support factors that have the most protective effect on migrant children's loneliness were “This person will help me when I encounter difficulties in study (life)” and “This person will make me feel important”.

The research results showed that there were similarities and differences in the core performance of loneliness among left-behind and migrant children; among the factors of perceived social support, emotional support and instrumental support play the most crucial role in alleviating loneliness among left-behind and migrant children, respectively, while value affirmation is of great significance for both groups' positive psychological adaptation.

Keywords: left-behind children, Migrant children, loneliness, Perceived social support, Network analysis

自我同情和社会支持对失依儿童发展功能的保护性作用

王云汐[1] 彭雅楠[1] 席居哲[1]（通讯作者） 季卫东[2]
[1]华东师范大学心理与认知科学学院, 华东师范大学附属精神卫生中心, 华东师范大学涵静书院积极教育(中国)中心, 上海学校心理健康教育名师(席居哲)工作室, 上海市心理健康与危机干预重点实验室, 上海, 200062 [2] 上海市长宁区精神卫生中心, 上海, 200331 通讯作者 Email: jzxi@psy.ecnu.edu.cn
基金信息：国家社会科学基金一般项目(18BSH129)

摘 要 失依儿童是一个特别需要支持的弱势群体，指因自身问题和父母的客观原因而临时或永久丧失生活依靠与家庭生活的未成年人。失依儿童的身心健康发展受到其所处困境的威胁。他们在不同程度上存在抑郁、焦虑、孤独感高、安全感缺失、攻击行为、厌学逃学等情绪和行为问题，亟待社会的密切关注和心理关护。

虽然境遇艰难，但失依儿童仍有可能免受影响、顺利发展，甚至奋发向上、愈挫弥坚，这一现象被称为心理弹性。心理弹性的形成是一个动态的过程，受到保护性因素(包括内部和外部)与风险因素的影响。由于缺乏来自家庭成员的有力支持，失依儿童需要在资源有限的成长环境中自力更生。自我同情或对失依儿童有着保护作用。此外，若失依儿童能够与其他重要他人建立良好的关系，获得更多社会支持，或将得到积极的发展结果。基于此，本研究以 90 名失依儿童为研究对象，进行间隔 6 个月的追踪，对该群体压力/逆境及发展功能进行描述，并探究自我同情与社会支持的保护性作用。

结果显示，(1) 绝大多数失依儿童处在严重的压力/逆境情况中。他们所遭受的负性生活事件呈现数量多和严重程度高两个特点，且主要来源于家庭。2) 失依儿童发展功能欠佳。与普通儿童相比，失依儿童的各方面发展结果都不够良好，突出表现为安全感较低、同伴交往问题较多和亲社会行为较少；3) 自我同情和社会支持可以正向预测失依儿童积极发展结果，负向预测消极发展结果，主要体现在减少情绪问题、增进同伴关系和提高安全感三个方面。

本研究清晰展现了失依儿童群体的困境特点和发展功能的不足之处，有利于社会大众对此群体的深入了解。本研究还验证了自我同情和社会支持对失依儿童群体的保护性作用，丰富了相关领域的理论研究成果，为失依儿童群体的福利与保护制度建设提供参考。

关键词 失依儿童，发展功能，保护性因子，自我同情，社会支持

Protective Role of Self-compassion and Social Support on Development of Supportless Children

Yunxi Wang[1], Yanan Peng[1], Juzhe Xi (Corresponding author)[1]
[1] Shanghai Key Laboratory of Mental Health and Psychological Crisis, Affiliated Mental Health Center(ECNU), Positive Education China Academy (PECA) of Han-Jing Institute for Studies in Classics, Juzhe Xi's Master Workroom of Shanghai School Mental Health Service, School of Psychology and Cognitive Science, East China Normal University, Shanghai, China, [2] Shanghai Changning Mental Health Center Shanghai, China,
Correspondence: jzxi@psy.ecnu.edu.cn

***Abstract*:** Supportless children are a vulnerable group in particular need of help, which refers to minors who temporarily or permanently lose their dependence on family life due to their own problems and objective reasons of their parents. The healthy physical and mental development of supportless children is affected by their adversity. They have emotional and behavioral problems such as depression, anxiety, strong sense of loneliness, lack of security, aggressive behavior, anorexia and truancy, and need close attention and care from the society.

Despite the difficult circumstances, supportless children may still develop successfully, strive to rise and grow stronger, which is known as resilience. The formation of resilience is a dynamic process, which is influenced by

protective factors (both internal and external) and risk factors. Without strong support from family members, supportless children need to be self-reliant in resource-limited environment. Self-compassion may have a protective effect on them. In addition, if they are able to establish good relationships with other people and gain more social support, they may have positive developmental outcomes. Therefore, the present study followed 90 supportless children at 6-month intervals to characterize their stress/adversity and developmental functioning, and to explore the protective roles of self-compassion and social support.

The results showed that (1) The vast majority of supportless children were in severe stress/adversity situations. They suffered a high number of negative life events, which mainly originated from their family. (2) Supportless children had poor developmental functioning. Compared with ordinary children, supportless children had poorer developmental outcomes, including lower sense of security, more peer problems and less prosocial behavior. (3) Self-compassion and social support positively predicted the positive developmental outcome of children with disabilities, and negatively predict the negative developmental outcome, which is mainly reflected in three aspects: reducing emotional problems, enhancing peer relationship and improving sense of security.

The present study showed the characteristics of the adversity and the developmental functioning of supportless children, which was conducive to the public's in-depth understanding of them. This study also verified the protective effect of self-compassion and social support on supportless children, enriched the theoretical research results in related fields, and provided references for the construction of welfare and protection system for supportless children.

Keywords：supportless children, developmental function, protective factor, self-compassion, social support

精准评估网络成瘾者(青少年与青年成人)的难点：整合视角的分析

周家琦[1]　席居哲[1,2]（通讯作者）

[1]华东师范大学心理与认知科学学院, 华东师范大学附属精神卫生中心, 上海市心理健康与危机干预重点实验室, 上海, 200062; [2] 上海市长宁区精神卫生中心 通讯作者 Email: jzxi@psy.ecnu.edu.cn

基金项目：上海市科技计划项目(20DZ2260300)

摘 要　近年来网络成瘾在青少年与青年成人人群中的患病率已攀升至 36.7%，亟待治疗网瘾的有效方法，而准确评估与诊断网瘾是及时、有效地治疗网瘾至关重要的第一步。然而，网瘾的评估和诊断仍然是一个极具争议的研究课题，因为网瘾的概念界定、病理学理论和精神病学分类等都还没有在临床心理学行业内部达成共识。

首先，关于网瘾概念界定的争议点在于网瘾是否可以被广义化。大部分网瘾研究以广义化网瘾为概念基础进行测量，并不以网瘾的具体活动区分网瘾类型。然而，许多网瘾研究针对具体网络活动衍生出相应的临床术语与研究方向，如“社交媒体成瘾”，“网络游戏障碍”等。许多学者亦认为，与互联网相关的疾病必须在一系列相关但独立的疾病中进行概念化，而不能笼统地归纳为网瘾，因为网瘾作为问题行为甚至新型心理障碍具有高度异质性。

其次，从病理学理论的角度来看，网瘾是否是一种独立于其他心理障碍的心理疾病仍不明确。大量研究显示，网瘾与情感障碍有非常高的相关性，常为彼此的并发症与风险因素，而针对抑郁症的干预和药物治疗对治疗网瘾有一定的效果。这些研究反映了网瘾作为情感障碍次要表现的可能性。

最后，网瘾的精神病学分类仍不明确。有学者认为包括网瘾的行为成瘾在本质上与物质成瘾相似，因为两者的主要特征有着高度重合，包括过度使用、戒断现象、耐受性和负面影响。然而也有不同的观点和研究认为网瘾应被归类为冲动控制障碍甚至是强迫症。虽然众多学者已根据不同的精神病学分类给网瘾的诊断标准发表不同的提案，网瘾在精神病学的分类问题上还有待更多的实证性研究验证。

关键词　网络成瘾，心理评估，心理健康

Challenges in Accurate Assessment of Internet Addiction (adolescents and young adult): A Review from An Integrated Perspective

Jiaqi Zhou [1], Juzhe Xi (Corresponding author)[1]

[1] Shanghai Key Laboratory of Mental Health and Psychological Crisis Intervention, Affiliated Mental Health Center (ECNU), School of Psychology and Cognitive Science, East China Normal University, Shanghai, 200062, China; [2] Shanghai Changning Mental Health Center, Shanghai, 200331, China　Correspondence: jzxi@psy.ecnu.edu.cn

***Abstract*:** In recent years the prevalence of Internet addiction among adolescents and young adults has climbed to 36.7%, calling for an effective treatment method for internet addiction. Accurate assessment and diagnosis of internet addiction are the first crucial steps for timely and effective treatment of internet addiction. However, the assessment and diagnosis of internet addiction is still a highly controversial research issue, as its definition, pathological conceptualization, and psychiatric classification have not reached agreement within the clinical psychology field.

Firstly, it is not clear whether the definition of internet addiction should be generalized. Most research on internet addiction is based on a generalized definition of internet addiction, and its measurement does not distinguish different types of internet addiction based on specific internet use activities. However, many internet addiction studies have derived corresponding clinical terms and research directions for specific internet activities, such as social media addiction and online gaming disorder. Many scholars also argue that internet-related disorders must be conceptualized in a series of related but independent diseases, and cannot be generalized as internet addiction given its high level of heterogeneity within its pathological spectrum.

Secondly, from the perspective of pathological theory, whether internet addiction is an independent psychological disease is still unclear. A large number of studies have shown that internet addiction and affective disorders are often associated as complications and risk factors for each other, and intervention and treatment for depression have a certain effect on the treatment of internet addiction as well. These studies reflect the possibility of internet addiction as a secondary manifestation of affective disorders.

Finally, the psychiatric classification of internet addiction also remains unclear. Some scholars believe that behavioral addiction, including internet addiction, is similar in nature to substance addiction, as their main features, including overuse, withdrawal phenomena, tolerance, and negative effects, tend to overlap. However, different studies and perspectives suggest that internet addiction should be classified as an impulse control disorder or even obsessive-compulsive disorder. Although many scholars have published different diagnostic criteria proposals for internet addiction according to different psychiatric classifications, more empirical research is still needed to verify the classification of internet addiction in psychiatry.

***Keywords*:** internet addiction, psychological assessment, mental health

3.19 “行为与健康心理学专业委员会”专题研讨会

自闭症儿童自然教育有效方法的教学实践探究——以园艺疗法为例

范雨欣[1]　赵信如[1]　常琪[1]　雷秀雅[1]（通讯作者）
1 北京林业大学心理系，北京，100083，leixiuya@163.com

摘 要　自然教育的理念与心理学领域的园艺疗法相契合，对儿童的全面发展具有重要意义。对于自闭症儿童而言，自然可以为其提供丰富的感官刺激，有利于调节情绪，缓解症状。目前对自闭症儿童的教育仍以弥补发育障碍缺陷的康复训练为主，较少关注其自身能力的开发和积极心理品质的培养。因此，本研究试图从教育和心理的综合视角切入，借助自然教育的基本理念，采用园艺疗法的方法技术，以自闭症儿童为教学对象设计教学方案，并通过教学实践验证方案的有效性。以期以课程的形式促进自闭症儿童身心健康发展，利用自然为自闭症儿童谋求福祉。研究运用教育实验法，采用单组前测—后测设计，以辽宁省营口市某康复中心的 5 名自闭症儿童为教学对象，其年龄在 10-14 岁之间（$M = 12$，$SD = 1.87$），实施了 6 次园艺疗法课程教学。课程时长为每次 45 分钟，根据实际教学情况略有调整；课程内容包括水培大蒜的种植与养护两次，植物主题五感体验两次，校园园艺活动两次。在课程开始前及结束后采用儿童期孤独症评定量表（CARS）、基本功能观察评定量表（SVFB）以及行为观察项目与定义表对 5 名儿童的情况进行评估。同时，在教学中增加过程性观察评估，教学前后采用《园艺疗法课程前测/后测问卷》对课程设计及完成情况进行教师评价，以验证课程的有效性。教师评价显示，该课程在学生情绪舒缓、压力调节方面具有突出的作用；课程过程性评估显示 5 位同学在正向情绪、利社会行为方面频次较高，精细动作能力得到锻炼；课程实施前后的目标完成、情绪控制、意图表达、规则理解、与他人互动 5 个方面的存在显著差异。研究表明，针对自闭症儿童实施特殊教育，结合自然教育理念和园艺疗法技术的课程方案具有可行性和有效性，能够促进自闭症儿童身心健康发展。

关键词　自闭症儿童，自然教育，园艺疗法，特殊教育，课程设计

Teaching Practice of Effective Methods of Natural Education for Autistic Children——Taking Horticultural Therapy as an Example

FAN Yuxin[1], ZHAO Xinru[1], CHANG Qi[1], LEI Xiuya[1] (corresponding author)
1 Department of Psychology, School of Humanities and Social Sciences, Beijing Forestry University, Beijing 100083, China

***Abstract*:** The idea of nature education is consistent with the horticultural therapy in the field of psychology, which is of great significance to the overall development of children. For autistic children, nature can provide them with rich sensory stimulation, which is beneficial for regulating emotions and alleviating symptoms. At present, the education of autistic children mainly focuses on rehabilitation training to compensate for developmental disabilities, with less attention paid to the development of their own abilities and the cultivation of positive psychological qualities. Therefore, this study attempts to design a teaching plan for autistic children from the comprehensive perspective of education and psychology, utilizing the basic concepts of natural education, methods and techniques of horticultural therapy, and verifying the effectiveness of the plan through teaching practice. To promote the physical and mental health development of autistic children in the form of courses, and to utilize

nature to seek the well-being of autistic children. The study used the educational experiment method and a single group pretest posttest design. Five autistic children aged 10-14 years old (*M*=12, *SD*=1.87) from a rehabilitation center in Yingkou, Liaoning Province were taken as the teaching objects, and six horticultural therapy courses were implemented. The course duration is 45 minutes per session, with slight adjustments based on actual teaching situations. The course contents include planting and maintenance of hydroponic garlic, a five-sense experience of plant theme twice, and campus gardening activities twice. Before and after the course, the Childhood Autism Rating Scale (CARS), The Observational Rating Scale of Basic Functions (SVFB), and Behavior Observation Items and Definition Table were used to evaluate the situation of 5 children. At the same time, process observation and evaluation were added in teaching. Before and after teaching, the Pre/Post Questionnaire of horticultural therapy Course were used to evaluate the course design and completion, so as to verify the effectiveness of the course. Teachers' evaluations showed that the course had an outstanding effect on students' emotional relief and stress regulation. The course process evaluation showed that the five students had a higher frequency of positive emotions, prosocial behaviors, and fine motor skills were exercised. There were significant differences in the completion of the objectives, emotional control, expression of intentions, understanding of the rules, and interactions with others before and after the implementation of the course. The study showed that the curriculum program combining the concept of nature education and horticultural therapy techniques for special education for autistic children was feasible and effective, and could promote the healthy development of autistic children physically and psychologically.

Keywords：autistic children, nature education, horticultural therapy, special education, curriculum design

孤独症谱系障碍儿童言语与情绪调节的纵向研究

胡婉雪[1] 王一捷[1] 郑晓霏[1] 杨琳瑜[1] 李新影[1]（通讯作者）

1 中国科学院心理研究所，北京，100101, lixy@psych.ac.cn

摘 要 背景：孤独症谱系障碍(Autism Spectrum Disorders, ASD)是一种起病于婴幼儿早期的发育障碍。以往研究表明，ASD儿童的情绪调节与ASD核心症状严重程度、破坏性行为等显著相关，情绪调节问题可能是解释ASD儿童多种情绪和行为问题高发生率的潜在共同因素。在普通发育儿童的研究中发现言语对情绪调节的发展至关重要，儿童期语言能力的发展有助于情绪调节的提升。而情绪调节对言语的影响尚不清晰，但有研究发现情绪调节与社交沟通能力显著相关，情绪稳定性高的ASD个体表现出更强的社交沟通能力。目前ASD儿童言语与情绪调节的关系研究很少且呈现出不一致的结果。目的：探究ASD儿童言语和情绪调节的关系。方法：通过网络招募 3~6 岁ASD儿童的家长。采用《ALSOLIFE孤独症儿童能力评估家庭辅助系统V3.0 版》间隔 1 个月以上进行 2 次测查，评估ASD儿童的言语和情绪调节水平。采用相关分析探讨言语和情绪调节的关系。在控制性别、年龄与时间间隔下，通过Mplus 7.0 建立结构方程模型检验言语与情绪调节的交叉滞后效应。结果：共招募到1638 名ASD儿童（男1297 人，女341 人；平均年龄 $\bar{x}\pm s$ = 4.33±0.78），完成间隔 1~12.8 个月（平均时间间隔 $\bar{x}\pm s$ = 5.78±2.94）的两次测量。相关分析结果表明在T1 上言语和情绪调节均成正相关（r=0.61, p < 0.001），在T2 上言语和情绪调节成正相关（r=0.76, p < 0.001）。T1 的言语与T2 的情绪调节成正相关（r=0.66，p < 0.001），T1 的情绪调节与T2 的言语成正相关（r=0.55，p < 0.001）。拟合指数结果表明结构方程模型拟合良好（χ^2/df = 1.46; CFI = 0.999; TLI = 0.999; $RMSEA$ = 0.017）。交叉滞后模型显示，T1 言语正向预测T2 情绪调节（β= 0.38，p < 0.001），但T1 情绪调节无法预测T2 言语。结论：ASD儿童言语发展越好，情绪调节水平越高。

关键词 孤独症谱系障碍，言语，情绪调节，交叉滞后分析

A cross-lagged study on speech and emotion regulation in children with autism spectrum disorders

HU Wanxue[1], WANG Yijie[1], ZHENG Xiaofei[1], YANG Linyu[1], LI Xinying[1]

1. Institute of Psychology, Chinese Academy of Sciences, Beijing 100101, China

Abstract：Background: Autism Spectrum Disorders (ASD) is a developmental disorder that begins in early infancy. Previous studies have shown that emotion regulation in children with ASD is significantly associated with ASD core symptom severity and disruptive behavior, and that problems with emotion regulation may be a potential common factor explaining the high prevalence of multiple emotional and behavioral problems in children with ASD. Speech has been found to be critical to the development of emotion regulation in studies of typically developing children, and the development of language skills in childhood contributes to the enhancement of emotion regulation. Whereas the effect of emotion regulation on speech is unclear, one study found that emotion regulation was significantly associated with social communication skills, with individuals with ASD who were emotionally stable showing greater social communication skills. Current research on the relationship between speech and emotion regulation in children with ASD is scarce and presents inconsistent results. Objective: To explore the relationship between speech and emotion regulation in children with ASD. Methods: Parents of children with ASD aged 3-6 years were recruited through the Internet. Using the "the ALSOLIFE Skills Assessment System V3.0", 2 tests were conducted at intervals of more than 1 month to assess the level of speech and emotion regulation of children with ASD. Correlation analysis was used to explore the relationship between speech and emotion regulation. The cross-lagged effects of speech and emotion regulation were tested by structural equation modeling with Mplus 7.0, controlling for gender, age and time interval. Results: A total of 1638 children with ASD were recruited (1297 males, 341 females; mean age $\bar{x}\pm s$ = 4.33±0.78), and completed two measurements separated by 1 to 12.8 months (mean time interval $\bar{x}\pm s$ = 5.78±2.94). Correlation analyses showed that both speech and emotion regulation were positively correlated on T1 (r=0.61, p < 0.001) and on T2 (r=0.76, p < 0.001). speech on T1 was positively correlated with emotion regulation on T2 (r=0.66, p < 0.001) and emotion regulation on T1 was positively correlated with speech on T2 (r= 0.55, p < 0.001). The results of the fit indices indicated a good fit for the structural equation modeling (χ^2/df = 1.46; CFI = 0.999; TLI = 0.999; $RMSEA$ = 0.017). Cross-lagged modeling showed that T1 speech positively predicted T2 emotion regulation (β = 0.38，p < 0.001), but T1 emotion regulation did not predict T2 speech. Conclusion: The better the verbal development of children with ASD, the higher the level of emotion regulation.

Keywords：Autism Spectrum Disorder, Verbal, Emotion Regulation, Cross-lag analysis

自然共情的神经机制：来自 ERP 的证据

张煜　孙世月（通讯作者）

北京林业大学心理学系，北京，100083，sunsy@bjfu.edu.cn

摘 要　　自然共情是指人们感受并共享自然世界的情绪体验，尤其是处于困境中的自然界或动植物的体验。大量研究显示，自然共情是预测亲环境行为的重要变量，且有大效应量，但过往研究对自然共情的考察主要基于明确指导下的个体主观报告，当缺乏明确的外在指令要求感受处于困境中的自然界时，

人脑是否仍然有明显自然共情反应，目前并不清楚。人际共情研究显示人们倾向于将他人疼痛线索分类为自动和受控，符合双加工理论的假设。鉴于此，本研究采用事件相关电位技术(Event-related potential, ERP)，从双加工理论的视角考察了自然共情体验的神经机制及其与环境-金钱价值取向的关系。研究首先对统一处理后的 360 张图片材料进行了共情强度和情绪效价的评定，选择诱导自然共情和控制对照的图片材料各 15 张。脑电实验采用经典 Oddball 范式，以自然共情相关的图片材料为标准刺激，含有人物的图片为偏差刺激，要求 36 名大学生被试仅对偏差刺激做按键反应。最后通过内隐联想测验，测量被试对环境-金钱的相对价值取向。重复测量方差分析显示，诱导自然共情与控制条件下 ERP 成分 N2、P3 波幅均未表现出显著差异。N2 波幅上在实验条件、电极点区域和电极点位置间的交互作用显著，简单效应分析显示，在诱导条件下，额叶区左侧的 N2 平均波幅显著大于额叶区中线上的平均波幅，控制条件下未发现这一差异。相对价值取向与自然共情相关脑电成分的相关分析显示，N2 成分波幅的差值与环境-金钱相对价值取向无显著相关，P3 成分波幅的差值与环境-金钱相对价值取向相关为边缘显著，环境价值取向越高，自然共情条件下 P3 成分波幅越高。上述研究结果表明，缺乏明确指导时，人脑对自然困境的共情反应较弱，与共情的双加工模型不符合。根据 Davidson 情绪趋避模型，自然共情条件下左侧更强的 N2 成分与趋近动机相关，可能解释了自然共情对亲环境行为的正向促进作用。同时，个体环境价值取向对自然共情体验的影响可能主要体现在认知评价阶段而非自动化情感共情阶段。

关键词　自然共情，环境价值取向，双加工理论，Oddball 范式

Neural Mechanisms of Empathy with Nature: An ERP Study

ZHANG Yu, SUN Shiyue

Department of Psychology, School of Humanities and Social Sciences, Beijing Forestry University, Beijing 100083, China

***Abstract*：** Empathy with nature refers to the understanding and sharing of the emotional experience, particularly distress, of the natural world. It shows robust positive prediction toward pro-environmental behaviors. However, little is known about people's reaction to distress of the nature without explicit instructions, not to mention the brain mechanisms of empathy with nature. The present study examined the neural mechanisms underlying the experience of empathy with nature from the perspective of dual-process theory using event-related potential techniques (ERP). The study first rated the empathic intensity and emotional value of uniformly processed 360 pictures to select 15 picture materials each for induced empathy with nature and control conditions. An Event-related potential experiment was conducted using the Oddball paradigm, with the rated picture materials as the standard stimuli and other pictures containing human characters as the deviant stimuli. Thirty-six undergraduates were asked to respond to the deviant stimuli. Finally, the relative value orientation towards environment versus money was measured using an implicit association test. Repeated-measures ANOVA revealed no significant difference in ERP component wave amplitudes evoked by induced empathy with nature versus control picture materials. When combined with brain topography, the mean wave amplitude of the N2 component was higher in the frontal than in the central region and higher on the midline in the central region than on either side, only for the induced empathy condition. The mean amplitude of the P3 component was higher in the parieto-occipital region than in the parietal region and lower on the midline than on either side. Correlation analyses revealed that the difference in N2 component wave amplitude was not significantly correlated with environment-money relative value orientation, while the difference in P3 component wave amplitude was borderline significantly correlated with environment-money relative value orientation. This may indicate that relative value orientation is more closely related to the cognitive appraisal stage than to the affective empathy stage

in the natural empathic experience. The present study proposed a model of empathy with nature consisting of early affective experience and late cognitive appraisal, but the results were not consistent with the hypothesis thus future research is needed to further test it using more refined research instruments and experimental designs.

Keywords：empathy with nature, environment value orientation, dual-process theory, oddball paradigm

儿童自然接触、亲社会行为、问题行为的纵向关系：基于交叉滞后的中介分析

刘浩宁　于晓（通讯作者）
北京林业大学心理学系，北京，100083，yx0903yingzhong@163.com

摘 要　在“生态文明建设”和“健康中国行动”背景下，如何培育儿童亲近自然、增加亲社会行为、干预问题行为一直是社会关注的重要问题。以往研究发现儿童的自然接触、亲社会行为、问题行为之间存在密切关联，但三者之间是否存在随时间变化的动态作用仍不清晰，特别是缺乏三者之间潜在的中介作用机制的探讨。本研究旨在采用纵向追踪设计，考察儿童的自然接触、亲社会行为、问题行为的相互关系，并探究亲社会行为在自然接触和问题行为之间的潜在中介作用。研究采用绿色接触指数问卷和长处和困难问卷，对来自山东省的 519 名 4~6 年级学生（平均年龄 8.89 ± 0.66 岁），进行三次，间隔时间半年的追踪调查。交叉滞后分析结果显示：（1）儿童的自然接触和亲社会行为具有相互正向预测的关系，即前一阶段的自然接触显著正向预测后续的亲社会行为（$\beta = 0.24$，$ps < 0.001$），前一阶段的亲社会行为显著正向预测后续的自然接触（$\beta = 0.06$~0.07，$ps < 0.001$）；（2）自然接触和问题行为具有相互负向预测的关系，即前一阶段的自然接触水平显著负向预测后续的问题行为水平（$\beta = -0.14$~-0.13，$ps < 0.001$），前一阶段的问题行为水平显著负向预测后续的自然接触水平（$\beta = -0.12$~-0.11，$ps < 0.001$）；（3）亲社会行为对后续的问题行为预测不显著（$\beta = 0.01$，$ps > 0.05$），而问题行为负向预测后续的亲社会行为（$\beta = -0.08$~-0.07，$ps = 0.02$）。交叉滞后中介分析结果显示，亲社会行为在自然接触和问题行为之间起双向纵向中介作用，即 T1 自然接触通过 T2 亲社会行为对 T3 问题行为的间接效应显著（$\beta = -0.01$，$SE = 0.01$，95%CI = [-0.03，-0.01]），T1 问题行为通过 T2 亲社会行为对 T3 自然接触的间接效应显著（$\beta = -0.01$，$SE = 0.01$，95%CI = [-0.02，-0.01]）。研究结果为儿童与自然的关系和行为之间如何相互影响提供了证据，在实践层面对培育儿童亲近自然、干预问题行为具有启示意义，能够为学校开发自然教育提供理论支撑，服务于“生态文明建设”战略。

关键词　儿童，自然接触，问题行为，亲社会行为

Longitudinal relationships among nature contact, prosocial behavior, and problem behavior in children: A mediation analysis based on cross-lagged model

LIU Haoning, YU Xiao (corresponding author)
Department of Psychology, School of Humanities and Social Sciences, Beijing Forestry University, Beijing 100083, China

Abstract: Under the background of “ecological civilization construction” and “healthy China initiative”, how to cultivate children to be close to nature, increase prosocial behavior, and prevent and intervene in problem

behavior have been critical issues of social concern. Previous studies have found that children's natural contact, prosocial behavior, and problem behavior are highly related, but no research has directly explored the bidirectional associations among the three variables over time. Additionally, the underlying mediating mechanism has not yet been explored. Thus, this study aimed to use a longitudinal tracking design to examine the relationships among children's natural contact, prosocial behavior, and problem behavior and the mediating role of prosocial behavior between natural contact and problem behavior. Data were collected using a three-wave longitudinal survey from 519 Chinese students in grades 4-6 from Shandong Province (Mage = 8.89 ± 0.66 years). Results of the cross-lagged panel model showed that: (1) natural contact and prosocial behavior bidirectionally predicted each other, i.e., nature contact positively predicted their later prosocial behavior (β = 0.24， ps < 0.001), prosocial behavior positively predicted their later nature contact (β = 0.06~0.07，ps < 0.001); (2) natural contact and problem behavior bidirectionally predicted each other, i.e., nature contact negatively predicted their later problem behavior (β = -0.14~-0.13， ps < 0.001), problem behavior negatively predicted their later nature contact (β = -0.12~-0.11， ps < 0.001); (3) problem behavior negatively predicted subsequent prosocial behavior (β = -0.08~-0.07，ps = 0.02) but not vice versa (β = 0.01，ps > 0.05). Results of the cross-lagged panel model combined with mediation analysis showed that prosocial behavior mediated the reciprocal relationship between natural contact and problem behavior. Specifically, nature contact at Time 1 improved prosocial behavior at Time 2, which further decreased problem behavior at Time 3 (β =-0.01，SE = 0.01，95%CI = [-0.03，-0.01]). Problem behavior at Time 1 decreased prosocial behavior at Time 2, which further decreased nature contact at Time 3 (β =-0.01，SE = 0.01，95%CI = [-0.02，-0.01]). Theoretically, this study contributes to our understanding of how children and nature interact. It also provides educational implications for promoting children's nature contact and developing positive behaviors, which could provide support for the development of natural education in schools and serve the strategy of "ecological civilization construction".

Keywords: children, natural contact, problem behavior, prosocial behavior

意义疗法对公费医学生生命意义感与职业认同感的团体干预研究

怀丹丹[1]　曲海英[1]（通讯作者）

1 滨州医学院应用心理系，烟台，264000，747246589@qq.com

摘 要　意义疗法是由著名心理学家维克多•弗兰克尔创立的一种心理治疗方法。该疗法将意义缺失导致的"存在挫折"视为心理问题的重要成因，通过引导个体重新探索自我，积极寻找生活目标和意义，化解心理问题。公费医学生，又称农村订单定向免费医学生，是我国为基层医疗卫生机构签约免费培养的卫生人才。职业认同，是个体对某一职业的积极态度和强烈的投入感。研究表明，公费医学生的职业认同低于普通医学生。生命意义是人们对自己某一特定时间内的生命目的、目标的认识和追求。公费医学生无论成绩好坏均不影响其基层就业，也无法通过努力考取研究生或进入市级医院，比普通医学生更易失去学习和生活的目标。本研究探讨公费医学生生命意义感和职业认同感的关系，并在此基础上开展基于意义疗法的团体干预。对 253 名某医学院公费医学生进行问卷调查，探究其生命意义感、职业认同感的现状及关系；筛选生命意义感低且有改善欲望的公费医学生，随机分为实验组和对照组，只对实验组进行团体干预，在干预前后对两组进行问卷测量。结果表明，公费医学生生命意义感总分及各因子分与职业认同总分及价值认同、行为认同、专业认同和环境认同 4 因子分显著正相关（r = 0.237~0.528，p < 0.001）；公费医学生生命意义感中的生命目的、生命控制、苦难接纳 3 因子正向预测职业认同。实验组干预后生命意义感总分及各因子分、职业认同感总分及行为认同、环境认同、态度认同因子分均显著高于前测（p < 0.05）；对照组前后测得分无统计学差异（p > 0.05）。实验组后测生命意义感总分及各因子分均显著高于对照组（p < 0.05）；

实验组职业认同感总分、价值认同、专业认同、环境认同、态度认同因子分均显著高于对照组（$p < 0.05$）。研究表明，基于意义疗法的团体干预可显著提高公费医学生生命意义感水平，并在一定程度上间接影响职业认同。

关键词　意义疗法，生命意义感，职业认同感，团体干预，公费医学生

A Group Intervention Study of Logotherapy on Publicly Funded Medical Students' Sense of Meaning in Life and Professional Identity

HUAI Dandan, QU Haiying

Department of Applied Psychology, Binzhou Medical University

No. 346 Guanhai Road, Laishan District, Yantai City, Shandong Province, China

Abstract：Logotherapy is a psychotherapeutic method founded by the famous psychologist Viktor Frankl. The therapy regards "existential frustration" caused by the lack of meaning as an important cause of psychological problems, and resolves psychological problems by guiding individuals to re-explore themselves and actively search for goals and meaning in their lives. Publicly-funded medical students, also known as rural order-directed free medical students, are health professionals who are contracted to be trained free of charge for primary healthcare organizations in China. Professional identity is an individual 's positive attitude and strong sense of input to a certain profession. Studies have shown that the occupational identity of publicly-funded medical students is lower than that of ordinary medical students. Meaning of life is people's awareness and pursuit of their purpose and goal of life at a particular time. Publicly-funded medical students are more likely to lose the purpose of study and life than ordinary medical students, as their grades, whether good or bad, do not affect their employment at the grassroots level, and they are not able to get a postgraduate degree or enter a municipal hospital through efforts. This study explores the relationship between the sense of life meaning and professional identity of public-funded medical students, and conducted a group intervention based on Logotherapy on this basis. A questionnaire survey was conducted on 253 publicly-funded medical students of a medical school to explore the current status and relationship between their sense of meaning in life and sense of professional identity. Publicly-funded medical students with a low sense of meaning in life and a desire to improve were screened and randomly divided into the experimental group and the control group. Only the experimental group underwent the group intervention. Both groups were measured by questionnaires before and after intervention. The results showed that the total score and each factor of public medical students ' sense of meaning in life were positively correlated with the total score of professional identity and the four factors of value identity, behavioral identity, professional identity and environmental identity ($r = 0.237 \sim 0.528$, $p < 0.001$).The 3 factors of public-funded medical students' sense of meaning of life, life purpose, life control, and acceptance of suffering, positively predicted vocational identity. The total score of the sense of meaning of life and the scores of each factor, the total score of occupational identity and the scores of behavioral identity, environmental identity, and attitudinal identity of the experimental group were significantly higher than those of the pre-test after the intervention ($p < 0.05$). There was no significant difference in the scores of the control group before and after the test ($p > 0.05$). The total score of sense of meaning of life and the scores of each factor in the post-test of the experimental group were significantly higher than those of the control group ($p < 0.05$). The total score of sense of occupational identity and the scores of value identity, professional identity, environmental identity, and attitude identity of the experimental group were significantly higher than those of the control group ($p < 0.05$).

The study suggests that group intervention based on Logotherapy can significantly improve the level of sense

of meaning in life of publicly-funded medical students and indirectly affect professional identity to a certain extent.

Keywords：Logotherapy，sense of meaning in life，professional identity，group intervention，publicly-funded medical students

奖赏调控应激复原的神经通路

胡炜宇[12]　王帅[1]　周美君[1]　杨娟[1]（通讯作者）

1 西南大学心理学部，重庆，400715

2 北京师范大学认知神经科学与学习国家重点实验室，北京，100875

E-mail: valleyqq@swu.edu.cn

摘 要　过去十年的研究发现了大脑奖励系统在压力恢复中的关键作用。然而，没有研究提供应激期间中脑-纹状体奖赏区域的活动与皮质醇应激反应的恢复之间的经验联系。此外，尽管奖赏敏感性作为一种特征已被证明可以促进应激恢复力，但它是否在应激恢复力中调节大脑奖赏系统，以及内在神经内分泌系统如何实现这一效果，仍不得而知。在本研究中，70 名年轻人参与了 ScanStress 任务，同时在任务期间收集了他们的大脑成像数据和皮质醇分泌。此外，还测量了参与者的奖赏敏感性、皮质醇觉醒反应（CAR）和大脑的内在功能连接。我们发现，压力暴露期间左壳核的激活可以积极预测皮质醇的恢复。此外，奖赏敏感性与左壳核的激活呈正相关，这种关系是由 CAR 和右海马（HIP）-左额下回内在连接串联介导的。这项研究表明，奖赏敏感性通过昼夜应激反应系统和 HIP 前额叶回路网络的相互作用来调节应激弹性中的奖赏途径。总之，目前的研究建立了一个模型，以突出奖励-恢复途径中相关异质性因素之间的动态和多方面的相互作用，并揭示了中脑-纹状体奖赏系统在压力期间的恢复功能。

关键词　奖赏敏感性，应激复原，皮质醇，壳核，海马

Reward Sensitivity Regulates Brain Reward Pathway in Stress Resilience via Inherent Neuroendocrine System

Hu, Weiyu[12], Wang, Shuai[1], Zhou, Meijun[1], Yang Juan[1]

1 State Key Laboratory of Cognitive Neuroscience and Learning, Beijing Normal University

2 Faculty of Psychology, Southwest University

Abstract：Over the last ten years, researchers suggested a critical role for brain reward system in stress resilience. However, no study has provided an empirical link between activity in mesostriatal reward regions during stress and the recovery of cortisol stress responses. Moreover, although reward sensitivity as a trait has been demonstrated to promote stress resilience, whether it regulates the brain reward system in stress resilience and how this effect could be achieved by the inherent neuroendocrine system remain elusive. To this end, seventy young adults participated in a *ScanStress* task while their brain imaging data and cortisol secretion were collected during the task. In addition, participants' reward sensitivity, cortisol awakening response (CAR), and brain's intrinsic functional connectivity were also measured. We found left putamen activation during stress exposure positively predicted cortisol recovery. In addition, reward sensitivity was positively linked with the activation of left putamen, and this relationship was serially mediated by the CAR and right hippocampus (HIP)-left inferior frontal gyrus intrinsic connectivity. This investigation suggested reward sensitivity regulated reward pathways in stress

resilience through the interplay of diurnal stress response system and network of the HIP-prefrontal circuitry. In all, the current study built a model to highlight the dynamic and multifaceted interaction between pertinent allostasis factors during the reward-resilience pathway and uncovered a new sight into the resilience function of the mesostriatal reward system during stress.

Keywords：Reward sensitivity, Stress resilience, Cortisol, Putamen, Hippocampus

在挫折中成长——意义建构的中介作用

陈一笛[1]　阳光耀[1]　甘怡群[2]（通讯作者）

1 北京林业大学人文社会科学学院心理学系，北京，100083

2 北京大学心理与认知科学学院，北京市行为与健康重点实验室，北京，100871，ygan@pku.edu.cn

摘 要　通过三个研究，使用基于应激事件的视角，考察意义建构在应激事件中对应激相关成长的中介作用。研究 1 通过在 100 名职业应激被试中的日记研究，建立多水平中介模型验证了意义建构在应激与应激相关成长中的中介作用，日常感知应激负向预测意义建构，意义建构正向预测应激相关成长，意义建构可以削弱应激给应激相关成长带来的负面影响。研究 2 通过一个生态瞬时评估，在 109 名大学生样本中，进行连续一周 42 次测量，利用自相关/互相关的方法，得到了日常应激和累积生活应激事件对意义建构、应激相关成长的作用。日常应激可以通过正向预测下一个时间点的意义建构促进下一个时间点的应激相关成长，个体在压力下感知到的应激越多，在下一个时刻就会对该压力事件产生更多的意义建构，也会预测下个时间点更高的应激相关成长。意义建构可以中介负性生活应激对于应激相关成长的作用。研究 3 使用半纵向设计，对全国各地共 236 名大学生进行间隔 1 个月的追踪调查，得到了应激剂量与意义建构的倒 U 型曲线关系。中介效应分析显示，控制应激事件一次项时，T1 时间点的意义建构在应激事件二次项与 T2 时间点的应激相关成长之间有显著中介作用。研究揭示了应激接种理论，证明了意义建构理论，为应激领域的干预提供了实践证据。

关键词　应激剂量，意义建构，应激相关成长，多水平模型，曲线关系

Growing Through Frustration:

The Mediating Role of Meaning-making

Yidi Chen[1], Guangyao Yang[1], Yiqun Gan[2*]

1 School of Humanities and Social Sciences, Beijing Forestry University, China

2 School of Psychological Cognitive Sciences, and Beijing Key Laboratory of Behavior and Mental Health, Peking University, China

Abstract： The mediating role of meaning-making in stressful events on stress-related growth was examined through three studies using a stressful event-based perspective. Study 1 validated the mediating role of meaning-making in stress and stress-related growth through a multilevel mediation model in a diary study among 100 occupationally stressed employees, with daily perceived stress negatively predicting meaning-making, meaning-making positively predicting stress-related growth, and meaning-making attenuating the negative effects of stress on stress-related growth. Study 2 obtained the role of everyday stress and cumulative life stressful events on meaning-making, stress-related growth through an ecological transient assessment with 42 consecutive one-week measurements in a sample of 109 college students utilizing an autocorrelation/intercorrelation approach.

Everyday stress can promote stress-related growth at the next time point by positively predicting meaning-making at the next time point, and the more stress an individual perceives under stress, the more meaning-making he or she will have for that stressful event at the next moment, which also predicts higher stress-related growth at the next time point. Meaning-making can mediate the role of negative life stress on stress-related growth. Using a semi-longitudinal design, Study 3 followed a total of 236 college students across the country at 1-month intervals and obtained an inverted U-shaped curvilinear relationship between stress and meaning-making. Mediation effect analyses revealed that when controlling for the primary term of the stressful event, meaning-making at the T1 time point significantly mediated the relationship between the secondary term of the stressful event and stress-related growth at the T2 time point. The study reveals the theory of stress inoculation, demonstrates the meaning-making model, and provides empirical evidence for interventions in the stress domain.

Keywords ： Stress dose, meaning-making, stress-related growth, multilevel modeling, curvilinear relationships

磨难中开出灿烂的花：来自神经中介机制，遗传学和干预的证据

甘怡群 (通讯作者) 陈一笛

北京大学心理与认知科学学院，北京，100871，ygan@pku.edu.cn

摘 要 "杀不死我们的使我们更强大 "这句话强调了应激暴露对我们心理健康的重要影响，并对应激必然不利于心理健康的观点提出了挑战。应激相关成长是指个体在承受应激后所经历的积极变化。它包括社会资源、个人资源和应对过程。应激接种理论认为，适度的应激暴露可以促进成长和积极的健康结果。我们参考 Tabibnia 的三元情感神经科学复原力模型，探讨自我肯定、认知重评和意义建构在应激相关成长中的中介机制。以意义建构为例，通过 fMRI，在意义建构条件下，观察到默认模式网络的激活，这表明 DMN 在意义建构中起着至关重要的作用。以生活事件为自变量，DMN 激活为中介变量，应激相关成长的应对灵活性指数为因变量，中介效应显著，验证了我们的假设。然而，最佳应激水平可能因遗传差异而不同。通过对多个同大样本的研究，我们发现了调节应激-应对关系的遗传因素，HPA 相关基因是童年创伤与未来取向之间关系的调节因子。并提出了分化应激相关成长假说。最后，我们讨论了针对意义建构、应激心向的干预方案，用随机对照试验证明了其效果，展示了移动健康干预在提升心理健康方面的潜力。

关键词 应激相关成长，意义建构，移动健康干预，HPA 相关基因

What does not kill us makes us stronger: Insight from neuropsychological studies, molecular genetics, and behavioral interventions

Yiqun Gan, Yidi Chen

School of Psychological and Cognitive Sciences, Peking University, 5 Yiheyan Road, Beijing

Abstract: The phrase "what doesn't kill us makes us stronger" highlights the significant impact of stress exposure on our psychological well-being and challenges the notion that stress is invariably detrimental to mental health. Stress-related growth refers to the positive changes experienced by an individual after undergoing stress. It comprises social resources, personal resources, and coping processes. Stress Inoculation Theory suggests moderate

stress exposure can foster growth and positive health outcomes. We explore the mediating mechanism of self-affirmation, cognitive reappraisal, and meaning-making in stress-related growth, referencing Tabibnia's tripartite affective neuroscience model for resilience. Using fMRI, we investigate cognitive neural mechanisms linking meaning-making to the default mode network, revealing significant mediation effects on coping flexibility. However, optimal stress levels may vary due to genetic differences. By studying diverse samples, we identify genetic factors moderating the stress-coping relationship and propose the differential post-stress growth hypothesis. Last, we discuss intervention programs targeting meaning-making, self-affirmation, and positive reevaluation to enhance mental health after stress. For example, one of our intervention primarily consists of photographic tasks and psychoeducation targeting on stress mindset. We used RCT to demonstrate the potential of scalable m-health interventions for psychological well-being.

Keywords：Stress-related growth, meaning construction, m-Health interventions, HPA-related genes

应激心血管反应与青少年执行功能与情绪能力的“U”型关系

吕薇[12]（通讯作者）

1 陕西省儿童青少年心理与行为健康重点研究中心

2 陕西师范大学心理学院，陕西，西安，710062，lvwei@snnu.edu.cn

摘 要　青春期是个体认知功能与情绪能力迅速发展的时期。已有研究指出自主神经系统支配下的应激心血管反应与个体执行功能和情绪反应与调节能力之间有着密切联系，但研究结论并不一致。近年来理论与实证研究都表明适度的应激心血管反应性是一种适应性的生理应答模式，与健康适应结果相联系，而过大或钝化的应激心血管反应性都与不利的适应结果相关。因此，本研究关注应激心血管反应与青少年执行功能与情绪能力的非线性关系。通过两个子研究，分别考察应激心血管反应性与执行功能的关联（研究1）和应激心血管反应性与情绪反应、情绪调节能力的关联（研究2）。研究1有268名（样本1）初中生完成了实验室条件下的演讲任务并记录其心血管反应，和Flanker任务及面孔-词Stroop任务。研究2有341名初中生（样本2）完成了实验室条件下的心算任务并记录其心血管反应，和由家长报告的情绪反应和情绪调节能力。结果发现：（1）演讲任务下应激心血管反应性与执行功能之间存在显著的二次曲线关联，表明适度的应激心血管反应性与青少年较好执行功能有关；（2）心算任务下应激心血管反应性与情绪反应、情绪调节能力存在显著的二次曲线关联，也表明适度的应激心血管反应性与青少年适度的情绪反应和较好的情绪调节能力有关。这些研究揭示了应激心血管反应与青少年执行功能和情绪能力的“U”型关系，表明适度的应激心血管反应与最优化的执行功能和情绪能力相联系。

关键词　应激心血管反应，执行功能，情绪能力，青少年

The “U” Shape Relationship between Cardiovascular Stress Reactivity and Executive Function and Emotional Ability among Adolescents

Wei Lü (Corresponding Author)

School of Psychology, Shaanxi Normal University, 199 South Chang’an Road, Xi’an

Abstract：Adolescence is sensitive developmental period for individual cognitive and emotional ability. Previous studies have found a close association between cardiovascular reactivity to stress which is regulated by the autonomic nervous system, individual executive function, and emotional reactivity and emotion regulation, while yielding inconsistent conclusions. Recently, the theoretical perspectives and empirical studies have together indicated that moderate cardiovascular reactivity to stress should be regarded as an adaptive physiological response pattern that is linked to adaptive outcomes, while excessive or blunted cardiovascular reactivity to stress is associated with maladaptive outcomes. Thus, the present study focused on the nonlinear association between cardiovascular reactivity to stress and executive function and emotional ability among adolescents. The association between cardiovascular reactivity to stress and executive function were explored in study 1 and the associations between cardiovascular reactivity to stress and emotional reactivity and emotion regulation were explored in study 2. In study 1, a sample of 268 middle school students were asked to complete the flanker task, face-word stroop task and a speech task during which their physiological data were obtained. In study 2, another sample of 341 middle school students were asked to complete a mental arithmetic task during which their physiological data were obtained and their parents were asked to report their children's emotion regulation and emotion reactivity. Results showed that (1) Cardiovascular reactivity to the speech task was quadratically associated with executive function, suggesting that moderate cardiovascular reactivity was related to better executive function. (2) Cardiovascular reactivity to the mental arithmetic task was quadratically associated with emotional reactivity and emotion regulation, suggesting that moderate cardiovascular reactivity was related to better emotional reactivity and emotion regulation. These findings reveal the "U" shape relationship between cardiovascular reactivity to stress and adolescent executive function and emotional ability, and suggest that moderate cardiovascular reactivity to stress is related to the optimal executive function and emotional ability among adolescents.

Keywords：cardiovascular reactivity to stress, executive function, emotional ability, adolescents

家庭不文明行为与家庭支持对青少年抑郁症状的影响

苗淼[1]　奇巍[1]　靳帅[1]　甘怡群[2]（通讯作者）

1 北京大学医学人文学院医学心理学系，北京，100191

2 北京大学心理与认知科学学院，北京，100871，通讯作者 E-mail(ygan@pku.edu.cn）

摘 要　积极的家庭互动与青少年的心理健康存在密切的联系，而消极的家庭互动则有可能引发青少年的心理健康问题。家庭不文明行为作为家庭日常互动中常见的慢性应激源，由于其影响较小、容易被忽视，其对于青少年心理健康的不良影响目前缺乏深入研究。本研究聚焦于家庭互动对青少年抑郁症状的影响，基于认知情感加工理论，考察了消极互动（家庭不文明行为）与积极互动（家庭支持）对青少年自我同情的影响，从而解释不同互动影响青少年抑郁症状的潜在中介机制。在此基础上，基于资源保存理论，引入生命意义感，将其视作积极的应对资源，探讨生命意义感对上述中介过程的调节作用。本研究在 999 名高中生群体中开展三个时间点的纵向调查，采用可信度校正的潜在结构方程模型对假设的带调节的中介模型进行检验。结果显示，家庭不文明行为通过负性自我同情成分（自我冷漠）的中介作用预测抑郁症状(B = 0.08, SE = 0.02, 95% BaCI = [0.054, 0.119])，而家庭支持则通过正性自我同情成分（自我同情）的中介作用预测抑郁症状(B = -0.03, SE = 0.01, 95% BaCI = [-0.049, -0.018])。此外，对生命意义感不同成分的分析显示，外在价值能够调节家庭不文明行为与自我冷漠以及家庭支持与自我同情之间的关系——高水平的外在价值能够缓冲家庭不文明行为对自我冷漠的预测作用，并加强家庭支持对自我同情的积极作用。并且，外在价值能够调节上述两条从家庭互动到抑郁症状的中介路径。综上，本研究证实了家庭不文明行为对青少年心理健康的不良影响及潜在机制，突出了家庭支持的积极作用。并且，本研究揭示了生命意义感（尤其

是外在价值成分）对于青少年心理健康的保护作用。这就提示我们，提升青少年群体的心理健康水平需要重视对家庭（减少家庭不文明行为、提升家庭支持）与青少年（提升自我同情与生命意义感）双方的心理健康教育与干预。

关键词 家庭不文明行为，家庭支持，自我同情，生命意义感，青少年抑郁

The impact of family incivility and family support on adolescent depressive symptoms

Miao Miao[1] Wei Qi[1] Shuai Jin[1] Yiqun Gan[2] (Corresponding author)
1 Department of Medical Psychology, School of Health Humanities, Peking University, Beijing
2 School of Psychological and Cognitive Sciences and Beijing Key Laboratory of Behavior and Mental Health, Peking University, Beijing. E-mail (ygan@pku.edu.cn)

***Abstract*:** Positive family interactions are closely associated with adolescent mental health, while negative family interactions may lead to adolescent mental health problems. Family incivility, a common chronic stressor in everyday family interactions, has received little attention due to the fact that it is less harmful and easily ignored. The present study focuses on the influence of family interaction on depressive symptoms among adolescents. Based on the cognitive affective processing system model, this study examined the impact of negative interactions (family incivility) and positive interactions (family support) on adolescent self-compassion, so as to explain the potential mediating mechanisms of different interactions affecting adolescent depressive symptoms. Moreover, based on the conservation of resources theory, meaning in life is considered as a positive coping resource, and its moderating effect on the mediating relationship was examined. A three-wave longitudinal survey was conducted among 999 high school students, and the hypothesized moderated mediating model was tested using reliability-corrected latent structural equations. The results showed that negative self-compassion component (i.e., self-coldness) mediated the relationship between family incivility and depressive symptoms (B = 0.08, SE = 0.02, 95% BaCI = [0.054, 0.119]). Positive self-compassion component (i.e., self-compassion) mediated the relationship between family support and depressive symptoms (B = -0.03, SE = 0.01, 95% BaCI = [-0.049, -0.018]). In addition, regarding different components of meaning in life, external value moderated the relationship between family incivility and self-coldness as well as that between family support and self-compassion; a high level of external value could bugger the impact of family incivility on self-coldness and strengthen the effect of family support on self-compassion. Moreover, external value moderated the mediating pathways from family interactions to depressive symptoms. The present findings shed light on the negative impact of family incivility on adolescent mental health, and highlighted the positive effect of family support. In addition, the present study provided support for the protective role of meaning in life for adolescents. To improve the mental health of adolescents, more emphasis should be placed on the intervention towards both the family (e.g., reducing family incivility and promoting family support) and the adolescents (e.g., strengthening self-compassion and meaning in life).

Keywords: family incivility, family support, self-compassion, meaning in life, adolescent depression

3.20 “正念心理学专业委员会”专题研讨会

正念何以促进利他：悲悯心的作用

陈瑞琪[1]　宋晓兰[1]　（通讯作者）

1 浙江师范大学心理学院，金华，321004，xlsong@zjnu.cn

摘 要　利他行为是由完全指向缓解他人痛苦的利他动机而推动的助人行为。研究正念与利他行为的关系对于阐明正念与善行之间的关系具有深远的意义。已有研究提示正念与更多的助人行为相关，然而正念是否可以促进利他行为，仍是一个没有得到清晰回答的问题。如果正念与更高水平的利他相关，那么其中的原因又是什么？本研究聚焦于正念与利他行为之间的联系，并关注与人类产生利他行为直接相关的情感“悲悯（compassion）”在其中的作用。在中文语境中，悲悯不同于同情或共情，是在理解痛苦本质的基础上产生希望解除他人痛苦的情感，也包含由这种情感引发的动机，是人类面对痛苦的本性之一，也是利他行为的根本推动力。本研究以此为切入点，尝试回答“正念是否通过悲悯促进了利他行为”这一问题。

研究分别从正念作为一种人格特质和可以经由训练加以提升的心理能力两个角度，回答上述问题。研究一（*N=93*）探究特质正念与利他行为的关系以及悲悯在其中的作用，采用问卷测量特质正念、悲悯和自陈利他，用心理逃避范式中的利他捐赠测量利他行为。结果显示，特质正念正向预测自陈利他，且悲悯在其中起中介作用;没有发现特质正念与利他捐赠存在预测关系。研究二（*N=62*）采用八周正念训练的方式，探索正念训练是否可以提升利他行为以及悲悯悲悯在正念-利他关系中的作用，采用 2(组别:八周正念组、等待控制组)*2(时间:前测、后测) 的混合实验设计。采用问卷测量特质正念和悲悯，用心理逃避范式中的利他捐赠测量利他行为。结果显示:与等待控制组相比，八周正念训练显著提升了个体的正念水平，促进利他捐赠并提升了悲悯;且悲悯的改变值在八周正念训练促进利他捐赠的关系中起中介作用。

两个研究的结果支持了正念与利他行为之间的积极联系以及悲悯在其中的重要作用，显示正念训练可以提升个体对处于痛苦情境中他人的悲悯心，促进利他行为。

关键词　正念，悲悯，利他行为，正念训练，心理逃避范式。

THE EFFECT OF MINDFULNESS ON ALTRUISTIC BEHAVIOR: THE ROLE OF COMPASSION

Ruiqi Chen[1]　Xiaolan Song[1*]

School of Psychology, Zhejiang Normal University, Jinhua,321004，xlsong@zjnu.cn

***Abstract*：** Mindfulness is the awareness that arises from intentionally focusing attention on present experience with acceptance, which can lead to greater insight into the nature of physical and mental experience. Research in recent years has not only revealed a strong link between mindfulness and individual physical and mental health, but has also suggested that mindfulness can enhance helping behavior. However, can mindfulness promote altruistic behavior? And, if mindfulness can promote altruistic behavior, what are its internal mechanisms? Existing research is not yet sufficient to answer this question. Distinguished from helping behavior, altruistic behavior is driven by altruistic motives directed solely toward alleviating the suffering of others. The study of the relationship between mindfulness and altruistic behavior has profound implications for elucidating the relationship between mindfulness and good acts. In the Chinese context, compassion, unlike sympathy or empathy, is the emotion of wishing to relieve the suffering of others based on the understanding of the nature of suffering, and also contains the motivation triggered by this emotion, which is part of human nature in the face of suffering and is the fundamental driving force of altruistic behavior. This study explores the relationship between mindfulness and altruistic behavior, and attempts to answer the question "Does mindfulness promote altruistic behavior through

compassion? "

The research answers the above questions from two perspectives: mindfulness as a trait and a mental ability that can be improved through mindfulness training. Study 1 (*N=93*) explored the relationship between trait mindfulness and altruistic behavior and the role of compassion in it. Questionnaires were used to measure trait mindfulness, compassion, and self-reported altruism, and altruistic behavior was measured by altruistic donation in the psychological avoidance paradigm. The results showed that trait mindfulness positively predicted self-altruism, and compassion played a mediating role; no predictive relationship was found between trait mindfulness and altruistic donation. Study 2 (*N=62*) used eight-week mindfulness training to explore whether mindfulness training can improve altruistic behavior and the role of compassion in the mindfulness-altruism relationship, using 2 (groups: eight-week mindfulness group, waiting control group) *2 (time: pre-test, post-test) mixed experimental design. Questionnaires were used to measure the traits mindfulness and compassion, and altruistic behavior was measured with altruistic donation in the psychological avoidance paradigm. The results showed that compared with the waiting control group, eight weeks of mindfulness training significantly improved the level of individual mindfulness, promoted altruistic donation and increased compassion; and the change value of compassion mediated the relationship between eight weeks of mindfulness training and altruistic donation.

The results of the two studies support the positive link between mindfulness and altruistic behavior and the important role of compassion in it, showing that mindfulness training can enhance individuals' compassion for others in suffering and promote altruistic behavior.

Keywords：mindfulness, compassion, altruistic behavior, mindfulness training, psychological avoidance paradigm.

经验性回避在正念干预早期阶段的中介作用：每日日记研究

贺梦瑶[1]，李燕娟[1]，李恒之[2]，刘兴华[1]（通讯作者）

1 北京大学心理与认知科学学院，北京，100871，xinghua_liu@pku.edu.cn

2 广州美术学院，广州，510000

摘 要　背景：以往研究发现经验性回避中介了早期正念干预对情绪困扰的影响，但尚未有研究证明经验性回避与情绪困扰变化的时间先后顺序。本研究试图从时间顺序的原则出发，使用每日日记的方法检验经验性回避是否是早期正念干预缓解情绪困扰的机制。

方法：通过网络招募高情绪困扰的参与者。完成前测后，106 名参与者被随机分配到正念干预组(N = 53)或等候组(N = 53)。在干预开始之前的一周，以及干预开始后的前三周，所有参与者每日需完成一份问卷，测量当天的经验性回避、焦虑和抑郁困扰水平，共 28 天。

结果：多水平中介分析表明，在同日模型中，当日的经验性回避在个体间水平上可以显著中介正念干预与当日焦虑困扰（a*b：$B = 0.640$, $SE = 0.292$, $p = .028$）、抑郁困扰（a*b：$B = 0.515$, $SE = 0.243$, $p = .034$）的关系，个体内水平上当日的经验性回避也与当日的焦虑困扰（$B = 0.333$, $SE = 0.033$, $p < .001$）、抑郁困扰（$B = 0.291$, $SE = 0.037$, $p < .001$）显著正相关。在时间滞后模型中也有类似的发现，当日的经验性回避在个体间水平上可以显著中介正念干预与第二天焦虑困扰（a*b：$B = 0.668$, $SE = 0.309$, $p = .031$）、抑郁困扰（a*b：$B = 0.560$, $SE = 0.254$, $p = .028$）的关系，个体内水平上当日的经验性回避也与第二天的焦虑困扰（$B = 0.112$, $SE = 0.023$, $p < .001$）、抑郁困扰（$B = 0.279$, $SE = 0.036$, $p < .001$）显著正相关。

结论：本研究从时间顺序的角度，进一步揭示了经验性回避在早期正念干预缓解情绪困扰中的机制作用。

关键词　正念，情绪困扰，经验性回避，每日日记，机制

The Role of Experiential Avoidance in the Early Stage of Mindfulness Intervention: A Daily Diary Study

Mengyao He[1]，Yanjuan Li[1]，Hengzhi Li[2]，Xinghua Liu[1]*
1 School of Psychological and Cognitive Sciences, Peking University, Beijing, 100871,
xinghua_liu@pku.edu.cn
2 Guangzhou Academy of Fine Arts, Guangzhou, 510000

Abstract: BACKGROUND: Previous studies have found that experiential avoidance mediates the influence of mindfulness intervention in the early stage on emotional distress, but no research has proved the temporal sequence of experiential avoidance and emotional distress. Based on the principle of temporal precedence, this study attempts to test whether experiential avoidance is the mechanism of mindfulness intervention in the early stage to alleviate emotional distress by using a daily diary research. METHOD: Participants with high emotional distress were recruited through the Internet. After completing the pre-test, 106 participants were randomly assigned to mindfulness intervention group (N = 53) or waiting group (N = 53). One week before the intervention and the first three weeks in the intervention, all participants were required to complete a questionnaire every day to measure the level of experiential avoidance, anxiety and depression on that day, lasting for 28 days. RESULTS: Multi-level mediation analysis showed that in the contemporary model, experiential avoidance could significantly mediate mindfulness intervention and anxiety distress (a*b: B = 0.640, SE = 0.292, p = .028) and depression distress (a*b: B = 0.515, SE = 0.243, p = .034) in the same day. In the within-person level, experiential avoidance was also significantly positively correlated with anxiety distress (B = 0.333, SE = 0.033, p < .001) and depression distress (B = 0.291, SE = 0.037, p < .001) in the same day. Similar findings were found in the time-lagged model. On the between-person level, experiential avoidance could significantly mediate the mindfulness intervention and the anxiety distress (a*b: B = 0.668, SE = 0.309, p = .031) and the depression distress (a*b: B = 0.560, SE = 0.254, p = 0.031) in the next day. In the within-person level, the experiential avoidance was also significantly positively correlated with anxiety distress (B = 0.112, SE = 0.023, p < .001) and depression distress (B = 0.279, SE = 0.036, p < .001) in the next day. CONCLUSION: This study further reveals that experiential avoidance is an important mechanism during the early-stage of MBIs for alleviating emotional distress from the perspective of temporal precedence.

Keywords ： mindfulness-based interventions, emotional distress, experiential avoidance, daily dairy, mechanisms

小学生感知教师支持与学校表现的日常动态关系：消极情绪的中介作用与正念的调节作用

闻学[1,2]　刘晓妍[2]　徐慰[2](通讯作者)
1 南京师范大学心理学院，南京，100101
2 北京师范大学心理学部，北京，100875，livingxw@163.com

摘 要　面对繁重的学习任务和普遍的竞争，小学生在学校生活中易产生消极情绪，有不良学校表现。教师支持是小学生学校生活中社会支持的重要部分，是小学生健康心理的保护因素。感受到教师支持的小

学生能意识到教师的关心、爱护与鼓励，从而产生更少的消极情绪，积极专注地投入到学习任务中，促成良好的学校表现。但是，即使教师精力有限，班级中大部分学生无法感知到高水平的教师支持、消极情绪水平高，仍只有小部分学生有违纪、学业拖延、上课分心等不佳的学校表现，这可能得益于正念缓冲了消极情绪对学校表现的预测作用。因此，本研究探究每日教师支持与小学生学校表现(包含违纪、学业拖延、上课分心行为)的关系，以及消极情绪在其中的中介作用，并检验特质正念对中介模型后半段间接路径的调节作用。本研究招募某小学 3-6 年级的学生共 193 人(42.5%女性，平均年龄 9.91 岁，*SD*=2.16)，前测测量其特质正念水平，日记法阶段对其进行 10 个连续工作日的测量，测量内容为小学生自我报告每天的感知教师支持与消极情绪水平；此外，为了客观评价小学生的学校表现，要求班主任对每位学生当日的违纪、学业拖延、上课分心表现进行他评。结果表明，消极情绪中介学生每日感知教师支持与违纪或上课分心的关系(间接效应=-.02/-.02, 95% CI=[-0.037, -0.008]/[-0.038, -0.009])，也即学生在感知到更多教师支持的工作日有更少的消极情绪(*b*=-.25, *p*<.001)，从而有更少违纪(*b*=.09, *p*=.003)或上课分心(*b*=.09, *p*=.002)的表现；正念调节以违纪为结果变量的中介模型的后半段间接路径(*b*=-.09, *p*<.001)。具体而言，正念水平低时(标准化后分值=-1)，中介模型中消极情绪对违纪的预测作用显著(*b*=.18, *p*<.001) ，中介模型成立(间接效应=-.04，95% CI=[-0.061, -0.024])；正念水平高时(标准化后分值=1)，中介模型中消极情绪对违纪的预测作用不显著(*b*=-.01, *p*=.845)，中介模型不成立(间接效应=.00，95% CI=[-0.019, 0.021])。每日感知教师支持与学业拖延之间的关系不被消极情绪中介(间接效应=-.01 ,95% CI=[-0.022, 0.006])，后半段间接路径也不被正念调节(*b*=-.02, *p*=.403)。本研究强调了教师支持通过减少消极情绪对学校表现的积极作用，及正念对违纪行为的缓冲作用。

关键词　小学生，感知教师支持，消极情绪，学校表现，正念，日记法

Daily Momentary Relationship between Elementary School Students' Perceived Teacher Support and School Performance: The Mediating Role of Negative Emotion and the Moderating Role of Mindfulness

Xue WEN[1], Xiaoyan LIU[2], Wei XU[2]
1 School of Psychology, Nanjing Normal University, Nanjing, 100101
2 Faculty of Psychology, Beijing Normal University, Beijing, 100875

Abstract：Because of the heavy learning task and widespread competition, elementary school students are prone to negative emotion and poor school performance in their school life. Teacher support is an important part of social support in elementary school students' school life and is a protective factor for their psychological health. Elementary school students who perceive support from teachers can realize their teachers' care, love, and encouragement, which might predict less negative emotion, help students to proactively and attentively engage in learning tasks, and contribute to good school performance. However, even though most of the time teachers have limited energy, and most students in the class cannot perceive high levels of teacher support and have to face negative emotion, only a small percentage of students have poor school performance such as disciplinary infractions, academic delays, and distractions in class, which may be due to the fact that mindfulness buffers the predictive effect of negative emotion on school performance. Therefore, the present study explored the daily relationship between elementary school students' perceived teacher support and school performance (encompassing disciplinary infractions, academic delays, and distractions in class), and the mediating role of negative emotion, as well as the moderating role of trait mindfulness on the second half of the indirect path in the mediation model. A total of 193 students (42.5% female, mean age = 9.91 years, *SD* = 2.16) in grades 3-6 of an

elementary school were recruited for the present study. Their trait mindfulness levels were measured in the pre-test. In the daily diary part, the self-reported daily levels of perceived teacher support and negative emotion of the elementary school students were measured over 10 consecutive workdays; furthermore, in order to objectively assess the elementary school students' school performance, the class teachers were asked to make their assessments of each student's performance on disciplinary infractions, academic delays, and distractions in class for that day. Results showed that negative emotion mediated the relationship between daily perceived teacher support and disciplinary infractions/distractions in class (indirect effect = -.02/-.02, 95% CI=[-0.037, -0.008]/[-0.038, -0.009]). That means on the day when students perceived more support from teachers, they had less negative emotion, then had fewer disciplinary infractions (b=.09, p=.003) or distractions in class (b=.09, p=.002). Mindfulness moderated the mediation model of disciplinary infractions (b=-.09, p<.001). Specifically, to students whose mindfulness levels were low (standardized value=-1), negative emotion significantly predicted disciplinary infractions (b=.18, p<.001), and the mediation model was significantly set up (indirect effect=-.04,95% CI=[-0.061, -0.024]); to students whose mindfulness levels were high (standardized value=1), negative emotion could not predict disciplinary infractions(b=-.01, p=.845), and the mediation model could not be set up (indirect effect=.00, 95% CI=[-0.019, 0.021]). Negative emotion could not mediate the relationship between daily perceived teacher support and academic delays (indirect effect=-.01, 95% CI=[-0.022, 0.006]). The second half of the indirect path of the model was not moderated (b=-.02, p=.403). The present research highlights the positive effect of perceived teacher support on better school performance by reducing elementary school students' daily negative emotion, as well as the buttering effect of mindfulness on disciplinary infractions.

Keywords：elementary school students, perceived teacher support, negative emotion, performance at school, mindfulness, daily diary

正念干预改善躯体症状：觉知压力的中介作用

李燕娟 贺梦瑶 刘兴华（通讯作者）

北京大学心理与认知科学学院，北京，100871，Xinghua_liu@pku.edu.cn

摘 要 受焦虑抑郁困扰的个体通常也会体验到躯体症状的困扰。近几十年来，不少研究发现基于正念的干预（mindfulness-based interventions; MBIs）除了能缓解焦虑抑郁等情绪困扰外，还能改善躯体症状。Creswell 等研究者提出了压力缓冲模型，认为在心理层面，MBIs 能通过减少压力作用于身体健康相关变量，但相关实证研究较少。因此，本研究旨在探究，觉知压力是否在正念干预改善躯体症状中起到中介作用。

研究一为横断面研究，共招募 481 名高焦虑抑郁困扰的个体（年龄 M = 31.39, SD = 8.90），测量其正念、觉知压力和躯体症状水平。中介分析结果表明，觉知压力在正念和躯体症状之间起到完全中介作用（间接效应 = -0.08, 95%CI = [-0.10, 0.06]）。

研究二为随机对照研究，招募 347 名高焦虑抑郁困扰的个体（年龄 M = 32.78, SD = 9.12），将其随机分到正念干预组（N = 173）和等待对照组（N = 174），在干预前，干预期间每周，干预后测量正念、觉知压力和躯体症状。正念干预采用的是情绪困扰的正念干预方案。混合线性模型结果表明，相比于等待对照组，正念干预组的参与者在干预后正念水平显著提高，觉知压力和躯体症状显著降低（时间*组别交互作用 ps < .05）。平行过程-潜增长曲线模型结果表明，觉知压力的改善在干预对躯体症状的改善中起到部分中介作用（间接效应 = -0.14, 95%CI = [-0.26, -0.06]）。随机截距-交叉滞后模型结果表明，在正念干预过程中，觉知压力的变化能够预测下一个时间点躯体症状的变化（β = 0.10, p = .020），反之不成立（β = 0.08, p = .334）。

综上，对于高焦虑抑郁困扰的个体而言，觉知压力在正念干预缓解躯体症状中起到中介作用，且在干预过程中，觉知压力的变化先于躯体症状的变化。本研究结果为正念干预起效模型——压力缓冲模型提供了实证依据，启示我们增加对觉知压力的干预剂量可能可以增加正念干预对躯体症状的作用效果。

关键词　正念干预，觉知压力，躯体症状，中介

The effect of Mindfulness-Based Interventions on Physical Symptoms: Perceived Stress as the mediator

Yan-juan, Li, Mengyao He, Xing-hua, LIU
School of Psychological and Cognitive Sciences, Peking, 100871

Abstract：Individuals troubled by anxiety and depression often experience distressing physical symptoms as well. In recent decades, numerous studies have found that mindfulness-based interventions (MBIs) not only alleviate emotional distress such as anxiety and depression but also improve physical symptoms. Creswell and other researchers proposed the stress-buffering model, suggesting that at the psychological level, MBIs can reduce stress and impact variables related to physical health. However, empirical research in this regard is limited. Therefore, this study aimed to explore whether perceived stress played a mediating role in the improvement of physical symptoms through MBIs.

Study 1 was a cross-sectional study that recruited 481 individuals with high levels of anxiety and depression symptoms (mean age = 31.39, *SD* = 8.90). Their levels of mindfulness, mindful awareness of stress, and physical symptoms were measured. Mediation analysis results indicated that perceived stress fully mediated the relationship between mindfulness and physical symptoms (indirect effect = -0.08, 95%CI = [-0.10, 0.06]).

Study 2 was a randomized controlled trial that recruited 347 individuals with high levels of anxiety and depression symptoms (mean age = 32.78, *SD* = 9.12). Participants were randomly assigned to either the mindfulness intervention group (*N* = 173) or the waitlist control group (*N* = 174). Before the intervention, each week during the intervention, and after the intervention, mindfulness, perceived stress, and physical symptoms were assessed. The mindfulness intervention employed the Mindfulness Intervention for Emotional Distress protocol. Mixed linear model results showed that compared to the waitlist control group, participants in the mindfulness intervention group exhibited significantly increased mindfulness levels and significantly reduced mindful awareness of stress and physical symptoms after the intervention (time×group interaction *p*s < .05). Parallel process-latent growth curve model results demonstrated that the improvement in perceived stress partially mediated the improvement in physical symptoms following the intervention (indirect effect = -0.14, 95%CI = [-0.26, -0.06]). Random intercept-cross-lagged panel model results indicated that during the mindfulness intervention, changes in perceived stress predicted subsequent changes in physical symptoms (β = 0.10, *p* = .020), but not vice versa (β = 0.08, *p* = .334).

In conclusion, for individuals with high levels of anxiety and depression symptoms, perceived serves as a mediating factor in the alleviation of physical symptoms through mindfulness interventions. Furthermore, during the intervention process, changes in mindful awareness of stress precede changes in physical symptoms. The findings of this study provide

empirical support for the mechanism model of mindfulness interventions—the stress-buffering model—and suggest that increasing the dosage of perceived stress intervention may enhance the effectiveness of mindfulness interventions on physical symptoms.

Keywords：mindfulness-based intervention, perceived stress, physical symptoms, mediator

认知灵活性在正念干预缓解情绪困扰中的纵向中介作用：一项随机对照研究

王珍珍[1]　刘兴华[1]（通讯作者）

[1]北京大学心理与认知科学学院，北京，100871，xinghua_liu@pku.edu.cn

摘 要

目的：基于正念的干预对抑郁、焦虑等情绪困扰具有显著的干预效果，但其机制并不清晰。研究发现，认知灵活性的水平高低可以预测焦虑、抑郁等情绪困扰的缓解情况，基于正念的干预对认知灵活性也有显著的提高作用，因此，认知灵活性可能是基于正念的干预改善情绪困扰的潜在机制变量。本研究采用随机对照研究设计，探讨在认知灵活性正念干预缓解情绪困扰中的中介作用。

方法：在线招募了共 498 名具有高情绪困扰的参与者，并随机分配到 49 天的在线自助正念干预情绪困扰组(Mindfulness Intervention for Emotional Distress, MIED) (N = 249)或等待对照组(Wait-list control, WL)(N = 249)。在基线(干预前，T0)、第 1 周(T1) 、第 2 周(T2)、 第 3 周(T3)、第 4 周(T4)、第 5 周(T5)、第 6 周(T6)和第 7 周(干预后，T7)测量参与者的认知灵活性、正念、焦虑和抑郁水平。

结果：混合线性模型结果显示，正念(p<0.001)、认知灵活性(p<0.001)、焦虑(p<0.001)、抑郁(p<0.01)的组别(MIED 组，WL 组)和时间(T0，T1，T2，T3，T4，T5，T6，T7)的交互作用均显著。基于潜变量增长模型的纵向中介分析显示，认知灵活性的斜率（S_{CF}）在组别和焦虑的斜率（$S_{Anxiety}$）间起到显著的中介作用（CI: -0.178，-0.029），同时，认知灵活性的斜率（S_{CF}）在组别和抑郁的斜率（$S_{Depression}$）间也起到显著的中介作用（CI: -0.200, -0.034）。

结论：本研究采用多时间点测量的随机对照研究设计，证明了基于正念的干预可以通过提高个体的认知灵活性，进一步起到缓解焦虑、抑郁等情绪困扰的作用.因此，认知灵活性的提高可能是基于正念的干预缓解情绪困扰的机制。

关键词　认知灵活性，正念干预，中介作用，情绪困扰，随机对照

The longitudinal mediating role of cognitive flexibility in a mindfulness intervention for emotional distress: a randomized controlled trail

Zhenzhen Wang[1]　Xinghua Liu[1]

[1]No.5 Yiheyuan Road, Haidian District, School of Psychological and Cognitive Sciences, Peking University, Beijing, 100871, P.R. China

Abstract：

Objectives: Mindfulness-based intervention has a significant effect on depression, anxiety and other emotional distress, but its mechanism is still unclear. Previous studies have found that the level of cognitive flexibility can predict the relief of anxiety, depression and other emotional distress, and mindfulness-based

intervention can also significantly improve cognitive flexibility level. Therefore, cognitive flexibility may be a potential mechanism variable for mindfulness-based intervention to improve emotional distress. This study used a randomized controlled study to explore the mediating role of cognitive flexibility between mindfulness intervention and emotional distress.

Methods: A total of 498 participants with high emotional distress were recruited online. Then they were randomly assigned to a 49-day online Mindfulness Intervention for Emotional Distress (MIED) group (N = 249) or a wait-list control (WL) group (N = 249). The levels of cognitive flexibility, mindfulness, anxiety, and depression were measured at baseline (pre-intervention, T0), week 1 (T1), week 2 (T2), week 3 (T3), week 4 (T4), week 5 (T5), week 6 (T6), and week 7 (post-intervention, T7).

Results: Mixed linear model showed significant Group (MIED group, WL group) by Time (T0，T1，T2，T3，T4，T5，T6，T7) interaction effects for mindfulness(p<0.001), cognitive flexibility (p<0.001), anxiety (p<0.001) and depression (p<0.01). Longitudinal mediation analysis based on the latent growth model showed that the slope of cognitive flexibility (S cognitive flexibility) played a significant mediating role (CI: -0.178，-0.029) between the group and the slope of anxiety ($S_{Anxiety}$). At the same time, the slope of cognitive flexibility (S_{CF}) also played a significant mediating role (CI: -0.200, -0.034) between the group and the slope of depression ($S_{depression}$).

Conclusions: This study adopted a randomized controlled trail measured at multiple time points, proving that mindfulness-based intervention can further relieve anxiety, depression and other emotional distress by improving cognitive flexibility. The improvement of cognitive flexibility may be the mechanism of mindfulness-based intervention to relieve emotional distress.

Keywords：Cognitive flexibility, Mindfulness, Mediating, Emotional distress, Randomized controlled trial

3.21 “学习心理专业委员会”专题研讨会

情绪对沉浸式虚拟现实环境中新词学习的影响

刘聪[1]（通讯作者） 周冠珠[1] 焦鲁[1]

1 青岛大学心理学系，青岛，266071，congu902@gmail.com

摘 要 先前研究已经针对认知因素如何影响虚拟现实环境中的语言学习做了一定的探讨，但鲜有研究考察情绪因素如何影响虚拟现实环境中的新词学习。中-英双语者在虚拟现实环境中学习三种具有不同情绪音调（积极、中性和消极）的德语词汇，然后通过四择一判断任务测试其学习效果。行为结果表明，带有积极情绪的词汇在反应时上要显著的快于带有消极情绪的词汇。ERPs 结果发现虚拟现实环境下所学词汇的情绪加工可以分为三个阶段，中性音调和情绪音调（积极和消极）的词汇加工差异出现在早期 N100 成分，而随后的 N200 和晚期正成分（LPC）进一步区分了积极音调和消极音调的词汇加工差异。总之，本研究不仅丰富了沉浸式学习的认知情感模型，而且从情感角度为虚拟现实环境中的新词学习研究提供了新的研究视角。

关键词 新词学习，情绪，虚拟现实环境，ERPs

Effects of Emotion on the Novel Word Learning in an Immersive

Virtual Reality Environment

Cong Liu[1], Guanzhu Zhou[1], Lu Jiao[1]
1 Department of Psychology, Qingdao University, Qingdao, China

Abstract: Although previous studies have explored the influence of cognitive factors on language learning in a virtual reality (VR) environment, little work has examined how emotion influences novel word learning through VR. We trained Chinese-English bilinguals to learn German words in a VR context and employed a four-alternative forced choice task to analyze behavioral performance and electrophysiological activity. Words were present with positive, negative, or neutral emotions by manipulating lexical tones. Response times revealed a facilitative effect of positive emotions on novel word recognition compared to negative emotions. ERP analyses further showed the distinct stages of processing emotion. Differences between emotional tones and neutral tones were firstly observed by the N100 component. Negative and positive tone processing were reflected by N200 and LPC components. These findings provide empirical evidence for the Cognitive Affective Model of Immersive Learning and contribute new insight into language learning through VR from an affective dimension.

Keywords: novel word learning, emotion, virtual reality environment, ERPs

具身模拟对学前儿童普通话声调学习的影响

余可可（共同通讯作者）[1]，李嘉豪 [1]，蔡黎曼 [2]，王瑞明（共同通讯作者）[1]
1 华南师范大学心理学院，广州，510631
2 华南师范大学教育科学学院，广州，510631
通讯作者：kkyu@m.scnu.edu.cn; wangrm@scnu.edu.cn

摘 要 普通话是我国的国家通用语言。学前儿童学习与掌握普通话具有重要意义。普通话是一种典型的声调语言。同一普通话音节附上不同的声调，能够表达不同的语义。以往研究显示，学前儿童的声调感知能力在不断发展，但其对声调的感知敏感性弱于声母和韵母。学前儿童的声调产出能力同样也还在发展，不像早期研究所认为的个体在 3 岁前就能基本掌握声调。那么，如何促进学前儿童声调感知与产出能力的提升呢？过去研究发现，个体通过具身模拟（个体对他人身体动作的观察和模拟）获得的身体感觉运动经验有助于语言学习。但是，具身模拟是否以及如何促进学前儿童的普通话声调学习还有待探讨。基于此，本研究采用新异词学习范式，通过比较音高观察、音高模拟和词图匹配三种方法对学前儿童声调感知和产出的影响，探讨具身模拟对学前儿童普通话声调学习的影响。研究招募了 90 名幼儿园中班幼儿，随机分为 3 组，分别通过上述三种方法学习 4 个不同声调的普通话假词及其对应的新异物品图片，学习结束后完成词图匹配任务和图片命名任务。结果显示，在词图匹配任务上，音高模拟组的正确率显著高于音高观察和词图匹配组，而音高观察组和词图匹配组的正确率无显著差异。在图片命名任务上，同样是音高模拟组的正确率显著高于音高观察和词图匹配组，音高观察组和词图匹配组的正确率无显著差异。这些结果表明，具身模拟，尤其是音高模拟有助于学前儿童声调感知和产出能力的提升。相比词图匹配，音高观察并没有表现出一定的作用。总体而言，本研究揭示了具身模拟对学前儿童普通话声调学习的影响，有助于推动口语学习具身理论的发展，为方言地区和民族地区学前儿童的普通话学习提供参考。

关键词 具身模拟，音高模拟，音高观察，学前儿童，普通话声调

The effect of embodied simulation on preschool children's Mandarin lexical tone learning

Keke Yu[1] (Co-corresponding author), Jiahao Li[1], Liman Cai[2], Ruiming Wang[1] (Co-corresponding author)

1 School of Psychology, South China Normal University

2 School of Education, South China Normal University

Abstract: Mandarin is the official language in China. Learning and mastering Mandarin is significant to preschool children. Mandarin is a typical tonal language. The pitch variations on the syllable level can signify different word meanings. Previous studies suggested that preschool children's perception ability of Mandarin lexical tones was growing. However, their perception sensitivity to lexical tones was lower than consonants and vowels. Their Mandarin lexical tone production ability was also growing. Children did not master lexical tones before three years old, as early studies considered. Then, how to promote preschool children's Mandarin lexical tone perception and production ability? Previous studies indicated that the sensorimotor experience acquired from embodied simulation (individuals observing and simulating others' body movements) contributed to language learning. However, whether and how embodied simulation plays a role in Mandarin lexical tone learning remains unclear. The present study adopted a novel word learning paradigm. We compared three approaches: pitch observation, pitch simulation, and word-picture matching in Mandarin lexical tone perception and production. We randomly recruited 90 children from mid-class kindergarten and divided them into three groups. Each group adopted one approach to learning four Mandarin pseudo words and their corresponding novel object picture. After learning, they needed to complete a word-picture matching and a picture naming task. The results showed that the pitch simulation group's accuracy was significantly higher than the other two groups in the word-picture matching task. In comparison, the other two groups did not differ. In the picture naming task, the pitch simulation group's accuracy was significantly higher than the other two groups. The pitch observation group was not different from the word-picture matching group. The findings indicated that embodied simulation promotes preschool children's Mandarin lexical tone perception and production, especially pitch simulation. However, pitch observation did not play a role compared with the word-picture matching approach. The present study revealed the effect of embodied simulation on preschool children's Mandarin lexical tones learning, providing insight into an embodied view of spoken language learning.

Keywords: embodied simulation, pitch observation, pitch simulation, preschool children, Mandarin lexical tones

构词法的神经表征与词汇学习

高飞

复旦大学现代语言学研究院，上海，200433

摘 要　已有研究讨论了构词法在字母文字语言加工中的作用，但是大脑对非字母语言（比如汉语）构词法信息的编码方式鲜少被讨论。同时，对构词法神经表征的研究可以深化对不同情景下词汇学习效率和模式的认识。在本次报告中，我会分享一系列构词法加工的行为和脑成像研究以及这些研究对词汇学习的启示。首先，行为研究采用重复启动范式考察了整词启动、自由/黏着语素启动和符号启动对汉语母语者

和中高级学习者词汇识别的影响。结果表明，汉语母语者的词汇表征单位以整词为主导，学习者的词汇表征单位是发展变化的；随着语言水平的提高，整词对目标词通达表征的作用逐渐增强。其次，三个脑成像实验聚焦汉语构词法系统的独特性，通过事件相关电位（ERP）和功能性近红外光学成像（fNIRS）联合采集的技术手段探究汉语构词法加工的神经机制。实验一研究了单独呈现的汉语复合词如何被大脑编码其构词法合理性， ERP 结果表明构词法加工（LAN 效应，450-570 毫秒）晚于语义加工（N400 效应，300-450 毫秒）。fNIRS 的大脑激活数据显示，构词法加工主要分布在大脑左半球的额下回（IFG），而语义加工主要集中在左侧的颞区（包括颞中回 MTG）。实验二进一步探究了词语结构效应（复合词 vs.派生词）在大脑的时空表征。与复合词加工相比，派生词加工显示出更强烈的额区激活以及更广的大脑网络。实验三探究了成人汉英双语者第一语言和第二语言构词法加工的神经表征。构词法启动效应和语义启动效应在左半球的额颞网络表现出一定程度的分离。与第二语言英语相比，第一语言汉语的构词法加工诱发了更广泛的左侧前额皮层激活。由 ERP 数据反映的 ELAN 效应可以看出，构词法加工的跨语言差异是量的差别，而不是质的差别。第一语言和第二语言在词汇加工的进程中共享早期（P250）和晚期成分（300-500 毫秒负波）。总的来说，我们的研究表明汉语的构词法加工和语义加工相互独立，是人类心理词库一个重要成分，在词汇学习和过程中发挥着关键的作用。

关键词　构词法加工，词汇学习，心理词典，汉语

Morphological processing in the human brain and vocabulary learning

Fei GAO

Institute of Modern Languages and Linguistics, Fudan University, Shanghai, China

***Abstract*:** While the role of morphology in alphabetic language processing has been extensively explored, it remains unclear how the human brain encodes the various aspects of morphological processing in Chinese word reading. Meanwhile, findings on the neural correlates of morphological processing would advance our understandings into the pathways of vocabulary learning in different settings. In this talk, I will present a series of studies that we carried out with respect to the behavioral and brain bases of morphological processing and how they might be informative to vocabulary acquisition and development. First, we investigated the representation units of Chinese compound words in mental lexicon among Chinese native speakers and second language learners using a repetition priming paradigm, which revealed that for intermediate-level learners, Chinese words could be accessed through either whole words or decomposed morphemes, while advanced-level learners and Chinese natives might employ a whole-word pathway. This might suggest that as language proficiency and reading experience develops, learners tend to rely more on whole words as a processing strategy. Then, three EEG-fNIRS studies set out to examine when, where, and how the human brain encodes Chinese morphological constraints and word structure effect (compound vs. derivation structure). EEG data showed that semantic processing occurred earlier (N400, 300~450 msec) than morphological processing (450~570 msec), while brain activation patterns revealed a differentiation between morphological parsing (specified in the left inferior frontal gyrus) and semantic analysis (in a broader fronto-temporal network). These findings offered new evidence that morphological constraints are encoded at a late stage of compound word processing in Chinese and suggested that the left prefrontal cortex plays an essential role in this process. Meanwhile, the compound vs. derivation structure effect was revealed by the behavioral data as well as the temporal and spatial brain activation patterns. In the masked priming task, Chinese derivations exhibited significantly enhanced brain activation in the frontal cortex and

involved broader brain networks as compared with lexicalized compounds. Additionally, we examined the extent to which the second language (L2) morphological processing would resemble or differ from that of their first language (L1) in adult Chinese-English bilinguals. fNIRS results revealed a neural dissociation between morphological and semantic priming effects in the left fronto-temporal network, while L1 Chinese engaged enhanced activation in the left prefrontal cortex for morphological parsing relative to L2 English. In the early stage of lexical processing, cross-language morphological processing manifested a difference in degree, not in kind, as revealed by the early left anterior negativity (ELAN) effect. In addition, L1 and L2 shared both early and late structural parsing processes (P250 and 300~500 msec negativity, respectively). Thus, the results supported a unified competition model for bilingual development, where bilinguals would primarily employ L1 neural resources for L2 morphological representation and processing. Together, these studies shed light upon the notion that morphology constitutes an integral component in the human mental lexicon, which is important for vocabulary learning and development.

Keywords：Morphological processing, vocabulary learning, mental lexicon, Chinese

中级水平留学生汉语语用原则习得的实验研究

张金桥[1, 2]　张巧宏[1]

1 暨南大学华文学院，广州，510610

2 暨南大学华文学院应用语言学系，广州，510610

摘 要　本研究采用移动动窗技术与选择判断任务，通过 2 个行为实验考察了中级水平留学生合作原则和礼貌原则等两种语用原则中各准则学习的特点与认知机制。实验一从理解和表达两个方面考察了 36 名中级水平留学生合作原则中各准则的习得特点与规律。结果表明：中级水平留学生对信息准则的理解最好，方式准则次之，量准则较弱；对信息准则的表达最好，量准则次之，方式准则最弱；对信息准则的理解与表达无差异，对量准则和方式准则的理解均优于表达；实验二考察了 25 名汉文化圈和 24 名欧美文化圈中级水平留学生礼貌原则中各准则的习得特点与规律。结果表明：汉文化圈留学生一致准则和同情准则习得效果最好，损惠准则和谦逊准则次之，赞誉准则较弱；欧美文化圈留学生同情准则习得效果最好，赞誉准则次之，损惠准则、谦逊准则和一致准则较弱：汉文化圈和欧美文化圈中级水平留学生同情准则习得效果一样好，前者对损惠准则、谦逊准则和一致准则的习得效果优于后者，后者对赞誉准则的习得效果优于前者。

我们认为，中级水平留学生可以习得合作原则和礼貌原则。合作原则中的信息准则始终具有理解与表达的优势，以联结性加工方式为主，而方式准则和量准则需要较为复杂的语用推理，以运算性加工方式为主。此外，文化价值观决定着各礼貌准则的习得难度，对于汉文化圈学习者而言，同情准则和一致准则处于价值观的核心层，能迅速激活该类信息，以联结性加工方式为主，赞誉准则处于价值观的边缘层，以运算性加工方式为主；对于欧美文化圈学习者而言，同情准则处于价值观的核心层，以联结性认知方式为主，损惠、谦逊和一致准则处于价值观的边缘层，以运算性加工方式为主。最后，构建了中级水平留学生语用原则习得的认知加工模型。

关键词　中级水平留学生，合作原则，礼貌原则，汉文化圈，欧美文化圈

Experimental Study on the Acquisition of Pragmatic Principles for Intermediate-level Chinese Learners

Zhang Jinqiao　Zhang Qiaohong

1 *School of Chinese Language and culture*, *Jinan University*, *Guangzhou Guangdong* 510610;

2 *Institute of Applied Linguistics*, *Jinan University*, *Guangzhou Guangdong* 510610

***Abstract*：** This study used gaze-contingent moving-window technique and selection judgement task to investigate the characteristics and cognitive mechanisms of the acquisition of cooperative principles and politeness principles for intermediate-level Chinese learners. Two experiments were conducted to examine the learning characteristics and patterns of various principles within the cooperative principle for 36 intermediate-level Chinese learners in terms of comprehension and production. The results showed that intermediate-level Chinese learners had the best understanding of the information principle, followed by the manner principle, while the quantity principle was relatively weaker. In terms of production, they were most proficient in expressing the information principle, followed by the quantity principle, and the manner principle was the weakest. There was no difference in understanding and production between the information principle, but the understanding of the quantity and manner principles was superior to their production.

Experiment two investigated the learning characteristics and patterns of various principles within the politeness principle for 25 intermediate-level Chinese learners from Chinese cultural sphere and 24 from Western cultural sphere. The results showed that for students from Chinese cultural sphere, the maxims of agreement and sympathy were acquired the best, followed by *sunhui*（损惠）maxim and modesty maxim, while the approbation maxim was weaker. For students from Western cultural sphere, the sympathy maxim was acquired the best, followed by approbation maxim, while the maxims of *sunhui*, modesty, and agreement were weaker. The acquisition of sympathy maxim was equally good for students from Chinese and Western cultural spheres. However, the former had a better acquisition of *sunhui*, modesty, and agreement maxim, while the latter had a better acquisition of approbation maxim.

We believed that intermediate-level international students can acquire the principles of cooperation and politeness. The information maxim within the cooperative principle consistently exhibited an advantage in understanding and production, primarily relying on associative processing, while the manner and quantity maxim required more complex pragmatic reasoning, primarily relying on computational processing. Additionally, the acquisition difficulty of each politeness principle was determined by cultural values. For Chinese cultural sphere learners, the maxims of sympathy and agreement were at the core of their cultural values and can be quickly activated, primarily relying on associative processing, while approbation maxim was at the periphery of their cultural values, primarily relying on computational processing. For learners from Western cultural sphere, sympathy maxim is at the core of their cultural values, primarily relying on associative cognitive processing, while *sunhui*, modesty, and agreement were at the periphery of their cultural values, primarily relying on computational processing. Finally, a cognitive processing model for the acquisition of pragmatic principles in intermediate-level Chinese learners was constructed.

***Keywords*：** intermediate-level Chinese learners, cooperative principle, politeness principle, Chinese cultural sphere, Western cultural sphere

类型学视角下汉语情绪同词化加工机制的启动研究

袁立婷[1]　鹿士义[1]（通讯作者）

1 北京大学对外汉语教育学院，北京，100871，lushiyi@pku.edu.cn

摘 要　不同民族、地域和历史文化的人们对客观事件的概念化组织方式具有跨语言的共性和变异，因而作为概念化外部表现的词化模式同样具有类型学意义。同词化（colexification）是指在一种语言中用同一词形表达两个或者多个不同功能的语义概念（François 2008），这种词化方式在世界范围语言内具有普遍性（François 2008；Youn et al. 2016；Jackson et al. 2019；Xu et al. 2020）。Jackson 等人（2019）的研究首次提出了情绪语义的文化变异性和普遍结构模式，研究表明，世界上 20 个语族语言（包括印欧语系、南亚语系、南岛语系、壮侗语系、汉藏语系等）的情绪概念出现了显著不同的同词化网络聚类（colexification networks）。然而，Jackson 等人是基于语言经验构建的情绪概念静态网络，不一定反映不同语系语言中的人们是如何体验情绪的（Majid 2019），很少有研究从即时加工视角出发验证不同语系情绪同词化网络的心理表征现实性。汉语作为汉藏语系的普遍代表，与其他语系语言类型距离遥远，其情绪同词化网络形成和加工机制有待验证，汉语母语者的头脑中是否形成了如 Jackson 等人所说的汉藏语系情绪同词化网络的相应心理表征网络，这个问题仍需深入探索。鉴于此，本文以 34 名汉语母语者为被试，采用情感启动范式考察汉藏语系中汉语情绪语义同词化表征模式和认知特点。实验采用 2（启动词和目标词效价一致性：一致/不一致）× 2（同词化类型：有/无同词化）× 3（效价类型：正性/中性/负性）三因素被试内设计，在效价、唤醒度、支配度、熟悉度、词频、笔画数方面对实验材料进行了匹配。结果发现：（1）情绪词在汉语同词化加工中具有加工优势。正性词和负性词的反应时显著短于中性词，正确率也更高。（2）汉语情绪加工过程中存在同词化心理表征。在效价一致条件下有同词化词对反应时略快于无同词化词，产生了微弱的同词化加工优势，在有同词化关联的负性词、中性词加工中产生了强关联性加工优势，部分符合 Jackson 等人（2019）构建的汉藏语系情绪同词化网络。本文结果对于深入讨论汉语情绪同词化研究具有一定的启示意义。

关键词　语言类型学，汉语，情绪同词化，启动研究

A priming study on the processing mechanism of emotional colexification in Chinese from the perspective of typology

Liting Yuan　Shiyi Lu
School of Chinese as a Second Language, Peking University,
5th Yiheyuan Road, Haidian District, Beijing

***Abstract*:** People of different nationalities, regions and historical cultures have cross-language universalities and variations in the way they conceptualize objective events, so the lexicalization pattern, as an external manifestation of conceptualization, also has typological significance. Colexification refers to colexify two functionally distinct senses and associate them with the same lexical form (Francois 2008), it is universal across languages in the world (Francois 2008; Youn et al. 2016; Jackson et al. 2019; Xu et al. 2020). Jackson et al. (2019) first proposed cultural variations and universal patterns of emotional semantics, showing that there are significantly different colexification networks of emotional concepts in 20 language families (including Indo-European, Austroasiatic, Austronesian, Tai-Kadai, Sino-Tibetan, etc.). However, Jackson et al. constructed static emotional networks based on linguistic experience, which does not necessarily reflect how people in different languages experience emotions (Majid 2019). Few studies have verified the reality of mental representations of emotional colexification networks in different language families from the perspective of on-line processing. As a representative of the Sino-Tibetan, Mandarin Chinese is typologically distant from other language families, and its formation and processing mechanism of colexification networks needs to be explored. Whether native Chinese speakers have formed the corresponding mental representations of Sino-Tibetan emotional colexification network, remains to be further investigated. Therefore, we use the affective priming paradigm to

investigate the representation patterns and cognitive characteristics in Chinese colexification processing. 34 native Chinese speakers participated in the study. In the experiment, three factors of 2 (congruency: congruent/incongruent) × 2 (colexification: yes/no) × 3 (valence type: positive/neutral/negative) was designed. The experimental materials were controlled in terms of valence, arousal, dominance, familiarity, word frequency and strokes. The results show that: (1) emotional words have processing advantages in Chinese colexification processing. The response time of positive and negative words is significantly faster than that of neutral words, and the accuracy is also higher. (2) There are mental representations of emotional colexification in the processing of Chinese colexification. The weak processing advantage of colexification occurred in the processing of congruent word pairs. And in word pairs with colexification associativity, there is a processing advantage in negative and neutral words which have strong colexification associativity than that of weak colexification associativity. These results partly accords with the Sino-Tibetan colexification network in Jackson et al. (2019). Our findings have a certain enlightening significance for further discussion on the study of Chinese emotional colexification.

Keywords：Language typology, Chinese, emotional colexification, priming study

汉语母语者英语句子的韵律边界感知:

来自行为和脑电的证据

方岚　余可可　王瑞明（通讯作者）

华南师范大学心理学院，广州，510631，wruiming@163.com

摘 要　韵律边界的感知是语言认知加工中的重要方面。借助不同层级的韵律边界，我们得以将语流切分成小句、短语和词语等言语组块，适应大脑加工信息的方式。然而，韵律边界具有显著的母语语言学特征，二语学习者的加工可能不同于母语者。

本研究以英语专业高年级本科生和英语母语者为被试，结合使用行为实验范式和脑电(ERP)技术，探讨说汉语的母语者对英语句子、短语和韵律词三种不同韵律边界层级的识别和线索权重策略的使用，以期初步揭示二语者韵律边界加工的认知机制。

结果发现，在英语韵律词和句子这两种与汉语的韵律边界韵律音位一致的边界加工中，二语者与英语母语者的表现无显著差异，但是在加工韵律短语这个英汉韵律边界音位不一致的类型中，高熟二语者的识别表现不如母语者，说明二语者对二语韵律边界的感知受到母语韵律边界模式迁移的影响。进一步的线索权重探查发现，二语者对停顿倚重最大，延宕次之，最次是音高；和母语者相比，停顿条件下二者无显著差异，延宕条件下逊于母语者，但音高条件下优于母语者。最后，ERP 实验发现二语者产生了前置 CPS。这个结果说明二语者加工韵律短语边界时自动化程度不高，仅对声学信息有所反应，而不像母语者一样对声学信息和语言学信息进行加工。

基于上述实验结果，我们认为二语韵律边界感知加工在权重线索策略层面受母语中声学线索的功能负荷影响。

关键词　韵律边界加工,二语习得,母语迁移

Perception of Prosodic Boundary in English Sentences among Chinese Learners of English--- Evidenced by Behavior and ERP Experiments

Lan Fang, Keke Yu, Ruiming Wang

South China Normal University, Guangzhou, 510631

Abstract： The perception of prosodic boundaries is a crucial component of language processing. By utilizing different levels of prosodic boundaries, such as small phrases, phrases, and words, we can segment speech into linguistic units that align with the brain's information processing. However, prosodic boundaries exhibit distinct language-specific characteristics, and second language learners may process them differently compared to native speakers.

This study took English major senior undergraduates and native English speakers as participants. Through a combination of behavioral experiments and electroencephalography (ERP) techniques, the study investigated the recognition of 3 types of prosodic boundaries (i.e., sentences, phrases, and prosodic words) and the utilization of cue-weighting strategies by native Chinese speakers of English. The goal was to preliminarily reveal the cognitive mechanisms involved in prosodic boundary processing among second language learners.

The results indicated that there was no significant difference between the two groups in recognizing boundaries between words and sentences. However, second language learners performed less accurately than native speakers with prosodic phrase boundaries which had different phonogical patterns between English and Chinese. This suggested that the perception of prosodic boundaries in the second language was influenced by the transfer of prosodic boundary patterns from their native language.

Furtherly, the examination of cue-weighting strategies revealed that second language learners primarily relied on pauses, followed by duration, and placed less emphasis on pitch in the recognition of phrase boundaries. Under the solo-clue-condition, there was no significant difference between the two groups in terms of pause conditions. However, in lengthening conditions, second language learners performed less accurately than native speakers, while in pitch conditions performed better. Furthermore, ERP experiments demonstrated that second language learners exhibited an earlier Closure Positive Shift (CPS) distinct from that of native speakers. These findings suggest that second language learners have a lower level of automatization when processing prosodic phrase boundaries, as they primarily respond to acoustic information rather than integrating both acoustic and linguistic information, as native speakers do.

Based on these experimental findings, we argued that the perception of prosodic boundaries in second language learners is influenced by the functional load of acoustic cues from their native language at the cue-weighting strategy level and less automatic than the native speakers.

Keywords： prosodic boundary processing, second language acquisition, native language transfer

3.22 "神经心理学专业委员会"专题研讨会

群内合作和群际竞争中的脑间同步性

马燚娜

北京师范大学认知神经科学与学习国家重点实验室，北京，100875，yma@bnu.edu.cn

摘 要　人类是天生的社会性动物，群居生活让我们得以生存和壮大。人类的大脑功能受到群居生活的影响，并进化出专门适应于群居群体生活的功能特性，并伴随着一系列独特的感知、认知、动机、情感、神经加工过程。然而，不同群体的形成和存在会导致内群体偏向性的合作以及群际间的竞争和冲突。我们提出群体有两个层面的功能意义，一方面，群体作为抽象的社会集体身份，为其群体成员提供群体身份和

成员身份，我们将这一层面称为群体的聚合层面影响。另一方面，群体也作为群体成员间沟通思想、情感以及社会行为互动的人际空间，我们将这一层面称为群体的人际层面影响。我将主要从人际层面的角度出发，分享我们近期的几个近红外同步扫描研究。这些研究考察了个体如何与内群体成员、外群体成员进行行为互动和神经同步。我将进一步探讨与内、外群体成员的这些不同的神经交互模式如何加强对内群体的归属感，以及如何激发个体对内群体及其成员的偏爱、倾向性合作，以及对外群体及其成员的认知偏差，进而潜在地引起群际间竞争。

关键词　脑间同步，群内合作，群际竞争

The functional significance of inter-brain synchrony in ingroup cooperation and intergroup competition

Yina Ma
Beijing Normal University

Abstract：Humans are inherently social creatures who thrive in group living. The human brain has evolved to specialize in group living, giving rise to a unique set of perceptual, cognitive, motivational, affective, and neural processes. However, the formation and existence of diverse groups can lead to parochial cooperation and intergroup competition and conflict. We propose that groups serve as abstract social collectives that provide group identity and membership (an aggregated group level) and also function as interpersonal spaces for group members to interact with their thoughts, emotions, and behaviors (an interpersonal level). In this talk, I will take the interpersonal level and discuss several of our recent studies that investigate how individuals interact and neurally synchronize with ingroup (vs. outgroup) members. I will further explore how these distinct neural patterns for ingroups and outgroups can strengthen the sense of belonging to the in-group, which, in turn, motivate ingroup favoritism and discriminatory behavior toward the outgroup and its members, potentially giving rise to intergroup conflict.

Keywords：inter-brain synchrony; ingroup cooperation; intergroup competition

人际社会互动的表征和计算机制

卢春明（通讯作者）
北京师范大学认知神经科学与学习国家重点实验室，北京，100875，luchunming@bnu.edu.cn

摘 要　通过人际社会互动发展社会智能是人类的核心能力，也是人类社会群体区别于其他社会性动物群体的本质属性。通过人际社会互动，个体之间形成传递信息，形成共享的概念和意图表征，构建群体水平的社会网络，表现出不同于个体水平的认知能力和行为模式，即社会智能。然而，人际社会互动的认知神经表征结构及其背后的计算机制却并不清楚。基于以往研究，我们提出了人际社会互动的认知神经层级模型，对人际社会互动的认知表征结构、认知计算机制及其独特的神经基础进行了解释。该模型认为，1）人际互动发生在 2 个以上的个体之间，因而不能仅关注 1 个个体。通过人际互动，互动各方在群体水平形成了具有层级结构的共享表征，并根据互动信息的物理属性和认知表征的心理属性，区分为交流符号、抽象概念、社会文化属性等不同层级。不同层级之间具有自下而上的累积关系和自上而下的调节关系。2）层级之间通过人际水平的预测机制实现动态累积和调节。3）人际之间的神经活动同步是共享表征和人际预测的神经基础，特别是具有时间滞后关系的神经活动同步能够特异性的反映人际预测过程中认知计算机制。

我们分别在不同人群、不同任务、不同情境对上述模型进行了系统验证，并得到了其他相关研究的支持。在报告中，我们将对模型的局限进行讨论，并展望未来的研究方向。

关键词　人际互动，共享表征，人际预测，神经同步，时间滞后

The representation and computational mechanisms of interpersonal social interaction

Chunming Lu
State Key Laboratory of Cognitive Neuroscience and Learning
Beijing Normal University

Abstract：It is one of the core abilities of human beings to develop social intelligence through interpersonal social interaction. Importantly, this ability separates humans from other non-human social animals. During interpersonal social interaction, we can communicate information, establish shared representations of concept and intention, build social connections at the group level and thereby demonstrate social cognitive abilities and behaviors that differ from those at the individual level. These characteristics together are usually termed as social intelligence. However, the neural and cognitive structure of the representation of interpersonal social interaction as well as the underlying computational mechanisms remain unclear. By integrating previous theories and evidence, recently we have proposed a neurocognitive hierarchical model for interpersonal social interaction. The purpose of this model is to provide a systematic and novel explanation for the cognitive architecture of representation, the cognitive computational mechanism and the distinct neural bases. In this model, we proposed that: 1) It is necessary to simultaneously examine multiple individuals rather than a single individual alone. This is because by interpersonal interaction, we can establish a shared representation at the group level which has a hierarchical architecture. In this hierarchy, information flows from one individual to another through the production and perception of communitive signals. Then, the abstract concept can be encoded and decoded from the signals and shared representation of concept is established. Finally, social attributes such as relationships emerge. Moreover, different levels of this hierarchy interact with one another either through bottom-up accumulation or top-down modulation. 2) An interpersonal prediction mechanism occurs during interpersonal interaction and underlies the dynamic interaction among levels of the hierarchy. 3) A unique pattern of brain activity, i.e., interpersonal neural synchronization, supports the shared representation and interpersonal prediction during social interaction. Particularly, the time-lag pattern of the neural synchronization is probably the neural base of the perdition-related computational process. This model has been tested and validated in different populations, different tasks and different contexts and is supported by evidence from other independent research groups. In this talk, we will also discuss the limitations and future directions of the model.

Keywords：Interpersonal interaction, Shared representation, Interpersonal prediction, Neural synchronization, Time lag

有效学科学习：工作记忆能力与学习经验的作用机制研究

陈菁菁[1,2]　何沐菲[1]　张丹[1,2]（通讯作者）
1 清华大学社科学院心理学系，北京，100084
2 清华大学脑与智能实验室，北京，100084

通讯作者 E-mail: dzhang@tsinghua.edu.cn

摘 要　日常学习中总是存在个体差异，一部分人能够取得比其他人更为突出的表现。其中，工作记忆能力和学习经验被认为是解释学业表现个体差异的重要因素。然而，上述因素如何在真实的学科学习过程中发挥作用尚不明晰。本研究招募 56 名具有不同物理学习经验的被试，通过采集被试在在线物理学习任务中的脑活动，探索学习经验、工作记忆能力对学习过程的影响。研究发现，学习经验在工作记忆能力对学习过程的影响中具有显著的调节作用：对低经验组，高工作记忆能力的个体对应高的个体-群体脑际相似性；对高经验组，低工作记忆能力的个体体现高的个体-群体脑际相似性。由于本研究中个体-群体脑际相似性指标与学习过程中的主观认知负荷呈显著负相关，与学业表现呈显著正相关，上述发现提示学习经验的积累有助于弥补工作记忆能力在学习过程中造成的差异，帮助低工作记忆能力群体以较低认知负荷完成学习任务。本研究通过引入脑际相似性指标对学习过程进行刻画，为理解工作记忆能力和学习经验对学习过程的影响机制提供了实证支撑，展示了学习经验和工作记忆能力在实现有效学习中的重要作用。

关键词　工作记忆能力，学习经验，脑际相似性，脑电，学习过程

Successful disciplinary Learning: Investigating the Mechanisms of Working Memory Capacity and Learning Experience

Jingjing Chen [1, 2], Mufei He [1], Dan Zhang [1, 2]
1 Department of Psychology, School of Social Sciences, Tsinghua University, Beijing 100084
2 Tsinghua Laboratory of Brain and Intelligence, Tsinghua University, Beijing 100084
Corresponding author: Dan Zhang, dzhang@tsinghua.edu.cn

Abstract: Individual differences exist in everyday learning, with some individuals outperform than others. Working memory capacity and learning experience are considered important factors explaining different academic performance. However, how these two factors interact in real-world learning processes is still unclear. In this study, 56 participants with different levels of physical learning experience were recruited to investigate the influence of learning experience and working memory capacity on the learning process by collecting participants' brain activity during online physics learning tasks. Inter-brain coupling was computed to track learning processes. The study found a significant moderating effect of learning experience on the association between working memory capacity and learning process. In the low-experience group, individuals with low working memory capacity exhibited lower individual-group inter-brain coupling, while in the high-experience group, individuals with low working memory capacity showed higher individual-group inter-brain coupling. As the inter-brain coupling showed a significant negative correlation with cognitive load and a significant positive correlation with academic performance, the findings suggest that individuals with high working memory capacity can accomplish learning tasks with relatively lower cognitive load even when lacking learning experience, while the accumulation of learning experience helps compensate for the individual differences caused by working memory capacity, allowing individuals with low working memory capacity to effectively engage in learning. By using inter-brain coupling to characterize individuals' learning process, this study provides support for understanding the influence mechanisms of working memory capacity and learning experience on real-world learning tasks, highlighting the important roles of learning experience and working memory capacity in achieving successful learning.

***Keywords*：** working memory capacity, experience, inter-brain coupling, EEG, learning process

社会学习的人际神经科学框架

潘亚峰[1]（通讯作者）

1 浙江大学心理与行为科学系，浙江，310058，yafeng.pan@zju.edu.cn

摘 要　社会行为的脑机制研究正在发生范式转变，从关注个体行为转移到关注群体间的实时互动。这一发展为我们理解人际大脑活动如何通过学习塑造行为提供了前所未有的机会，但其在学习科学领域的应用方兴未艾。在本次报告中，我将探讨快速发展的人际神经科学领域如何（并且可能）有助于我们理解社会学习。首先，我会回顾最近在社会行为、特别是社会学习领域中（包括观察学习、互动学习等）运用脑-脑耦合（即个体间的神经过程发生同步的现象）的实证研究。然后，我将讨论研究社交行为如何在学习过程中有助于解释脑-脑耦合的功能性含义（如，通过自动或半自动视频行为编码来建立脑-行为关系），以及研究脑-脑耦合如何帮助我们理解此类行为（如，基于机器学习的方法通过脑-脑耦合来预测社会学习行为）。随后，我会讨论脑-脑耦合和社交行为如何共同预测学习结果，并提出几种因果关系（即脑-脑耦合仅为社会学习行为的伴随产物，亦或是在社会学习中发挥了因果性作用）和机制模型（包括行为同步、认知对齐和情绪感染等）。最后，我将展示该领域目前关键的方法论和解释挑战，指出几个将人际神经科学研究与社会学习相结合的重要方向，并提出一个多人框架来理解个体大脑之间的人际信息传递如何塑造社会学习。

关键词　人际神经科学，社会学习，脑-脑耦合，机器学习，因果关系

The interpersonal neuroscience of social learning

Yafeng Pan

Department of Psychology and Behavioral Sciences, Zhejiang, 310058

***Abstract*：** The study of the brain mechanisms underpinning social behavior is currently undergoing a paradigm shift, moving its focus from single individuals to the real-time interaction among groups of individuals. Although this development opens unprecedented opportunities to study how interpersonal brain activity shapes behaviors through learning, there have been few direct connections to the rich field of learning science. In this talk, I will show how the rapidly developing field of interpersonal neuroscience is (and could be) contributing to our understanding of social learning. To this end, I will first present recent research extracting indices of brain-to-brain coupling (BtBC, neural processes in one brain that are temporally coupled to neural processes in another brain) in the context of social behaviors, and in particular social learning (including observational and interaction-based learning). Then, I will discuss how studying communicative behaviors during learning can aid the interpretation of BtBC, and how studying BtBC can inform our understanding of such behaviors. Importantly, I then discuss how BtBC and communicative behaviors collectively can predict learning outcomes, suggesting several causative (i.e., whether BtBC is simply epiphenomenal to interpersonal learning, or it might play a causative role in social-learning mechanisms) and mechanistic models (including behavioral entrainment, cognitive alignment, and affective contagion). Finally, I will highlight key methodological and interpretational challenges, as well as exciting opportunities for integrating research in interpersonal neuroscience with social learning, and propose a multi-person framework for understanding how interpersonal transmission of information between individual

brains shapes social learning.

***Keywords*:** interpersonal neuroscience, social learning, brain-to-brain coupling, machine learning, causation

信息交换提升群体决策绩效的脑机制

谢恩慧[1]　李先春[1]（通讯作者）

1 华东师范大学，心理与认知科学学院，上海，200062

通讯作者 E-mail（xcli@psy.ecnu.edu.cn）

摘 要　群体决策在日常生活中无处不在，并被发现可以产生高质量的绩效。众所周知，信息交换在这一过程中发挥着至关重要的作用，但它在实现集体绩效方面的确切作用尚不明确。具体而言，不同的信息交换方式如何影响集体表现，以及这种影响如何从心理和神经角度表现出来，仍值得探究。为此，我们进行了两个实验。实验 1 使用隐藏档案任务，研究了三种不同类型的信息交换（言语、非言语或控制组）对一宗谋杀悬案解决表现的影响。实验 2 开发了一项创新任务，将信息交换过程分为两个独立的阶段：小组共享（共享私人信息与不共享私人信息）和小组讨论（讨论信息与不讨论信息）。这使我们能够审查影响集体决策的信息交流的具体组成部分。结合功能性近红外光谱（fNIRS）的多人超扫描与行为评估，我们能够揭示有助于提高集体表现的行为和脑机制。我们的研究得出了三个主要发现。首先，我们发现不同的信息交换方式对集体绩效有显著影响，言语信息交换可以提高集体绩效，而非言语信息交换则没有同样的效果。其次，我们确认，小组分享和小组讨论是这种积极影响的两个重要组成部分。其中，小组讨论发挥着关键作用。最后，我们发现，群体认同是介导这种积极影响的一个关键心理因素。通过结合真实群体决策过程中的行为和大脑活动数据，我们发现这种中介过程得到了背外侧前额叶皮层（DLPFC）更高的互动频率和更高的神经同步性的进一步支持。在以上结果的基础上，我们提出了一个理论模型，解释了言语信息交换如何增强群体决策。

关键词　信息交换，群体决策，脑间活动同步

Neural correlates for enhancing group decision performance by information exchange

Eehui Xie　Xianchun Li

The School of Psychology and Cognitive Science, East China Normal University, Shanghai, 200062

Corresponding author: Xianchun Li, xcli@psy.ecnu.edu.cn

***Abstract*:** Group decision-making is ubiquitous in everyday life and has been found to produce high-quality performance. While information exchange is known to play a vital role in the process, its exact role in achieving collective performance is not fully understood. Specifically, it is yet to be determined how different ways of information exchange impact collective performance, and how such impacts are manifested from both a psychological and neural perspective.To this end, we conducted two experiments. Experiment 1 examined the impact of three different types of information exchange (verbal, nonverbal, or control) on the resolution of a murder mystery case, using the hidden profile task. Experiment 2 developed an innovative task that divided the process of information exchange into two separate stages: group sharing (Sharing private information vs. No Sharing private information) and group discussion (Discussing information vs. No Discussing information). This

enabled us to examine the specific components of information exchange that impact collective decisions. Utilizing functional near-infrared spectroscopy (fNIRS) in combination with behavioral assessments and multiparticipant hyperscanning, we are able to uncover the behavior and multiple-brain mechanisms that contribute to enhanced collective performance.Our research has yielded three major findings. Firstly, we have found that different ways of information exchange have a significant impact on collective performance, with verbal information exchange enhancing collective performance while nonverbal information exchange did not have the same effect. Secondly, we have identified that group sharing and group discussion are two essential components of this positive effect, with group discussion playing a pivotal role. Finally, we have determined that group identification is a crucial psychological factor that mediates this positive effect. By combining data from behavior and brain activity during real group decision-making, we have found that this mediation process is further supported by higher interactive frequency and increased neural synchronization in the dorsolateral prefrontal cortex (DLPFC). Building on the above results, we propose a multiparticipant theoretical mechanism that explains how verbal information exchange enhances collective performance by increasing group identification.

Keywords：information exchange, collective performance, within-group neural synchronization (GNS)

真实情境下社交互动的动态脑间同步：基于近红外超扫描的研究

李日辉 [1]

1 澳门大学协同创新研究院认知与脑科学中心，中国澳门

通讯作者 rihuili@um.edu.mo

摘 要

背景：在人与人社交互动的过程中，大脑之间的交流是高度动态和复杂的。迄今为止，大多数已有的基于功能性近红外光谱（fNIRS）的超扫描研究都局限于静态的、单个脑区之间的平均相干性（wavelet transform coherence）来评估多人交互时的脑间同步（inter-brain synchrony,IBS）。然而，我们认为这种传统的分析方法未能考虑到社交互动的动态性，并且可能过于主观，无法捕捉到多人互动中相关的内在模块化特点。基于数据驱动的思想，我们提出了一种基于滑动窗口和聚类算法的分析框架，用于捕捉自然社交互动任务中一系列动态的 IBS 网络。

方法：我们使用便携式 fNIRS 系统测量双人被试对（dyad）参与社会互动任务的的大脑血氧信号。通过滑动窗口策略和 k 均值聚类算法构建了互动期间每个被试对的动态 IBS 网络。通过统计检验获得了一系列个体水平和组水平重复出现的动态 IBS 网络。

结果：真实情景下的人际互动的脑间同步可以通过不同的动态 IBS 状态来描述，表明个体在互动合作过程中经历不同的脑同步状态。具体而言，每个动态 IBS 状态由多个脑区之间的活跃连接组成。这些连接无法通过传统的基于 fNIRS 的超扫描分析观察到，但可能代表合作过程中的复杂多功能过程（例如情绪、工作记忆、交流）。相关性分析表明，动态 IBS 状态的特性（例如动态 IBS 状态的转换）与双人组在互动期间的合作行为（例如 AUT 流畅性）显著相关。

结论：我们所提出的方法将社交互动中的复杂脑间同步用一系列具有更高时间分辨率的 IBS 脑网络来表示，有助于加深我们对社交互动背后的神经认知过程的理解，具有很大的应用空间。

关键词　超扫描，功能性近红外扫描成像，动态脑间同步，社交互动

Dynamic Inter-brain Synchrony in Real-life Social Interaction: fNIRS-based Hyperscanning Study

Rihui Li
Center for Cognitive and Brain Sciences, Institute of Collaborative Innovation, University of Macau, Macau SAR, China

Abstract：

Introduction: How two brains communicate with each other during social interaction is highly dynamic and complex. To date, most existing functional near-infrared spectroscopy (fNIRS) -based hyperscanning studies have focused on assessing participant dyad's inter-brain synchrony (IBS) at single brain region level based on averaged coherence within a manually segmented block/condition. However, we argue that this approach does not account for the dynamic nature of social interaction and might be too subjective to derive the intrinsic time-recurring brain sub-networks involved in multi-personal interaction. In this study, we proposed a data-driven approach based on a sliding window approach and k-mean clustering to capture a series of dynamic IBS networks during a naturalistic social interaction task.

Methods: We used a portable fNIRS system to measure the brain hemodynamic response of interacting partners engaged in a creative design task. Dynamic IBS networks of each dyad during the task were constructed using a sliding window strategy and k-means clustering algorithm. A series of distinct dynamic IBS networks that were recurrent throughout individual dyad-level and across dyads were obtained through permutation test.

Results: Inter-personal interaction during naturalistic cooperation can be characterized by different dynamic IBS states as individuals undergo interactive cooperation. Specifically, each dynamic IBS state was composed of active IBS connections between multiple brain regions, which might represent the complex multi-function processes during cooperation (e.g., emotion, working memory, commutation) that cannot be observed by conventional fNIRS-based hyperscanning analysis. Correlational analyses indicated that properties of the dynamic IBS states (e.g., transitions of dynamic IBS states) was significantly correlated with dyad's behavior (e.g., AUT fluency) during the task.

Conclusion: In summary, the proposed approach stands as a promising tool to distill complex inter-brain synchrony during social interaction into a set of representative brain networks with more fine-grained temporal resolution. This approach holds promise for advancing our current understanding of the dynamic nature of neurocognitive processes underlying social interaction.

Keywords：Hyperscanning, Functional Near-infrared Spectroscopy, Dynamic Inter-brain Synchrony, Social Interaction

4 博/硕研究生论坛

4.1 硕士生论坛—应用心理学

认知训练对多动倾向儿童前瞻记忆的改善研究：一项随机对照试验

房欣 王艳丽 李伟 郭甜 蔡晨*（通讯作者）
青岛大学师范学院心理学系，青岛，266071，caichen@qdu.edu.cn

摘 要 前瞻记忆(prospective memory, PM)是记住在未来的特定时间或事件中执行预期行为的记忆。注意缺陷多动障碍(attention deficit hyperactivity disorder, ADHD)是以注意涣散、多动和冲动为主要特征的一种心理障碍。相比同龄正常发展的儿童，ADHD 儿童不能很好地组织和计划生活中的事情，即 PM 受损，这被推测与 ADHD 儿童认知功能的损伤有关。在多种 ADHD 儿童的干预训练中，涉及内部认知资源的认知训练(cognitive training)是一种最为常见并且被验证有效的方法。本研究分为两部分，实验一目的在于探究多动倾向儿童的多动行为与 PM 之间的关系。通过 Conners 教师评定量表以及家长评定量表在 137 名儿童中筛选出多动指数因子得分大于 1.2，量表总分大于 15 的 21 人，考虑到性别和人数差异，将唯一一名女生未纳入研究。采用 PM 研究中的双任务范式对这 20 名多动倾向儿童(4.95 ± 0.76 岁)的 PM 进行测试，多动行为指标由儿童家长和教师分别填写的 ADHD 评分量表确定。结果表明：多动倾向儿童的多动行为可以负向预测其 PM 表现，即多动倾向儿童的 PM 受损。实验二：为进一步探究减少多动倾向儿童的多动行为是否可以显著提升其 PM，采用随机对照试验(a randomized controlled trial)，将 20 名多动倾向儿童随机分为实验组和对照组。实验组参加为期 8 周，共 16 次的基于 PASS 理论设计的认知训练，并在训练前测量儿童的多动水平和 PM 表现，在训练结束时和 6 个月后再次测量。量表以及访谈结果表明：(1)经过两个月的认知训练，相比对照组，实验组儿童的多动行为明显减少、注意力水平显著提升，且效果至少维持 6 个月；(2)认知训练可以提升多动倾向儿童的 PM 能力，且在 6 个月的追踪测试中仍有效。本研究综合表明，认知训练可以有效地改善多动倾向儿童受损的 PM 功能，同时提升其注意力水平、减少其多动行为，改善效果至少可以维持 6 个月。本研究结果对多动倾向儿童 PM 的改善以及 ADHD 症状的预防和治疗均有一定的借鉴意义。

关键词 前瞻记忆，多动倾向儿童，认知训练，随机对照试验

Cognitive training enhances prospective memory of children at risk of ADHD：a randomized controlled trial

Xin Fang, Yanli Wang, Wei Li, Tian Guo, Chen Cai*
Department of Psychology, Normal College, Qingdao University, Qingdao, 266071,
caichen@qdu.edu.cn

Abstract：Prospective memory (PM) is the ability to remember to execute an intended action at the specific time or an event in the future. Attention Deficit hyperactivity disorder (ADHD) is a psychological disorder characterized by inattention, hyperactivity and impulsivity. ADHD children often struggle with organizing and planning tasks in their daily lives, indicating impaired PM. This impairment is believed to be associated with cognitive function deficits commonly observed in children with ADHD. Cognitive training, which focuses on enhancing internal cognitive resources, is a widely recognized and validated intervention method for children with ADHD. The study is divided into two parts. The purpose of Experiment 1 was to examine the relationship between hyperactive behavior in children and PM. The Conners' Teacher Rating Scales and Conners' Parent Rating Scales were utilized to screen a total of 137 children, aiming to identify individuals with a hyperactivity index factor score greater than 1.2 and a total scale score exceeding 15. As a result, 21 children met these criteria. However, to account for gender and sample size imbalances, the sole female participant was not included in the study. The PM

performance of 20 children at risk of ADHD (mean age: 4.95±0.76 years) was assessed using a dual-task program. The hyperactivity behavior of these children was measured through the ADHD rating scale, completed by both parents and teachers. The results revealed a negative correlation between hyperactivity behavior and PM performance in children at risk of ADHD, indicating impaired PM in this group. Experiment 2: To further investigate whether reducing hyperactive behavior in children can significantly improve their PM, a randomized controlled trial was conducted. Twenty children at risk of ADHD were randomly assigned to either the experimental group or the control group. The experimental group participated in an eight-week cognitive training program based on the PASS theory, with a total of 16 sessions. The hyperactivity level and PM performance of the participants were measured before training, immediately after training, and again after a six-month follow-up period. The results obtained from scales and interviews indicated the following findings: (1) After two months of cognitive training, the experimental group demonstrated a significant reduction in hyperactivity behavior compared to the control group. Additionally, attention levels in children at risk of ADHD increased, and these effects could be maintained for six months. (2) Cognitive training showed a positive impact on PM abilities in children at risk of ADHD, and the effects of training were still present after the six-month follow-up period. This study comprehensively demonstrates that cognitive training can effectively improve the impaired PM function in children at risk of ADHD. Additionally, it enhances their attention levels and reduces hyperactive behaviors, with the improvement effects lasting for at least six months. These findings have significant implications for improving PM in children at risk of ADHD and for the prevention and treatment of ADHD symptoms.

Keywords：prospective memory, children at risk of ADHD, cognitive training, a randomized control trial

忙碌感对极简主义的影响及其机制

唐文文　陆筱佳　钟建安（通讯作者）

浙江大学心理与行为科学系，杭州，310058，通讯作者 E-mail：jiananzhong@zju.edu.cn

摘 要　忙碌成为现代人生活的常态，越来越多的人表示生活变得越来越忙碌。与此同时，极简主义消费日渐盛行，越来越多忙碌的消费者选择极简生活。基于以上社会现象和以往文献研究，本文采用实验法探究忙碌感如何影响个体的消费决策。本文基于自我调节理论展开了 4 项实证实验，探究了忙碌感对极简主义消费倾向的影响，同时探索了其中的内在心理机制和边界条件：认知闭合需要的中介作用，目标清晰度和生命意义感的调节作用。通过 4 项实验，得出以下结果：

（1）忙碌感会提升个体的极简主义消费倾向；

（2）认知闭合需要中介了忙碌感对极简主义消费倾向的影响，忙碌感会提升个体的认知闭合需要，从而提升对极简主义消费的偏好；

（3）目标清晰度调节了忙碌感对认知闭合需要的影响，相比于高目标清晰度的个体，低目标清晰度的个体在忙碌过后会有更高的认知闭合需要；

（4）生命意义感调节了认知闭合需要对极简主义消费倾向的影响，相比于高生命意义感的个体，对于低生命意义感的个体来说，认知闭合需要会导致更高的极简主义消费倾向。

本研究丰富和拓展了忙碌感在广告与消费领域相关的研究，从个体动机、个人特质等方面挖掘了忙碌感对极简主义消费影响的内在心理机制和边界条件，扩充了自我调节理论的应用范围，同时也为市场营销人员针对忙碌群体提供新的产品开发和推广思路。

关键词　忙碌感，极简主义消费，认知闭合需要，目标清晰度，生命意义感，自我调节理论

The Effects of Busyness on Minimalist Consumption and Its Underlying Mechanism

Tang Wenwen[1] Lu Xiaojia[1] Zhong Jianan[1]（Corresponding author）
1 Department of Psychology and Behavioral Science, Zhejiang University; 866 Yuhangtang Rd., Hangzhou, 310058, China. E-mail：jiananzhong@zju.edu.cn

Abstract： Busyness has become a norm in modern life, with more and more people expressing that their lives have become increasingly busy. At the same time, minimalistic consumption is gaining popularity, with more busy consumers opting for a minimalist lifestyle. Building on these social phenomena and previous literature, this paper employs experimental methods to investigate how busyness impacts individuals' consumption decisions. Based on the self-regulation theory, four empirical studies were conducted to investigate the influence of busyness on the preference for minimalistic consumption, as well as to explore the underlying psychological mechanisms and boundary conditions, such as the mediating role of cognitive closure needs and the moderating effects of goal clarity and sense of life meaning. The four studies yielded the following results:

(1) Busyness increases individuals' preference for minimalistic consumption;

(2) Cognitive closure needs mediate the impact of busyness on minimalistic consumption, as busyness increases individuals' cognitive closure needs and thereby enhances their preference for minimalistic consumption;

(3) Goal clarity moderates the impact of busyness on cognitive closure needs, such that individuals with low goal clarity experience higher cognitive closure needs after being busy;

(4) Sense of life meaning moderates the impact of cognitive closure needs on minimalistic consumption, as individuals with low sense of life meaning are more likely to engage in minimalistic consumption when experiencing high cognitive closure needs.

This study enriches and extends previous research on the impact of busyness in the advertising and consumption domains by identifying the underlying psychological mechanisms and boundary conditions of busyness on minimalistic consumption, broadening the application scope of self-regulation theory, and providing new product development and marketing strategies for busy consumers.

Keywords： Busyness, Minimalistic consumption, Cognitive closure needs, Goal clarity, Meaning in life, Self-regulation theory

心理治疗对躯体变形障碍的疗效：基于随机对照试验的元分析和试验序贯分析

刘奕浓[1] 赖丽足[1] 郭云霄[1] 任志洪[1]（通讯作者）
[1]青少年网络心理与行为教育部重点实验室，华中师范大学心理学院，湖北省人的发展与心理健康重点实验室，武汉，430079，ren@ccnu.edu.cn

摘 要 躯体变形障碍（Body Dysmorphic Disorder, BDD)是一种严重且致残的精神障碍。本研究针对心理治疗干预 BDD 患者的随机对照试验（Randomized Controlled Trial, RCT)进行元分析和试验序贯分析，

评估心理治疗对 BDD 患者的干预效果及证据的稳健性。采用关键词在 Embase、Web of Science、PubMed、PsycINFO、Cochrane Library 和 Scopus 数据库进行文献搜索，检索时间截至 2023 年 5 月 30 日，纳入已发表和未发表的文献。使用元分析方法计算心理治疗对 BDD 的合并效应值，主要结果变量为躯体变形障碍症状的严重程度，次要结果变量为抑郁、焦虑、洞察力/妄想、功能水平和生活质量。此外，本研究还采用亚组分析和元回归分析考察潜在调节变量（人口学特征、共病、合并用药、干预特征）对干预效果的影响。本研究共纳入 15 项 RCT，包括 905 名被试。通过敏感性分析，躯体变形障碍症状、抑郁症状、洞察力/妄想、焦虑症状存在异常研究。排除异常研究后元分析结果显示，心理治疗显著改善了 BDD 患者的躯体变形障碍症状（g = -0.97）、抑郁症状（g = -0.51）、焦虑症状（g = -0.72）洞察力/妄想（g = -0.50），也显著提升了患者的功能水平（g = 0.45）和生活质量（g = 0.44）。追踪 1-6 个月时，效应仍显著。亚组分析表明，对于干预后测躯体变形障碍症状，对照组为等待组的效应相对于对照组为安慰剂组的效应更大；各结果变量网络化干预与面对面干预效应差异不显著。元回归分析表明相对于男性，女性干预后的即时躯体变形障碍症状和功能水平效应值更大；年龄越高，洞察力/妄想症状效应值越小；此外，每次干预时长越长，干预后即时躯体变形障碍、抑郁症状以及追踪时抑郁症状效应越大。试验序贯分析表明，只有干预后躯体变形障碍症状、抑郁症状以及追踪时躯体变形障碍症状的证据效应较为稳健，其他结果变量未达到期望信息量。未来还需要开展更多的 RCT 研究探索心理治疗对 BDD 的干预效果。

关键词　躯体变形障碍，心理治疗，元分析，试验序贯分析

The efficacy of psychological treatments on body dysmorphic disorder: A meta-analysis and trial sequential analysis of randomized controlled trials

Yinong Liu[1], Lizu Lai[1] , Yunxiao Guo[1] , Zhihong Ren[1]

[1] Key Laboratory of Adolescent Cyberpsychology And Behavior (CCNU), Ministry Of Education; School of Psychology, Central China Normal University; Key Laboratory of Human Development and Mental Health Of Hubei Province, Wuhan, China

Abstract： Body Dysmorphic Disorder (BDD) is a distressing and disabling mental disorder. Current study conducted a meta-analysis and trial sequential analysis of randomized controlled trials (RCTs) on the psychological treatment of Body Dysmorphic Disorder (BDD) to evaluate the intervention effects and robustness of evidence. A literature search was conducted using keywords in the Embase, Web of Science, PubMed, PsycINFO, Cochrane Library, and Scopus databases, with a search cutoff date of May 30, 2023. Published and unpublished studies were included. The meta-analysis calculated the pooled effect sizes of psychological treatment on BDD. The primary outcome variable is the severity of body dysmorphic disorder symptoms, and secondary outcome variables including depression, anxiety, insight/delusion, functional level, and quality of life.Subgroup and meta-regression analyses were also conducted to examine the impact of potential moderator variables on the intervention effects. A total of 15 RCTs, including 905 participants, were included in this study.Through sensitivity analysis, studies with abnormal results were excluded for BDD symptoms, depression symptoms, insight/delusion, and anxiety symptoms. After excluding these studies, meta-analysis results showed that psychological treatment significantly alleviated body dysmorphic disorder symptoms (g = -0.97), depression symptoms (g = -0.51), anxiety symptoms (g = -0.72), insight/delusion (g = -0.50), and also significantly improved the functional level (g = 0.45) and quality of life (g = 0.44) of BDD patients. At the 1-6 month follow-up, the

effects remained significant. Subgroup analysis showed that for post-intervention BDD symptoms, studies with a waitlist control had larger effect sizes compared to studies with a placebo control. There was no significant difference in the effects between Internet-delivered interventions and face-to-face interventions for each outcome variable. Meta-regression analysis showed that compared to males, females had larger effect sizes for post-intervention BDD symptoms and functional level. The effect size of insight/delusion symptoms decreased with increasing age. Additionally, longer intervention durations were associated with larger effect sizes for post-intervention BDD symptoms, depression symptoms, and depression symptoms at follow-up. The trial sequential analysis indicated that only the evidence effects for BDD symptoms and depression symptoms at post-treatment and BDD symptoms at follow-up were robust. While other outcome variables did not reach the desired information size. Future research should conduct more RCTs to explore the intervention effects of psychological treatment for BDD.

Keywords：Body Dysmorphic Disorder, Psychological Treatment, Meta-analysis, Trial sequential analysis

老年就医回避：理论整合与实证检验

蔡雨晴[1]　高隽[1]（通讯作者）

1 复旦大学社会发展与公共政策学院心理学系，上海，200433，gaojun82@fudan.edu.cn

摘 要　老年人延迟或不就医、应住院而未住院的现象依旧存在，直接导致更高的住院率、更差的健康水平和更高的死亡率。深入理解老年人就医回避的原因与影响因素，将有助于在人口老龄化社会背景下积极展开老年人的疾病防治工作，促进积极老龄化和健康中国 2030 规划的实现。为此，本文整合就医相关理论，并在此基础上，梳理过往研究以验证理论因素的实证效力。在理论方面，健康信念模型，计划行为理论，Lauver 就医模型，Anderson 就医行为模型和 Levesque 的患者中心就医模型被用来阐述个体就医的动机及就医回避发生的可能情境。总体上，就医理论将就医行为看作由就医可能的功利结果和相应制约因素组成的函数，就医选择由患者意图（生理因素）引起，但受到个人特征（心理因素）和社会制度（社会因素）的制约。在研究方面，以“elderly/old/older”和“healthcare seeking/avoidance/delay”,“health service utilization”为关键词，在中国知网、ebsco、web of science 等数据库检索 2002-2022 年之间的文献。根据系统的文献阅读与梳理，老年人就医回避的影响因素被归纳为生理（症状特征）、心理（疾病识别与归因、情绪及社会支持等）、社会（人口学变量与社会保障因素）三方面。总体上，大部分研究验证了理论提出的假设，然而在部分心理和社会因素变量上，目前许多研究结果未能达成一致。目前该领域中的研究成果可为鉴别就医回避风险因素、促进合理医疗服务利用提供参考，未来研究应进一步探索部分因素影响异质性的可能原因与潜在机理。

关键词　就医回避，影响因素，老年人

Healthcare avoidance in the elderly: theoretical integration and empirical research

Yuqing Cai, Jun Gao (Corresponding author)

School of Social Development and Public Policy, Fudan University, Shanghai, 200433

Abstract：The avoidance of medical treatment among older individuals has been linked to higher rates of hospitalization, poorer health, and increased mortality. Understanding the underlying causes and influencing

factors of this behavior is crucial for proactive disease prevention and treatment in an aging society. This study integrates various theoretical frameworks and examines empirical evidence to shed light on the factors contributing to the avoidance of medical treatment among the elderly. Drawing upon theories such as the Health Belief Model, the Theory of Planned Behavior, the Theory of Care-seeking Behavior, the Behavioral Model of Health Services Use, and the Patient-centred Access to Healthcare Model, this research explores the motivation and potential situations surrounding the avoidance of medical treatment. Seeking medical treatment is viewed as a function influenced by the utilitarian outcomes of seeking care and the associated constraints. Individual intentions (physiological factors) drive the choice to seek medical treatment, while personal characteristics (psychological factors) and the social system (social factors) impose restrictions. A systematic literature review was conducted using keywords such as "elderly/old/older," "healthcare seeking/avoidance/delay," and "health service utilization." Relevant literature from 2002 to 2022 was retrieved from databases including CNKI, ebsco, and web of science. The review identified three main categories of influencing factors for the elderly's avoidance of medical treatment: physiological (symptom characteristics), psychological (disease identification and attribution, emotion, social support, etc.), and social (demographic variables and social security factors). Overall, the majority of studies reviewed supported the hypothesis that various factors contribute to the elderly's medical avoidance. By gaining a deeper understanding of these factors, we can work towards realizing the goals of active aging and the Healthy China 2030 plan by actively promoting disease prevention and treatment among the elderly population.

Keywords：healthcare avoidance，influencing factors, the elderly

24h 动作行为对学龄前儿童抑制控制影响的等时替代效益研究

张士臣[1]　朱昭红[2]（通讯作者）徐秦豫[1]陈圆圆[1]毛俊茜[1]

1 西安体育学院研究生部，西安，710000

2 西安体育学院运动与健康科学学院，西安，710000，1341680896@qq.com

摘 要　学龄前儿童正处于抑制控制发展的“关键期”，最新研究表明学龄前儿童的抑制控制并不是单维结构，而是随年龄增长逐渐分化为“冷”抑制控制和“热”抑制控制，均对儿童的高级认知能力或情绪管理能力有重要影响；以往有大量研究证实了体力活动、久坐行为、睡眠时间等 24 小时动作行为与学龄前儿童抑制控制的关系。然而最新研究指出孤立地考虑单一的动作行为是一种不完善的方法，需将其看作完整的 24 小时动作行为，以此探究对个体健康状况的影响。因此，本研究结合问卷测量和行为实验，采用成分数据的等时替代模型，探究了 24 小时动作行为与学龄前儿童“冷”、“热”抑制控制的关联。研究共调查了 66 名学龄前儿童，采用相关问卷测量 24 小时动作行为，使用 Fish flanker 和 Emotional flanker 范式测量学前儿童的“冷”、“热”抑制控制。结果表明学龄前儿童 24 小时动作行为与其“冷”、“热”抑制控制存在显著性关联，且以牺牲久坐行为和睡眠为代价增加高强度体力活动的时间，或者牺牲久坐行为、低强度体力活动、高强度体力活动和睡眠为代价增加中强度体力活动的时间与学龄前儿童“冷”、“热”抑制控制的积极变化有关。因此，由研究结果可知，“冷”、“热”抑制控制的变化可以用学龄前儿童的日常 24 小时动作行为成分来解释，且这一变化因动作行为的不同组合而异。

关键词　学前儿童，24 小时动作行为，“冷”、“热”抑制控制，成分等时替代分析

Isotemporal Substitution Effect of 24h Movement Behavior on Inhibitory Control of Preschool Children

Zhang Shichen[1] Zhu Zhaohong[2]（Correspondence author）Xu Qinyu[1] Chen Yuanyuan[1] Mao Junxi[1]

1 Graduate School, Xi'an Physical Education University, Xi'an, 710000
2 School of Exercise and Health Sciences, Xi'an Physical Education University, Xi'an, 710000

***Abstract*:** Preschool-aged children are currently in a pivotal stage of inhibitory control development. Recent research indicates that inhibitory control in preschoolers is not a monolithic construct but rather differentiates into "cool" inhibitory control and "hot" inhibitory control as they age, both exerting significant influence on children's higher-order cognitive abilities and emotional regulation. A substantial body of prior research has affirmed the relationship between 24-hour Movement Behavior, such as physical activity, sedentary behavior, sleep duration, and inhibitory control in preschool-aged children. However, the latest research asserts that examining isolated, singular behaviors is an incomplete approach. It is imperative to regard them as components of a holistic 24-hour Movement Behavior in order to investigate their impact on individual health. Therefore, this study combines questionnaire assessments and behavioral experiments, employing a Isotemporal substitution model for compositional data to explore the associations between 24-hour Movement Behavior and "cool" and "hot" inhibitory control in preschool-aged children. The study encompassed a cohort of 66 preschool-aged children. It utilized relevant questionnaires to gauge their 24-hour Movement Behavior and employed the Fish Flanker and Emotional Flanker paradigms to measure the "cool" and "hot" inhibitory control in preschoolers. The findings revealed a significant association between the 24-hour Movement Behavior of preschool-aged children and their "cool" and "hot" inhibitory control. Notably, an increase in vigorous physical activity, at the expense of reducing sedentary behavior and sleep, or an increase in moderate physical activity at the cost of reducing sedentary behavior, light physical activity, vigorous physical activity, and sleep, was correlated with positive changes in the inhibitory control of preschool-aged children. Hence, the research findings elucidate that the variations in "cool" and "hot" inhibitory control can be elucidated through the components of preschool-aged children's daily 24-hour Movement Behavior, with these variations manifesting differently depending on the specific combinations of activity behaviors.

***Keywords*：** Preschool children, 24-hour Movement Behavior, Inhibitory Control, Compositional Isotemporal Substitution Analysis

新冠疫情期间新入职护士离职意愿的调节中介模型

罗怡欣[1]　罗怡欣[2]
河南大学护理与健康学院，河南开封，475004
河南大学护理学系，开封，475004，kfyx2303@126.com

摘 要　**目的：**本研究旨在探讨新入职护士的组织氛围与离职意愿之间的关系，并分析情绪劳动与心理资本的作用机制。**方法：**本研究采用纵向追踪问卷调查方法。在两个不同的时间点（间隔 1 个月）收集纸质问卷。参与者是来自河南省 10 所医院的 910 名新入职护士，他们毕业后在医院工作不到一年。采用组织氛围量表（OCS）、情绪劳动量表（ELS）、心理资本量表（PCQ）和离职意愿量表（TIQ）等进行匿名自评问卷填写。采用描述性分析、皮尔逊相关分析和 Hayes 的 PROCESS Macro 3.3 软件 SPSS（25.0 版）对模型进行检验。**结果：**离职意愿的平均得分为（14.13±4.29），组织氛围的平均得分为（22.80±5.38），情绪劳动的平均得分为（49.57±9.67），心理资本的平均得分为（77.88±10.97）。相关分析表明，组织氛围与离职意愿呈负相关（r=-0.40，p<0.01），与情绪劳动呈负相关（r=-0.27，p<0.01），但与心理资本呈正相关（r=0.19，p<0.01）。情绪劳动与心理资本呈负相关（r=-0.14，p<0.01），但与离职意愿呈正相关（r=0.62，p<0.01）。中介效应分析结果表明，组织氛围对离职意愿有显著的直接影响（c=-0.24，t=-9.81，p<0.001），其中情绪劳动在组织氛围与离职意愿关系的中介作用显著，具有部分中介作用（ab= -0.140，95%CI: -0.174， -0.109），

占总效应的 37.26%。此外，心理资本在情绪劳动和离职意愿之间起着调节作用。**结论：**组织氛围与离职意愿呈负相关，情绪劳动是部分中介，心理资本在情绪劳动与离职意向之间具有调节作用。这建议护理管理者们需要重视刚进入临床工作的新入职护士的组织氛围和情感劳动，并可以通过制定心理资本干预措施来减少离职意愿。

关键词　新入职护士、组织氛围、离职意愿、情绪劳动、心理资本

A moderated mediation model of newly recruited nurses' turnover intention during COVID-19

Yixin Luo

Institute of Nursing and Health, School of Nursing and Health, Henan University, Kaifeng, China

***Abstract*：Purpose:** the aim of this study is to explore the relationship between organizational climate and turnover intention, and to analyse the mechanism of emotional labor and psychological capital. **Methods:** this study used a longitudinal tracking questionnaire survey method. Collect paper questionnaires at two different time points (with a 1-month interval). The participants were 910 newly recruited nurses from 10 hospitals in Henan Province who have worked in hospitals for less than one year after graduation. The anonymous self-assessment questionnaire including organizational climate scale (OCS), emotional labor scale (ELS), psychological capital questionnaire (PCQ) and turnover intention questionnaire (TIQ) was used. Descriptive analysis, Pearson's correlation analysis and Hayes' PROCESS Macro 3.3 software in SPSS (Version 25.0) were used to test the model. **Results:** The average score of turnover intention was (14.13±4.29), organizational climate was (22.80±5.38), emotional labor was (49.57±9.67 and psychological capital was (77.88±10.97). Correlation analysis showed that organizational climate was negatively correlated with turnover intention ($r = -0.40$, $p < 0.01$) and emotional labor ($r = -0.27$, $p < 0.01$), but positively correlated with psychological capital ($r = 0.19$, $p < 0.01$). Emotional labor was negatively correlated with psychological capital ($r = -0.14$, $p < 0.01$), but positively correlated with turnover intention ($r = 0.62$, $p < 0.01$). The mediation analysis showed that the organizational climate had a significant direct impact on turnover intention ($c = -0.24$, $t = -9.81$, $P < 0.001$) and the partial mediating effect of emotional labor therein. ($ab = -0.140$, 95%CI: -0.174, -0.109) and accounting for 37.26% of the total effect. In addition, psychological capital plays a moderating role between emotional labor and turnover intention. **Conclusion:** Organizational climate is negatively correlated with turnover intention, emotional labor is a partial mediating and psychological capital has a moderating effect between emotional labor and turnover intention. This suggests that nursing managers need to pay attention to the organizational atmosphere and emotional labor of newly recruited nurses who have just entered clinical work, and can reduce their willingness to resign by developing psychological capital intervention measures.

***Keywords*：** newly recruited nurses, organizational climate, turnover intention, emotional labor, psychological capital

饮食决策的时间经济学：漂移扩散模型下的证据积累策略选择

刘梦颖[1]　蒋婧怡[1]　黄建平[1]（通讯作者）

1 苏州大学心理学系，苏州，215000，jphuang@suda.edu.cn

摘 要　漂移扩散模型（drift diffusion model，DDM）假定决策者在两个选项中积累支持或拒绝某一选项的证据，当积累值达到与这一选项相关的阈值时做出决策。在饮食决策背景下，食物选择过程中所积累的证据可能来源于食物对象的整体价值信号（即主观喜爱度），或是对该食物多重属性值（往往是健康和美味价值）的评估，即个体可能采取不同的证据积累策略来进行饮食决策。近期研究证明紧迫性作为一种与刺激属性无关的独立信号，能够影响决策的加工过程。然而，目前尚不清楚在时间紧迫与非紧迫的饮食决策背景下个体如何在两种证据积累策略中进行选择。本研究采用激励相容的饮食决策任务，探讨决策过程中时间紧迫性对被试证据积累策略选择的影响。具体而言，本研究在不同时间压力的决策条件下测试和比较了基于整体价值信号的层级漂移扩散模型（hierarchical drift diffusion model, HDDM）以及基于多重属性的漂移扩散模型（multi-attribute, time-dependent drift diffusion model，mtDDM）。研究共招募 39 名被试（12 男，27 女；M_{age} = 20.59），采用单因素（时间压力：有，无）被试内设计。预计在时间压力条件下，HDDM 可能是预测饮食决策的最优模型，表现为 HDDM（vs. mtDDM）在拟合度、预测性指标（BIC、negll、MSE、RMSE）等方面更佳；而在无时间压力条件下，mtDDM（vs. HDDM）的模型表现可能更佳。换言之，在二元食物选择任务中，当决策时间紧迫时，个体更倾向于基于整体价值信号（选项的相对喜爱度）积累决策证据；而在非紧迫的决策情境下，个体更依赖多重属性（选项的相对健康和美味属性）的决策证据。总而言之，个体可能采取灵活的证据积累策略来适应决策的时变条件。本研究旨在为动态环境中的饮食决策行为确定最优的解释与预测模型，未来健康饮食决策的干预策略可能需要考虑决策的时间紧迫性，例如，通过提高健康食物的整体价值来改善消费者在时间压力下的饮食决策。

关键词　紧迫性，饮食决策，漂移扩散模型，贝叶斯推理，证据积累

Temporal economics of dietary decision-making: Evidence accumulation strategies selection under drift-diffusion models

Mengying Liu[1]　Jingyi Jiang[1]　Jinping Huang[1]

Department of Psychology, Soochow University, Suzhou

Abstract：The drift diffusion model (DDM) assumes that decision-makers accumulate evidence for or against an option until reaching a threshold, at which point they make a decision. In the context of dietary decision making, evidence accumulation can be based on the global value signal of the food object (i.e., subjective liking) or the evaluation of its multiple attribute values (often health and taste), suggesting different strategies individuals chosen in dietary decision-making. Recent research indicates that time pressure, as an independent signal unrelated to stimulus attributes, can affect decision-making. However, it remains unclear how individuals select between two evidence accumulation strategies in urgency versus non-urgent dietary decision-making contexts. Using an incentive-compatible dietary choices task, we investigated the impact of urgency on evidence accumulation strategy selection, comparing the hierarchical drift diffusion model (HDDM), based on the global value signal, and the multi-attribute, time-dependent drift diffusion model (mtDDM) under different time pressure conditions. We recruited 39 participants (12 males, 27 females; M_{age}=20.59) using a single-factor (time pressure: present, absent) within-subject design. We hypothesize that under time pressure, HDDM may be the optimal model for predicting food decision making, as indicated by its higher goodness-of-fit, predictiveness (BIC; negll, MSE, RMSE) compared to mtDDM. Conversely, under non-pressured conditions, mtDDM may perform better in predicting food

decision making. In other words, individuals may tend to rely on the global value signal for evidence accumulation when time is pressing, whereas they may depend more on multiple attributes under non-pressured conditions. Overall, individuals may adopt flexible evidence accumulation strategies to adapt to the time-varying conditions of decision making. This study aims to identify the optimal explanatory and predictive models for dietary decision-making behavior in dynamic environments. Future interventions for healthy food decision making may need to consider decision urgency, such as by increasing the overall value of healthy food options to improve consumers' food choices under time pressure.

Keywords：urgency, dietary decisions, drift-diffusion model, Bayesian inference, evidence accumulation

你的爱人知道你在说谎：浪漫关系对于谎言识别的影响以及心智化能力的中介作用

王书剑[1]　陶言强[1]　刘翔平[1]（通讯作者）

1 北京师范大学心理学部，北京，100875，89034@bnu.edu.cn

摘 要　背景：在人类的进化过程中，浪漫关系构成了繁衍后代的基础。当代心理学界也愈发将浪漫关系视为健康人际关系的一部分，以及影响个体情绪和认知的关键因素。进化心理学家认为，处于浪漫关系中的个体对于谎言线索的敏感度可能更高，因为识别浪漫关系中的欺骗行为可以更好的确保亲代对子代的投入和培育，从而增加种群生存和繁殖的机会。然而，这一假设尚未得到实证研究的检验。本研究通过实验室实验，探索了浪漫关系对心智化能力和谎言识别能力的影响及其内部机制。**方法：**在大学生群体中招募满足以下标准的被试：1）处于恋爱关系中的非心理学专业学生；2）恋爱关系时长三个月以内；3）在恋爱关系中，被试需要与伴侣发生过亲密接触。最终有 39 名被试满足招募要求，参与正式实验。所有被试在浪漫关系启动和中性关系启动下分别完成实验任务，并在启动后完成激情爱情量表（Passionate Love Scale, PLS)。在实验中，采用“眼识别（Reading the Mind in the Eyes, RTM）”任务作为被试的心智化能力指标，并使用在真实情景下录制的犯罪型视频测量被试的谎言识别能力。**结果：**浪漫关系可以提高被试对负面情绪的识别能力，女性在谎言检测任务中的表现优于男性。并且，浪漫关系可以通过心智化能力的中介作用来提高被试的谎言识别能力。**结论：**本研究验证了进化心理学中的经典假设，即浪漫关系可以提高个体的谎言识别能力，并发现了心智化在这一过程中的中介作用，有助于进一步理解浪漫关系对于人类认知与行为的深刻影响。

关键词　浪漫关系，谎言识别，心智化，泄露理论

You know who truly loves you: The effect of romantic relationships on deception detection ability and the mediating role of mentalizing

Shujian Wang[1] Yanqiang Tao[1] Xiangping Liu[1]
1 Faculty of Psychology, Beijing Normal University, 100875, Beijing, China

***Abstract*:** In evolution, romantic relationships serve as the foundation for breeding and producing offspring. The ability to detect deception in these relationships can ensure the investment and cultivation of descendants, leading to greater chances of survival and reproduction. However, barely research was done into this domain. The current study investigated the preliminary relationship between romantic relationships, mentalizing ability, and deception detection ability through an empirical experiment. Participants were primed by their romantic experiences and neutral experiences, and then went through Reading the Mind in the Eyes (RTM) task and the deception detecting task for real person crime-type videos. Results showed that romantic relationships can improve participants' emotion recognition ability toward negative emotions, and females performed better in the deception detection task than males did. Most importantly, romantic relationship can improve participants' deception detection ability through the mediator of mentalizing ability. Though gender difference was not statistically significant in the RTM task, the result lays solid foundation for further investigation into females' mentalizing ability and disclose the evolutionary meaning of romantic relationships.

***Keywords*:** Romantic relationship，Deception detection，Mentalizing，Leakage theory

重复经颅磁刺激对抑郁症伴非自杀性自伤的影响：认知情绪调节的中介作用

兰金滢[1,2]，邹晓伟[1,2]，万爱兰[2]（通讯作者）
1 南昌大学公共政策与管理学院，南昌，330031
2 南昌大学第一附属医院心身医学科，南昌，330006

摘 要　目的：本研究将探究重复经颅磁刺激对抑郁症伴非自杀性自伤的影响，同时探讨认知情绪调节的中介作用。方法：选取 60 名青少年抑郁症伴非自杀性自伤患者作为研究对象，并随机分为实验组和对照组。研究采取单盲实验法，实验组在接受盐酸氟西汀药物治疗和一般性心理治疗的基础上，进行为期 2 周，每周 5 次的低频 rTMS 真刺激；对照组在接受盐酸氟西汀药物治疗和一般性心理治疗的基础上，进行为期 2 周，每周 5 次的低频 rTMS 伪刺激。干预前后采用自编的一般人口学资料问卷、抑郁自评量表（SDS）、认知情绪调节问卷（CERQ）、情绪调节困难量表（DERS）、青少年非自杀性自伤行为评定量表（ANSSIQ）对两组被试进行评估。利用 Bootstrapping 检验进行中介效应分析。结果：rTMS 干预后，实验组在 SDS、CERQ、DERS 以及 ANSSIQ 量表上的评分与干预前的差异具有统计学意义（$p<0.001$）；实验组在 SDS、CERQ、DERS 以及 ANSSIQ 量表上的评分显著低于对照组（$p<0.05$）。消极认知情绪调节问卷（NCERQ）的评分变化量作为低频 rTMS 减少 NSSI 行为的中介变量的中介效应值为-0.2510，95% CI 为（-0.5686，-0.0145），中介效应显著。NCERQ 的评分变化量作为低频 rTMS 降低 NSSI 意图的中介变量的中介效应值为-0.1944，95% CI 为（-0.4392，-0.0100），中介效应显著。结论：rTMS 能够有效改善青少年抑郁症伴非自杀性自伤患者的抑郁情绪，降低自伤意图和减少自伤行为。同时可以提高积极认知情绪调节策略的使用倾向，降低消极认知情绪调节策略的使用倾向，改善情绪调节困难。此外，消极

认知情绪调节策略在 rTMS 以减少自伤行为、降低自伤意图中起到中介作用，具体而言， rTMS 通过降低消极认知情绪调节策略使用倾向以减少自伤行为、降低自伤意图。

关键词　重复经颅磁刺激；抑郁症；非自杀性自伤；认知情绪调节

Effects of repetitive transcranial magnetic stimulation on depression with nonsuicidal self-injury: the mediating role of cognitive emotion regulation

Lan Jinying[1,2]　Zou Xiaowei[1,2]　Wan Ailan[2]

1 School of Public Policy and Administration，Nanchang University，Nanchang 330031

2 Department of Psychosomatic Medicine，The First Affiliated Hospital of Nanchang University，Nanchang 330006

Abstract：Background：This study will investigate the effects of repetitive transcranial magnetic stimulation on depression with non-suicidal self-injury, as well as the mediating role of cognitive emotion regulation. Methods：Sixty patients with adolescent depression with non-suicidal self-injury were selected as study subjects and randomly divided into experimental and control groups. The study was a single-blind experiment in which the experimental group received 2 weeks of low-frequency rTMS true stimulation 5 times per week on top of fluoxetine hydrochloride medication and general psychotherapy; the control group received 2 weeks of low-frequency rTMS pseudo-stimulation 5 times per week on top of fluoxetine hydrochloride medication and general psychotherapy. A self-administered questionnaire on general demographic information, the Self-Depression Scale (SDS), the Cognitive Emotion Regulation Questionnaire (CERQ), the Difficulty in Emotion Regulation Scale (DERS), and the Adolescent Non-Suicidal Self-Injurious Behavior Rating Scale (ANSSIQ) were used to assess the subjects in both groups before and after the intervention. Mediation effects were analyzed using the Bootstrapping test. Results：After the rTMS intervention, the difference between the experimental group's scores on the SDS, CERQ, DERS, and ANSSIQ scales and the pre-intervention scores was statistically significant ($p < 0.001$). The experimental group had significantly lower scores on the SDS, CERQ, DERS, and ANSSIQ scales than the control group ($p < 0.05$). The mediation effect value of the amount of change in scores on the Negative Cognitive Emotion Regulation Questionnaire (NCERQ) as a mediator variable for low-frequency rTMS to reduce NSSI behaviors was -0.2510, with a 95% CI of (-0.5686, -0.0145), which is a significant mediation effect. The mediation effect value for the amount of change in NCERQ scores as a mediating variable for the intention of low-frequency rTMS to reduce the NSSI was -0.1944, with a 95% CI of (-0.4392, -0.0100), which was a significant mediation effect. Conclusion：rTMS is effective in improving depressed mood, decreasing self-injurious intentions and reducing self-injurious behaviors in adolescents with depression with non-suicidal self-injury. It can also increase the propensity to use positive cognitive emotion regulation strategies, decrease the propensity to use negative cognitive emotion regulation strategies, and improve emotion regulation difficulties. In addition, negative cognitive emotion regulation strategies play a mediating role in rTMS in order to reduce self-injurious behaviors and lower self-injurious intentions; specifically, rTMS reduces self-injurious behaviors

and lowers self-injurious intentions by decreasing the propensity to use negative cognitive emotion regulation strategies.

Keywords ： Repetitive transcranial magnetic stimulation; Depression; Nonsuicidal self-injury; Cognitive emotion regulation

应激中的“马后炮”现象：回溯性评估对应激反应的影响

陈泓宇[1]，王霈珊[1]，王晓宇[1]，张亮[1]（通讯作者）

[1]中国科学院心理研究所，北京，100101，zhangl@psych.ac.cn

摘 要 心理社会应激源(psychosocial stressor)能够有效地诱发个体的应激体验，并激活下丘脑-垂体-肾上腺(hypothalamus–pituitary–adrenocortical, HPA)轴从而产生神经内分泌反应，同时也是影响作业绩效和安全性的重要因素。尽管目前个体在应激情景下的心理、行为和生理反应模式及其之间的联系已得到了广泛的研究，但大多数研究所采用的单一时间点施测方法忽略了主观评估在应激过程中的动态性，得到的评估结果是否具有代表性仍存疑。因此，本研究旨在通过实验室研究探索不同时间点的主观评估结果能否从生理和行为的角度解释个体的应激反应。实验共招募了 120 名有效被试，采用特里尔社会压力测试(Trier Social stress Test)诱发个体的应激反应，并对应激源出现前(预期性评价)和出现后(回溯性评价)的主观评价进行测量，同时记录了被试的皮质醇反应和任务绩效。研究结果表明：(1)就任务绩效而言，预期性评价对演讲任务和心算任务的表现无显著影响，而回溯性评价结果可以特异性地反映对应的任务绩效；(2)就皮质醇而言，以年龄、性别、BMI 和月经周期为控制变量展开的多元回归分析结果显示，仅有针对演讲任务展开的回溯性评估结果能解释个体在应激情景下的皮质醇反应。综上结果表明，相较于预期性评估而言，回溯性评估结果更能反映个体在应激情景下的行为和生理反应，且 TSST 中的演讲任务是诱发个体应激反应的主要应激源。本实验的研究结果为完善生物心理社会模型提供了实验依据，同时也验证了回溯性评价解释个体应激反应差异的有效性，为后续的研究设计提供了理论支持。

关键词 应激，回溯性评估，行为绩效，皮质醇

The "afterthought" phenomenon in stress:

the impact of retrospective appraisal on stress response

Chen Hongyu, Wang Peishan, Wang Xiaoyu, Zhang Liang

Institute of Psychology, Chinese Academy of Sciences, Beijing, 100101, China

Abstract：Psychosocial stressors can effectively induce individuals' stress experience, activate the hypothalamus-pituitary-adrenocortical (HPA) axis to produce neuroendocrine responses, and is also an important factor affecting operation performance and safety. Although the psychological, behavioral and physiological response patterns of individuals in stressful situations and their relationships have been extensively studied, the measurement of subjective appraisal at single time point adopted in most studies ignores the dynamic property of

appraisal process, and the representativeness of the appraisal results reminds doubtable. Therefore, this study aims to explore whether subjective appraisal results at different time points can explain individual stress responses from behavioral and physiological perspectives through laboratory studies. A total of 120 effective participants were recruited to induce individual stress states using the Trier Social stress Test (TSST), and the subjective appraisals before the stressor (anticipatory appraisal) and after the stressor (retrospective appraisal) were both measured. Meanwhile, the cortisol response and task performance of the subjects were also recorded. The results showed that: (1) In terms of task performance, the anticipatory appraisal has no significant effect on the performance of speech task and mental arithmetic task, while the retrospective appraisal results can significantly affect the performance of the corresponding tasks; (2) In terms of cortisol, the results of multivariant regression analysis with age, gender, BMI and menstrual cycle as controlling variables showed that only the retrospective appraisal of speech task could explain the variance of cortisol response under stressful situation. In conclusion, compared with the anticipatory appraisal, the retrospective appraisal results can better reflect the behavioral and physiological response of individuals when they faced with psychosocial stressor, and the public speech task is the main stressor that intrigues the stress response in TSST. The results of this experiment provided experimental basis for improving the biopsychosocial model, and also verified the validity of retrospective appraisal to reflect the differences in individual stress responses, providing theoretical support for subsequent research design.

Keywords：stress, retrospective appraisal, behavioral performance, cortisol response

积极心理学视角下团体心理训练对基层部队团队合作的影响

蒲昭君[1-2]，马娟[1]， 张芫蓓[2]， 杨梦圆[2]， 武圣君[2]

1. 陕西中西药大学公共卫生学院；2.空军军医大学军事医学心理学系

摘 要　目的 实践和证明团体心理训练对改善基层部队团体合作的可行性、有效性和长期性，验证团体辅导方案的有效性，为新形势下提升基层部队军人心理素质、增强部队凝聚力和战斗力的提供科学的、完善的团体辅导方案。 **方法** 采用实验组和对照组前后测实验设计,每组 16 人,利用自编教材和团体辅导活动方案,分别进行为期 4 周的团体合作干预。其中实验组采用团队合作的团体心理训练(每周 1 次，每次 1.5h)，在此期间对照组每周 1 次集中参加常规心理健康教育活动。以作战部队基层单位信任量表、陆军部队凝聚力量表和博弈任务指标进行干预前后的评定。 **结果** 组间比较显示，4 周训练结束后团体干预组的作战部队基层单位信任量表总分高于基线[(87.44±5.15)vs.(83.00±5.51)，P<0.01]，陆军部队凝聚力量表总分以及博弈任务得分也高于基线[(88.44±5.01)vs.(82.31±5.50)，P<0.001]、[(8.44±0.96)vs.(6.31±0.87)，P<0.001]；而对照组各项得分与基线差异均无统计学意义(p 均>0.05）；干预结束一个月后，实验组作战部队基层单位信任量表和凝聚力量表与对照组相比也存在显著性差异（t=-4.538、-6.385 及-5.578，p 均＜0.05），个案访谈和问卷调查结果均显示团体辅导对基层部队士兵的人际信任有较好的效果，且存在长期效应。 **结论** 团体心理训练对基层部队团队合作的改善具有较好的效果，而且具有长期效果。

关键词　团体心理训练，团队合作，部队凝聚力，团体信任

The Effects of Group Psychological Training on Teamwork of Grassroots Forces under the Perspective of Positive Psychology

Pu Zhaojun[1-2], Ma Juan[1], Zhang Yuanbei[2], Yang Mengyuan[2], Wu Shengjun[2]

1. School of Public Health, Shaanxi University of Traditional Chinese Medicine and Western Medicine;
2. Department of Military Medical Psychology, Air Force University of Military Medicine, China

Abstract: Objective To practice and prove the feasibility, effectiveness and long-term nature of group psychological training to improve the group cooperation of grass-roots troops, to verify the effectiveness of group counseling programs, and to provide scientific and perfect group counseling programs for the improvement of the psychological quality of soldiers in grass-roots troops and the enhancement of troop cohesion and combat effectiveness under the new situation. **Methods:** The experimental group and the control group were used in a pre and post-test experimental design, with 16 people in each group, and the group cooperation intervention was conducted for 4 weeks using self-developed teaching materials and group counseling activity programs, respectively. Among them, the experimental group used the group psychological training of teamwork (1 time per week, 1.5 h each time), during which the control group participated in the routine mental health education activities once a week centrally. The Combat Forces Base Unit Trust Scale, Army Force Cohesion Scale, and Gaming Task Indicator were used to rate before and after the intervention. **Results:** Between-group comparisons showed that the total score of the Combat Forces Base Unit Trust Scale was higher than baseline in the group intervention group at the end of the 4-week training [(87.44±5.15) vs. (83.00±5.51), P<0.01], and the total score of the Army Forces Cohesion Scale as well as the score of the gaming task were also higher than baseline [(88.44±5.01) vs. (82.31±5.50),. p<0.001], [(8.44±0.96) vs. (6.31±0.87), p<0.001]; whereas in the control group, the differences between all scores and the baseline were not statistically significant (all p>0.05); one month after the end of the intervention, there was also a statistically significant difference in the trust scale of the base unit of the combat troops and cohesion scale of the experimental group in comparison with the control group (t=-4.538, -6.385 and -5.578, p < 0.05), and the results of case interviews and questionnaires show that group counseling has a better effect on the interpersonal trust of soldiers in basic units, and there is a long-term effect. **Conclusion:** Group psychological training has a better effect on the improvement of teamwork in grassroots troops and has long-term effects.

Keywords: group psychological training，teamwork，troop cohesion，group trust

慢性疼痛患者对受伤信息的注意控制：一项眼动纵向研究

向珍珍[1]（通讯作者） 张兴宇[2] 杨周[1]
1 西南大学心理学部，重庆，400715，1366115613@qq.com
2 湖南应用技术学院，湖南，415000

摘 要 慢性疼痛患者可能存在注意控制损伤，表现为难以抑制疼痛信息带来的干扰，导致患者不能将注意分配到日常生活中更为重要的目标上，从而影响患者的身体和社会功能，加剧慢性疼痛的维持和发展。然而，慢性疼痛患者对疼痛信息的注意控制是否能预测慢性疼痛的发展尚未可知。本研究采用眼动追踪技术，结合改编的反眼跳任务，使用日常生活中受伤的场景图片和相应的中性图片，测量慢性疼痛患者对受伤信息注意控制的眼动指标对 6 个月后慢性疼痛发展的预测作用。改编的反眼跳任务中，在屏幕中央出现一张受伤或中性的图片，在图片的左边或右边出现一个黄色或蓝色的靶子。黄色靶子是朝向眼跳条件，提示被试看靶子不看图片；蓝色靶子是反向眼跳条件，提示被试看图片不看靶子。测量的指标及其含义为：

在图片为受伤图片的朝向眼跳条件下对靶子的首次眼跳潜伏期和对受伤图片的总注视时间越长，说明被试越难抑制对受伤图片的注意；在反眼跳条件下对受伤图片的首次眼跳错误率越低以及对受伤图片的总注视时间越长，说明被试更容易将注意保持在受伤图片上。然后考查了这些指标对患者 6 个月后慢性疼痛强度和功能损伤的预测作用。结果发现，慢性疼痛患者在图片为受伤图片的朝向眼跳条件下对靶子的首次眼跳潜伏期可以显著预测其 6 个月后的疼痛强度，即使在控制了基线相关因素后预测效果仍然显著。在朝向眼跳条件下对受伤图片的总注视时间能显著预测其疼痛持续时间。反向眼跳条件下对受伤图片的总注视时间可以显著预测患者 6 个月后的三个月内疼痛天数，但控制了基线相关因素后预测效果不再显著。综上所述，慢性疼痛患者对疼痛信息的注意控制指标与慢性疼痛的发展具有密切联系。

关键词　慢性疼痛，注意控制，眼动

Pain-related attention control and later functioning among adults with chronic pain: a longitudinal eye-tracking study

Xiang Zhenzhen[1] (Corresponding author), Zhang Xingyu[2], Yang Zhou[1]

1 Faculty of Psychology, Southwest University, Chongqing 400715

2 Hunan Applied Technology University, Hunan 415000

Abstract：Patients with chronic pain may experience difficulties in controlling the attention to pain-related information, resulting in interference that hinders their ability to allocate attention to more important goals in daily life. This phenomenon can have detrimental effects on the physical and social functioning of individuals, exacerbating the maintenance and development of chronic pain. However, whether attention control of pain-related information in patients with chronic pain can predict the progression of chronic pain remains unknown. In this study, eye-tracking technology combined with an adapted anti-saccade task was utilized to investigate the predictive role of eye movement indices related to attention control of pain-related information for the development of chronic pain after 6 months. Daily-life scenarios depicting injury or corresponding neutral images were presented as stimuli. The adapted anti-saccade task involved the presentation of an injury or neutral image at the center of the screen, with a yellow or blue target appearing on the left or right side of the image. The yellow target indicated a saccade condition, instructing participants to view the target rather than the image, while the blue target represented an anti-saccade condition, instructing participants to view the image rather than the target. Measured indices and their interpretations included the latency of the first saccade towards the target in the saccade condition with an injury image, indicating the difficulty participants experienced in suppressing attention towards the injury image; the error rate of the first saccade towards the injury image in the anti-saccade condition, reflecting the ease with which participants maintained attention on the injury image; and the total gaze time on the injury image under both conditions. Subsequently, the predictive effects of these indices on pain intensity and interference after 6 months were evaluated. Results revealed that the latency of the first saccade towards the target in the saccade condition significantly predicted pain intensity after 6 months, even after controlling for baseline relevant factors. The total gaze time on the injury image in the saccade condition was a significant predictor of pain duration. However, the predictive effect of the total gaze time on the injury image in the anti-saccade condition for paindays in 3 months at follow-up was no longer significant after controlling for baseline relevant factors. In conclusion, attention control indices of pain-related information in patients with chronic pain are closely associated with the progression of chronic pain.

Keywords：Chronic pain, Attention control, Eye-tracking

医患信息不对称对患方信任的影响路径：医疗风险感知与道德判断的并行中介作用

师雅昕[1]，林国斌[1]，廖美玲[1]

1 福建医科大学健康学院应用心理学系，福州，350108，Liaoml@fjmu.edu.cn

摘 要　医患关系是一种以医学知识与医疗服务为商品的特殊交易过程，患方信任影响着对医疗服务的满意度、医疗质量感知，以及医嘱遵从性，直接关系患者的疾病愈后与健康结果。目前研究多从宏观的理论建构层面探讨医患信任，较少深入解析微观的心理机制在医患信任建构过程中所发挥的作用。因此，本研究以信息不对称理论为研究视角，主要探讨医患双方在微观人际互动层面的“道德风险”，这种“道德风险”在医疗情境下，患方需要承担的风险既来自医方人员的职业道德水平，又来自于客观医疗过程可能的损害性后果，由此形成了“道德判断”与“医疗风险感知”两条并行的中介路径。

本研究采用单因素两水平（医患信息对称性水平：不对称，对称）被试间设计，通过自主开发的医患信息对称性场景工具，将信任游戏范式引进医患研究领域，并结合问卷工具，对医患信息不对称影响患方信任的路径展开探究。研究结果验证了医患信息不对称是患方信任的预测变量，并表明，医疗风险感知与道德判断在医患信息不对称与患方信任之间起部分中介作用（效应占比分别为 39.47%，21.05%），二者的并行中介效应显著。这与本研究的理论构想相一致，以信息不对称理论视角为指导开展量化研究，可以为当前国内研究关于医患信息不对称影响医患信任的理论探讨提供实证支持。

关键词　医患信息不对称，患者信任，医疗风险感知，道德判断

The Influence Path of Doctor-Patient Information Asymmetry on Patient Trust: The Parallel Mediating Role of Medical Risk Perception and Moral Judgment

Shi Yaxin[1],LinGuobin [1],Liao Meiling[1]

1 Department of Applied Psychology, School of Health, Fujian Medical University Fuzhou, 350108, Liaoml@fjmu.edu.cn

Abstract：The doctor-patient relationship is a special transaction process that takes medical knowledge and medical services as commodities. The patient's trust affects the satisfaction with medical services, the perception of medical quality, and the compliance with medical orders, and directly relates to the recovery and health outcomes of patients. At present, most studies discuss doctor-patient trust from the macro theoretical construction level, and few in-depth analysis of the role of micro psychological mechanism in the construction of doctor-patient trust. Therefore, from the perspective of information asymmetry theory, this study mainly discusses the "moral hazard" of both doctors and patients at the micro-level of interpersonal interaction. Such "moral hazard" in the medical situation requires the patient to bear the risk not only from the professional ethics of the medical staff, but also from the possible harmful consequences of the objective medical process. Thus, two parallel mediating paths of "moral judgment" and "medical risk perception" are formed.

In this study, a single-factor two-level (doctor-patient information symmetry level: asymmetry, symmetry) design was adopted among subjects. The self-developed doctor-patient information symmetry scenario tool was used to introduce the trust game paradigm into the doctor-patient research field, and the questionnaire tool was combined to explore the path of doctor-patient information asymmetry affecting the trust of patients. The research results verified that doctor-patient information asymmetry was a predictive variable of patient trust, and showed that medical risk perception and moral judgment played a partial mediating role between doctor-patient information asymmetry and patient trust (the effect ratio was 39.47% and 21.05%, respectively), and the parallel mediating effect of the two was significant. This is consistent with the theoretical conception of this study, and quantitative research guided by the perspective of information asymmetry theory can provide empirical support for the current theoretical discussion on the influence of doctor-patient information asymmetry on doctor-patient trust in China.

Keywords : Doctor-Patient Information Asymmetry, Patient Trust, Medical Risk Perception, Moral Judgment

自我厌恶对个体自我面孔注视影响的眼动研究

摘 要 为探讨个体对自我面孔加工的优势是有熟悉造成的还是由于自我面孔引起了个体的内隐积极自我联想，本研究采用眼动追踪技术，记录了高、低自我厌恶水平的各 40 名大学生，在观看自我和他人的积极、中性和负性情绪面孔时的眼动情况。结果发现：个体对自我面孔的总注视时间显著长于他人面孔；高自我厌恶组的个体观看自我面孔的注视比率显著低于观看他人面孔，低自我厌恶组未发现显著差异；个体在中性情绪面孔对眼睛的注视时间最长、注视次数最多；个体在积极情绪面孔下对嘴巴注视次数最多、注视时间最长；高自我厌恶组的对鼻子区域的注视时间长于低自我厌恶组，注视次数多于低自我厌恶组。结果表明，虽然高、低自我厌恶水平个体均具有自我面孔加工的优势，具有类似的注视模式；自我面孔加工优势受个体自我厌恶水平的影响，支持内隐积极自我联想假设。

关键词 自我厌恶，自我面孔，眼动

移动阿格纽关系问卷中文版(mARM–C)的信效度检验

摘 要 **背景：**随着在线心理干预的迅速发展，数字治疗联盟(Digital Therapeutic Alliance, DTA)概念也开始受到关注。基于初步研究发现，发展 DTA 将有希望促进用户参与度并改善干预效果。然而，我国目前仍无测量 DTA 的可靠工具。**目的：**本研究旨在修订 DTA 测量工具“移动阿格纽关系问卷”(mobile Agnew Relationship Measure, mARM)并检验中文版问卷(mARM-C)的信度和效度。**方法：**采用方便取样法招募 574 名近期使用过冥想 APP 的大学生进行施测，并于两周后抽取 102 名重测。选取数字工作同盟量表(Digital Working Alliance Inventory, DWAI)、咨询信任问卷(Trust of Counseling Scale, TCS)、当事人满意度问卷(Satisfaction Questionnaire-8, CSQ-8)作为效标效度工具，采用 SPSS 26.0，AMOS 26.0 以及 JASP 17.2 进行信度、效度及网络分析。**结果：**通过探索性因子分析和网络分析发现，mARM-C 包括 5 因子共 19 个条目；mARM-C 的各个条目具有良好的区分度，各条目与各维度总分及量表总分均呈显著正相关；验证性因子分析也表明模型拟合良好(χ^2=385.035, df =142, χ^2/df = 2.712, p<0.001, SRMR=0.046, RMR=0.040, RMSEA=0.077, IFI=0.940, TLI=0.927, CFI=0.940)；mARM-C 总分与 DWAI、TCS 以及 CSQ-8 的得分均呈显著正相关；问卷的聚敛效度、区分效度均达到心理测量学标准；在信度方面，mARM-C 具有良好的内部一致性信度(0.87 ~ 0.94)、分半信度(0.78 ~ 0.88)及重测信度(0.79 ~ 0.88)。**结论：**mARM-C 信效度良好，可用来测量在线自助干预中用户与程序间形成的 DTA。

关键词 移动阿格纽关系问卷，信度，效度，网络分析，数字治疗联盟。

Reliability and validity of the Chinese version of the mobile Agnew Relationship Measure (mARM-C)

***Abstract*:**

Background: The Digital Therapeutic Alliance (DTA) concept has emerged with the development of digital mental health, and it has the potential to play a constructive role in digital intervention. However, there still needs to be empirical backing. China currently needs the necessary questionnaire to measure this variable. **Objective:** This research aims to test the reliability and validity of the Chinese version of the mobile Agnew Relationship Measure (mARM-C). **Methods:** 574 college students who had recently used meditation applications were included. 102 of them were chosen for retesting two weeks later. Standards for evaluation included the Digital Working Alliance Inventory (DWAI), Trust of Counseling Scale (TCS), and Client Satisfaction Questionnaire-8 (CSQ-8). The formal questionnaire was created after further modifications based on item analysis, exploratory component analysis, and network analysis. **Results:** Confirmatory factor analysis revealed that the five-component model fit the data well (χ^2=385.035, *df* =142, χ^2/df = 2.712, *p*<0.001, SRMR=0.046, RMR=0.040, RMSEA=0.077, IFI=0.940, TLI=0.927, CFI=0.940). The mARM-C has intense item discrimination, and each item is substantially and positively linked with the total score of each dimension and the total score of the measure. The mARM-C had fair to excellent internal consistency (0.87 to 0.94), split-half (0.78 to 0.88), and test-retest (0.79 to 0.88) reliability. The convergent and criterion-related validity was acceptable. **Conclusion:** In conclusion, the results of this study indicate that the Chinese version of the mARM-C has good validity and reliability. It is an effective self-report measure of the DTA.

***Keywords*:** mobile Agnew Relationship Measure, reliability, validity, network analysis, Digital Therapeutic Alliance.

特质愤怒对网络攻击行为的影响：有调节的中介模型

陈丹[1]，孙红梅[1]（通讯作者）

1 天津中医药大学管理学院，天津，301617，shm1029@126.com

摘 要 随着互联网的快速发展，攻击行为的发生场所逐渐扩宽，并随之衍生出一种新的攻击形式，即网络攻击，59.5%的大学生出现过网络攻击行为，55.3%的大学生受到过网络攻击。网络攻击行为按照动机类型可分为反应性和主动性网络攻击行为，前者指对网络上感受到的激惹或威胁进行防卫的行为；后者指未被威胁但因个人利益所致的行为。两类网络攻击行为都会对个人的身心健康及社会的长治久安产生严重的负面影响，但前人研究大多忽视了对主动性攻击行为的探讨，有必要分别探讨这两类网络攻击行为的影响因素和作用机制，以期为网络攻击行为的防治工作提供更有针对性的实证支持。本研究采用了特质愤怒量表、敌意归因偏向分量表、自我控制量表以及网络攻击行为量表对天津市 968 名大学生进行调查。结果显示：（1）特质愤怒正向预测反应性网络攻击行为及主动性网络攻击行为；（2）特质愤怒通过敌意归因

偏向的部分中介作用预测反应性、主动性网络攻击行为；（3）自我控制调节了直接效应和中介效应的后半段路径。具体而言, 对于低自我控制个体来说，特质愤怒通过自身的直接作用以及敌意归因偏向的中介作用对反应性网络攻击行为产生影响，但特质愤怒只能通过敌意归因偏向的中介作用对主动性网络攻击行为产生影响；对于高自我控制个体来说，特质愤怒对网络攻击行为不再产生影响，体现了自我控制的重要作用。研究结果表明，主动性攻击行为是否产生，个体的自我控制、敌意归因水平可能是其中的主要原因，网络环境可能会导致个体自我控制水平暂时性降低，加强网络环境的外界干预措施是有必要的。研究结果支持并丰富了综合认知模型（ICM）关于特质愤怒对反应性攻击行为的理论假设，把其拓展到特质愤怒和反应性网络攻击行为、主动性网络攻击行为上，也扩展了目前对敌意归因偏向与攻击行为联系的理解。

关键词　特质愤怒，敌意归因偏向，自我控制，主动性网络攻击行为，反应性网络攻击行为，大学生

The Effect of Trait Anger on Online Aggressive Behavior: A Moderated Mediation Model

CHEN Dan[1], SUN Hong-mei[1]
1 School of Management, Tianjin University of Traditional Chinese Medicine, Tianjin 301617, China

***Abstract*:** With the rapid development of the Internet, the place of aggressive behavior has gradually expanded, and a new form of aggressive behavior has been derived, that is, online aggressive behavior. 59.5% of college students have experienced online aggressive behavior, and 55.3% of college students have been attacked by online aggressive behavior. According to the type of motivation, online aggressive behavior can be divided into reactive and proactive online aggressive behavior. The former refers to the behavior of defending against the irritations or threats felt on the online. The latter refers to reaction that are not threatened but are motivated by personal gain. Both types of online aggressive behavior will have a serious negative impact on the physical and mental health of individuals and the long-term stability of society. However, most previous studies have ignored the discussion on proactive aggression. It is necessary to explore the factors and mechanisms of these two types of online aggressive behavior respectively, in order to provide more targeted empirical support for the prevention and treatment of online aggressive behavior. A total of 968 college students in Tianjin were tested by using trait anger scale, hostility attribution bias subscale, self-control scale and online aggressive behavior scale. The results showed that: (1) Trait anger positively predicted reactive and proactive online aggression behavior; (2) Hostility attribution bias played the partial mediating role between trait anger and reactive and proactive online aggression; (3) Self-control moderated the direct effect and the latter half of the mediating effect. That is, under the low self-control level, trait anger has the effect on reactive online aggression through its direct role and the mediating role of hostility attribution bias, but trait anger can only influence proactive online aggression through the mediating role of hostility attribution bias. however, there was a non-significant relation between trait anger and online online aggressive behavior under the high self-control level, which reflected the important role of self-control. The results show that whether proactive aggression occurs or not, individual self-control and hostility attribution level may be main reasons. The network environment may lead to the temporary reduction of individual self-control level, and it is necessary to strengthen the external intervention measures in the network environment. The results of this study support and enrich the theoretical hypothesis of the integrated cognitive model (ICM) on the role of trait anger on reactive aggressive behavior, extend it to trait anger, reactive online aggressive behavior and proactive online aggressive behavior, and expanding the current understanding of the relationship between hostility attribution bias and aggressive behavior.

***Keyword*:** trait anger, hostility attribution bias, self-control, reactive online aggressive behavior, proactive online aggressive behavior, College student

工作家庭冲突对职场母亲育儿投入的影响机制：基于多水平的视角

王荣 王茹 李丹黎（通讯作者）
陕西师范大学心理学院，西安，710062，dlli@snnu.edu.cn

摘 要　随着我国女性就业比例的大幅提高，在工作与家庭的双重压力下，职场母亲频频陷入工作家

庭冲突的困境，从而引发一系列的育儿难题。研究表明，母亲育儿投入对儿童社会能力与学业的发展至关重要（Emine Ahmetoglu et al.,2020;Xin Ma et al.,2015）。然而，现有多数研究仅从个体间层面考察工作家庭冲突对母亲育儿的影响，较少关注个体内层面工作家庭冲突的波动对育儿投入的影响。母亲个体内每日经历的工作家庭冲突可能存在差异，仅从个体间水平、单一层面来考察不足以全面揭示其中的影响机制。因此，本研究拟采用日记法，从个体内和个体间两个层面去探究职场母亲工作家庭冲突对育儿投入的作用机制，以及母亲情绪调节策略的调节效应。研究选取有全职工作，幼儿园孩子的母亲为研究对象，在线招募了 236 位母亲。由于出差、生病等原因，最终全国 23 个省 50 个市的 203 位职场母亲（平均年龄 33.49±3.92 岁；孩子平均年龄 4.53±0.98 岁）完成了 6 天的日记法研究。使用问卷法测量母亲的情绪调节策略（认知重评、表达抑制），通过母亲日报告收集每天的工作家庭冲突和育儿投入。采用多层线性模型进行数据分析，结果显示：在个体内水平上，母亲每日工作家庭冲突负向预测每日的育儿投入(β=-.45，p = .01）。但在个体间水平上，控制了孩子数量和家庭收入后，母亲经历的冲突天数正向预测育儿投入(β=.22，p = .00）。认知重评策略对于每日预测效应的调节作用不显著(β=.08, p =.59)，而表达抑制策略则显著调节每日工作家庭冲突对育儿投入的预测效应(β=-.40，p = .01），经简单斜率分析发现，表达抑制处于高水平时，每日工作家庭冲突对每日育儿投入的负向预测被显著增强（b=-1.01 , t=-4.43 , p=.00）。这些结果说明，工作家庭冲突对于职场母亲育儿投入的影响在个体内与个体间水平上表现出相反的作用模式，体现出从多角度多层面来揭示工作家庭冲突对母亲育儿影响的重要性和必要性。同时，表达抑制作为非有效情绪调节策略，会加剧工作家庭冲突对母亲育儿投入的不利影响，这一发现对于实践干预具有重要指导价值。

关键词　职场母亲，工作家庭冲突，育儿投入，情绪调节策略,日记法

How Work-Family Conflict Affects Working Mothers' Childcare Involvement: A Multilevel Perspective

Rong Wang, Ru Wang, Danli Li (corresponding author)
School of Psychology, Shaanxi Normal University, Xian 710062

***Abstract*:** With the significant increase in the proportion of women's employment in China, under the dual pressure of work and family responsibilities, working mothers are frequently caught in the dilemma of *work-family conflict*, which consequently triggers a series of childcare problems. Research has shown that mothers' involvement in childcare is critical to the development of children's social competence and academics (Emine Ahmetoglu et al.,2020; Xin Ma et al.,2015). Emotion regulation is an important factor influencing mothers' parenting, and different emotion regulation strategies may play different roles in the process of mutual influence between mothers' *work-family conflict* and *childcare involvement*. However, most of the existing studies examine the impact of *work-family conflict* on mothers' parenting only at the individual level, with less attention paid to the impact of within-individual fluctuations in *work-family conflict* on *childcare involvement*. The level of work-family conflict experienced daily may vary within individual mothers, thus examining a single level at the personal level is insufficient to fully reveal the mechanisms of the influence process. In order to explore the mechanisms of how working mothers' *work-family conflict* affects maternal involvement at multiple levels, this study intends to use a diary method to investigate the effects of *work-family conflict* on *childcare involvement* at the within- and between-individual levels, respectively, and the role of mothers' emotion-regulation strategies in this context. Mothers with full-time job and kindergarten children were selected for the study, and 236 mothers were recruited online. Due to business trips, illness, and other reasons, 203 working mothers (mean age 33.49±3.92 years; mean age of children 4.53±0.98 years) from 50 cities in 23 provinces across the country eventually completed all the tasks for 6 consecutive days. Mothers' emotion regulation strategies (*Cognitive*

Reappraisal, *Expression Suppression*) were measured using questionnaires, and mothers' *work-family conflicts* and mothers' *childcare involvement* for each day were collected through mothers' daily reports. The Hierarchical Linear Model was used to analyze the data. Results of models showed that at the within-individual level, mothers' daily *work-family conflict* negatively predicted their daily *childcare involvement* (β = -.45, p = .01). However, at the between-individual level, controlling for the number of children and household income, the number of days experiencing *work-family conflict* positively predicted *childcare involvement* (β = .22, p = .00). The moderating effect of the *Cognitive Reappraisal* strategy on the daily prediction effect was not significant (β = .08, p = .59). In contrast, the *Expression Suppression* strategy significantly moderated the predictive effect of daily *work-family conflict* on *childcare involvement* (β = -.40, p = .01), and a simple slope analysis revealed that the negative prediction of daily *work-family conflict* on daily *childcare involvement* was significantly augmented when *Expression Suppression* was high (b = -1.01, t = -4.43, p = .00). These results suggest that the effects of the mother's *work-family conflict* on *childcare involvement* show opposite patterns of action at the within- and between-individual levels, reflecting the importance and necessity of revealing the effects of *work-family conflict* on mothers' parenting from multiple levels. In addition, the finding that *Expression Suppression*, as an ineffective emotion regulation strategy, exacerbates the negative impact of *work-family conflict* on maternal involvement is an important guideline for practical interventions.

Keywords: working mothers, work-family conflict, childcare involvement, emotion regulation strategies, daily dairy method

亲密关系对消费行为的促进：来自 fNIRS 的证据

张辰宇[1]　刘敬越[1]　刘映杰[1]（通讯作者）

1 华北理工大学，河北，唐山，063210

1 华北理工大学心理与精神卫生学院，河北，唐山，063210，liuyjpsy@ncst.edu.cn

摘 要　亲密关系在一定程度上影响消费者的购买决策。本研究招募 61 名大学生被试，采用模拟购买决策任务，应用功能性近红外光谱成像（fNIRS）技术，在不同亲密关系中探究价格涨跌对消费者购买决策的影响及其神经机制。行为结果发现，情侣组的平均购买率显著高于朋友组；降价产品购买率显著高于涨价产品；在涨价时，情侣组的购买率显著高于朋友组，而在降价时差异不显著。近红外结果发现，背外侧前额叶皮层（dlPFC）和眶额皮质（OFC）在降价时的负激活水平显著高于涨价条件。朋友组在决策过程中 dlPFC 激活程度更高，涨价条件下 dlPFC 激活程度更高，购买涨价产品时情侣组的 dlPFC 激活强度显著低于朋友组。涨价条件下，OFC 的激活强度与朋友组的购买率呈显著正相关，降价条件下，dlPFC 的激活强度与朋友组购买率呈显著负相关。结果表明亲密关系程度越深，消费者产生的购买力越强，消费者更倾向于为他们的伴侣购买涨价产品。亲密程度的加深降低了消费者在购买决策时认知控制；提升了消费者的情感唤起程度。本研究系统分析了亲密关系的变化对消费者购买决策的影响，可以在一定程度上预测不同亲密关系中消费者的购买决策倾向，帮助企业更精准地定位其目标市场并改善营销策略。

关键词　消费决策，神经营销，亲密关系，非理性消费，fNIRS

Promotion of Consumer Behavior by Intimate Relationships: Evidence from fNIRS

Zhang Chenyu[1], Liu Jingyue[1], Liu Yingjie[1] (Corresponding author)

[1] School of Psychology and Mental Health, North China University of Science and Technology, Tangshan, Hebei 063210, liuyjpsy@ncst.edu.cn

Abstract： Intimate relationships, to some extent, influence consumer purchasing decisions. In this study, 61 university students were selected as participants. Functional near-infrared spectroscopy (fNIRS) was utilized to investigate the impact of different levels of intimacy on consumer purchase decisions and their neural mechanisms through a simulated purchasing task. Behavioral results revealed that the average purchase rate in the couple group was significantly higher than in the friend group. Purchase rates for discounted products were significantly higher than those with price increases. Specifically, during price increases, the couple group's purchase rate was significantly higher than that of the friend group, while during price decreases, the difference was not significant. fNIRS results demonstrated that the activation levels of the dorsolateral prefrontal cortex (dlPFC) and orbitofrontal cortex (OFC) were significantly higher during price decreases compared to price increases. In the friend group, dlPFC activation was higher during the decision-making process, and under price increase conditions, dlPFC activation was higher. Notably, during the purchase of products with price increases, the dlPFC activation intensity in the couple group was significantly lower than in the friend group. Under price increase conditions, the OFC activation intensity was significantly positively correlated with the purchase rate in the friend group, while under price decrease conditions, dlPFC activation intensity was significantly negatively correlated with the purchase rate in the friend group. These results indicate that couples exhibit stronger purchasing power, and deepening intimacy reduces cognitive control in consumer purchasing decisions. This study systematically analyzed the impact of changes in intimate relationships on consumer purchasing decisions, allowing for the partial prediction of consumer purchasing tendencies in different personal relationships. This can assist businesses in more accurately targeting their market and improving marketing strategies.

Keywords： Consumer decision-making, Neuro-marketing, Intimacy, Irrational Consumption, fNIRS

社会地位获取策略对提前/主动拖延行为选择的影响：解释水平的中介作用

陈柳　杜邦　付可可　李开云　贾凡路　侯婷婷

济南大学教育与心理科学学院，济南，250022，sep_liky@ujn.edu.cn

摘 要　完成一项任务时，有的人早早地开始着手做，而有的人却事先做好计划等快到截止时间时才开始。前者界定为提前行为，而后者界定为主动拖延行为。根据进化心理学中的生活史策略，个体提前/主动拖延行为选择可能会受到社会地位获取策略的影响。本研究采用改编的推木块任务测量个体的提前/主动拖延行为，通过三个实验考察了社会地位获取策略（支配策略和声望策略）对个体提前/主动拖延行为选择的影响，并探究个体认知方式--解释水平在这一关系中的作用。实验 1 通过情景操纵法启动个体的社会地位获取策略，考察被试在支配/声望策略状态下的提前/主动拖延行为选择。结果发现，支配策略启动组被试倾向于做出提前的选择，而声望策略启动组被试倾向于做出主动拖延的选择。实验 2 采用实验因果链设计考察解释水平在社会地位获取策略影响个体提前/主动拖延行为选择中的作用。实验 2a 考察支配/声望策略启动状态下，个体的解释水平类型（高/低）。结果发现，启动支配策略促使个体进行低解释水平表征，而启动声望策略促使个体进行高解释水平表征。实验 2b 则进一步考察高/低解释水平启动状态下，个体的提前/主动拖延行为的选择。结果发现，低解释水平表征下能够增强个体提前选择倾向，而高解释水平表征下能够增强个体主动拖延选择的倾向。实验 3 采用中介测量设计考察解释水平在社会地位获取策略影响个体提前/主动拖延行为中的作用。结果发现，解释水平在社会地位获取策略影响个体提前/主动拖延行为中起部

分中介作用。本研究结果表明，当个体完成一个任务时，支配策略的个体更多的对事物进行低解释水平表征，进而促使其做出提前行为；而声望策略的个体对事物更倾向于进行高解释水平表征，进而更多地表现出主动拖延行为。

关键词 提前，主动拖延，支配策略，声望策略，解释水平

The influence of social status acquisition strategies on the choice of precrastination/active procrastination behavior: The mediating role of construal level

CHEN Liu, DU Bang, FU Keke, LI Kaiyun, JIA Fanlu, HOU Tingting
(*School of Education and Psychology, University of Jinan, Jinan* 250022, *China*)

***Abstract*:** When carrying out a task, some people start working on it early, while others plan ahead and wait until the deadline is approaching. The former behavior is defined as precrastination, while the latter behavior is defined as active procrastination. According to the life history strategy in evolutionary psychology, individual precrastination/active procrastination behavior choices may be influenced by social status acquisition strategies. The current study used adapted the reach-to-grasp task to measure individuals' precrastination and active procrastination behavior. Three experiments were conducted to investigate the influence of social status acquisition strategies (dominance strategies and prestige strategies) on the choice of precrastination/active procrastination behavior, and to explore the role of individual cognitive style - explanatory level in this relationship. Experiment 1 examined participants' choice between precrastination and active procrastination when participants with no obvious tendency to dominate or prestige strategies but under the dominance/prestige strategies state by priming through situational manipulation. The results indicated that participants in the dominance-primed strategies group tended to choose precrastination, while the participants in the prestige-primed strategies group tended to choose active procrastination. Experiment 2 used an experimental-causal-chain design to investigate the role of construal level in the influence of the dominance/prestige strategies on individuals' choice between precrastination and active procrastination. Experiment 2a examined the type of individuals' construal level (high/low) when participants with no obvious tendency to dominate or prestige strategies but under the dominance/prestige strategies state by priming through situational manipulation. The results revealed that the priming of dominance strategies prompted individuals to engage in low construal level representation, while the priming of prestige strategies prompted individual to perform high construal level representation. Experiment 2b further investigated individuals' choice between precrastination and active procrastination in the high/low construal level primed state. The results indicated that low construal level representation enhanced individuals' tendency to choose behaving precrastination, whereas high construal level representation enhanced individuals' tendency to choose behaving active procrastination. Experiment 3 used a measurement-of-mediation design to investigate the role of construal level in the influence of the dominance/prestige strategies on individuals' choice between precrastination and active procrastination. The results revealed that construal level played a partially mediating role in this influence. Results of these three experiments firstly indicated that when carrying out a task, individuals who tend to adopt the dominance strategies to acquire or maintain their social status are more likely to represent events with low construal level, which in turn motivates them to behaving more precrastination, whereas individuals who tend to adopt the prestige strategies to acquire or maintain their social status are more inclined to represent events with high construal level, which in turn is more likely to lead to active procrastination.

Keywords：precrastination, active procrastination, dominance strategies, prestige strategies, construal level

气味效价对面孔吸引力感知的影响

雷佳玮[1]　吴婕[1]　冯果[1,2]（通讯作者）

1 西南交通大学心理研究与咨询中心，成都，611756

2 西南交通大学应用心理学研究院，成都，611756，fengguo@swjtu.edu.cn

摘 要　面孔吸引力具有诱发积极情绪的特质，且存在美貌溢价效应。生活中，人脑能整合来自不同感官通道的线索对面孔吸引力进行感知，且嗅觉系统与情绪加工系统高度重合。那么，气味的情绪效价是否会影响面孔吸引力感知呢？这是一个尚未完全回答的问题。已有研究验证了社会性气味对人类社会活动的影响，但非社会性气味是否也会干预我们对面孔吸引力的感知？目前还未有一致性结论。鉴于跨感官信息整合时遵循“反比效应”，即视觉信息输入越模糊时，嗅觉对其调节作用就越强。因此，本研究从中国面孔表情图片库中筛选出 16 张中性表情面孔图片，以吸引力从高到低生成 8 个模糊面孔序列（每个序列包括 25 帧），从中选取模糊度最高的 7 张图片作为视觉材料。气味材料经预实验选取橙味精油、5%戊酸溶液、水分别作为积极、消极、中性条件。实验一采用 3(气味效价:积极、消极、中性)x7(面孔吸引力的模糊程度:37.5%~62.5%)的被试内设计，实验在连续三天的同一时间持续进行，气味与面孔同时呈现，并要求被试对视觉面孔进行吸引力判断。三天实验前后均要求被试填写 PANAS 量表。结果发现：（1）气味效价主效应显著，与消极气味同时呈现的面孔更易被判断为低吸引力，与积极气味同时呈现的面孔则更易被判断为高吸引力。（2）模糊水平主效应显著，吸引力模糊度越高，气味的影响越大。（3）在所有气味效价下，男性面孔都被判断为比女性面孔更具吸引力。（4）对男性被试来说，即使女性面孔伴随积极气味，男性面孔伴随消极气味，他们也认为同性面孔更具吸引力；同样的效应在女性被试中未发现。实验二的视觉材料选取模糊程度为 37.5%和 62.5%的面孔图片，采用 3(气味效价:积极、消极、中性)x2(面孔吸引力高、低)的被试内设计，要求面孔出现时被试用 1(最不好看)-9(最好看)对吸引力进行评分，其余流程均同实验一。结果发现：（1）气味效价主效应显著：消极气味下面孔吸引力评分显著低于积极和中性气味；积极气味下面孔吸引力评分显著高于中性气味。（2）高吸引力面孔评分显著高于低吸引力面孔。（3）女性对男性面孔的评分高于男性对女性面孔的评分。本研究为面孔吸引力感知的跨感官信息整合提供了证据。

关键词　面孔吸引力，气味效价，跨模态整合

Effects of odor valence on the perception of facial attractiveness

Jiawei Lei[1]，Jie Wu[1]，Guo Feng[1,2]

1 Psychological Research and Counseling Center, Southwest Jiaotong University, Chengdu 611756, China;

2 Institute of Applied Psychology, Southwest Jiaotong University, Chengdu 611756, China;

Abstract：Facial attractiveness is supposed to be a trait that induces a positive, pleasant mood and there is a beauty premium effect. In daily life, Human brain can integrate cross-modal information to perceive facial attractiveness and the olfactory system is highly overlapping with the emotional processing system. Then, whether odor valence can affect facial attractiveness perception or not? This is a question that has not yet been fully answered. Previous studies have verified the influence of social odors on human social activities, however, for

nonsocial odor, there has not been a consistent conclusion. Considering the "inverse effect" when combining cross-modal information, the fuzzier the visual information input, the stronger the role of smell in regulating it. Therefore, in this study, 16 neutral facial images were selected from the Chinese Affective Face Picture System to generate 8 fuzzy face sequences ranging in attractiveness from high to low, and the 7 with the highest fuzzy degree were selected as visual stimuli. Olfactory stimuli were a neutral odor (water), a pleasant odor (essential oil with an orange-like smell), and an unpleasant odor (5% concentration valeric acid, diluted in propylene glycol). In experiment 1, we designed a 3(odor valence: neutral, pleasant, and unpleasant) ×7 (continuous levels of morphed fuzziness of attractiveness: 37.5% to 62.5%) within-subject experiment, which were conducted at the same time on three consecutive days. When odors were presented simultaneously with faces, participants were required to make attractiveness judgments about face images. Also, participants were asked to complete the PANAS scale before and after the three-day procedure. The results showed that: (1) The main effect of odor valence was significant. The faces presented with unpleasant odor were more likely to be judged as less attractive, while the faces presented with pleasant odor were more likely to be judged as more attractive. (2) The main effect of fuzzy level was also significant. The fuzzier the faces, the stronger the influence effect of odor valence. (3) In all odor conditions, male faces were rated as more attractive than female faces. (4) Male participants rated same-gender faces as more attractive even when female faces were accompanied by pleasant odors and male faces were accompanied by unpleasant odors. The same effect was not found in female participants. In experiment 2, the visual stimuli of faces with 37.5% and 62.5% fuzziness were selected, and a 3 (odor valence: pleasant, unpleasant, neutral) x 2 (face attractiveness high, low) within-subject design was adopted. The experiment was also carried out at the same time for three consecutive days and with the same procedure as experiment 1. Participants were asked to rate the attractiveness of faces on a scale of 1 (least attractive) to 9 (most attractive). The results showed that: (1) The main effect of odor valence was significant. The rating attractiveness of faces under unpleasant odor were lower than those under pleasant and neutral odors; the attractiveness score in pleasant odor condition was higher than those in neutral condition. (2) The score of highly attractive faces was significantly higher than that of low attractive faces. (3) Women rated male faces higher than men rated female faces. Our findings can provide evidence for cross-modal information integration of facial attractiveness perception.

***Keywords*:** facial attractiveness, odor valence, cross-modal integration

工作家庭冲突对父母养育倦怠的影响：一个有调节的中介模型

李树超[1]　贺琳惠[1]　雷天阳[1]　杜思妙[1]　向思霖[1]　袁晓娇[1,2]（通讯作者）

1. 西南民族大学教育学与心理学学院，成都，610000

2. 国家民委西南地区社会心理服务基地，成都，610000，yuanxj@swun.edu.cn

摘 要　目的：探讨工作家庭冲突对父母养育倦怠的影响以及婚姻满意度的中介作用和养育心理灵活性的调节作用。**方法：**采用工作家庭冲突量表、婚姻满意度问卷、养育心理灵活性量表和养育倦怠量表对1352名中小学生父母进行调查。**结果：**（1）工作家庭冲突显著正向预测父母的养育倦怠水平；（2）婚姻满意度在工作家庭冲突与养育倦怠之间的中介作用显著；（3）养育心理灵活性调节了模型的直接路径和中介过程的后半路径，具体表现为，随着养育心理灵活性水平的提高，工作家庭冲突和婚姻满意度对养育倦怠的预测作用减弱。**结论：**工作家庭冲突不仅能够直接影响父母的养育倦怠，还可以通过婚姻满意度间接影响父母的养育倦怠；高水平的养育心理灵活性可以削弱工作家庭冲突和婚姻满意度对养育倦怠的影响。

关键词 工作家庭冲突，养育倦怠，婚姻满意度，养育心理灵活性

自我同情对自觉性自传体记忆提取的影响：行为与脑活动的视角

殷海红[1,2] 郑玥[1,2] 董小帅[1,2] 胡伟[1,2,3] 王晓庄[1,2,3]（通讯作者）

1 天津师范大学心理学部，天津，300387

2 教育部人文社会科学重点研究基地天津师范大学心理与行为研究院，天津 300387

3 学生心理发展与学习天津市高校社会科学实验室，天津，300387，wangxiaozhuang@tjnu.edu.cn

摘 要 自传体记忆是包含感知觉信息和情绪特征的有关自我经历的外显记忆，自觉性自传体记忆是指在线索提示下，个体对自己生活经历事件的有意提取。在抑郁以及精神分裂症患者身上，有自传体记忆过度概括化的现象。自我同情可以通过影响个体的情绪影响心理健康，也可以促进人们对积极信息的关注，通过认知加工影响心理健康。有研究表明，低自我同情的个体会出现负性记忆偏向，而对于自我同情对自传体记忆的影响及其内在机制还缺乏来自实证研究的证明。

本研究通过问卷调查、行为实验，并借助事件相关电位技术，考察自我同情水平的高低对自觉性自传体记忆提取的影响。研究 1 使用自我同情量表和记忆经验问卷，考察自我同情是否与自觉性自传体记忆存在正相关关系，结果表明自我同情的水平可以正向预测自觉性自传体记忆问卷的得分。研究 2 使用自传体记忆的线索词范式，采用 2（组别：高自我同情组、低自我同情组）×3（自传体记忆线索词效价： 消极、中性、积极）的混合实验设计，其中组别为被试间变量。因变量为自觉提取自传体记忆的具体性和生动性。由高自我同情组和低自我同情组被试根据线索词进行自觉性自传体记忆的提取。结果表明，自传体记忆的生动性不受自我同情水平的影响；自我同情水平高低影响自传体记忆的具体性。研究 3 借助事件相关电位技术，采用 2（组别：高自我同情、低自我同情）×3（自传体记忆线索词效价：积极、中性、消极）的混合实验设计，从认知神经角度探讨自我同情影响自觉性自传体记忆提取的加工机制。结果表明，组别和线索词效价会影响自觉性自传体记忆的提取，高自我同情组在反应认知加工的 LPP 平均波幅上高于低自我同情组的被试。以上结果表明，自我同情水平会影响自觉性自传体记忆的提取，较低自我同情组而言，高自我同情组提取到的自传体记忆更具体，在认知资源的投入上也更多。本研究为进一步解释自我同情如何影响认知加工过程从而影响心理健康提供了一定的实证依据。

关键词 自我同情，记忆，自觉性自传体记忆，事件相关电位

The effects of self-compassion on autobiographical autobiographical memory retrieval: Perspectives from Behavior and Neural Activity.

Yin Haihong[1,2] Zheng Yue[1,2] Dong Xiaoshuai[1,2] Hu Wei[1,2,3] WANG Xiaozhuang[1,2,3]

1 Faculty of Psychology, Tianjin Normal University, Tianjin 300387

2 Key Research Base of Humanities and Social Sciences of the Ministry of Education, Academy of Psychology and Behavior, Tianjin Normal University, Tianjin 300387;

3 Tianjin Social Science Laboratory of Students' Mental Development and Learning, Tianjin Normal University, Tianjin 300387;

Abstract：Autobiographical memory is an explicit memory of self-experience that contains sensory and perceptual information and emotional characteristics. Voluntary autobiographical memory refers to an individual's intentional extraction of life experience events under the cue. There is an overgeneralization of autobiographical memory in patients with depression and schizophrenia. Self-compassion can affect mental health by affecting an individual's emotions, and it can also promote people's attention to positive information and affect mental health through cognitive processing. Some studies have shown that individuals with low self-compassion will have negative memory bias, but there is a lack of empirical evidence on the impact of self-compassion on autobiographical memory and its internal mechanism. Through questionnaire survey, behavioral experiment and event-related potential technique, this study investigated the influence of self-compassion level on voluntary autobiographical memory retrieval. Study 1 used the self-compassion scale and the memory experience questionnaire to investigate whether there is a positive correlation between self-compassion and conscious autobiographical memory, and the results showed that the level of self-compassion can positively predict the score of the voluntary autobiographical memory questionnaire. In study 2, a mixed experimental design of 2 (group: high self-compassion group, low self-compassion group) ×3 (autobiographical memory cue word titers: negative, neutral, positive) was adopted using the cue word paradigm of autobiographical memory, where the group was the inter-subject variable. The dependent variable is the concreteness and vividness of autobiographical memory consciously extracted. The subjects of high self-compassion group and low self-compassion group extracted autobiographical memory consciously according to cue words. The results showed that the vividness of autobiographical memory was not affected by the level of self-compassion. The level of self-compassion affects the concreteness of autobiographical memory. In study 3, a mixed experimental design of 2 (group: high self-compassion, low self-compassion) ×3 (autobiographical memory cue word titers: positive, neutral, negative) was adopted with the help of event-related potential technology to explore the processing mechanism of self-compassion affecting voluntary autobiographical memory retrieval from the perspective of cognitive neural. The results showed that group and cue word titer could affect the retrieval of voluntary autobiographical memory. The average amplitude of LPP in the high self-compassion group was higher than that in the low self-compassion group. The above results show that the level of self-compassion can affect the extraction of conscious autobiographical memory. Compared with the low self-compassion group, the high self-compassion group extracts more specific autobiographical memory and invests more cognitive resources. This study provides an empirical basis for further explaining how self-compassion affects cognitive processing and thus mental health.

Keywords：Self-compassion, memory, voluntary autobiographical memory, event-related potentials

危机情境下语言加工的认知神经机制

杨光[1,2] 刘芝塞[1,2] 杨秀杰[3] 陈路遥[4] 刘友谊[5] 丁国盛[5] 闫国利[1,2] 吴俊杰[1,2]（通讯作者）

1 教育部人文社会科学重点研究基地天津师范大学心理与行为研究院，天津，300387

2 天津师范大学心理学部，天津，300387

3 北京师范大学心理学部，北京，100875

4 北京师范大学国际中文教育学院，北京，100875

5 北京师范大学认知神经科学与学习国家重点实验室，北京，100875

通讯作者 E-mail：psywujunjie@foxmail.com

摘 要　语言加工会受到环境中各种因素的影响，而对于消防员、武警士兵、医生等特殊职业来说，

在危机情境中有效地进行语言加工是十分重要的。前人研究大多聚焦在安静环境下的语言加工，部分研究考察了非危机情境下的噪音对语言加工的干扰作用，认为过程干扰或注意分散可能是干扰起作用的原因，并且发现认知控制功能对噪音下的语言加工的行为表现可能起到保护作用。然而，缺少研究考察危机情境下的语言加工的认知神经机制，不清楚危机情境下语言脑网络与认知控制脑网络的工作方式。本研究使用近红外脑成像技术来考察该问题，招募 60 名大学生被试，让他们分别在模拟危机情境或者非危机情境下完成火灾救援过程中的语言理解和语言表达任务，同时使用近红外光学脑功能成像的技术记录他们的大脑活动，重点考察认知控制脑区（如左侧前额叶）与语言加工脑区（如左侧颞叶）的活动差异。结果显示：1）被试阅读文本与静息状态相比，在双侧额叶、左侧颞顶区，左侧颞枕区表现出显著的激活差异；2）其中双侧额叶、左侧颞顶联合区以及左侧枕叶的活动强度与被试在任务中感受到的压力程度显著正相关；3）相对于非危机情境组来说，危机情境组的左侧额叶在阅读中表现出显著的激活差异；4）危机情境组的答题正确率与双侧前额叶、左侧颞顶联合区以及左侧枕叶的激活显著正相关，非危机情境组的答题正确率与大脑激活无显著相关。这些结果表明危机情境的语言加工更强地依赖语言脑网络和认知控制脑网络的共同活动，进一步确认认知控制在危机情境下语言加工的重要作用，拓展了我们对复杂现实场景下的语言加工认知神经机制的认知。

关键词　语言加工，认知控制，危机情境，近红外光学脑功能成像

The Cognitive and Neural Mechanisms of Language Processing in Emergencies

Guang Yang[1, 2], Zhisai Liu[1, 2], Xiujie Yang[3], Luyao Chen[4], Youyi Liu[5], Guosheng Ding[5], Guoli Yan[1, 2], Junjie Wu[1, 2](Corresponding author)

1 Key Research Base of Humanities and Social Sciences of the Ministry of Education, Academy of Psychology and Behavior, Tianjin Normal University, Tianjin, 300387,China

2 Faculty of Psychology, Tianjin Normal University, Tianjin, 300387, China

3 Faculty of Psychology, Beijing Normal University, Beijing, 100875, China

4 School of International Chinese Language Education, Beijing Normal University, Beijing, 100875, China

5 State Key Laboratory of Cognitive Neuroscience and Learning, Beijing Normal University, Beijing, 100875, China

Corresponding author's E-mail：psywujunjie@foxmail.com

Abstract: Various factors influence language processing in the environment. For special professions such as firefighters, police officers, and doctors, effective language processing in emergencies is crucial. Previous research has mainly focused on language processing in quiet environments. Some studies have investigated the disruptive effects of noise on language processing in non-emergency situations, suggesting that interference-by-process or attentional capture might be the underlying causes of the disruptions. They also found that cognitive control may protect language processing under noisy conditions. However, there needs to be more research exploring the cognitive and neural mechanisms of language processing in emergencies, specifically the interaction between the language and cognitive control networks in the brain. This study used functional near-infrared spectroscopy (fNIRS) to investigate this issue. We recruited 60 university students as participants and had them perform language comprehension and expression tasks during simulated emergencies or non-emergencies while their brain activities were recorded using fNIRS. We focused on examining the differences in activity between cognitive control brain regions (e.g., the left prefrontal lobe) and language processing brain regions (e.g., the left temporal

lobe). The results showed that: 1) compared to the resting state, the participants exhibited significant activation differences in bilateral frontal lobes, the left temporal-parietal region, and the left temporo-parietal-occipital region during reading tasks; 2) the degree of stress felt by the subjects during the task was positively correlated with the activity intensity of the bilateral frontal lobe, the left temporal-parietal region, and the left occipital lobe; 3) compared to the non-emergency group, the emergency group showed significant activation differences in the left frontal during reading tasks; 4) the emergency group's task accuracy was significantly positively correlated with the activation of bilateral prefrontal lobes, the left temporal-parietal region, and the left occipital lobe. There were no significant correlations between task accuracy and brain activation in the non-emergency group. These results suggest that language processing in emergencies relies more heavily on the coordinated activity of the language network and the cognitive control network in the brain. Furthermore, they provide further evidence for the vital role of cognitive control in language processing under emergency conditions, expanding our understanding of the cognitive and neural mechanisms of language processing in complex real-life scenarios.

Keywords: Language processing, cognitive control, emergencies, functional near-infrared spectroscopy (fNIRS) brain imaging

强迫症的静息态脑电活动:基于功率谱特征的研究

陈婷婷 [1,2]　蔡晓晴 [1,2]　钟明天 [1,2]（通讯作者）

1 华南师范大学心理学院心理应用研究中心，广州，510631

2 华南师范大学脑认知与教育科学教育部重点实验室，广州，510631，ztomorrow@126.com

摘 要　目的：强迫症(Obsessive-compulsive disorder，OCD)是一种常见的精神障碍，其特征包括反复出现的侵入性意念(强迫思维)和重复行为(强迫行为)，严重干扰个体的日常生活和社交功能。既往研究提示，强迫症患者的大脑在静息态时存在异常的神经活动，这种异常在其病理中起着重要作用，并且可能成为强迫症的潜在生理标记物。本研究旨在从相对频率角度出发，分析强迫症患者与健康对照组在静息态时大脑活动的差异，获得强迫症静息态脑电功能功率谱特征，并探讨其可能的病理机制。方法：招募了 39 名符合 DSM-5 诊断标准的强迫症患者和 51 名健康对照组被试。采用 Neuroscan 公司的 64 导脑电检测仪分别对两组被试实施 6 分钟的静息态脑电数据采集，对数据进行预处理后，进行功率谱分析，计算了δ (1-4Hz)、θ(4-8Hz)、α(8-13Hz)、β(13-30Hz)以及γ(30-40Hz)五个频段的绝对功率值，并进一步计算了θ/β与α/β比值。使用 t 检验比较了两组在上述各指标上的差异。结果：(1)在睁眼状态下，两组在所有通道的所有频段均存在显著差异，在闭眼状态下，两组在δ频段的所有通道以及θ频段的额叶、顶叶区域通道均存在显著差异；(2)在睁闭眼状态下，强迫症组在δ与θ频段的绝对功率值均显著高于健康对照组；(3)在睁眼状态下，两组的α/β比值存在显著差异，；(4)θ/β比值在两组间也存在显著差异，在睁眼状态下，强迫症组前额区域的θ/β比值与 Y-BOCS 总分(r=0.321,*p*=0.047)及强迫观念分量表(r=0.362, *p*=0.023)存在显著正相关。结论：强迫症存在前额、部分顶叶和颞叶的慢波异常特征，注意力控制缺陷可能导致强迫症患者出现更严重的强迫观念。本研究结果为未来确定强迫症的生理标志物提供了进一步依据。

关键词　强迫症，相对频率，静息态脑电，功率谱

The characteristics of resting EEG power spectrum in Obsessive-compulsive disorder：from the perspective of relative frequency

CHEN Tingting[1,2],CAI Xiaoqing[1,2], ZHONG Mingtian[1,2] (Corresponding Author)
1 Center for Studies of Psychological Application, School of Psychology, South China Normal University, Guangzhou, 510631, China
2 Key Laboratory of Brain, Cognition and Education Sciences, South China Normal University, Ministry of Education, Guangzhou 510631, China

Abstract: Objective : Obsessive-compulsive disorder (OCD) is a prevalent mental disorder characterized by recurrent intrusive thoughts (Obsession) and repetitive behaviors (Compulsion), which seriously impact an individual 's daily life and social function. Previous studies have suggested the presence of abnormal resting-state brain activity in OCD, which plays a crucial role in its pathology and may serve as a potential physiological biomarker for the disorder. This research aimed to analyze the differences in resting-state brain activity between OCD patients and healthy controls from the perspective of relative frequencies, exploring the spectral features of resting-state electroencephalogram (EEG) in OCD and investigating its potential pathophysiological mechanism. Methods : A total of 39 participants diagnosed with OCD were recruited from a comprehensive tertiary hospital, while 51 healthy control participants were recruited from the community. The 64-channel EEG detector of Neuroscan Company was used to collect the resting state EEG data of the two groups of subjects for 6 minutes. After data preprocessing, power spectrum analysis was conducted to calculate the absolute power values in five frequency bands: δ (1 ~ 4Hz), θ (4 ~ 8Hz), α (8 ~ 13Hz), β (13 ~ 30Hz) and γ (30 ~ 40Hz). Additionally, we computed the θ/β and α/β ratio for each participant. Independent t-tests were used to compare the differences between the two groups in the above indicators. Results : (1)During eyes-open resting state, significant differences in all frequency bands were observed across all channels between the two groups. During eyes-closed resting state, significant differences were found between the two groups in δ frequency band in all channels and in θ frequency band was different in the frontal and parietal regions.(2) The OCD group exhibited higher absolute power values in both δ and θ frequency bands during both eyes-open and eyes-closed resting states compared to the healthy control group. (3) There were significant differences in the α/β ratio between the two groups during eyes-open resting state. (4)The θ/β ratio also showed significant differences between the two groups. Additionally, during eyes-open resting state, the frontal θ/β ratio was positively correlated with Y-BOCS total score (r=0.32,p=0.047) and the Obsession subscale (r=0.36,p=0.023).Conclusion :Obsessive-compulsive disorder has the characteristics of slow wave abnormalities in the frontal and some parietal and temporal regions. Attention control deficits may lead to more severe obsessive-compulsive symptoms in patients with obsessive-compulsive disorder. The results of this study may provide further evidence for identifying physiological biomarkers in OCD.

Keywords: Obsessive-compulsive disorder，relative frequency，Resting EEG, Power spectrum

初中生社交网站自我表露的发展轨迹：一项潜变量增长模型分析

刘倩[1] 李振兴[1,2]（通讯作者）朱静婷[1] 郭秀秀[1] 刘耀耀[1] 张莲[1]
1 淮北师范大学教育学院，淮北，235000
2 安徽省认知行为智能计算与应用工程研究中心，淮北，235000，lzhx921110@126.com

摘 要 社交网站自我表露是指人们在社交网络平台上与他人分享个人信息的过程。初中阶段是青少年身心发展的关键期，培养初中生合理的进行社交网站自我表露不仅有利于身心健康，还有助于预防社交网站上瘾。然而，至今我们对初中时期社交网站自我表露的发展轨迹了解甚少。因此，本研究通过问卷调

查方式对 535 名 7 年级学生进行了为期 18 个月的 4 次追踪测试。利用潜变量增长模型进行建模分析，旨在检验 7 年级至 9 年级期间学生社交网站自我表露的变化趋势，并探讨不同性别学生在社交网站自我表露方面的差异以及自我概念清晰性对社交网站自我表露变化的影响。结果发现：（1）7 年级～9 年级期间学生的社交网站自我表露呈先增加后减少的曲线变化，且存在显著的个体差异；（2）男女生的社交网站自我表露的起始水平不存在显著的性别差异，但女生的发展速度、加速度则显著高于男生；（3）具有较高自我概念清晰性的初中生在社交网站自我表露方面呈现降低的趋势，而且这种趋势在农村和城镇学生之间存在显著差异。此外，研究还发现男女生的社交网站自我表露都在 8 年级到达顶峰，这一现象增强了我们对“8 年级效应”的理解。这些发现加深了我们对初中生社交网站自我表露发展轨迹和性别差异的认识，并为教育者制定针对性的干预措施提供实证支持。

关键词　社交网站自我表露，初中生，自我概念清晰性，发展轨迹，性别差异

Developmental trajectories of online self-disclosure among middle school students: A longitudinal study

Liu Qian[1]; Li Zhenxing[12]; Zhu Jingting[1]; Guo Xiuxiu[1]; Liu Yaoyao[1]; ZhangLian[1]

[1] College of Education, Huaibei Normal University, No.100, Dongshan Road, Huaibei 235000, Anhui, China

[2] Anhui Engineering Research Center for Intelligent Computing and Application on Cognitive Behavior, Huaibei, China

Abstract: Online self-disclosure refers to the process of people sharing personal information with others on social networking platforms, a topic of significance due to its association with physical and mental development during adolescence. While less is known about its developmental trajectory during middle adolescence in previous studies. Thus, this study examines the developmental trajectories of online self-disclosure among Chinese middle school students. A sample of 535 grade 7 middle school students was followed for 18 months. Self-report assessments of online self-disclosure and self-concept clarity were collected at four time points. Latent growth modeling was employed for data analysis. The results indicate a curvilinear development which goes up and then it goes down in middle adolescent′ s online self-disclosure from grade 7 to grade 9. While no gender differences were observed in initial levels of online self-disclosure, girls exhibited a faster rate of change in online self-disclosure compared to boys over time. Additionally, findings from latent growth curve modeling revealed that self-concept clarity, which acts as a time-varying variable, influenced adolescent′ s online self-disclosure. Specifically, higher levels of self-concept clarity at a given testing point were associated with reduced online self-disclosure during that time, and the extent of this reduction was observed to differ between rural and urban students. This study underscores that middle school students′ online self-disclosure peaks in eighth grade. These findings enhance our understandings of the factors influencing online self-disclosure among adolescents and preventing online addiction in adolescents with low self-concept clarity is particularly valuable.

Keywords: online self-disclosure, middle school students, self-concept clarity, developmental trajectories, gender difference

大学生无聊倾向对智能手机成瘾的影响：拖延的纵向中介作用

王跟弟[1] (通讯作者) 张桥[1]

1 陕西师范大学心理学系，西安，710062，18810037025@163.com

摘 要 无聊倾向是智能手机成瘾的重要前因变量。然而，目前无聊倾向对智能手机成瘾的影响机制仍不明晰。本研究采用两波纵向追踪设计，以探究无聊倾向对大学生智能手机成瘾的影响以及拖延在二者之间的纵向中介作用。本研究采用整群随机取样法，抽取陕西省 370 名大学生(其中女性 280 名；平均年龄为 19.13 岁)，采用简版无聊倾向量表(BPS)、特质拖延量表(GPS-9)以及大学生智能手机成瘾量表(SAS)，在 2021 年 9 月(T1)和 2021 年 12 月(T2)分别进行了 2 次施测，测查大学生的无聊倾向、拖延以及智能手机成瘾水平，并检验拖延在无聊倾向和大学生智能手机成瘾之间的纵向中介作用。结果发现，① T1 的无聊倾向到 T2 的无聊倾向、T1 的拖延到 T2 的拖延以及 T1 的智能手机成瘾到 T2 的智能手机成瘾的自回归路径均极其显著；② T1 的无聊倾向显著预测 T2 的拖延，T1 的拖延显著预测 T2 的智能手机成瘾，即拖延在大学生无聊倾向和智能手机成瘾之间起纵向中介作用。Sobel 检验表明，该纵向中介作用显著($Z = 1.82, p < 0.1$)。这些结果不但克服了横断面中介研究的局限性，而且深入揭示了无聊倾向与智能手机成瘾之间的准因果关系及其影响机制。这些结果对于如何通过降低大学生的无聊倾向水平和拖延水平，进而干预大学生的智能手机成瘾具有十分重要的理论和现实意义。

关键词 智能手机成瘾，无聊倾向，拖延，纵向中介作用

Boredom Proneness and Smartphone Addiction: The Longitudinal Mediating Role of Procrastination

Gendi Wang[1] (Corresponding author), Qiao Zhang[1]

1 School of Psychology, Shaanxi Normal University, Xi'an 710062, China.
18810037025@163.com

Abstract: Boredom proneness is an important antecedent variable of smartphone addiction. However, the mechanism by which boredom proneness affects smartphone addiction remains unclear. This study uses a two-wave longitudinal design to explore the influence of boredom proneness on college students' smartphone addiction and the longitudinal mediating role of procrastination between them. In this study, 370 college students (280 female; M_{age} = 19.13), and the Chinese Version of the Short Boredom Proneness Scale (BPS), the Chinese Version of the General Procrastination Scale (GPS-9) and the Smartphone Addition Scale for College Students (SAS) were used to measure the boredom proneness, procrastination and smartphone addiction of college students twice in September 2021 (T1) and December 2021 (T2), respectively， and examine the longitudinal mediating effect of procrastination on boredom proneness and smartphone addiction among college students. The results showed that (1) there were significant autoregressive pathways from boredom proneness T1 to boredom proneness T2, from procrastination T1 to procrastination T2, and from smartphone addiction T1 to smartphone addiction T2. (2) The boredom proneness T1 significantly predicts the procrastination T2, and the procrastination T1

significantly predicts the smartphone addiction T2, that is, procrastination plays a longitudinal mediating role between boredom proneness and smartphone addiction of college students. Sobel test showed that the longitudinal mediating effect was significant ($Z = 1.82$, $p < 0.1$). These results not only overcome the limitations of cross-sectional mediation studies, but also reveal the quasi-causal relationship between boredom proneness and smartphone addiction and its influencing mechanism. These results have a very important theoretical and practical significance for how to reduce the boredom proneness and procrastination level of college students, and then intervene in the smartphone addiction of college students.

keywords：Smartphone addiction, Boredom proneness, Procrastination, Longitudinal mediation

童年情感创伤预测大学生心理僵化不同发展轨迹：基于潜类别增长模型

曹妍媛[1,2,3] 樊洁[1,2,3] 于权浩[1,2,3] 刘倩[1,2,3] 朱熊兆[1,2,3]（通讯作者）

1 中南大学湘雅二医院医学心理研究中心，长沙，410011

2 中南大学医学心理研究所，长沙，410011

3 国家精神心理疾病临床医学研究中心，长沙，410011，Email: xiongzhaozhu@csu.edu.cn

摘 要 **背景：**心理僵化与许多心理健康问题密切相关。研究也开始关注在经历了相当大心理困扰的大学生群体中的心理僵化水平。然而，以往研究多采用静态视角以及变量中心方法，无法探究心理僵化发展及其异质性。此外，有研究也发现了童年创伤与心理僵化的关联，然而尚未有研究考察童年创伤对心理僵化的长期影响。因此，本研究采用三年的大样本追踪调查，在考察大学生心理僵化发展轨迹亚组后，分析了童年创伤以及其他因素对其轨迹的预测作用，并分析了心理僵化与抑郁、焦虑的关系。**方法：**本研究数据来源于一项对 3535 名大一新生（其中 65.6%为女生，平均年龄为 18.01±0.77 岁）进行的为期三年的五次纵向追踪研究。参与者在基线时完成了童年创伤问卷，在五个时间点均完成了心理僵化，抑郁和焦虑的问卷调查。构建了心理僵化的潜类别增长模型，进一步考察了不同类型的童年创伤对不同的心理僵化发展轨迹的预测作用，并比较了不同的心理僵化发展轨迹亚组在五个时间点的抑郁和焦虑水平。此外，也将性别、年龄、教育年限、十二岁以前居住地和早年分离经历纳入模型进行分析。**结果：**潜类别增长分析发现，大学生心理僵化可区分为两个异质的发展轨迹亚组：“高-较稳定”组和“低-下降”组。采用 Logistic 回归发现，童年情感忽视或情感虐待经历较多、有早年分离经历、女性、年龄较小以及十二岁以前居住地为农村的大学生更有可能属于“高-较稳定”组，而更少可能属于“低-下降”组。这说明童年情感创伤经历、早年分离经历、女性、年龄较小以及十二岁以前居住地为农村是高心理僵化的危险因素。此外，结果显示“高-较稳定”组在五个时间点的抑郁、焦虑水平均高于“低-下降”组。**结论：**本研究结果揭示了童年情感创伤对于大学生心理僵化的预测作用，并强调了心理僵化对于抑郁、焦虑的影响，进一步提示了针对心理僵化进行干预的重要价值。

关键词 心理僵化，童年创伤，大学生，潜类别增长分析

Childhood emotional maltreatment predicts different developmental trajectories of psychological inflexibility among university students

Yanyuan Cao[1,2,3], Jie Fan[1,2,3], Quanhao Yu[1,2,3], Qian Liu[1,2,3], Xiongzhao Zhu[1,2,3] (Corresponding author)

1 Medical Psychological Center, the Second Xiangya Hospital, Central South University, Changsha 410011, China
2 Medical Psychological Institute of Central South University, Changsha 410011, China
3 National Clinical Research Center for Mental Disorders, Changsha 410011, China

***Abstract*: Background:** Psychological inflexibility is associated with many mental health problems. This construct has recently started to be examined in university students, who experience considerable psychological distress. However, the primary methodology of the present study is cross-sectional and variable-centered, which is not conducive to identifying the development and the heterogeneity of psychological inflexibility. Research has also demonstrated that childhood maltreatment may contribute to psychological inflexibility, while little has studied the longitudinal effect of childhood maltreatment on psychological inflexibility. As a result, the current study investigated the developmental trajectories of psychological inflexibility, then analyzed the impact of childhood maltreatment on psychological inflexibility and the associations between psychological inflexibility and depression and anxiety.

Methods: Research data from a 3-year, five waves longitudinal tracking study was analyzed, in which a total of 3535 university freshmen (65.6% female, Age $_{Mean}$ = 18.01, Age $_{SD}$ = 0.77 at baseline) participated. Participants completed Childhood Trauma Questionnaire at baseline study and completed questionnaires about psychological inflexibility, depression, and anxiety at all time points. Latent class growth modeling analysis was used to identify latent classes of psychological inflexibility trajectories. Then we examined the impacts of different types of childhood maltreatment on the trajectories of psychological inflexibility and investigated the influence of psychological inflexibility on depression and anxiety. Gender, age, education years, residence before 12 years old, and left-behind experience were also considered.

Results: Latent class growth analysis identified two heterogeneous classes of psychological inflexibility trajectories among Chinese university students: the high-stable group and the low-decreasing group. A further regression analysis indicated that more childhood exposure to emotional abuse or neglect, left-behind experience, female gender, young age, and rural residence before 12 years old was significantly more likely to belong to the high-stable psychological inflexibility group in comparison to the low-decreasing psychological inflexibility group, which indicated that these are risk factors for high psychological inflexibility. Also, university students in the high-stable psychological inflexibility group reported a higher probability of depression and anxiety at all time points.

Conclusion: This study provided meaningful insights into the development of psychological inflexibility in university students and its relation to childhood emotional maltreatment as well as depression and anxiety. The findings suggest the necessity of intervention strategies aimed at reducing psychological inflexibility levels for university students with childhood emotional maltreatment.

***Keywords*:** Psychological inflexibility, childhood maltreatment, university students, latent class growth modeling analysis

恋人合作中的人际脑同步：急性压力和依恋类型的影响

刘希[1] 林震[1] 龚明亮[1]（通讯作者）
江西师范大学心理学院，南昌，330022，gongml@jxnu.edu.cn

摘 要　越来越多的研究表明，情侣之间增强的人际脑同步(Interpersonal brain synchrony, IBS)可能是恋爱关系中社会互动的神经基础。然而，这种同步并不完全稳定，它可以受到外部和内部因素的影响和调节。在此，我们探讨了急性应激和依恋类型对合作任务中情侣神经同步性的影响。我们使用亲密关系体验量表(ECR)选择具有不同依恋风格组合的情侣，包括安全-安全(安全依恋组，48 对)，安全-不安全(混合组，48 对)和不安全-不安全(不安全依恋组，42 对)。然后，他们被随机分配到压力和控制条件下，进行协作的时间估计任务。在实验过程中，我们利用功能性近红外光谱(fNIRS)监测被试大脑前额叶皮层(PFC)和右侧颞顶叶交界区(r-TPJ)的活动，并利用小波变换相干性(WTC)评估被试大脑的同步性。结果表明，与对照组相比，不安全依恋组的情侣的 DLPFC 在应激条件下的合作率显著降低，同时 IBS 也显著降低；而安全依恋组的情侣则表现出相反的结果。然而，混合组中在压力和控制条件中没有观察到显著差异。此外，我们发现急性应激对情侣之间颞上回(STG)的 IBS 具有破坏性影响。同时，依恋类型对运动前皮层和辅助运动皮层的 IBS 有显著影响，不安全组的 IBS 明显低于其他两组。有趣的是，格兰杰因果分析(GCA)显示，依恋类型可能影响 STG 中 IBS 的方向性，并受急性应激的调节。这些发现有助于更深入地理解情侣之间的情感互动和社会认知过程。

关键词　急性压力，依恋类型，人际大脑同步，fNIRS，超扫描

Interpersonal brain synchronization in romantic couples during cooperation: the effects of acute stress and attachment styles

Xi Liu, Zhen Lin, Mingliang Gong(Corresponding author)

School of Psychology, Jiangxi Normal University,

Nanchang, people's republic of china

Abstract： A growing body of research has suggested that enhanced interpersonal brain synchronization (IBS) between romantic partners may be the neural basis of social interaction in romantic relationships. However, the synchronization is not entirely stable and can be influenced and regulated by both external and internal factors. Here, we explores the influence of acute stress and attachment style on neural synchrony among couples during collaborative tasks. we used the Experience in Close Relationships Scale (ECR) to select couples with different combinations of attachment styles, including secure-secure (secure dyads, 48 couples), secure-insecure (mixed dyads, 48 couples), and insecure-insecure (insecure dyads, 42 couples). Then they were randomly assigned to stress and control conditons to carry out a collaborative time estimation task. During the task, we employed the functional near-infrared spectroscopy (fNIRS) to monitor brain activities in the prefrontal cortex (PFC) and right temporal-parietal junction (r-TPJ), and used Wavelet Transform Coherence (WTC) to assess the couples' brain synchrony. The results indicated that compared to control condition, couples with insecure dyads exhibit significantly diminished cooperation rates, accompanied by reduced IBS under the stress condition in the DLPFC, but secure dyads showed the opposite results. However, no significant differences were observed among mixed dyads both in the stress and control conditions. Additionally, we found that acute stress had a damaging effect on IBS in the superior temporal gyrus(STG) between couples. Meanwhile, attachment styles had a significant effect on IBS in the premotor and auxiliary motor cortex, with insecure dyads exhibited significantly lower IBS compared to both the other dyads. Interestingly, Granger causality analyses (GCA) revealed that the directionality of IBS in the STG could be affected by by attachment styles and modulated by acute stress. These findings contribute to a deeper understanding of emotional interactions and social cognitive processes among romantic

couples.

Keywords：acute stress, attachment styles, interpersonal brain synchronization, fNIRS, hyperscanning

愤怒情绪对恶意创造力的影响：身体姿势的作用

张晓晨[1] 黄玲[1] 陈建新[1] (通讯作者)
1 湖北大学心理学系, 武汉, 430062, CHY_990802@163.com

摘 要 为探究愤怒情绪对恶意创造力的影响，及其与身体姿势的共同作用。实验 1 招募 72 名有效被试，通过自传体任务启动情绪类型（愤怒/中性），采用三种恶意创造力任务的流畅性、新颖性、恶意性得分为因变量。结果表明愤怒情绪组个体的伤害型和捉弄型恶意创造力任务三维度得分显著高于中性组。实验 2 招募有效被试 48 名，采用不同身体姿势操纵（扩张姿势/蜷缩姿势/控制姿势）。结果表明，愤怒情绪状态下，扩张姿势组和蜷缩姿势组在伤害型和捉弄型恶意创造力任务的三维度得分上均高于控制组，且在两种任务类型的流畅性、新颖性得分上扩张姿势组显著高于蜷缩姿势组，在伤害型任务的恶意性得分上蜷缩姿势组高于扩张姿势组。本研究拓展了具身及恶意创造力的相关研究，为进一步探究并干预个体恶意创造力表现提供了实验基础。

关键词 愤怒，身体姿势，恶意创造力

The effect of anger on malevolent creativity: the role of body posture

Xiaochen Zhang[1] Ling Huang[1] Jianxin Chen[1*]
1 Faculty of Education, Hubei University,Wuhan, 430062, China

Abstract：To explore the impact of anger on malevolent creativity and its interaction with body posture, Experiment 1 recruited 72 participants and activated different emotional types (anger/neutral) through autobiographical tasks. The fluency, novelty, and malevolence scores of three types of malevolent creativity were measured as dependent variables. Results showed that individuals in the anger condition scored significantly higher than those in the neutral condition on the dimensions of harmful and teasing malevolent creativity tasks. Experiment 2 recruited 48 participants and manipulated different body postures (expansive posture/contractive posture/control posture). Results indicated that under the anger condition, both the expansive posture group and the contractive posture group scored higher than the control group on the dimensions of harmful and teasing malevolent creativity tasks. Moreover, the expansive posture group scored significantly higher than the contractive posture group in terms of fluency and novelty scores for both types of tasks, while the contractive posture group scored higher than the expansive posture group in terms of malevolence scores for the harmful creativity task. This study extends research on embodiment and malevolent creativity, providing an experimental basis for further exploration and intervention of individuals' malevolent creativity performance.

Keywords：anger, body posture, malevolent creativity

中小学生社交网站自我表露与自我概念清晰性的关系：基于交叉

滞后的追踪研究

刘倩[1] 李振兴[1,2]（通讯作者）朱静婷[1] 郭秀秀[1] 刘耀耀[1] 张莲[1]

1 淮北师范大学教育学院，淮北，235000

2 安徽省认知行为智能计算与应用工程研究中心，淮北，235000，lzhx921110@126.com

摘 要 社交网站自我表露是指人们在社交网络平台上与他人分享个人信息的过程。自我概念清晰性是指是个体对自身看法感到明晰、确信、内部一致和跨时间稳定的程度。以往研究对社交网站自我表露与自我概念清晰性的关系提出了不同观点。为探讨社交网站自我表露和自我概念清晰性之间的因果关系。本研究采用社交网站自我表露问卷、自我概念清晰性问卷，通过问卷调查方式对 577 名四年级学生和 466 名七年级学生进行了为期 1 年的 3 次追踪测试。利用交叉滞后模型分析，结果表明：（1）社交网站自我表露与自我概念清晰性在 3 次测试中均呈显著负相关；（2）小学生的自我概念清晰性得分显著高于初中生，而社交网站自我表露得分显著低于初中生；（3）T1 时期的自我概念清晰性能显著负向预测 T2 时期的社交网站自我表露，T2 时期的自我概念清晰性能显著负向预测 T3 时期的社交网站自我表露，这种预测效应在初中生和小学生中都同时存在。本研究的结果表明自我概念清晰性对社交网站自我表露的预测作用在初中生和小学生中具有稳定性，且为社交网站自我表露与自我概念清晰性的因果关系提供了实证支持。这些发现加深了我们对中小学生的自我概念清晰性和社交网站自我表露关系的认识，未来研究应关注自我概念清晰性水平较低的中小学生社交网络成瘾问题。

关键词 社交网站自我表露，初中生，小学生，自我概念清晰性，交叉滞后模型

Longitudinal relationship between self-concept clarity and online self-disclosure among Chinese middle and primary school students: cross-lagged model evidence

Liu Qian[1]; Li Zhenxing[12]; Zhu Jingting[1]; Guo Xiuxiu[1]; Liu Yaoyao[1]; ZhangLian[1]

[1] College of Education, Huaibei Normal University, No.100, Dongshan Road, Huaibei 235000, Anhui, China

[2] Anhui Engineering Research Center for Intelligent Computing and Application on Cognitive Behavior, Huaibei, China

Abstract: This study investigates the bidirectional relationship between online self-disclosure and self-concept clarity among Chinese middle and primary school students. A three-wave, one-year longitudinal study was completed with two sample, one of 577 4th grade primary school students and 466 7th grade middle school students. The Self-Concept Clarity Scale and Online Self-Disclosure Scale were used for data collection. The study findings indicate the following: (1) Online self-disclosure was significantly and negatively correlated with self-concept clarity; (2) Early adolescents demonstrated higher self-concept clarity scores compared to middle adolescents, while their online self-disclosure scores were lower than those of middle adolescents; (3) Self-concept clarity significantly and negatively predicted subsequent online self-disclosure, and this predictive effect was consistent for both middle and primary school students. This study provides valuable insights into the causal relationship between self-concept clarity and online self-disclosure in early and middle adolescents. Future research should focus on adolescents with low levels of self-concept clarity to prevent potential issues of addiction to social networking sites associated with online self-disclosure.

Keywords: online self-disclosure, middle school students, primary school students, self-concept clarity, cross-lagged

父母性取向支持对失志综合征的影响：性取向隐瞒与关系自尊的中介作用

李铁柱[1]，公言全[1]，杨天原[1]，欧阳喆宇[2]，李放[1*]（通讯作者）

1 四川师范大学心理学院，成都，610066

2 上海电机学院电气学院，上海，201306

*四川师范大学心理学院，成都，610066，lifang_sicnu@126.com

摘 要　中国男同性恋者面临许多的压力，而压力是失志综合征产生的先决条件，因此中国男同性恋者可能存在着高水平的失志综合征。此外，中国文化重视家庭，家庭是孩子的重要支持来源，因而来自父母的性取向支持可能对同性恋者的心理健康有重要的影响。但是对于中国男同性恋者父母性取向支持与失志综合征的关系及机制的研究较少，因此本研究旨在考察中国男同性恋者父母性取向支持与失志综合征之间的关系以及性取向隐瞒与关系自尊在父母性取向支持与失志综合征之间的中介机制。采用自我报告量表对 405 名通过网络招募的中国男同性恋者进行了父母性取向支持、性取向隐瞒、关系自尊和失志综合征的评估。结果表明中国男同性恋者的父母性取向支持与失志综合征显著负相关。性取向隐瞒在父母性取向支持与失志综合征间起到显著的中介作用，关系自尊在父母性取向支持与失志综合征间起到显著的中介作用，且性取向隐瞒与关系自尊在父母性取向支持与失志综合征之间起到显著的链式中介作用。该研究提示父母性取向支持是预防中国男同性恋者失志综合征的重要保护因素，父母性取向支持可以通过降低性取向隐瞒和提高关系自尊缓解中国男同性恋者的失志综合征水平。本研究丰富拓展了性少数群体的心理韧性框架和少数压力心理中介模型，也为改善男同性恋者的心理健康状况提供了新的思路。

关键词　中国男同性恋者，父母性取向支持，性取向隐瞒，关系自尊，失志综合征

Parental Support for Sexual Orientation and Demoralization Syndrome in Chinese Gay Men: The Mediating Role of Sexual Orientation Concealment and Relational Self-esteem

Tiezhu Li[1], Yanquan Gong[1], Tianyuan Yang[1], Zheyu Ouyang[2], and Fang Li[1*]（Corresponding Author）

[1]School of Psychology, Sichuan Normal University, Chengdu 610066, China

[2]School of Electrical Engineering, Shanghai Dian Ji University, Shanghai 201306, China

* School of Psychology, Sichuan Normal University, Chengdu 610066, China, lifang_sicnu@126.com

Abstract：Chinese gay men face a lot of pressure, and pressure is a prerequisite for the development of demoralization syndrome. Therefore, Chinese gay men may experience high levels of demoralization syndrome. In addition, Chinese culture places a strong emphasis on family, and the family is an important source of support for children. Therefore, parental support for sexual orientation may have a significant impact on the psychological

well-being of gay individuals. However, there is limited research on the relationship and mechanisms between parental support for sexual orientation and demoralization syndrome in Chinese gay men. Therefore, this study aims to investigate the relationship between parental support for sexual orientation and demoralization syndrome, as well as the mediating role of relational self-esteem in the relationship between parental support for sexual orientation and demoralization syndrome. A self-report questionnaire was used to assess parental support for sexual orientation, sexual orientation concealment, relational self-esteem, and demoralization syndrome among 405 Chinese gay men recruited through the internet. The results show a significant negative correlation between parental support for sexual orientation and demoralization syndrome in Chinese gay men. Sexual orientation concealment plays a significant mediating role between parental support for sexual orientation and demoralization syndrome, and relational self-esteem also plays a significant mediating role between parental support for sexual orientation and demoralization syndrome. Moreover, sexual orientation concealment and relational self-esteem have a significant chain mediating effect on the relationship between parental support for sexual orientation and demoralization syndrome. This study suggests that parental support for sexual orientation is an important protective factor against demoralization syndrome in Chinese gay men. It can alleviate levels of demoralization syndrome by reducing sexual orientation concealment and enhancing relational self-esteem. This study has enriched and expanded the theoretical framework of resilience in LGB individuals and the integrative mediation framework, providing new insights into improving the psychological well-being of gay men.

***Keywords*：** Chinses gay men, parental support for sexual orientation, sexual orientation concealment, relational self-esteem, demoralization syndrome

Emoji的社会认知加工特性及其与心理理论关系的研究：来自Emoji、简单图形和面孔的视觉工作记忆证据

李毓文，张丹丹，刘鑫，郭栋*

四川师范大学脑与心理科学研究院，成都市 610000

摘 要 Emoji是计算机媒介交流中广泛使用的交流符号，这种情绪特征突出的黄色圆脸符号成功弥补了单一文本交流中缺少的非言语交流线索。然而，人们尚不清楚，对网络虚拟世界中非言语交流线索的认知加工，是否会像现实世界中的非言语线索（面部表情、肢体动作等）那样，表现出独特的社会加工的特性，这对于理解人类认知加工系统与网络空间的交互至关重要。目的：从视觉工作记忆出发，研究Emoji与现实社会中的非言语线索是否具有类似的认知加工机制；

方法：采用变化检测范式测量工作记忆容量，并用眼动追踪技术进一步验证了工作记忆系统对具有社会属性的Emoji存在注意偏好，最后采用读眼识心任务测量被试的心理理论，探究Emoji的工作记忆与高级社会认知能力（心理理论）之间的关系；

结果：实验一和实验四显示，虽然Emoji的视觉复杂性明显高于图形（简单客体），但是两者的工作记忆水平相似，均显著高于面孔（复杂客体）。这种高效加工很可能来源于Emoji的整体加工特性，因为实验二揭示，倒置和打乱Emoji显著降低了Emoji的工作记忆绩效。实验三表明，在工作记忆中Emoji比简单图形的加工优先级更高，被试的眼动轨迹进一步验证了工作记忆对Emoji存在注意偏好。实验四发现，Emoji工作记忆容量与心理理论显著相关，与面孔工作记忆相似。

结论：人的底层认知加工系统将Emoji视为社会信息，表现出与现实世界中非言语社会线索（表情面孔）相似的认知加工特性，这很可能是Emoji被广泛使用的重要原因，即，Emoji满足了人们在计算机媒介

交流中对社会信息的需求，并且调用社会认知相关的机制处理 Emoji，大大提升了其加工效率，进而使其易于使用、传播。

关键词 Emoji，视觉工作记忆，面孔，心理理论，社会认知

A Study on the Social Cognitive Processing Properties of Emojis and Its Relationship to Theory of Mind: Evidence from Visual Working Memory for Emojis, Simple Shapes, and Human Faces

LI Yuwen, ZHANG Dandan, LIU Xin, GUO Dong*

Institute of Brain and Psychological Science, Sichuan Normal University, Chengdu, China

Abstract： Emoji is a widely used communication symbol in computer-medium communication, and this yellow round-faced symbol with prominent emotional characteristics successfully compensates for the lack of non-verbal communication cues in single text communication. However, it is unclear whether cognitive processing of nonverbal communication cues in the online virtual world exhibits unique social processing characteristics like nonverbal cues (facial expressions, body movements, etc.) in the real world, which is critical to understanding the interaction of human cognitive processing systems with cyberspace. Objective: To investigate whether Emoji and nonverbal cues in real society have similar cognitive processing mechanisms from visual working memory.

Methods: The working memory capacity was measured by change detection paradigm, and the attention preference of the working memory system for social Emoji was further verified by eye tracking technology, and finally the psychological theory of the participants was measured by the eye-reading task to explore the relationship between the working memory of Emoji and advanced social cognitive ability (psychological theory).

Results: Experiments 1 and 4 showed that although the visual complexity of emoji was significantly higher than that of graphics (simple objects), the working memory level of both was similar, and both were significantly higher than faces (complex objects). This efficient processing is likely to stem from the overall machining characteristics of Emoji, as Experiment 2 revealed that inverting and disrupting Emoji significantly reduced the working memory performance of Emoji. Experiment 3 showed that the processing priority of Emoji in working memory was higher than that of simple figures, and the eye movement trajectory of the participants further verified the working memory attention preference for Emoji. Experiment 4 found that Emoji working memory capacity was significantly correlated with psychological theory and similar to face working memory.

Conclusion: The underlying cognitive processing system of humans regards emoji as social information and shows similar cognitive processing characteristics to non-verbal social cues (expression faces) in the real world, which is likely to be an important reason for the widespread use of emoji, that is, emoji meets people's needs for social information in computer media communication, and invokes social cognition-related mechanisms to process emoji, which greatly improves its processing efficiency, and then makes it easy to use and disseminate.

Keywords： Emojis, Visual Working Memory, Human face, Theory of mind, Social cognition

中国自动驾驶道德决策因素分析

林依婷[1] 康良凯[1,2] 毛金阳[1] 倪正山[1] 郑新夷[1]（通讯作者）
1 福州大学心理系，福州，350100 2 中国科学院心理系，北京，100000

摘 要 随着自动驾驶技术在实际应用中的广泛普及，解决其面临的道德伦理问题的需求愈发紧迫。然而，在以人类道德决策为基础构建机器道德时，主要面临的挑战在于解释人类道德决策的偏差。此外，现有的关于道德偏好的研究主要以欧美群体为主，包括韩国、日本、中国等多个亚洲国家，缺乏以中国群体为背景的自动驾驶道德决策偏好相关研究。本研究以当代中国为研究背景，开展了四个自动驾驶道德困境的问卷调查，旨在探索中国群体在自动驾驶道德决策偏好方面的特点。

首先，第一个研究调查了中国群体在自动驾驶决策中的道德偏好。研究一招募了 2604 名被试，采用道德机器问卷调查在当代中国社会观念情境下，人们对于自动驾驶汽车的道德偏好差异趋势。与全球东方地区（Eastern）偏好趋势对比表明，中国地区更倾向于保护年轻人、保护乘客，而东方地区更倾向保护老年人和行人，更注重遵守交通法规。

其次，第二个情境实验在研究一的基础上进一步探索了道德决策偏偏好的心理机制，涉及到的道德困境包括年龄和社会地位，在不同视角（乘客、行人和旁观者）的基础上研究了决策视角和决策模式对于自动驾驶道德困境决策偏好的影响。结果表明，无论面临何种道德困境，人们的道德决策都会受到决策视角和决策模式的影响。

这些实验结果表明，基于不同的决策视角，人们更倾向于保护各自视角所处角色的利益。本研究揭示了中国群体在自动驾驶道德决策中的偏好特点，并探讨了决策视角和决策模式对于道德困境决策的影响。这些研究结果对于自动驾驶技术的发展和实际应用具有重要意义和参考价值，也提醒人们在普及自动驾驶技术的同时，必须重视解决其中涉及的伦理道德问题。

关键词 自动驾驶、道德决策偏好、决策模式、决策视角

问题管理家（PM+）改善抑郁症状：来自行为和脑电的证据

郭阳[1] 张景宜[1]（共同作者） 崔亚楠[1] 崔雨秋[1] 余凤琼[1,2]（通讯作者）
[1]安徽医科大学精神卫生与心理科学学院，合肥，230032
[2]安徽医科大学第二附属医院转化医学研究中心，合肥，230032，yufengqin1@163.com

摘 要

目的 抑郁特质是我国大学生面临的重要心理健康问题，如没有得到及时干预，很有可能进一步发展为抑郁症，进而导致自杀行为等。问题管理家（problem management plus, PM+）是 WHO 于 2016 年推出的，整合了 CBT、行为激活、正念和人际关系治疗疗效因子的一种心理干预技术。本研究使用金钱与社会结合的奖赏延迟任务，结合事件相关电位考察了 PM+对抑郁特质的干预作用及其认知神经机制，探究其是否可以作为一种简单、短程、高效的手段有效改善抑郁症状。

方法 将 52 名抑郁特质大学生随机分为实验组和对照组，对实验组进行五次问题管理家干预。两组被试干预前后需要完成抑郁症自评量表（PHQ-9、社会性快感缺失量表(RSAS)及奖赏延迟任务并进行脑电数据采集，以此来评估干预效果。使用 SPSS26.0 对数据进行卡方检验、t 检验及方差分析。

结果 干预后两组 PHQ-9、RSAS 均比治疗前降低，干预后实验组 PHQ-9、RSAS 总分低于对照组(PHQ-9：$F_{1,43}$ = 10.460，p =0.002；RSAS：$F_{1,43}$ = 4.784, p =0.034)。干预后，在金钱和社会任务中，两组的击中率均有提高（p =0.007）；在社会任务中，干预后，PM+组在奖赏条件下击中率显著高于对照组（低奖赏：t=2.24，p =0.031，高奖赏：t=2.16，p =0.037），两组有奖赏条件下反应时比干预前更短（$F_{84,2}$=4.734，p =0.011）。最后，PM+组与奖赏处理相关的 ERP 成分 Cue-P3 在金钱任务中，其平均波幅时间和组别存在边缘显著的交互作用（$F_{41,1}$=3.877，p =0.056）；在社会任务中，干预后 pm+组高奖赏条件引起的 cue-P3 平均波幅显著大于低奖赏条件（$F_{40,2}$=7.875，p =0.001）。

结论 本研究是首次通过被试的自我评估、奖励延迟任务行为学及与奖赏过程相关的 ERP 成分来证明，问题管理家可以有效改善抑郁特质人群的快感缺失。

关键词　问题管理家，抑郁，事件相关电位

Problem Management Plus (PM+) Improve Depressive Symptoms:Behavioral and EEG Evidence

Yang Guo[1] Jingyi Zhang[1] Yanan Cui[1] Yuqiu Cui[1] Fengqiong Yu[1,2]

[1]School of Mental Health and Psychological Sciences, Anhui Medical University, Hefei, 230032
[2]Research Center for Translational Medicine, The Second Hospital of Anhui Medical University, Hefei, 230032，yufengqin1@163.com

***Abstract*:**

Objective Depression is an important mental health problem faced by college students in China, and without timely intervention, it is likely to further develop into depression, which may lead to suicidal behaviors and so on. Problem management plus (PM+) is a psychological intervention technique introduced by WHO in 2016 that integrates CBT, behavioral activation, positive thinking, and interpersonal therapy efficacy factors. The present study examined the interventional effects of PM+ on depressive states and its cognitive-neurological mechanisms in conjunction with event-related potentials using a reward-delay task that combines money and society to investigate whether it can be effective as a simple, short-course, and highly effective means of ameliorating depressive symptoms.

Methods Fifty-two college students with depressive traits were randomly divided into an experimental group and a control group, and the experimental group was given five sessions of the Problem Management Home intervention. The subjects in both groups were required to complete the Depression Self-rating Scale (PHQ-9, the Social Pleasure Deficit Scale (RSAS) and the Reward Delay Task with EEG data collection before and after the intervention as a way of assessing the effect of the intervention. Data were analyzed by chi-square test, t-test and ANOVA using SPSS 26.0.

Results The PHQ-9 and RSAS were lower in both groups after the intervention than before the treatment, and the total PHQ-9 and RSAS scores were lower in the experimental group than in the control group after the intervention (PHQ-9: $F_{1, 43}$ = 10.460, p = 0.002; RSAS: $F_{1, 43}$ = 4.784, p = 0.034). After the intervention, hit rates increased in both groups in the money and social tasks (p = 0.007); in the social task, after the intervention, the PM+ group had a significantly higher hit rate than the control group in the reward condition (low reward: t = 2.24, p = 0.031, high reward: t = 2.16, p = 0.037), and the response time was shorter in the reward condition in both groups compared to the pre-intervention period ($F_{84,2}$ = 4.734, p =0.011). Finally, the PM+ group altered the strength of the ERP component associated with reward processing, with a borderline significant interaction between Cue-P3 mean amplitude time and group in the money task ($F_{41,1}$= 3.877, p =0.056); in the social task, the post-intervention PM+ group elicited significantly greater Cue-P3 mean amplitude in the high reward condition than in the low reward condition ($F_{40,2}$= 7.875, p =0.001).

Conclusion The present study is the first to demonstrate that a problem manager is effective in improving depressive symptoms and anhedonia through subjects' self-assessment, reward-delay task behaviorology, and ERP components associated with the reward process.

Keywords：Problem manager plus, Depressive, Anhedonia, Event-related potentials

静息状态下与肥胖相关的内在功能连接改变:人类连接组项目数据分析

王彤彤 [1], 庄乾 [1, 2], 陈帅禹 [1, 2*]

[1] 杭州师范大学附属医院，浙江省杭州市，310000

[2] 杭师大心理科学研究院，浙江省杭州市，310000

* 通讯作者 E-mail: daozhezifei@163.com (S.-Y. Chen)

摘 要

背景：肥胖已成为一个全球性的公共卫生问题，并且会对人类大脑功能造成损伤。近些年，静息状态功能磁共振成像(rsfMRI)技术已经被证明能够揭示肥胖个体的大脑功能的变化。

目的：我们采用 rsfMRI 来探究肥胖者和正常体重者的大脑内部活动的差异，并进一步探究其与神经递质以及执行功能之间的相关性。

方法：我们从公开的人类脑连接组项目（Human Connectome Project, HCP）中选取 489 名健康志愿者数据，并按照身体质量指数（Body Mass Index，BMI）来分成肥胖组（OB，BMI≧30kg/m2）和健康体重组（NW， BMI：20-24 kg/m2）。所有的被试都进行了静息态功能影像和结构影像的扫描。我们对所有的参与者都计算了内在连通性对比度（ICC），分数低频振幅（fALFF）和功能连接（FC）指标，并通过独立样本 T 检验分析两组之间的差异。之后，我们利用皮尔逊相关分别计算了由肥胖引起的 ICC 和 fALFF 的变化与大脑内神经递质活性之间的空间相关性。最后，我们计算了静息态指标的变化与执行控制功能之间的相关性。

结果：与正常体重者相比，肥胖者的 ICC 和 fALFF 值在背外侧前额叶（DLPFC）和左侧脑岛上都发现了显著的升高，这两个区域分别是额定网络（FPN）和突显网络（SN）的重要组成部分。功能连接的结果显示，右侧 DLPFC 与楔前叶的 FC 增强，而与与左侧中央前回、左侧中央后回和双侧中央旁小叶之间 FC 减少。左侧脑岛与左侧顶叶下小叶、右侧额叶中回和右侧舌回之间 FC 增强。相关性分析显示，两组之间的 ICC 的变化与去甲肾上腺素系统（DAT）有关，而 fALFF 的变化与多巴胺受体（D1）有关。此外，右侧DLPFC与中央旁小叶之间的FC与认知灵活性呈正相关。两侧小脑（cerebellum crus2）和右侧颞极的fALFF值与冲动性评分呈负相关。

结论：肥胖者在静息状态下，在与执行控制、自我评价和情绪处理相关的脑区发生了功能变化，为肥胖的神经生理基础和治疗肥胖的潜在神经靶点提供了进一步的证据。

关键词　肥胖，静息状态 fMRI，内在连通性对比，低频波动幅度分数，功能连通性

Obesity-related alterations of intrinsic functional architecture in Human Connectome Project: A resting-state fMRI study

Tong-Tong Wang [1], Qian Zhuang[1,2], Shuai-Yu Chen[1,2*]

[1] Center for Cognition and Brain Disorders, School of Clinical Medicine and the Affiliated Hospital of Hangzhou Normal University, Hangzhou, Zhejiang Province, PR China

[2] Institutes of Psychological Sciences, Hangzhou Normal University, Hangzhou, Zhejiang Province, China

* E-mail addresses: daozhezifei@163.com (S.-Y. Chen)

Abstract:

Background: Obesity has become a global public health problem and has been shown to have an adverse effect on human brain function. Resting-state functional magnetic resonance imaging (rsfMRI) techniques have proven invaluable in unraveling the neurobiological underpinnings of obesity.

Purpose: To evaluate the differences in intrinsic brain activity between the obesity people and normal-weight people and further explore its correlation with neurotransmitter activity and executive function.

Methods: A total of 489 individuals from the publicly available Human Connectome Project (HCP) database were selected and assigned to one of two groups: 1) the obesity (OB, BMI ≧ 30 kg/m2) group and 2) the normal-weight (NW, BMI: 20-24 kg/m2) group, based on body mass index (BMI). All participants underwent resting-state fMRI (rs-fMRI) and T1-weight imaging. Parameters for the intrinsic connectivity contrast (ICC), fractional amplitude of low-frequency fluctuation (fALFF), and functional connectivity (FC) were estimated and compared between two groups. Then, the spatial correlation between obesity-induced alteration in ICC and fALFF and PET- and SPECT-derived maps was respectively estimated. Finally, we calculated correlation between altered MRI parameters and executive function measurements.

Results: Compared with normal-weight people, obesity people showed increased ICC and fALFF in the right dorsolateral prefrontal cortex (DLPFC) and left insula, which are important components of Frontoparietal Network (FPN) and Salience Network (SN), respectively. FC enhancing was observed between right DLPFC and precuneus, left insula and left inferior parietal lobule (IPL), right middle frontal gyrus (MFG) and right lingual gyrus. FC decreasing was observed between right DLPFC and left precentral, left postcentral gyrus and bilateral paracentral lobules. Cross-modal correlations displayed that the changes of ICC and fALFF were respectively related to the noradrenaline system (NAT) and dopamine receptor (D1). The FC between right DLPFC and paracentral lobule was positively associated with cognitive flexibility (as measured by the Dimensional Change Card Sort Task). Additionally, the fALFF value in the bilateral cerebellum crus2 and right temporal pole was significantly negatively correlated with the impulsivity (as measured by the Delay Discounting Task).

Conclusion: These results demonstrate functional changes in brain regions associated with execution control, self-evaluation, and emotional processing in obese people even in the resting state, providing further evidence of the neurophysiological basis of obesity and potential neural targets for the treatment of obesity.

Keywords: obesity, resting-state fMRI, intrinsic connectivity contrast, fractional amplitude of low-frequency fluctuation, functional connectivity

高社交焦虑者在自我相关信息与外部社交线索之间的注意偏向

侯雅贤[1] 高雯[1]（通讯作者）郭笑笑[1]

1 辽宁师范大学心理学院，大连，116029，gaowen@lnnu.edu.cn

摘 要　与低社交焦虑者相比，高社交焦虑者对自我相关信息和外部威胁刺激都表现出较多的注意偏向。一些研究考察了高社交焦虑者在自我相关信息与外部社交线索之间的注意偏向，但没有得出一致的结论。因此，本研究使用修改的点探测任务，记录了 16 名高社交焦虑者和 20 名低社交焦虑者对三种“自我中性-他人情绪”面孔对的反应时和脑电。结果显示，两组被试对自我相关信息的反应时更快并且受到了不同情绪效价的调节。高社交焦虑组比低社交焦虑组对所有面孔对都产生了更大的 P1 波幅和更小的 N170 波幅；两组被试在自我-中性与他人-愤怒面孔对上诱发的 P2 波幅比另外两种面孔对都更大。这些结果表明，两组

被试会将注意资源优先分配到自我相关信息上，愤怒面孔对这种资源分配的影响最大。与低社交焦虑者相比，高社交焦虑者对面孔对都表现出更多的注意警觉和更少的结构编码并对自我-中性与他人-愤怒面孔对投入了更多的注意资源。

关键词　社交焦虑，注意偏向，自我相关信息，外部线索，ERP

Attentional bias between self-relevant information and external social cues in people with high social anxiety

Yaxian Hou[1] Wen Gao[1](Corresponding author) Xiaoxiao Guo[1]

1School of Psychology, Liaoning Normal University, Dalian, 116029, gaowen@lnnu.edu.cn

Abstract： Compared to low social anxiety individuals, high social anxiety individuals show a more significant attentional bias toward self-relevant information and externally threatening stimuli. Several studies have examined the attentional bias between self-relevant information and external social cues in high social anxiety individuals, but no consistent conclusions have been drawn. Therefore, the present study used a modified dot-probe task to record the response times and EEGs of 16 high-social-anxious and 20 low-social-anxious subjects in three "self-neutral-other-emotional" face pairs. Results showed that both groups responded faster to self-relevant information and were moderated by different emotional potencies. The high social anxiety group produced larger P1 amplitudes and smaller N170 amplitudes than the low social anxiety group for all face pairs, and both groups evoked larger P2 amplitudes for the self-neutral and other-angry face pairs than for the other two face pairs. These results suggest that subjects in both groups prioritize allocating attentional resources to self-relevant information, with angry faces having the most significant effect on this resource allocation. High social anxiety individuals showed more attentional vigilance and less structural encoding. They devoted more attentional resources to the self-neutral versus other-angry face pairs than low social anxiety individuals.

Keywords： social anxiety, attentional bias, self-related information, external social cues, ERP

职场排斥与离职倾向的关系：一个链式中介模型

苏春华[1,2]（通讯作者） 邹雨蓓[1] 韩宗义[1] 赵翔[1]

1 天津师范大学心理学部，天津，300387，3331596948@qq.com

摘　要　职场排斥就是发生在工作场所的排斥行为，是指在工作场所中员工主观感受到的他人对自己的忽略、排挤和拒绝。近年来，我国学者对职场排斥的研究热度越来越高，也让更多的人认识到了其中危害。职场排斥作为一种较为隐晦的职场负面行为其危害也是不可小觑的。研究表明，职场排斥会直接或间接的导致职场偏差行为并且会降低员工的工作表现。离职倾向是员工离职前的一种心理状态，受多种因素的影响，当发生离职行为时无疑会给组织带来较大人力成本的损失。本研究以资源保存理论、社会交换理论和社会认同理论为基础探讨职场排斥与离职倾向之间的关系，引入了情绪耗竭和工作投入两个中介变量。以天津市、河南省、山东省、广东省等地区的 423 名在职员工为研究对象，采用职场排斥量表、工作倦怠量表中的情绪耗竭维度、工作投入简短量表和离职倾向量表四个量表收取了问卷数据。具体来讲，当个体遭受到职场排斥时需要耗费自身资源加以应对，自身资源的持续消耗会导致情绪耗竭，没有更多的资源持续投入到工作中去，进而降低个体的工作投入，在工作中无法获取到有效的资源最终产生离职的想法。

关键词　职场排斥，情绪耗竭，工作投入，离职倾向

面部遮挡对错误辨认和错误记忆的影响：基于误导信息范式

程伊敏　肖鑫　孙铭谣　王俭勤（通讯作者）
复旦大学心理学系，上海，200433，wiq@fudan.edu.cn

摘 要　新冠肺炎的全球大流行使得戴口罩成为一个必要的防疫措施，即使在疫情结束后很多人在公共场合中依旧保持了佩戴口罩的习惯。已有研究发现，采用口罩遮挡的面孔会损害被试面孔再认任务的表现。目击证人常常需要进行面孔的指认，目击者的错误记忆可导致司法系统的错误定罪。然而，目前还没有研究探讨过面部遮挡对目击证人错误辨认和错误记忆的影响。因此，本研究将在误导信息范式下，考察罪犯用口罩遮挡面部对目击证人的错误辨认和错误记忆产生的影响。实验 1 测试了 140 位被试，采用 2（罪犯是否戴口罩：是、否）×2（误导信息：有、无）两因素被试间设计，被试在观看罪犯戴或不戴口罩的犯罪视频后，阅读包含误导信息（罪犯眼睛周围有大痣）或不含误导信息的笔录，48 小时后填写记忆测试问卷并完成队列辨认。结果发现，观看戴口罩罪犯的被试更不容易受到误导信息的影响，错误记忆率和错误辨认率更低。这可能说明，口罩破坏了对人脸的整体加工，使人们对局部特征信息（眼睛）的记忆更加清晰。已有研究发现编码一致性可以提高证人的辨认表现，但是也有关于面孔再认的研究没有得出相似的结论，实验二进一步考察在误导信息条件下口罩佩戴与否是否存在编码一致性。实验 2 测试了 200 位被试，采用 2（罪犯是否戴口罩：是、否）×2（队列是否戴口罩：是、否）两因素被试间设计，被试观看视频后，均阅读含误导信息的笔录，实验程序同实验 1。在误导信息条件下，结果支持了“编码一致性”，即当视频的口罩条件和队列的口罩条件一致时，被试的正确辨认率相比不一致时更高。倘若罪犯是佩戴口罩的，那么呈现戴口罩的队列可以降低选择误导面孔的概率，并提高正确辨认率。这可能说明，司法辨认中，倘若罪犯在行凶时佩戴口罩，那么对目击者呈现佩戴口罩的队列可以减少口罩带来的认知损害。

关键词　目击证人，错误辨认，错误记忆，误导信息范式，面部遮挡

The Effects of Facial Masking on False Identification and False Memory: A Misinformation Paradigm Study

Yimin Cheng, Xin Xiao, Mingyao Sun, Jianqin Wang
Department of Psychology, Fudan University, Shanghai

***Abstract*:** The global COVID-19 pandemic has made wearing masks a necessary preventive measure, and even after the pandemic, many individuals continue to maintain the habit of wearing masks in public settings. Previous research has found that covering the face with a mask impairs performance on face recognition tasks. Eyewitnesses are often required to make face identifications, and incorrect memory of eyewitnesses can lead to wrongful convictions. However, there is currently no research exploring the impact of facial masking on eyewitness misidentification and false memory. Therefore, this study aims to investigate the effects of using masks to cover the face of a perpetrator on eyewitness misidentification and false memory, using the misinformation paradigm.Experiment 1 involved 140 participants in a 2 (Perpetrator with mask: yes, no) × 2 (Misinformation: yes, no) between-subjects design. After watching a crime video in which the perpetrator either wore a mask or did not wear a mask, participants read a transcript containing either misleading information (a large mole around the perpetrator's eyes) or no misleading information. After 48 hours, participants completed a memory test questionnaire and a lineup

identification task. The results showed that participants who observed a perpetrator wearing a mask were less susceptible to the influence of misleading information, with lower rates of false memory and misidentification. This finding suggests that masks disrupt holistic processing of faces, leading individuals to have clearer memory for local facial features (e.g., the eyes).Previous research has shown that encoding consistency can improve witness identification performance. However, findings on face recognition have not consistently supported this conclusion. Experiment 2 further examined whether encoding consistency exists in the presence of misleading information when it comes to wearing masks. This experiment involved 200 participants in a 2 (Perpetrator with mask: yes, no) × 2 (Lineup with mask: yes, no) between-subjects design. Participants watched a video and subsequently read a transcript containing misleading information. The experimental procedure was the same as in Experiment 1. Under the condition of misleading information, the results supported the "encoding consistency" effect, indicating that when the mask condition in the video matched the mask condition in the lineup, participants had higher correct identification rates compared to when they were inconsistent. If the perpetrator was wearing a mask, presenting a lineup with individuals wearing masks reduced the probability of selecting a misleading face and increased correct identification rates. This suggests that in forensic identification, if the perpetrator wore a mask during the crime, presenting lineups with individuals wearing masks can mitigate the cognitive impairment caused by masks.

Keywords：Eyewitness, misidentification, false memory, misinformation paradigm, facial masking

ChatGPT 对以学生者为中心的教学法的启示：将 ChatGPT 作为英语写作和口语学习的教师、伙伴和评估工具

张丹丹[1] 李俊辉[1] 孙艺[1] 刘恒[1] 郭栋（通讯作者）

1 四川师范大学脑与心理科学研究院，成都，610066，dongguo@sicnu.edu.com

摘 要 ChatGPT 是一款先进的语言生成模型，作为一个相对更为拟人化的人工智能，在众多领域都具有引发新变革的潜力。目的：本研究(N=107)旨在把英语作为学习主题，探讨利用 ChatGPT 实施以学习者为中心的教育法（Learner-Centered Pedagogy，简称 LCP）的途径。方法：实验 1 采用随机对照设计，考察 ChatGPT 能否胜任教师的角色；实验 2 考察的是 ChatGPT 生成测试题并评分的能力；实验 3 则探讨了 ChatGPT 在合作学习中扮演对话伙伴的作用。结果：实验 1 的结果表明，在 ChatGPT 上的学习显著提高了学习者的写作水平，减少了其消极情绪。在词汇习得上，ChatGPT 的提升效果也超越了基于视频的大规模在线开放课程（Massive Open Online Courses，简称 MOOCs）。实验 2 表明，ChatGPT 生成的测试题具有良好的信效度，同时它也可以作为评分工具，并提供个性化的反馈。实验 3 揭示了 ChatGPT 辅助口语练习能显著提高口语能力同时减少焦虑等负性情绪。交叉滞后分析的结果揭示出了学习者的状态焦虑和口语能力之间互为因果关系，这说明 ChatGPT 辅助的口语练习有助于将口语学习中的恶行循环转化为正性循环。本研究揭示了在以学习者为中心的教育法领域，ChatGPT 相对于 MOOCs 的独特优势。此外，还提出了 Chat-MOOCs 的概念，将两种方法的优势整合在一起，也许具有成为在线以学习者为中心的教学法的新形式的潜力。

关键词 ChatGPT，以学习者为中心教育法，英语学习，焦虑

ChatGPT Affordances Learner-Centered Pedagogy: Utilizing

ChatGPT as Teacher, Partner, and Assessment Tool for English Learning in Writing and Speaking

Dandan Zhang[1] Junhui Li[1] Yi Sun[1] Heng Liu[1] Dong Guo*

1 Institute of Brain and Psychological Sciences, Sichuan Normal University, Chengdu, 610066,dongguo@sicnu.edu.com

Abstract：ChatGPT is an advanced language generation model. As a more anthropomorphic artificial intelligence, it has the potential to trigger new changes in many fields.Objective: This study(*N*=107) aims to explore ways to use ChatGPT to implement Learner-Centered Pedagogy (LCP) with English as a learning theme.Methods: In experiment 1, a randomized control design was used to investigate whether ChatGPT was qualified for the role of teacher. Experiment 2 examined ChatGPT's ability to generate quiz questions and rate answers; Experiment 3 explores the role of ChatGPT as a dialogue partner in cooperative learning.Results: The results of experiment 1 showed that learning on ChatGPT significantly improved learners' writing skills and reduced their negative affect. ChatGPT also improves vocabulary acquisition beyond video-based Massive Open Online Courses (MOOCs).Experiment 2 shows that the test questions generated by ChatGPT have good reliability and validity, and it can also be used as a scoring tool and provide personalized feedback.Experiment 3 revealed that oral practice assisted by ChatGPT can significantly improve oral ability and reduce negative affect such as anxiety.The results of cross-lagged analysis revealed the mutual causal relationship between learners' state anxiety and oral ability, indicating that ChatGPT-assisted oral practice can help transform the negative cycle into a positive cycle in oral learning. This study reveals the unique advantages of ChatGPT over MOOCs in the field of learner-centered pedagogy.In addition, the concept of Chat-MOOCs has been proposed, bringing together the strengths of both approaches and perhaps having the potential to become a new form of online learner-centred pedagogy.

Keywords: ChatGPT, learner-centered pedagogy, English learning, anxiety

中国大学生寻求专业心理帮助的态度转变：横断历史元分析

曾莉[1]，杨文睿[1]

1 云南师范大学教育学部，昆明，650500

第一作者：曾莉 手机号：19971848493 邮箱：zengl487@gmail.com

通讯地址：云南省昆明市呈贡区聚贤街 879 号

通讯作者：曾莉 zengl487@gmail.com

摘 要 随着我国社会的变迁，精神和心理疾病的患病率逐年升高，人民心理健康状况逐渐受到关注。已有的西方背景下的研究显示，虽然对心理卫生门诊和心理健康服务的使用有所增加，但是人们对寻求专业心理帮助的态度却更加消极。为了解我国大学生对于寻求专业心理帮助态度是否随着时代变迁、经济发展、社会历史文化的改变等有所变化，本研究使用横断历史元分析的方法，来考察大学生寻求专业心理帮助随着年代的变化情况，为心理求助态度的变化提供实证的证据，以分析变化产生的原因。本研究选取了数据收集年代在 2008-2021 年间使用郝志红等修订的寻求专业心理帮助态度问卷（ATSPPH）的 34 项研究，总人数为 26572 名大学生。研究结果表明：（1）在控制文献来源、高校所在地和样本人数的情况下，年代可以显著正向预测大学生寻求心理帮助的态度($\beta = 0.48$, $t = 3.29$, $p<0.01$, $\Delta R^2 = 0.32$)，我国大学生对于

寻求专业心理帮助的态度在过去的 14 年间上升了 1.27 个标准差，这表明我国大学生对寻求心理帮助的态度随年代逐渐变得更为积极。（2）年代能够正向预测大学生对寻求专业心理帮助的自我需求认知(β = 0.58, t = 3.86, p < 0.05, ΔR^2 = 0.60)；而年代对其余维度的预测作用不显著，可见对于心理求助的认知随着年代的变迁产生了较大的改变，而对于心理咨询的污名的忍受、人际开放度和对心理健康服务人员的信心并未随着时代产生较大变化。（3）大学生寻求心理帮助的态度随年代变化中存在性别差异，14 年间，男女生在寻求心理帮助的态度上都存在着正向的转变，但是男生的变化量（Cohen'd = 1.00）小于女生（Cohen'd = 1.56）。（4）大学生寻求专业心理帮助的态度与经济发展指标 GDP（r = 0.41，p<0.05）、居民人均可支配收入（r = 0.40，p<0.05）呈现正相关；基本医疗保险支出（r = 0.37，p < 0.05）成正相关，说明国家快速的经济发展、消费和医疗水平的提升，对于大学生寻求专业心理帮助具有正向的影响。

关键词　专业心理求助，大学生，横断历史元分析

Changes in attitudes toward seeking mental health services: A cross temporal meta-analysis

Li Zeng[1]; Wenrui Yang[1]

1 Psychology Department, School of Education ,Yunnan Normal University,Kunming,650500

First author: Li Zeng, Cell-phone：19971848493, E-mail：zengl487@gmail.com

Address： No.768, Juxian street, Chenggong District Kunming, Yunnan

Abstract：As China undergoes societal changes, the prevalence of mental and psychological illnesses are increasing which has raised a lot of concerns.Existing research from a Western context has shown that despite an increase in the utilization of mental health clinics and services, people's attitudes towards seeking professional psychological help have become increasingly negative over time. Help seeking attitudes are thought to be a key barrier to mental health service use, although little is known about whether such attitudes have changed over time. Research on this topic is mixed with respect to whether help seeking attitudes have become more or less positive with the significant societal changes. The aim of the current study was to help clarify this issue using a cross-temporal meta-analysis of scores on Hao and Liang help seeking attitude measure among university students (N= 26572) from 2008 to 2021. Results indicated that: attitudes have become increasingly positive over time,when controlling factors such as source of literature, geographical location of the university,which the data are weighted (w) for sample size and study variance(β = 0.48,t = 3.29,p<0.01, ΔR^2 = 0.32).Over the past 14 years, Chinese university students' attitudes toward seeking professional psychological help have increased by 1.27 standard deviations, suggesting a gradual shift towards a more positive attitude. (2) The era also positively predicted university students' self-perceived need for seeking professional psychological help (β = 0.58, t = 3.86, p <0.05, ΔR^2 = 0.60). However, the era did not significantly predict other dimensions, indicating that cognitive changes in seeking psychological help have undergone substantial shifts over the years, while tolerance of the stigma associated with psychological counseling, interpersonal openness, and confidence in mental health service providers have not changed significantly over time. (3) Gender differences were observed in the evolution of university students' attitudes toward seeking psychological help over the 14-yearperiod. Both male and female students exhibited positive changes in their attitudes, but the magnitude of change was smaller for males (Cohen's d = 1.00) compared to females (Cohen's d = 1.56). (4) College students' attitudes towards seeking professional psychological help were positively correlated with economic development indicators, including GDP (r=0.41, p<0.05), per capita disposable income (r=0.40, p<0.05), and basic medical insurance expenditure (r=0.37, p<0.05).

This suggests that the rapid economic development, increased consumerism, and improved healthcare accessibility in the country have had a positive impact on university students' willingness to seek professional psychological help.

Keywords：college student，attitude of seeking professional mental help，meta analysis,

家庭喂养行为及其预测性因素与学前儿童体质指数的追踪研究

姜朝玮[1]　翟相颖[1]　郝翠荣[1]　周楠[1]（通讯作者）

1 首都师范大学学前教育学院，北京，100048，nanzhou@cnu.edu.cn

摘　要　近年来，我国儿童超重/肥胖发生率逐年攀高。超重/肥胖问题不仅给儿童的日常生活、学习带来诸多不便，还会对他们身心健康发展产生深远影响。家长作为儿童最初的食物提供者和控制者，其喂养行为与儿童体质健康关系密切(Zhou& Cheah, 2015)。Belsky(1984)的养育过程模型和 Abidin(1995)的亲职压力模型指出，来自儿童特征、家长特征以及社会支持多方面的影响能够显著预测家长教养压力和喂养行为，并最终影响儿童的身心发展。此外，不同程度的教养压力也会影响家庭喂养行为的选择(Morales-Alducin et al., 2021)。在此基础上，本研究考查儿童抑制控制、母亲心理幸福感和婚姻质量对教养压力和喂养行为的预测性及与学前儿童体质指数的纵向关联，以及教养压力和家庭喂养行为在其中的链式中介作用。

本研究以 209 名小班幼儿(M_{age} = 3.36 , SD = 0.28; 男生 124 名)及其母亲(M_{age} = 35.6, SD = 3.26)为被试，并对其进行为期三年的追踪研究。分别在小班(T1)测量儿童的抑制控制(Sabbagh, 1997)、母亲的心理幸福感(Ryff, 1995)和婚姻质量(Busby, 1995)；在中班(T2)测量母亲的教养压力(Crnic, 1990)；在大班(T3)测量母亲的喂养行为(Birch et al., 2001; Musher, 2007)及儿童的体质指数(超重肥胖率 27.3%)。采用 Mplus8.0 建立结构方程模型进行链式中介效应检验。

结果发现：(1)母亲教养压力 T2 在儿童抑制控制 T1、母亲心理幸福感 T1、婚姻质量 T1 和鼓励性喂养行为 T3 之间起完全中介作用。模型各项拟合值均在可接受范围之内，$\chi^2/df = 1.49$, $p < 0.001$; RMSEA = 0.05; 95%CI [0.03, 0.06]; CFI = 0.95; SRMR =0.05。(2)儿童抑制控制、母亲心理幸福感和婚姻质量能够通过两条间接路径影响儿童体质指数，模型各项拟合值均在可接受范围之内，$\chi^2/df = 1.45$, $p < 0.001$; RMSEA = 0.05; 95%CI [0.03, 0.06]CFI = 0.95; SRMR = 0.05。两条间接路径分别为：儿童抑制控制、母亲心理幸福感和婚姻质量通过母亲教养压力影响儿童的体质指数，以及儿童抑制控制、母亲心理幸福感和婚姻质量通过母亲教养压力和鼓励性喂养行为影响儿童的体质指数。

本研究初步揭示了家庭喂养行为及其预测性因素对学前儿童体质指数的预测作用。较低的儿童抑制控制水平、母亲心理幸福感和婚姻质量都会显著预测较高的母亲教养压力，这不仅会直接负向预测儿童的体质指数，还会通过减少母亲的鼓励性喂养行为而间接对儿童体质指数产生消极影响。本研究结果将为我国城市家庭提供科学合理的养育指导，以促进儿童体质健康。

关键词　家庭喂养行为，抑制控制，心理幸福感，婚姻质量，教养压力，体质指数

A longitudinal study of family feeding and its predictive factors with preschool children's body mass index

Chaowei Jiang　Xiangying Zhai　Cuirong Hao　Nan Zhou

College of Preschool Education, Capital Normal University, Beijing, 100048

Abstract: In recent years, the incidence of overweight/obesity among children in China has been rising year

by year. The problem of overweight/obesity not only brings a lot of inconvenience to children's daily life and study, but also has a far-reaching impact on their physical and mental health development. Parents, as the initial food providers and controllers of children, have a close relationship between their feeding behaviors and children's physical health (Zhou & Cheah, 2015).Belsky's (1984) model of the parenting process and Abidin's (1995) model of parenting stress pointed out that influences from multiple aspects of children's characteristics, parents' characteristics, and social support can significantly predict parenting stress and feeding behaviors, and ultimately influence children's physical and psychological development. In addition, different levels of parenting stress can also influence the choice of family feeding behaviors (Morales-Alducin et al., 2021).On this basis, the present study examined the predictability of child inhibitory control, maternal psychological well-being, and marital quality on parenting stress and feeding behaviors and their longitudinal associations with preschool children's body mass index, as well as the chained mediating roles of parenting stress and family feeding behaviors therein.

In this study, 209 small-group children (M = 3.36, SD = 0.28; 124 boys) and their mothers (n = 209; M = 35.6, SD = 3.26) were utilized as subjects and followed up for three years. Children's inhibitory control (Sabbagh, 1997), mothers' psychological well-being (Ryff, 1995), and marital quality (Busby, 1995) were measured in the small class (T1); mothers' parenting stress (Crnic, 1990) was measured in the middle class (T2); and mothers' feeding behavior was measured in the large class (T3) (Birch et al. 2001; Musher, 2007), and the children's body mass index (27.3% overweight obesity rate). Structural equation modeling using Mplus 8.0 was used to conduct the chained mediation effect test.

The results found that (1) maternal parenting stress T2 fully mediated between child inhibitory control T1, maternal psychological well-being T1, marital quality T1, and encouraging feeding behavior T3. The model fit were all within acceptable limits, $\chi^2/df = 1.49$, $p < 0.001$; RMSEA = 0.05; 95% CI [0.03, 0.06]; CFI = 0.95; SRMR = 0.05. (2) Child inhibitory control, maternal psychological well-being, and marital quality were able to influence child body mass index through two indirect pathways. The model fit were all within acceptable limits, $\chi^2/df = 1.45$, $p < 0.001$; RMSEA = 0.05; 95% CI [0.03, 0.06]; CFI = 0.95; SRMR = 0.05. The two indirect paths were: child inhibitory control, mother's psychological well-being and marital quality influence children's body mass index through mother's parenting stress, and child inhibitory control, mother's psychological well-being and marital quality influence children's body mass index through mother's parenting stress and encouraging feeding behaviors, respectively.

The present study provides preliminary insights into the predictive role of family feeding behaviors and their predictive factors on preschool children's body mass index. Lower levels of child inhibitory control, maternal psychological well-being, and marital quality significantly predicted higher levels of maternal parenting stress, which not only negatively predicted children's body mass index (BMI) directly, but also negatively affected children's BMI indirectly by decreasing mothers' encouraging feeding behaviors. The results of this study will provide scientific and rational parenting guidance for urban families in China to promote children's physical health.

Keywords: family feeding behavior, inhibitory control, psychological well-being, marital quality, maternal parenting stress, body mass index

瑜伽锻炼对女性自我客体化的干预机制：短视频成瘾的中介作用

龙滢[1]　潘寒秋[1]　闫讷[1]　李玲[2]（通讯作者）

1 西安体育学院研究生部，西安，710068

2 西安体育学院心理学教研室，西安，710068，liling0530@163.com

摘 要　目的：探讨瑜伽对女性短视频成瘾和自我客体化的干预效果及其机制。方法：随机分配 74 名没有日常锻炼习惯的女大学生为实验组和对照组，实验组接受 8 周瑜伽练习，对照组不额外练习。干预前后分别使用自我客体化问卷和短视频成瘾量表进行测量。结果：(1)瑜伽干预、自我客体化与短视频成瘾均显著相关(R=-0.36～0.63，p＜0.01)。(2)实验组干预后自我客体化和短视频成瘾均显著低于干预前（F=19.35 和 F=10.78，p＜0.01），对照组两者无显著变化。(3)瑜伽锻炼对自我客体化有显著的负向直接效应（β=-0.46，p＜0.001），同时也通过降低短视频成瘾（β=-0.36,p＜0.01）而产生显著的负向间接效应（β=-0.18，p＜0.01）。结论：缺乏锻炼或过度使用短视频增加女性自我客体化风险，而瑜伽能有效降低自我客体化，并且这一效果部分是通过减少女性对于短视频成瘾水平而实现的。本研究揭示了瑜伽对提升女性身心健康的价值，也为防治自我客体化和短视频成瘾提供了方法。

关键词　瑜伽，自我客体化，短视频成瘾，干预，中介效应

The Intervention Effect of Yoga Exercise on Women's Self-Objectification: The Mediating Role of Addiction to Short Videos

LONG Ying[1] PAN Hanqiu[1] YAN Ne[1] LI Ling[1],*
1 Xi'an Physical Education University, Xi'an, China

Abstract ： Objective: We investigated how yoga intervention affects short video addiction and self-objectification in women, and examined the mediating role of short video addiction. Method: We randomly assigned 74 female college students to an experimental group or a control group. The experimental group underwent 8 weeks of yoga practice, while the control group did not receive any additional exercise. We used the self-objectification questionnaire and the short video addiction scale to assess the outcomes before and after the intervention. Results: (1) Yoga intervention, self-objectification, and short video addiction were significantly correlated (R=-0.36 ～ 0.63 ， p ＜ 0.01). (2) The experimental group showed significant decreases in self-objectification and short video addiction after the intervention compared to before (F=19.35 and F=10.78，p＜ 0.01), whereas the control group did not show any significant changes (F=1.20 and F=0.09，p＞0.05). (3) Yoga had a significant negative direct effect on self-objectification (β=-0.46， p＜0.001), and a significant negative indirect effect through reducing short video addiction (β=-0.36,p ＜ 0.01) (β=-0.18 ， p ＜ 0.01). Conclusion: Our study demonstrated that lack of exercise or excessive use of short videos increased the risk of female self-objectification, while yoga effectively reduced it, partly by lowering women's short video addiction level. Our study revealed the value of yoga for improving women's physical and mental health, and provided methods for preventing and treating short video addiction and self-objectification.

Keywords： Yoga, Self-objectification, Short video Addiction, Intervention, Mesomeric effect

人格障碍诊断问卷边缘性分量表的项目分析：基于项目反应理论

刘苏瑶 [1,2]，陈奇虹 [1,2]，罗兴伟 [1,2,3]，蚁金瑶 [1,2,3]
1 中南大学湘雅二医院医学心理中心，长沙，410011

2 中南大学医学心理学研究所，长沙，410011
3 国家精神心理疾病临床医学研究中心，长沙，410011
通讯作者：罗兴伟，luoxingwei6@csu.edu.cn
项目资助：【基金项目】国家自然科学基金 (82271573)

摘 要　目的：人格障碍诊断问卷（Personality Diagnostic Questionnaire-Fourth Edition Plus, PDQ-4+）是一种常用于筛查 12 种人格障碍的自陈式问卷。在科研与临床中，PDQ-4+的边缘性人格障碍（Borderline Personality Disorder, BPD）分量表被广泛用于筛选 BPD 个体。然而，虽然已有的研究支持了 PDQ-4+的 BPD 分量表具有良好的信效度，但其各个条目的特性仍有待进一步考察。本研究拟基于项目反应理论（Item Response Theory, IRT）对 PDQ-4+的 BPD 分量表的条目进行项目分析，为该量表的应用提供进一步依据。**方法：**1135 名心理门诊就诊患者（男性 471 人，女性 664 人，平均年龄 19.65±3.68 岁）和 789 名大学生被试（男性 268 人，女性 521 人，平均年龄 19.22±1.33 岁）完成了 PDQ-4+的 BPD 分量表。在 R 语言下采用多个程序包（bruceR、mirt、lordif、stats 等）进行数据处理。首先，通过验证性因素分析进行测验单维性检验、计算 Q_3 统计量考察项目间局部独立性检验，为进一步项目分析提供前提条件。其次，使用 Logistic 回归计算伪 R^2 变化量以检验性别的项目功能差异。最后，采用双参数 Logistic 模型分析 BPD 分量表的 9 个条目（0 与 1 计分），估计每个条目的区分度与难度以及计算项目和测验信息量。**结果：（1）**验证性因素分析结果提示 BPD 分量表结构良好（χ^2/df=8.486；RMSEA=0.062；CFI=0.928；TLI=0.903；SRMR=0.037）；任意两条目间计算的 Q_3 统计量均小于 0.36，满足局部独立性假设。（2）回归结果显示所有条目伪 R^2 变化量均小于 0.02，即性别在各条目上差异不显著。（3）9 个条目区分度参数 a 取值范围为 0.928~2.876，均达到中等以上区分度，难度参数 b 取值范围为-1.021~1.828。（4）9 个条目最大信息量范围为 0.215~2.068。测验信息函数曲线呈单峰形状，最大信息量为 5.204，提供信息量较少，整体质量较差。**结论：**PDQ-4+中文版边缘性人格障碍分量表的条目区分度良好，难度适中，支持其用于 BPD 的筛查，但由于项目信息量和测验信息量欠理想，需结合使用更客观的测评工具对 BPD 进行临床诊断。

关键词　项目反应理论，人格障碍诊断问卷，边缘性人格障碍，项目分析

Item Analysis on the Borderline Personality Disorder Subscale of Personality Diagnostic Questionnaire-Fourth Edition Plus: Based on Item Response Theory

LIU Su-yao[1,2], CHEN Qi-hong[1,2], LUO Xing-wei[1,2,3], YI Jin-yao[1,2,3]
1 Medical Psychological Center, Second Xiangya Hospital, Central South University, Changsha
2 Medical Psychological Institute, Central South University, Changsha
3 National Clinical Research Center for Mental Disorders, Changsha
luoxingwei6@csu.edu.cn

Abstract: **Objective** The Personality Diagnostic Questionnaire-Fourth Edition Plus (PDQ-4+) is a self-reported scale, which is commonly used to screen 12 personality disorders. The borderline personality disorder (BPD) subscale of PDQ-4+ has been broadly used to screen patients with BPD. Though the BPD subscale of PDQ-4+ has been proven to have good reliability and validity in clinical and research context, its items characters still need to be further evaluated. This study employed the item response theory (IRT) technique to evaluate the 9 items of BPD subscale, trying to provide more information for further researches. **Method** Participants were consisted of

two samples: 1135 outpatients from psychological clinic (471 males, 664 females, the average age was 19.65 years old, SD=3.68) and 789 undergraduates (268 males, 521 females, the average age was 19.22 years old, SD=1.33). All of them finished the BPD subscale of PDQ-4+. Several packages for the R environment were performed for data analysis as follows: bruceR, mirt, lordif, stats. Firstly, the one-factor structure of BPD subscale was examined with confirmatory factor analysis (CFA), and the local independency was examined with the Q_3 value. Secondly, logistic regression was used to test differential item functioning (DIF) across gender, which was evaluated by means of change in McFadden's pseudo R^2 (ΔR^2). Thirdly, the discrimination parameter (a) and difficulty parameter (b) of each item (dichotomous item) were estimated in a two-parameter logistic model. The item information of each item and test information were also calculated. **Result** (1) The CFA results evidenced the unidimensionality with well-fitting criteria (χ^2/df=8.846, RMSEA =0.062, CFI =0.928, TLI = 0.903 and SRMR=0.037). Every Q_3 value was lower than 0.36, which suggested that the BPD subscale also satisfied the assumption of local independence. (2) The logistic regression result showed that every ΔR^2 was lower than 0.02, meaning no significant gender difference. (3) The 9 discrimination parameters (a) ranged from 0.928 to 2.876, all meeting the medium or above values. The 9 difficulty parameters (b) ranged from -1.021 to 1.828. (4) The maximum value of item information of the 9 items ranged from 0.215 to 2.068, and the test information curve (TIC) was unimodal, with a maximum value of 5.204, suggesting that the BPD subscale could not provide enough psychometric information. **Conclusion** The BPD subscale of PDQ-4+ has a good ability in discrimination and medium difficulty. The item parameters of BPD subscale are acceptable and suitable for screening, while the item information and test information are not ideal yet, suggesting that the diagnosis of BPD needs assistance of a more objective instrument.

Keywords：item response theory, personality diagnostic questionnaire, borderline personality disorder, item analysis

生成式人工智能的虚假评论言语行为分析及人机比较研究：可解释性机器学习方法

周瑾宜[2] 黄英辉[1]（通讯作者） 李伟卿[3] 董王昊[2] 邓莎莎[4] 王伟军[2]

1. 武汉理工大学管理学院 中国湖北省武汉市珞狮路 122 号 430070
2. 华中师范大学心理学院 湖北省武汉市洪山区珞喻路 152 号 430079
3. 湖北工业大学经济管理学院 湖北省武汉市洪山区南李路 28 号 430068
4. 上海外国语大学国际工商管理学院 上海市松江区文翔路 1550 号 201620

通讯作者邮箱：huangyh@whut.edu.cn

摘 要 随着生成式人工智能（AI）技术的重大突破，其产生的在线虚假评论的数量可能会大幅度增长，进而对以电子口碑为核心的网络消费信息内容生态构成潜在威胁。亟需深入分析人类与生成式 AI 产生的虚假评论在语言行为上的差异，并提出针对性的识别方法及治理策略。本研究以人类评论者及 ChatGPT 为研究对象，从欺骗识别领域中的认知负荷理论、人际欺骗理论及现实监控理论的整合视角出发，构建认知负荷、确定性、情感、事件的距离、感知情境细节、认知过程六类语言线索体系，利用计算语言学及机器学习方法构建人类真实评论、人类虚假评论与生成式 AI 产生的虚假评论的解释性分类预测模型，并比较三者对关键性语言线索使用的差别，探讨生成式 AI 与人类在欺骗策略使用上的异同。实验结果表明，分类

预测模型的准确率、精确度、召回率、F 值和 AUC-ROC 值分别达到 89.24%、90.77%、90.23%、90.23%和98.05%。认知负荷(0.0361:p<0.001)、感知情境细节(0.0159:p<0.001)、情感(0.0072:p<0.001)等传统欺骗识别理论相关语言线索，以及所发现的非正式语言(0.0097:p<0.001)、个人关切(0.0091:p<0.001)语言线索均能显著提高模型的 AUC-ROC 值。针对三者在语言线索使用上的比较分析结果发现，生成式 AI 产生的虚假评论表现出最大的认知负荷（p<0.001）、最多的情绪表达（p<0.001）和个人关切（p<0.001），且更具正式性（p<0.001）与确定性（p<0.01）。在欺骗策略的使用方面，一方面，人类和 AI 生成的虚假评论均表现出相似的较低水平的认知负荷；另一方面，生成式 AI 更多地使用了与人类不同的欺骗策略：相对更多的个人关切相关语言线索（p<0.001）、积极和消极情绪表达（p<0.001）；相对更少认知过程语言线索（p<0.01）。此外，通过干预认知负荷，能够有效从部分维度区分真实和虚假评论，这种干预对识别 AI 产生的虚假评论尤其有效。本研究探索了人类与生成式 AI 在虚假评论言语行为的可区分性及表现差异，验证了欺骗识别相关理论在生成式 AI 产生的虚假评论识别中应用价值，有利于网络平台管理机构及企业制定更好的虚假评论监管机制，以应对生成式 AI 对网络消费信息内容生态造成的潜在重大风险。

关键词 生成式 AI，ChatGPT,欺骗识别，在线虚假评论识别，可解释性机器学习

Verbal Behavior Analysis and Human-Machine Comparison of Fake Reviews from Generative Artificial Intelligence: An Interpretable Machine Learning Approach

Jinyi Zhou[2], Yinghui Huang[1](Corresponding Author), Wanghao Dong[2], Weiqing Li[3], Shasha Deng[4], Weijun Wang[2]

1 School of Management, Wuhan University of Technology, 122 Luoshi Road, Wuhan, Hubei Province, China, 430070

2 School of Psychology, Central China Normal University, 152 Luoyu Road, Hongshan District, Wuhan, Hubei Province, 430079

3 School of Economics and Management, Hubei University of Technology, 28 Nanli Road, Hongshan District, Wuhan, Hubei Province, 430068

4 School of International Business Administration, Shanghai International Studies University, 1550 Wenxiang Road, Songjiang District, Shanghai, 201620

Corresponding author's email: huangyh@whut.edu.cn

Abstract： With the breakthrough progress of generative artificial intelligence technology, the online fake reviews it generates may grow massively, potentially seriously threatening the online consumer information content ecology. It is urgent to deeply analyze the differences in language behavior between human and generative artificial intelligence (AI) reviews, and propose targeted fake review dectection methods and governance strategies. This study takes human reviewers and ChatGPT as research objects, based on the perspectives of cognitive load theory, interpersonal deception theory, and reality monitoring theory in the field of deception detection, integrates cognitive load, uncertainty, emotion, distance, perceived contextual details, cognitive process of language clues, using word embedding and machine learning methods to build explanatory classification prediction models of authentic and fake reviews of human, and fake review of generative AI, compare the differences in the use of language clues among the three, explore the similarities and differences in deception strategy use between generative AI and humans. The experimental results show that the accuracy, precision, recall, F-value, and AUC-ROC value of the classification prediction model are 89.24%, 90.77%, 90.23%, 90.23%, and 98.05%

respectively. Language cues related to traditional deception detection theories such as cognitive load (0.0361: p<0.001), perceived contextual details (0.0159: p<0.001), and emotions (0.0072: p<0.001), as well as the discovered language cues of informal language (0.0097: p<0.001) and personal concerns (0.0091: p<0.001) can significantly improve the ROC AUC value of the model. The comparative analysis results of language clue usage behavior found that the fake reviews generated by generative AI show the greatest cognitive load (p<0.001), the most emotional expression (p<0.001) and personal concern (p<0.001), and are more formal (p<0.001) and certain (p<0.01). In terms of the use of deception strategies, both human and AI-generated fake reviews show similar low levels of cognitive load. However, generative AI uses more deception strategies different from humans: relatively more personal concern-related language clues (p<0.001), positive and negative emotional expressions (p<0.001); relatively fewer cognitive process language clues (p<0.01). In addition, by intervening with cognitive load, it is possible to effectively differentiate between real and fake reviews in some of the dimensions, and this intervention is particularly effective in identifying AI-generated fake reviews. This study explores the distinguishability and performance differences of fake review verbal behavior between humans and generative AI, verifies the value of deception detection related theories in the dectection of fake reviews generated by AI, and is beneficial for online platform management agencies and enterprises to formulate better supervision mechanisms to cope with the potential major risks of generative artificial intelligence to the network information ecology.

Keywords: Generative AI, ChatGPT, Deception Detection, Online Fake Reviews, Explainable Machine Learning

COVID-19 疫情背景下网络化社会支持与积极心理健康的关系：一项三水平元分析

刘昕怡[1] 李睿[1] 李莹[1] 赖丽足[1] 刘奕浓[1] 任志洪[1]（通讯作者）

1 青少年网络心理与行为教育部重点实验室, 华中师范大学心理学院, 湖北省人的发展与心理健康重点实验室, 武汉 430079，任志洪 ren@ccnu.edu.cn

摘 要 COVID-19 疫情背景下，网络化社会支持获得了越来越多的关注。互联网不仅是获得社会支持的重要渠道，同时也是疫情压力源之一。诸多研究探讨了两者间的内在联系，但研究结果却存在很大差异。本研究运用三水平元分析技术系统探讨 COVID-19 疫情背景下网络化社会支持与积极心理健康的关系及其调节因素。共纳入 9 项研究，34 个效应量，总样本量 8138。元分析结果显示疫情期间的网络化社会支持与积极心理健康之间存在显著正相关($r = 0.13, p < 0.001$)，对特定积极心理健康结果的进一步研究发现，在疫情期间，网络化社会支持与幸福感之间存在显著的正相关（$r = 0.18$，$p < 0.001$）。然而，网络化社会支持与自我效能感之间没有显著的相关性（$r = 0.07$，$p = 0.248$）。独居状态、工作状态显著调节网络化社会支持和积极心理健康的关系。独居状态负向预测疫情期间网络化社会支持与积极心理健康之间的相关($\beta_1 = -0.045$，$F(1, 3) = 22.541$，$p = 0.018$)。工作人群比例负向预测疫情期间网络化社会支持与积极心理健康之间的相关（$\beta_1 = -0.014$，$F(1, 21) = 21.592$，$p < 0.001$）。性别、年龄、婚姻状态、参与者招募来源均无调节效应。本研究不仅为网络化社会支持的理论研究提供信息，也为重大公共卫生事件下公众心理健康的网络化服务及针对不同人群特征的个性化干预提供了启示。

关键词 网络化社会支持，心理健康，COVID-19，三水平元分析

4.2 硕士生论坛—基础心理学

网络游戏成瘾者在游戏/断网期间大脑功能网络的动态重构被破坏

张正捷[1,2,3] 汪敏[1,4] 王凌霄[1,2,3]（通讯作者） 董光恒[1,2,3]

1 杭州师范大学附属医院认知与脑部疾病研究中心，杭州，311121

2 杭州师范大学心理科学研究所，杭州，311121

3 浙江省认知障碍评估研究重点实验室，杭州，311121，wanglingxiao@hznu.edu.cn

4 中国科学技术大学人文与社会科学学院心理学系，安徽省合肥市，230051

摘 要 网络游戏成瘾（IGD）在《精神疾病诊断与统计手册》第五版（DSM-5）中被列为一种潜在的障碍，游戏障碍在《国际疾病分类》第 11 版（ICD-11）中被列为 "成瘾行为导致的障碍"。已发现网络游戏成瘾者在奖励处理、认知控制和视听运动功能方面存在认知缺陷。然而，以前的研究主要依赖于单独的脑区或静态的脑网络的激活,有必要研究在游戏期间和与游戏断网时的动态脑网络。本研究招募 30 名 IGD 和 37 名娱乐游戏使用者（RGUs）。以静息态为基线，构建了一个多层网络模型，并计算了动态参数（promiscuity/recruitment/integration）来量化游戏-静息态和游戏断网-静息态阶段不同层次的社区重建。结果发现，在游戏期间-静息态阶段，IGD 受试者的动态重构特征明显低于 RGUs 的几个脑网络，包括基底神经节网络（BGN）、边缘网络、额叶-顶叶网络、内侧额叶网络、视觉网络和运动网络。然而，IGD 受试者在游戏断网-静息态阶段表现出比 RGUs 更高的 BGN 的招募参数。上述动态参数的结果与成瘾的严重程度（IAT 分数，DSM 分数和 Craving 分数）相关联。通过本研究可以发现，与 RGUs 相比，IGD 在游戏过程中表现出奖励处理、认知控制和视听运动功能方面的功能缺陷，并且功能缺陷与成瘾严重程度相关。在游戏突然中断后，他们还表现出 BGN 内增强的动态特征，这可能表明对游戏的渴求增强。这些发现对开发有效的 IGD 干预措施具有重要意义。

关键词 网络游戏成瘾，动态脑特征，功能磁共振成像

Disrupted dynamic network reconfiguration of the brain functional networks during gaming/disconnected in internet gaming disorder

Zhengjie Zhang[1,2,3], Min Wang[1,4], Lingxiao Wang[1,2,3*], Guang-Heng Dong[1,2,3]

1 Centre for Cognition and Brain disorders, The Affiliated Hospital of Hangzhou Normal University, Hangzhou, Zhejiang Province, China

2 Institute of Psychological Science, Hangzhou Normal University, Hangzhou, Zhejiang Province, China

3 Zhejiang Key Laboratory for Research in Assessment of Cognitive Impairments, Hangzhou, Zhejiang Province, China

4 Department of Psychology, School of Humanities and Social Science, University of Science and Technology of China, Hefei, Anhui Province, China

Abstract：Internet gaming disorder (IGD) has been included as a potential disorder in the Fifth Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), gaming disorder has been included as a “disorder due to addictive behaviors” in the 11th revision of the International Classification of Diseases (ICD-11). Cognitive deficits in reward processing, cognitive control, and audiovisual-motor function have been identified in individuals with IGD. However, previous research has predominantly relied on the activation of isolated brain regions or static brain networks, necessitating an investigation into the dynamic brain networks during gaming and following game disconnections. This study recruited 30 IGD participants and 37 recreational game users (RGUs).

Using the resting state as a baseline, a multi-layer network model was constructed, and dynamic coefficients (promiscuity/recruitment/integration) were calculated to quantify community reconstruction at different levels during the gaming-rest and game disconnected-rest phases. The results revealed significantly lower dynamic reconstruction features in several brain networks, including the basal ganglia network (BGN), limbic network, frontal-parietal network, medial frontal network, visual network, and motor network, among IGD participants compared to RGUs during the gaming-rest phase. However, during the game disconnected-rest phase, IGD participants exhibited higher BGN recruitment coefficients than RGUs. The aforementioned dynamic coefficient results were correlated with the severity of addiction (IAT scores, DSM scores, and Craving scores). This study demonstrates that, compared to RGUs, individuals with IGD exhibit functional deficits in reward processing, cognitive control, and audiovisual-motor function during gaming, and these deficits are associated with the severity of addiction. Moreover, following sudden game interruptions, they also demonstrate enhanced dynamic features within the BGN, potentially indicating an intensified craving for gaming. These findings have important implications for the development of effective interventions for IGD.

Keywords：internet gaming disorder, dynamic reconfiguration feature, fMRI

中性词汇情绪习得机制：词汇具体性及社会线索的影响

张韵唯[1]　郭晶晶*（通讯作者）

1 陕西师范大学心理学院，西安，710000

* 陕西师范大学心理学院，西安，710000，guojjok@snnu.edu.cn

摘 要　研究发现中性词可以通过学习过程携带情绪信息，中性具体词相较于抽象词更易获得情绪色彩。相较于形象生动的具体词，抽象词的习得更依赖于情境信息，那么社会信息线索能否促进抽象词获得情绪信息？目前研究大多集中于词汇加工时具体性和情绪性的相互作用，但对于动态词汇学习过程以及词汇如何习得情绪性信息尚未有系统的探索。本研究采用情感错误归因范式(AMP)探究中性抽象词能否获得情绪信息及社会线索在其中的促进效应。

实验一考察经过 AMP 程序学习后，被试对中性词在开心、愤怒、恐惧、悲伤四个情绪维度上的评分变化。被试对中性词进行情绪感受评分之后进入情绪学习阶段，实验中随机呈现开心、愤怒、恐惧、悲伤四种启动情绪图片，观看启动图片后需判断该词是抽象词还是具体词。在测试阶段，被试需要再次对呈现的中性词在四种情绪维度上进行评分。结果发现，启动开心和恐惧情绪时中性词成功习得启动情绪，且具体词习得情绪结果更好。由于启动愤怒和悲伤情绪下词汇习得情绪结果不明显，故我们选用开心和恐惧作为实验二的启动情绪。实验二在 AMP 学习过程中，使用含有社会信息的情绪图片作为启动刺激，考察被试在开心、恐惧两种情绪维度上的评分变化。结果发现，社会线索在中性词习得情绪过程中发挥着调节作用，积极情绪启动下社会线索有利于具体词习得情绪，消极情绪启动下社会线索有助于抽象词习得情绪。

本研究进一步验证了前人研究结果，即具体词相较于抽象词更易获得情绪信息，除此之外更重要的是发现社会线索可以促进抽象词情绪信息的习得，这很可能由抽象词的学习方式所导致。该结果启示我们在词汇情绪学习过程中，应注意抽象词情绪的学习方式，增强抽象词学习时环境的情绪性，促进个体语言和词汇的发展。

关键词　具体性，情绪习得，社会线索，AMP

The mechanism of neutral words' emotion acquisition: the influence

of lexical concreteness and social cues

Yunwei Zhang[1] Jingjing Guo*
Shaanxi Provincial Key Laboratory of Behavior and Cognitive Neuroscience, School of Psychology, Shaanxi Normal University, Xi'an 710000

Abstract： The previous studies found that neutral words can carry emotional information through the learning process, and neutral concrete words are easier to acquire emotional connotation than abstract words. Compared with vivid concrete words, the acquisition of abstract words depends more on situational information. Can social information cues promote the acquisition of emotional information by abstract words? Most of the current studies focused on the interaction of concreteness and emotion in vocabulary processing, but there is no systematic exploration of dynamic vocabulary learning process and how vocabulary acquires emotional information. In this study, the affect misattribution procedure (AMP) is used to explore whether neutral abstract words can obtain emotional information and the promoting effect of social cues in them.

Experiment 1 examined the changes in the score of neutral words in four emotional dimensions of happiness, anger, fear and sadness after learning AMP program. After scoring the emotional feeling of neutral words, the participants entered the emotional learning stage. In the experiment, four priming emotion pictures of happiness, anger, fear and sadness were randomly presented. After viewing the priming pictures, the participants were asked to judge whether the word was an abstract word or a concrete word. In the test phase, participants need to rate the neutral words again on four emotional dimensions. The results showed that the neutral words were successful in acquiring priming emotion, and the concrete words were better in acquiring priming emotion. Since the results of words learning emotions are not obvious under the priming of anger and sadness, we chose happy and fear as the priming emotions of experiment 2. In experiment 2, in the process of AMP, emotional pictures containing social information were used as priming stimuli to investigate the score changes of participants in the happy and fear dimensions. The results showed that social cues played a regulatory role in the process of neutral word emotion acquisition. The social cues under positive emotion priming is conducive to concrete word emotion acquisition, while negative emotion priming with social cues is conducive to abstract word acquisition.

This study further verifies the results of previous research results that concrete words are easier to obtain emotional information than abstract words. In addition, it is more important to find that social cues can promote the acquisition of emotional information of abstract words, which is probably caused by the learning style of abstract words. The result suggests that we should pay attention to the ways of emotional learning of abstract words, enhance the emotion of the learning environment, and promote the development of individual language and vocabulary.

Keywords： concreteness, emotional acquisition, social cues, AMP

汉语复合词首、尾歧义词素与整词语义激活的时间进程研究

郭泽希 伊力扎提·麦麦提（通讯作者）
新疆心智发展与学习科学重点实验室 新疆师范大学心理学院，乌鲁木齐，830017

摘 要 混合表征观点认为复合词的识别过程是词素分解路径和整词激活路径相互作用的结果，目前对复合词不同位置词素语义激活与整词语义激活先后问题上存在争议。意义计算观点认为，复合词的整词语义需要先经历首、尾词素语义依次激活，之后进一步整合生成；而双路径竞争模型认为整词语义激活会在首词素语义激活之后与尾词素语义同时产生，整词语义识别的具体路径选择取决于哪一方的效率更高。

当前研究尚缺乏中文复合词不同位置词素语义与整词语义激活过程的相关研究证据。不同于拼音文字，中文词素之间存在着明显的边界，这意味着词素语义启动过程可能更加高效，词素分解路径中的首、尾词素语义可能在首次注视时同时激活。另外，中文复合词中存在大量的歧义词素（词素拥有不止一个含义），歧义词素的具体语义需要在整词通达阶段才能确定，这意味着歧义词素的语义启动反而可能带来更多的认知负荷，整词通路将会成为优势路径。因此，考虑到中文词素的特殊性，为进一步探索汉语复合词的加工机制，有必要对中文复合词识别过程中词素语义和整词语义激活之间的相互作用机制开展进一步研究。为此，本研究以逆序词为实验材料，结合脑电技术，探讨在不同掩蔽启动条件下，启动词中歧义词素语义（与目标词相同、不同）和启动词中歧义词素位置（首部、尾部）对目标词词汇识别的影响。结果发现，尾部歧义词素比首部歧义词素在额区引发了更大的 N250 成分；当歧义词素位于尾部时，启动词中歧义词素的语义与目标词中歧义词素语义不同条件下比相同条件引发更大的 N400 成分，而当歧义词素位于首部时，未出现显著差异。结果表明，在汉语词汇识别的前词汇阶段，个体能够注意到双字复合词的两个词素，之后整词语义和首部词素语义得到激活，尾部词素语义的产生要晚于整词语义激活。

关键词　中文歧义词素，词汇加工，复合词

The semantic activation of different position morphemes and whole word meaning in Chinese compound words: an ERP study

GUO Ze-xi　YILIZHATI·Maimaiti

Xinjiang Key Laboratory of Mental Development and Learning Science, School of Psychology, Xinjiang Normal University, Urumqi, 830017

Abstract： According to the mixed representation theory, the recognition process of compound words is the result of the interaction between the morpheme decomposition path and the whole word representation path. From the meaning computing theory, the whole meaning of compound words needs to generate by the activation of the first and last morphemes successively. The two-path competition model holds that the whole word meaning will be activated at the same time as the last word meaning after the first morpheme semantic activation, and the specific path selection of the whole word meaning recognition depends on which side is more efficient. At present, there is a lack of relevant research evidence on the activation process of different position morphemes and whole word meanings of Chinese compound words. Different from alphabetic scripts, there is a clear boundary between Chinese morphemes, which means that the morpheme-semantic priming process may be more efficient, and the first and last morpheme-semantic semantics may be activated simultaneously at first glance. In addition, there are a large number of ambiguous morphemes (morphemes with more than one meaning) in Chinese compound words, and the specific semantics of ambiguous morphemes can only be determined in the whole word access stage, which means that semantic activation of ambiguous morphemes may bring more cognitive load, and the whole word path will become the dominant path. Therefore, considering the particularity of Chinese morpheme, in order to further explore the processing mechanism of Chinese compound words, it is necessary to further study the interaction mechanism between morpheme semantic and whole word meaning activation in the process of Chinese compound word recognition.For the purpose, this study takes reversible words as experimental materials and combines EEG technology to explore the influence of ambiguous morpheme semantics (same and different from target words) and ambiguous morpheme position (first and last) in prime words on the lexical recognition of target words under different masking priming conditions. The results show that the last ambiguous morphemes induce more N250 components in the frontal region than the first ambiguous morphemes. When the ambiguous morpheme is located at the last, the semantics of the ambiguous morpheme in the prime word and the ambiguous

morpheme in the target word generate more N400 components than the same conditions, but when the ambiguous morpheme is located at the first, there is no significant difference. The results show that in the prelexical phase of Chinese word recognition, subjects can pay attention to the two morphemes of two-word compound words, after which the whole word meaning and the first morpheme meaning are activated, the generation of the last morpheme meaning is later than the whole word meaning activation.

Keywords：Chinese ambiguous morpheme, word processing, compound word

中文阅读中的预测性效应和词频效应：来自眼动和生存分析的证据

摘 要 自上而下的语境预测性信息和自下而上的词频信息在结果对阅读理解具有重要作用。拼音文字中有少量证据表明预测性和词频信息的加工是相互影响的，但更多证据支持两者独立影响词汇识别。然而，中文阅读中预测性信息加工的时间进程，以及预测性和词频究竟是如何影响词汇加工的尚不清楚。因此，本研究采用 2(预测性：可预测 vs. 不可预测)x2(词频：高频 vs. 低频)的被试内设计来探讨这一问题。结果发现，预测性和词频在所有指标上均显著，但两者的交互作用不显著。进一步生存分析发现，可预测和不可预测条件的分离点在注视时间为 83ms 时，高频和低频条件的分离点在注视时间为 154ms 时。这说明预测性和词频对注视时间的影响在词汇加工的早期阶段就已经发生，并且两者相对独立地对信息处理产生影响。

关键词 预测性，词频，生存分析，眼动

Predictability and Frequency Effect During Chinese Reading: Evidence from Eye Movements and Survival Analysis

Abstract：Top-down contextual information and bottom-up frequency information play an important role in reading. Although there are some evidences to show that word frequency and word predictability produced an interactive effect on lexical processing in alphabetic reading, most studies have demonstrated an additive effect of these two factors. However, it is still unclear that the time course of word predictability effect and the influence of predictability and frequency on lexical processing in Chinese reading. Accordingly, the present study used a 2 (predictability: predictable vs. unpredictable) × 2 (word frequency: high-frequency vs. low-frequency) within-subject design to address this issue. The results showed robust predictability effect and frequency effect across all measures. More Crucially, no reliable interaction between word predictability and word frequency was observed. Extending this finding, the present study further employs a survival analysis to demonstrate a significant influence of predictability on fixation duration as early as 83 ms, and frequency on fixation duration as early as 154 ms from the start of fixation. The current results indicated that word predictability and word frequency produced an additive influence during the early stage of lexical processing in reading.

Keywords：Predictability, frequency, survival analysis, eye movements

近期生活压力与大脑功能连接的关系：童年虐待调节作用的纵向研究

罗菁菁　陈圆圆　朱键军（通讯作者）
广州大学教育学院早期环境与脑发展研究中心，广州，510006，jianjunzhu722@gmail.com

摘 要　本研究旨在调查童年虐待是否调节了前突显网络（ASN）、中央执行网络（CEN）、默认模式网络（DMN）和情绪调节网络（ERN）这四个关键脑网络内以及网络间的静息态功能连接与近期生活压力之间的关系，以发展针对有童年虐待史青少年的心理保护策略。采用磁共振成像（MRI）扫描技术，在两个特定时间点（IUA1 和 IUA2）对被试进行了检测，并通过功能性磁共振成像（fMRI）测量静息态功能连接。在 IUA1 使用儿童期虐待问卷（CTQ）对童年虐待进行评估，在 IUA2 之前至少两个月的时间使用生活事件问卷（LEQ）对近期生活压力进行评估。研究结果显示，童年虐待调节了近期生活压力与 ASN 内连接（β=0.209, pFDR=0.050）和 ERN 内连接（β=0.245, pFDR=0.028）之间的关系。此外，近期生活压力与童年虐待在 ASN-DMN（β= 0.288, pFDR=0.021）、ASN-CEN（β= 0.253, pFDR=0.025）、ASN-ERN（β= 0.280, pFDR=0.021）、DMN-ERN（β= 0.237, pFDR=0.031）和 CEN-ERN（β= 0.236, pFDR=0.028）网络间存在显著的交互作用。总体而言，在童年时期遭受较高程度虐待的青少年中，近期生活压力较大与网络连接性增强呈纵向相关。本研究揭示了压力敏感模型的潜在神经机制，并有助于制定预防策略和干预措施，以减轻童年虐待对个体大脑发育和身心健康的持久影响。

关键词　童年虐待，近期生活压力，功能性磁共振成像，调节效应，纵向研究

Childhood Abuse's Role in Modifying the Association between Recent Life Stress and Resting-State Network Connectivity

Abstract：This study aimed to examine the potential modulation of quiescence within and between four key brain networks—the anterior salience network (ASN), the central executive network (CEN), the default mode network (DMN), and the emotion regulation network (ERN)—by childhood abuse. Furthermore, the study sought to elucidate the interaction between functional connectivity and recent life stress in order to develop psychological protective strategies for adolescents who have a history of childhood abuse. Magnetic resonance imaging (MRI) scans were conducted at two specific time points (IUA1 and IUA2), and resting-state functional connectivity was measured using functional magnetic resonance imaging (fMRI). Childhood abuse was assessed with the Childhood Trauma Questionnaire (CTQ) at IUA1, while recent life stress was evaluated using the Life Events Questionnaire (LEQ) at least two months prior to IUA2. The findings revealed that childhood abuse moderated the association of recent life stress with within-network of ASN (β= 0.209, pFDR=0.050) and ERN (β= 0.245, pFDR=0.028). Additionally, recent life stress significantly interacted with childhood abuse to be associated with between-network of ASN-DMN (β= 0.288, pFDR=0.021), ASN-CEN (β= 0.253, pFDR=0.025), ASN-ERN (β= 0.280, pFDR=0.021), DMN-ERN (β= 0.237, pFDR=0.031) and CEN-ERN (β= 0.236, pFDR=0.028). In summary, the study provides evidence that greater recent life stress is longitudinally associated with heightened network connectivity among adolescents who have experienced higher levels of childhood abuse. These findings shed light on the underlying neural mechanisms of the stress-sensitivity model and have important implications for the development of prevention strategies and interventions aimed at mitigating the enduring effects of childhood abuse on brain development, as well as an individual's physical and mental health.

Keywords：Childhood abuse, recent life stress, fMRI, moderating effect, longitudinal study

亚临床群体中快感缺失表现差异：基于社会快感缺失和亚临床抑郁群体的初探

蒲婕[1, 2]， 黄逸航[1,3]， 陈辉[2]， 王毅[1, 3]， 陈楚侨[1, 3]（通讯作者）

1 中国科学院心理研究所心理健康重点实验室，神经心理学与认知神经科学研究室，北京，中国，100101

2 浙江大学心理与行为认知科学系，杭州，中国，310058

3 中国科学院大学心理系，北京，中国，100049

通讯作者 E-mail: rckchan@psych.ac.cn

摘 要

背景：获取快乐对于日常的幸福感十分重要。在精神分裂症和重度抑郁症患者中，体验快乐能力的缺损，即快感缺失，往往严重影响着他们的社会功能。目前的实证研究在精神疾病对应的亚临床群体，如社会快感缺失特质和亚临床抑郁特征群体中也发现了一定程度的快感缺失。近期的理论框架认为，快感缺失作为一个多维结构，包括情绪体验、动机等多个部分。然而，与丰富的临床跨诊断研究不同，在亚临床群体中，目前仍没有依托快感缺失的多维框架进行的比较研究，尚不清楚不同亚临床群体的快感缺失表现特点，以及群体间是否存在差异。

方法：研究共招募 35 名社会快感缺失特质个体(Social Anhedonia, SA)、55 名亚临床抑郁特征个体(Subsyndromal Depression, SD)、20 名快感缺失与抑郁共同特征个体(Co-occurrence of social anhedonia and subsyndromal depression, CO)和 47 名低分对照个体(Controls, CN)(Mean Age= 20.46 years, SD Age = 1.99 years)。所有被试均通过中文版快感缺失量表(CSAS)、中文版病人健康问卷(PHQ-9)以及中文版贝克抑郁量表(BDI-I)进行筛选，并被邀请完成中文版时间性愉悦体验量表(TEPS)，通过 *Pavlovia* 实验平台完成金钱奖赏延迟(MID)任务、社会奖赏延迟(SID)任务。

结果：（1）在情绪体验维度上，SA、SD、CO 的抽象期待愉悦体验均显著低于 CN；SA 和 CO 组在具象期待、具象即时、抽象即时愉悦体验上也显著低于 CN，而 SD 则与 CN 无显著差异；（2）在动机维度上，均未发现亚临床样本相对对照组的动机强度差异；SD 与 CO 在面对社会性奖赏时，无显著的趋近动机和回避动机，但面对金钱性奖赏时，趋近动机和回避动机均显著；但 SA 和 CN 在面对两种奖赏时均有显著的趋近动机。

结论：研究初步发现亚临床个体均有异常较低的抽象期待愉悦体验。此外，亚临床抑郁个体和共同特征个体表现出针对社会性奖赏的特异性动机异常。本研究进一步揭示了亚临床群体在情绪体验维度和动机维度的快感缺失特点，未来需要结合跨诊断临床研究，考察快感缺失发展的潜在病理机制。

关键词 快感缺失，亚临床抑郁，情绪体验，动机缺乏

Differential Manifestations of Anhedonia in Subclinical Sample: Evidence from Social Anhedonia and Subsyndromal Depression

Jie Pu[1,2], Yi-hang Huang[1,3], Hui Chen[2], Yi Wang[1,3], Raymond C. K. Chan[1,3*]

1 Neuropsychology and Applied Cognitive Neuroscience Laboratory; CAS Key Laboratory of Mental Health, Institute of Psychology, Beijing, China.

2 Department of Psychology and Behavioral Science, Zhejiang University, Hangzhou, China

3 Department of Psychology, University of Chinese Academy of Sciences, Beijing, China

*Correspondence: rckchan@psych.ac.cn

***Abstract*：**

Background Accessing pleasure is of vital significance for daily well-being. However, this ability to experience pleasure is reduced in patients of schizophrenia and major depressive disorder, a symptom known as anhedonia that has a severe impact on their social functions. Empirical findings suggest that anhedonia is also manifested in people with subclinical features such as high social anhedonia and subsyndromal depression. Recent theoretical framework suggests that anhedonia is a multidimensional construct comprising emotional experience, motivation and other related dimensions. However, few studies have adopted a multidimensional framework to investigate anhedonia performances in subclinical samples. As a result, the features of anhedonia in individuals with subclinical traits and potential differences between these traits remain unclear.

Methods This study recruited 35 participants with high social anhedonia (SA), 55 participants with subsyndromal depression (SD), 20 participants with co-occurrence of both traits (CO), and 47 low levels of both traits (CN) (Mean Age= 20.46 years, SD Age = 1.99 years). All participants were screened by the Chinese versions of the Chapman Social Anhedonia Scale, the Patient Health Questionnaire and the Beck Depression Inventory. They were then invited to complete the Temporal Experience of Pleasure Scale (TEPS), the Monetary Incentives Delay (MID) Task and the Social Incentives Delay (SID) Task through the *Pavlovia* platform.

Results Our main results showed that (1) regarding emotional experience, participants with SA, SD, CO reported significantly lower abstract anticipatory pleasure than CN. SA and CO reported lower concrete anticipatory, concrete consummatory and abstract consummatory pleasure than CN participants; (2) regarding motivation, all participants with SA, SD and CO showed no significant difference to CN participants. All participants with SD and CO showed no significant approach and avoidance motivation specifically in response to social incentives. However, significant approach motivation is observed in SA and CN participants for both incentives.

Conclusion These preliminary findings suggest that people with SA, SD and CO exhibited lower abstract anticipatory pleasure compared to CN. Moreover, people with SD and CO also exhibited specific impairment in response to social incentives. Taken together, these findings characterize the multidimensional features of anhedonia performances of subclinical samples with SA, SD and CO. Future study adopting a transdiagnostic approach recruiting clinical patients are needed to further examine the underlying pathological mechanism of anhedonia.

***Keywords*：** Anhedonia, Subsyndromal Depression, Emotional experience, Amotivation

言语和空间工作记忆对长距离回视的影响：眼动研究

杨格[1] 王敬欣[12]（通讯作者）

1 天津师范大学，天津，300374

2 天津师范大学心理学部，天津，300374，wjxpsy@126.com

摘 要 在阅读过程中回看之前已经读过的内容被称为回视。目标词处于当前视野范围之外的回视被称为长距离回视，在这种情况下对目标词位置的确定需要记忆的引导，回视的引导过程通过一个首次眼跳以及后续的若干个修正眼跳完成。修正眼跳阶段究竟是由言语因素引导还是空间因素引导，目前仍没有定论。采用 2 (目标词位置：前半句、后半句)×2 (回视句语序：原序、乱序)的两因素被试内设计为基础实验，以区分回视过程中的不同阶段。同时，测量并分别筛选言语和空间工作记忆能力较强和较弱的被试作为两

个组间变量。选取首次回视误差、累计回视距离、回视反应时间等眼动指标，探究汉语阅读长距离回视中修正眼跳的引导机制。结果表明，目标词位于前半句时，原序和乱序的首次回视误差差异不显著，但累计回视距离差异显著，表明乱序对回视的影响主要发生在修正眼跳阶段。在累计回视距离上，言语工作记忆的主效应不显著但空间工作记忆的主效应显著，表明高低言语工作记忆者的回视效率相近，而高空间工作记忆者比低空间工作记忆者的回视效率更高。在回视反应时上，乱序与言语工作记忆的交互作用不显著，而乱序与空间工作记忆的交互作用显著，简单效应分析表明乱序对高空间工作记忆能力者回视效率的干扰更大。结果表明，汉语阅读中长距离回视的修正眼跳阶段受空间工作记忆的影响，支持空间编码假设。

关键词　汉语阅读，长距离回视，工作记忆，眼动

Effects of verbal and spatial working memory on long regression: an eye-movement study

Ge Yang, Jingxin Wang(Corresponding author)
（Academy of Psychology and Behaviour, Tianjin Normal University, Hexi District, Tianjin 300374, China）

Abstract: Looking back at what has been read before during reading is called regression. When the target word of the regression is outside of the visual field, it is called long regression, and this situation requires memory guidance. This guidance is typically programmed to be accomplished by an initial regression accompanied by several corrective saccades.There is still no definitive conclusion whether the corrective saccades is guided by verbal or spatial factors.In this study, initial regression error, cumulative regression size, reaction time and other regression indicators were adopted to explore the guidance mechanism of corrective saccades in Chinese reading long distance. A two-factor within-subject design of 2 (target word position: first half-sentence, second half-sentence) × 2 (text order of non-target words in regression sentence: original order, disordered order) was used as the base experiment. In addition, verbal working memory and spatial working memory were measured for all subjects, and the high and low groups were screened separately as between-group variables for both groups.The results showed that the difference in initial regression error between the original and disordered order was not significant when the target word was located in the first half-sentence, but the difference in cumulative regression size was significant, indicating that the effect of disordered order on regression was at the stage of corrective saccades. The main effect of verbal working memory was not significant but the main effect of spatial working memory was significant for the cumulative regression size. The interaction between text order and verbal working memory was not significant but the interaction between text order and spatial working memory was significant on the reaction time.The results indicated that the corrective saccades for long regression in sentence reading were influenced by spatial working memory, supporting the spatial coding hypothesis.

Keyword: Chinese reading, long regressions, working memory, eye movement

信息模糊性与群体压力对从众行为的影响及其神经机制

杨婧[1]　张一凡[1]　李庆一[1]　李葆明[1]　李政汉[1,2,3]（通讯作者）
[1] 杭州师范大学基础医学院生理学系脑科学研究所，杭州，311121，lizh@hznu.edu.cn
[2] 浙江省哲学社会科学培育实验室“杭州师范大学婴幼儿发展与托育实验室”，杭州，311121
[3] 浙江省认知障碍评估技术研究重点实验室，杭州，311121

摘 要 **背景：**信息的模糊性与群体压力是影响个体从众行为的重要因素。前人研究发现，越模糊的信息、越大的群体压力，越容易导致个体的从众行为。在现实场景中，信息模糊性与群体压力往往会同时作用于个体的从众行为，然而两者的交互作用及其背后的神经机制尚不明确。探明信息模糊性与群体压力对个体从众的行为影响及其神经机制，不仅可以揭示两者对从众行为的共同影响，还可以帮助个体理解舆论的形成，减少盲从。**方法：**本研究共招募 48 名健康被试，基于改编的多人决策任务，采用事件相关电位（event-related potential, ERP）技术，探究信息模糊性与群体压力对个体从众行为的影响机制。实验采用 2（信息模糊性：清晰、模糊）×3（群体压力：高、中、低）的被试内设计，因变量为被试从众行为的发生概率。**结果：**行为结果表明，信息模糊性：$F(1,47) = 14.13$, $p < .001$ 与群体压力：$F(2,94) = 19.64$, $p < .001$ 的主效应均显著，且两者的交互作用显著，$F(2,94) = 11.75$, $p < .001$。简单效应分析发现，只有在群体压力高的条件下，清晰的信息会降低个体从众的概率。脑电结果发现，与信息清晰条件相比，信息模糊条件下额叶和顶叶的 N200 和 N450 脑电成分的波幅均显著更负（$ps < .001$）。在中、高群体压力时，额叶的反馈相关负波（feedback-related negativity, FRN）更负，并且两个条件之间没有显著差异。当群体压力低时，顶叶 P3 成分呈现出更正的波幅，其他条件下没有发现显著差异。**结论：**信息模糊性与群体压力会共同影响个体的从众行为，在信息模糊情境下，群体压力高时，个体更容易发生从众行为，但在中度和低度群体压力下，个体发生从众行为的发生概率不受信息清晰度的影响。此外，模糊信息诱发了个体更负的 N200 和 N450 脑电成分，表明个体此时产生了更强的认知冲突，并投入了更多的认知资源来解决冲突。中度及以上的群体压力会诱发个体更大的反馈相关负波，使个体产生负性情绪体验。而低群体压力诱发了更大的 P3 波幅并带来正性情绪体验。未来可以进一步探究个体自尊水平等潜在因素在其中的影响，有助于我们更加全面深刻地理解从众行为。

关键词 信息模糊性，群体压力，从众行为，神经机制

The impact of information ambiguity and group pressure on conformity behavior and its neural mechanisms

Jing Yang[1] Yifan Zhang[1] Qingyi Li[1] Baoming Li[1] Zhenghan Li[1,2,3*]

[1] Institute of Brain Science and Department of Physiology, School of Basic Medical Sciences, Hangzhou Normal University, Hangzhou, China, 311121, lizh@hznu.edu.cn

[2] Zhejiang Philosophy and Social Science Laboratory for Research in Early Development and Childcare, Hangzhou Normal University, Hangzhou, China

[3] Zhejiang Key Laboratory for Research in Assessment of Cognitive Impairments, Hangzhou, China

***Abstract*: Background:** The ambiguity of information and group pressure are crucial factors that impact individual conformity behavior. Previous researches have demonstrated that individuals are more likely to engage in conformity behavior when the information is ambiguous and the group pressure is high. In real-life scenarios, both information ambiguity and group pressure often simultaneously affect individual conformity behavior. However, the interaction effect between these two factors and the underlying neural mechanisms remain unclear. Investigating the effects of information ambiguity and group pressure on individual conformity behavior and their neural mechanisms can not only reveal the common effects of both on the conformity behavior, but also enhance individuals to understand the formation of public opinion and reduce blind conformity. **Methods:** In this study, a total of 48 healthy subjects were recruited to investigate the mechanisms of information ambiguity and group pressure on individual conformity behavior based on an adapted joint decision-making task, with the event-related potential (ERP) technique. The experiment used a 2 (information ambiguity: clarity, ambiguity) x 3 (group

pressure: high, medium, low) within-subjects design, the dependent variable was the probability of subjects' conformity behavior. **Results:** The behavioral results indicated significant main effects for information ambiguity, $F(1,47) = 14.13$, $p < .001$, and group pressure, $F(2,94) = 19.64$, $p < .001$, the interaction effect between the two factors was significant, $F(2,94) = 11.75$, $p < .001$. Simple effect analysis revealed that only under the conditions of high group pressure, the ambiguity of information reduced the probability of individual conformity behavior. The neurophysiological results revealed that compared to the clear information condition, the amplitudes of N200 and N450 components in the frontal and parietal lobes were significantly more negative in the condition of ambiguous information ($ps < .001$). Under the conditions of medium and high group pressure, the feedback-related negativity (FRN) in the frontal lobe was more negative, with no significant difference observed between the two conditions. When group pressure was low, the P3 component in the parietal lobe showed a more positive amplitude, with no significant differences found in other conditions. **Conclusion:** Information ambiguity and group pressure jointly impact individuals' conformity behavior. When faced with ambiguous information, individuals are more likely to engage in conformity behavior when group pressure is high. However, the probability of conformity behavior is not affected by information ambiguity under conditions of moderate and low group pressure. In addition, ambiguous information elicits more negative N200 and N450 neurophysiological components, indicating that individuals experience stronger cognitive conflict and allocate more cognitive resources to resolve the conflict. Moderate and high levels of group pressure induce larger feedback-related negativity, leading to negative emotional experiences for individuals. In contrast, low group pressure elicits larger P3 amplitudes and promote positive emotional experiences. In the future, the impact of potential factors such as individual self-esteem levels in this context can be further explored, which will help us to have a more comprehensive and deeper understanding of conformity behavior.

***Keywords*:** Information ambiguity, Group pressure, Conformity behavior, Neural mechanisms

复杂听觉场景下 ADHD 儿童言语识别能力异常及空间线索的作用

范家宁[1*] 朱茜[2] 李瑛[3]，高雅玥[4]

1 北京航空航天大学人文社会科学学院心理学系，北京，100083，fanjianing0425@buaa.edu.cn

2 北京航空航天大学人文社会科学学院心理学系，北京，100083，zhuqian_2022@163.com

3 首都医科大学附属北京儿童医院国家儿童医学中心，北京，100045，liying@bch.com.cn

4 北京航空航天大学人文社会科学学院心理学系，北京，100083，gao_yayue@buaa.edu.cn

*会议通讯负责人

摘 要 注意缺陷多动障碍 (ADHD) 儿童往往更难以在复杂听觉场景中进行目标言语识别。在复杂听觉场景中，噪音掩蔽声与目标声在物理上重合，从而产生能量掩蔽；而语音掩蔽声除了能量掩蔽，其和目标声的相似性还会带来信息掩蔽。去掩蔽的重要知觉线索之一是空间线索，即目标声和掩蔽声被知觉在不同位置时更易被识别。因此，本研究探索 ADHD 儿童在不同类型掩蔽刺激下言语识别能力的异常，以及他们能否利用空间线索来提高言语识别能力。本研究采集了 19 名 ADHD 儿童和 19 名健康儿童在掩蔽声中的目标言语识别阈限。掩蔽声为噪音掩蔽声或语音掩蔽声，且其和目标声的知觉空间分离 (对侧耳) 或不分离 (同侧耳)。结果显示，在噪音掩蔽情形下，两组儿童间差异不显著。在语音掩蔽情形下，空间不分离时，ADHD 儿童的言语识别能力显著低于健康儿童；而空间分离时，ADHD 儿童的言语识别能力恢复，与健康儿童无显著差异。此外，ADHD 儿童在语音掩蔽下，无论空间是否分离，其识别阈限与 Conners 儿童行为量表中的多动指数、学习问题、冲动-多动都呈显著相关。这些结果表明，ADHD 儿童在复杂听觉场景下难以抵抗信息掩蔽，但可以利用空间线索来补偿并提升目标言语识别能力。因此，建议今后使用空间线索来

帮助 ADHD 儿童进行言语识别和学习交流。

关键词　ADHD，复杂听觉场景，言语识别，信息掩蔽，主观空间分离

Abnormal Speech Recognition Ability and the Role of Spatial Cues for Children with Attention Deficit Hyperactivity Disorder in Complex Auditory Scenes

Jia-Ning FAN[1], Qian Zhu[2], Ying Li[3], Ya-Yue GAO[4]

1 Department of Psychology, School of Humanities and Social Sciences, Beihang University, Beijing, China, fanjianing0425@buaa.edu.cn

2 Department of Psychology, School of Humanities and Social Sciences, Beihang University, Beijing, China, zhuqian_2022@163.com

3 National Centre for Children's Health, Beijing Children's Hospital, Capital Medical University, Beijing, China, liying@bch.com.cn

4 Department of Psychology, School of Humanities and Social Sciences, Beihang University, Beijing, China, gao_yayue@buaa.edu.cn

Abstract：Children with Attention Deficit Hyperactivity Disorder (ADHD) commonly face learning and social communication challenges, making it difficult to recognize speech in complex auditory scenes. Auditory masking effects in speech recognition tasks can be divided into energetic masking and informational masking. While energetic masking arises from overlapping sounds in the time and frequency domains, informational masking is based on the similarity between sounds and is regulated by cognitive resources. Both speech maskers and noise maskers can produce energetic masking, but informational masking can only be produced by speech maskers. Previous studies have shown that spatial cues are one of the perceptual cues that have a de-masking effect, meaning that target and masker sounds from different locations can reduce masking effects. Therefore, this study investigated whether ADHD children could recognize speech better under different types of masking stimuli using spatial cues than healthy children. The experiment recruited 19 diagnosed ADHD children and 19 healthy children. The study used the subjective spatial separation paradigm to measure recognition thresholds under different masking stimuli (speech and noise maskers) and different target-masker spatial states (separated and non-separated). The results showed that under speech masking conditions, ADHD children's speech recognition abilities were significantly lower than healthy children when the subjective spatial states were non-separated, and the differences were restored when spatial states were separated. However, there was no significant difference in recognition thresholds between the two groups under noise masking conditions. In addition, Conners children's behavior scale (parent version) was significantly positively correlated with the speech recognition thresholds of ADHD children under speech masking conditions. These findings suggest that ADHD children are more susceptible to information masking stimuli, but spatial cues can improve their speech recognition abilities and compensate for the negative effects of their susceptibility. In the future, interventions for ADHD children's learning, communication, and speech recognition should consider the use of spatial cues.

Keywords：Attention Deficit Hyperactivity Disorder, Complex Auditory Scene, Speech Recognition, Informational Masking, Subjective Spatial Cues

啮齿动物恐惧范式中如何表征动物的主观恐惧

——一项关于恐惧测量指标的系统综述和元分析

饶娇娇 包莉莉 俞德霖 郑本汇源 尹彬（通讯作者）
福建师范大学心理学院，福州，350108，byin@fjnu.edu.cn

摘 要 啮齿动物模型是研究精神疾病的重要范式，然而使用最普遍的条件恐惧范式大多以简单外显行为为测量指标，临床治疗成效不足和新理论的提出涌现了对主观恐惧研究的迫切需求。为了阐明啮齿动物主观恐惧表征的神经行为基础，我们系统检索了啮齿动物恐惧条件反射范式的相关研究，对常见的恐惧指标如僵直行为、条件抑制反应、恐惧增强惊跳反射、自主神经系统反应、22kHz 超声波呼叫等进行文献编码。通过分析自 1960 年以来 5054 篇涉及啮齿动物恐惧行为评估的文章，我们发现心理与神经科学领域呈现出从多种恐惧指标转向集中于观测僵直行为这一单一指标的趋势，进而对该变化及背后的理论演进做出系统综述。在此基础上，我们筛选出 61 篇在一个研究中同时报告僵直行为和另一种恐惧指标的文献。我们假定同一研究中两种不同测量指标的相关性反映了这两种指标是否表征同一功能，而这两种指标的变化幅度差异能揭示二者的作用机制或神经回路的异同。具体而言，我们以僵直行为为参照，对该指标与 22kHz 呼叫、条件抑制反应、心率、平均动脉压和排泄五项指标之间进行了相关分析以及在不同条件下变化幅度差异的三水平元分析。研究结果表明：1.系统综述的结果发现条件抑制和僵直行为变化高度一致；自主神经系统反应作为恐惧测量指标会受到多种生理因素的影响，与僵直行为的变化并不总是同步；杏仁核及 PAG 脑区受损能够减少各种恐惧反应，损伤基底前脑胆碱能系统选择性影响 22kHz 呼叫而不影响僵直；恐惧条件反射范式中不同阶段中刺激参数的呈现和改变对僵直和 22kHz 超声呼叫的影响不一致，体现出防御策略和认知评价过程的分离；2. 相关分析发现僵直行为和操作性行为及 22kHz 呼叫之间高相关，而僵直行为与自主神经系统反应之间低相关；3. 三水平元分析的结果发现，在行为分型处理方式、不同实验测试阶段和刺激条件的变化下僵直行为与 22kHz 呼叫之间的变化幅度出现分离；损伤大脑 PAG 和 vmPFC 区域使僵直行为和心率及平均动脉压之间的变化幅度出现分离。这些结果表明啮齿动物恐惧模型中也存在客观防御行为与主观恐惧体验的分离，并且二者之间的转换可能是基于一个阈值模型来进行的。通过进一步的努力，该研究有助于为恐惧相关精神障碍的临床干预建立理论基础。

关键词 恐惧指标，双系统模型，啮齿动物模型，恐惧条件反射，主观恐惧

What May Represent Subjective Fear in Rodent Models?

A Systematic Review and Meta-Analysis of Fear Indicators

RAO Jiaojiao, BAO Lili, YU Delin, ZHENG Benhuiyuan, & YIN Bin*
School of Psychology, Fujian Normal University, Fuzhou 350108
*Corresponding email: byin@fjnu.edu.cn

***Abstract*:** The rodent model is an important paradigm for studying mental disorders; however, the most commonly used fear conditioning paradigm mostly relies on simple overt behaviors as fear indicators. This has led to insufficient clinical treatment efficacy, prompting a growing need for studying subjective fear experiences. To elucidate the neural and behavioral basis of subjective fear representation in rodents, we conducted a systematic review on studies related to rodent fear conditioning paradigms, encoding common fear indicators such as freezing behavior, conditioned suppression, fear-potentiated startle, autonomic nervous system responses, and 22kHz ultrasonic vocalizations. By analyzing 5054 articles on rodent fear assessment published since 1960, we observed a

trend in the field of psychology and neuroscience, shifting from various fear indicators to a focus on observing freezing behavior as a singular measure. We hence study the underlying theoretical evolution underlying this trend. Based on this systematic review, we selected 61 articles that reported both freezing behavior and another fear indicator in the same study. We hypothesized that the correlation between two different fear indicators in the same study reflects whether these two indicators represent the same function, whereas their differences in magnitudes reveal the similarities and differences in their mechanisms or neural circuits. Specifically, using freezing behavior as a reference, we conducted correlation analyses between this indicator and the other five indicators (ultrasonic vocalizations, conditioned suppression, heart rate, mean arterial pressure, and defecation) and compared the magnitude differences under different conditions using three-level meta-analyses. The research findings indicate: 1. The systematic review revealed a high consistency between conditioned suppression and freezing behavior changes. However, autonomic nervous system responses, as fear indicators, are influenced by various physiological factors and do not always synchronize with freezing behavior changes. Lesions in the amygdala and PAG brain regions can reduce various fear responses, and damage to the basal forebrain cholinergic system selectively affects 22kHz ultrasonic vocalizations but not freezing behavior. In the fear conditioning paradigm, the presentation and alteration of stimulus parameters at different stages have inconsistent effects on freezing behavior and 22kHz vocalizations, indicating a dissociation between defensive strategies and cognitive appraisal processes. 2. The correlation analysis found a high correlation between freezing behavior and conditioned suppression behavior as well as 22kHz ultrasonic vocalizations, but a low correlation between freezing behavior and autonomic nervous system responses. 3. The results of the three-level meta-analysis also revealed that under different behavioral classifications, different experimental stages, and different experimental parameters conditions, the magnitude of freezing behavior and 22kHz ultrasonic vocalizations separated, whereas damage to the brain PAG and vmPFC areas caused a separation between freezing behavior and the two autonomic nervous system indicators, heart rate and mean arterial pressure. This study substantiates the presence of a two-system model of fear in rodent subjects, suggesting that the transition between objective and subjective fear behaviors could operate on a threshold-based model. With further efforts, this study contributes to establishing a theoretical foundation for the clinical management of fear-associated mental disorders.

Keywords：fear indicators, two-system model, rodent model, fear conditioning, subjective fear

冲突适应的形成机制：线索预期和经验习得及其权重变化

高宇 [1]　　向玲 [2](通讯作者)　　王宝玺 [3]

[1] 江西师范大学心理学院, 南昌 330022, 中国

摘 要 个体在面对一系列冲突时，认知系统会根据实际需要调整控制水平，体现出冲突适应。既往研究发现，内隐的经验习得和外显的线索期望都可以引发冲突适应，那么二者同时存在时是否会相互作用，影响冲突控制调整？本研究以组块比例一致性效应为指标，通过启动-目标数字判断（实验一）和数值-字号 Stroop（实验二）两种冲突任务，以广义线性混合模型拟合简化组块下的反应时，方差分析对比前后期脑电成分幅值，探究外显线索提示怎样调节基于内隐经验形成的冲突适应。反应时结果发现，在简化组块下，组块比例一致性效应随试次位次逐渐增大，但有线索提示后，经验积累的作用削减，几乎消失。ERP 结果在排除了联结学习的可能后，均发现了冲突相关早期负波和晚期正波的组块比例一致性效应，同样发

现有线索提示后，经验积累的权重变小，效应消失。结果表明，对于内隐经验的学习和基于外显线索的预期在冲突适应的形成中均发挥着重要作用，但运用外显信息的同时，经验学习作用的权重会降低，内隐习得过程弱化，二者在各自模式内形成冲突适应，两种冲突适应来源的作用不可加，具有领域特殊性。

关键词 冲突适应，比例一致性效应，内隐经验，预期

Formation Mechanism of Conflict Adaptation: Cue-based Expectations, Experiential Learning, and their Weighting Dynamics

GAO Yu[1] XIANG Ling[2] (corresponding author) WANG Baoxi[3]

[1] *School of Psychology, Jiangxi Normal University, Nanchang 330022, China*

Abstract：When individuals face a series of conflicts, their cognitive system will adjust the level of control according to actual needs, reflecting conflict adaptation. Previous research has found that both implicit experiential learning and explicit cue expectations can trigger conflict adaptation. However, it remains unclear whether they interact with each other and affect conflict control adjustment when they coexist. In this study, we used the proportion congruent effect as an indicator and utilized two conflict tasks - the prime-target judgment task (Experiment 1) and the numerical Stroop task (Experiment 2). We fitted reaction time data under a simplified blocks using generalized linear mixed models and compared the amplitude of brain components with variance analysis in order to explore how explicit cue instructions modulate conflict adaptation based on implicit experiential learning. The results of reaction time showed that under the simplified blocks, the proportion congruent effect increased gradually with trial position. However, this effect was greatly reduced and almost disappeared with cue instructions, indicating that the influence of accumulated experience was diminished. The ERP results, after excluding the possibility of associative learning, revealed the presence of the proportion congruent effect in terms of conflict-related early negative deflection and late positive potentials. Similarly, with the cue instructions, the weight of experiential learning decreased and the effect disappeared. These findings suggest that both implicit experiential learning and explicit cue-based expectations play important roles in the shaping of conflict adaptation. However, while utilizing explicit information, the weight of experiential learning decreases, weakening the implicit learning process. Each mode forms conflict adaptation within its own domain, and the effects from these two sources of conflict adaptation are not additive, indicating domain specificity.

Keywords：Conflict Adaptation, List-wide Proportion Congruency Effect, Implicit experience, Expectation

物理环境秩序对审美愉悦的影响及其机制：来自行为与脑电的证据

陈柳 杜邦 程雪晴 李开云 贾凡路 侯婷婷

济南大学教育与心理科学学院，济南，250022，sep_liky@ujn.edu.cn

摘 要 审美愉悦是个体欣赏自然风景或艺术品时产生的愉悦体验。审美体验模型提出外在所处周围环境或者情境会影响审美主体对审美客体的审美愉悦体验。环境中的整齐混乱程度也称环境秩序是对个体心理和行为有重要影响，以往研究者未关注到物理环境秩序对个体审美愉悦的影响及作用机制。本研究采用行为实验和 ERP 技术，通过四个实验来系统探讨物理环境秩序影响个体审美愉悦的认知机制、加工进

程以及个体差异。实验 1 探究有序和无序物理环境图片启动个体的秩序感，对其具象和抽象艺术作品审美愉悦的影响，发现物理环境的有序和无序只影响抽象艺术作品的审美愉悦评分，而不影响具象艺术作品的审美愉悦评分。基于认知加工流畅性理论，实验 2 和实验 3 聚焦探讨物理环境秩序影响抽象艺术作品审美愉悦的机制。实验 2 探究物理环境秩序对不同流畅性抽象艺术作品审美愉悦的影响，发现物理环境秩序可以调节流畅性类型对抽象艺术作品审美愉悦的影响，并且通过主观流畅度改变影响审美愉悦。实验 3 采用 ERPs 技术，探究物理环境秩序影响抽象艺术作品审美愉悦的具体加工阶段，发现有序和无序环境图片启动下，抽象艺术作品诱发的 P2(180~260 ms; P3/Pz/P4/PO3/POz/PO4)、N2(220~300 ms; F3/Fz/F4/FC3/FCz/FC4)波无显著差异；在无序环境下，低流畅性作品诱发的 P3((300~500 ms; P3/Pz/P4/PO3/POz/PO4)、LPP(500~800 ms; P3/Pz/P4/PO3/POz/PO4)波幅显著高于高流畅性艺术作品。根据控制感理论和无序的“随机世界”理论，实验 4 进一步考察高低控制感特质的个体在环境秩序影响抽象艺术作品审美愉悦程度上是否存在差异，结果发现高低控制感个体在无序环境图片启动下的抽象艺术作品审美愉悦得分都显著高于有序环境图片启动条件，但两类群体之间的抽象艺术审美愉悦得分不存在显著差异。本研究表明物理环境秩序对艺术作品审美愉悦的影响只限于抽象艺术作品，其作用机制是通过认知加工流畅/不流畅来进行的。

关键词　审美愉悦, 物理环境秩序, 流畅性, 控制感, 抽象艺术

The influence of physical environmental order on aesthetic pleasure and its mechanism: ERP and behavioral evidences

CHEN Liu, DU Bang, CHENG Xueqing, LI Kaiyun, JIA Fanlu, HOU Tingting
(*School of Education and Psychology, University of Jinan, Jinan* 250022, *China*)

***Abstract*:** Aesthetic pleasure is the pleasant experience produced when appreciating natural scenery or works of art. In the past, researchers mainly focused on the effect of physical environment on aesthetic pleasure, but ignored the effect of physical environment order. The present study used figurative and abstract art works as experiment materials, uses behavioral experiments and ERP technology to explore the cognitive mechanisms, processing processes, and individual differences by which physical environment order affects aesthetic pleasure through four experiments.Experiment 1 screened the research materials--figurative and abstract art works, explored the impact of physical environment order on the aesthetic pleasure of figurative and abstract art works, and found that the physical environment order only affected the aesthetic pleasure of abstract art works, but had no effect on the figurative art works.Therefore, experiment 2 and experiment 3 only used abstract art works as experimental materials, and took the fluency of art works as independent variable. Experiment 2 explored the cognitive mechanism and the influence of physical environment order on aesthetic pleasure of abstract art works with different fluency. The results showed that physical environment order can regulate the influence of fluency on aesthetic pleasure, and affect aesthetic pleasure by the change of subjective fluency. In experiment 3, ERPs technology was used to explore the specific processing stage that physical environment order affecting aesthetic pleasure. It was found that P2 and N2 waves induced by art works had no significant difference between ordered and disordered environments, but in disorder environment, the P3 and LPP waves induced by low-fluency works were significantly higher than those induced by high-fluency works. In experiment 4, the sense of control was used as a trait variable to explore whether the influence of physical environment order on aesthetic pleasure is regulated by sense of control. It was found that regardless of the level of the sense of control, the aesthetic pleasure in the disorderly environment was significantly higher than that in the orderly environment. The conclusions can be drawn: (1) the physical environment order has a significant impact on the aesthetic pleasure of abstract art works,

and the aesthetic pleasure in the disorderly environment is higher than that in the orderly environment; (2) The physical environment order has a greater impact on low-fluency art works than high-fluency art works, and the control processing in the disorderly environment can reduce the disfluency of art works and improve aesthetic pleasure; (3) The sense of control can not regulate the influence of physical environment order on aesthetic pleasure, and the two have independent mechanisms to affect aesthetic pleasure. This study reveals the relationship between physical environment order and aesthetic pleasure, and provides a theoretical basis for improving the aesthetic experience of art works by interfering with environmental order.

Keywords: aesthetic pleasure, physical environment order, fluency, sense of control

妒忌对项目记忆与情景记忆定向遗忘的影响

尹元花 孙茹洁 翁超婷 孙影（通讯作者）

上海师范大学教育学院，上海市，200234，2553597957@qq.com

摘 要　使用定向遗忘范式，通过两个实验，探讨妒忌情绪对妒忌对象的相关项目信息和情景信息定向遗忘的影响，并确定个体与妒忌对象的人际关系、信息效价的调节作用。结果表明，项目材料除消极信息其他条件的信息均产生了定向遗忘效应，而情景材料中的积极和消极信息均未出现定向遗忘效应，且对妒忌对象再认的反应时更短。以上结果表明，妒忌情绪导致对优势他人信息的认知偏向，从而干扰了主动遗忘的加工，且在需要更深层加工的情景信息中更甚。

关键词　妒忌，项目记忆，情景记忆，定向遗忘

The effect of envy on item memory and episodic memory in directed forgetting

YIN Yuanhua, SUN Rujie, WENG Chaoting, SUN Ying

College of Education, Shanghai Normal University, Shanghai, 200234

***Abstract*:** This study employed a directed forgetting paradigm and conducted two experiments to investigate the impact of jealousy on directed forgetting of relevant item information and contextual information related to the jealous target, as well as to determine the moderating effects of interpersonal relationships and information valence. The results indicated that, except for negative information under certain conditions, directed forgetting effects were observed for item materials. However, no directed forgetting effects were found for both positive and negative information in the contextual materials, and participants exhibited shorter reaction times in recognition of the jealous target. These findings suggest that jealousy emotion leads to a cognitive bias toward advantageous others, thus interfering with the processing of proactive forgetting, especially in situations that require deeper processing of contextual information.

***Keywords*:** envy, item memory, episodic memory, directed forgetting

伪损伤左侧额下回和左侧颞叶后部不影响语言控制但影响非语言控制：来自经颅磁刺激的证据

柯玉茗[1,2] 屈鸿馥[1,2] 计艳楠[1,2] 成瑶[3] 吴俊杰[1,2,4]（通讯作者）

1 教育部人文社会科学重点研究基地天津师范大学心理与行为研究院，天津，300387

2 天津师范大学心理学部，天津，300387

3 北京师范大学国际中文教育学院，北京，100875

4 学生心理发展与学习天津市高校社会科学实验室，天津，300387，通讯作者 E-mail: psywujunjie@foxmail.com

摘 要 随着时代的发展，懂得多门语言的人越来越多。针对双语者乃至多语者是如何在不同的语言中切换自如，主流的观点认为在语言产生的过程中涉及到语言控制这一功能，而语言控制和一般领域认知控制之间的关系一直是双语领域的重要问题。前人研究大多通过考察双语者在语言控制任务和非语言控制任务上行为表现的相关程度或者脑激活的相似程度来回答该问题。然而，这些相似的行为指标或者脑区激活揭示的只是相关性，部分可能是在“滥竽充数”（即伴随性的活动），而不是真正“负重前行”（即具有因果致使性[causality]）。本研究招募 33 名汉英非平衡双语者（其中 19 名女性），使用非侵入性的经颅磁刺激（transcranial magnetic stimulation, TMS）技术对他们的左侧额下回（inferior frontal gyrus, IFG）和左侧颞叶后部（posterior temporal lobe, pTL）进行短暂性的伪损伤，考察他们在语言切换任务和非语言切换任务下行为表现的变化（相比于刺激额顶脑区[vertex]作为对照而言）。结果发现：相比于刺激额顶脑区，（1）刺激左侧 IFG 或者左侧 pTL 都没有改变语言切换代价和混合代价；（2）刺激左侧 IFG 增大了非语言切换任务的切换代价反应时，并且改变了非语言切换任务反应时的混合代价不对称性的方向；（3）刺激左侧 pTL 会使得非语言混合代价的错误率变小。这些结果表明左侧 IFG 和左侧 pTL 不负责双语语言控制，但对一般领域认知控制具有不可或缺的支持作用。本研究首次采用 TMS 技术为语言控制不同于一般领域认知控制这一观点提供因果性的证据。

关键词 语言控制，一般领域认知控制，左侧额下回，左侧颞叶后部，经颅磁刺激

Virtual lesion to the left posterior temporal lobe does not affect language control but non-linguistic control: Evidence from transcranial magnetic stimulation

Yuming Ke[1,2] Hongfu Qu[1,2] Yannan Ji[1,2] Yao Cheng[3] Junjie Wu[1,2,4]

1 Key Research Base of Humanities and Social Sciences of the Ministry of Education, Academy of Psychology and Behavior, Tianjin Normal University, Tianjin 300387

2 Faculty of Psychology, Tianjin Normal University, Tianjin 300387

3 Chinese Language and Culture College, Beijing Normal University, Beijing 100875, China

4 Tianjin Social Science Laboratory of Students’ Mental Development and Learning, Tianjin 300387

psywujunjie@foxmail.com

***Abstract*:** An increasing number of individuals can speak more than one language, making understanding

how bilinguals and multilinguals effortlessly switch between different languages matter. The prevailing view suggests that language control plays a crucial role in this process, and revealing the relationship between bilingual language control and domain-general cognitive control is an important issue in the field of bilingualism. Previous research has primarily examined the correlation between performance in language control tasks and non-linguistic control tasks or the similarity in brain activation to address this issue. However, these behavioral or brain activation results only reveal correlations, some of which may be epiphenomenal rather than causally related. The present study recruited 33 Chinese-English unbalanced bilinguals (19 females) and applied non-invasive transcranial magnetic stimulation (TMS) to transiently disrupt their left inferior frontal gyrus (IFG) and left posterior temporal lobe (pTL). We investigated the changes in their performance during language switching tasks and non-linguistic switching tasks compared to stimulation of the vertex as a control condition. The results showed that, compared to stimulating vertex: (1) stimulating the pTL or IFG did not alter language switching costs and mixing costs; (2) stimulating the IFG accelerated reaction times of the switching cost in non-linguistic switching tasks, and changed the direction of reaction time of asymmetric mixing cost in non-linguistic switching tasks. (3) stimulating the pTL led to a lower error rate of mixing cost in non-linguistic switching tasks. These findings suggest that both the IFG and the pTL are not responsible for language control but may contribute to non-linguistic control. This study provides the first causal evidence from TMS for the distinction between bilingual language control and domain-general cognitive control.

Keywords: Language control, Domain-general cognitive control, Inferior frontal gyrus, Posterior temporal lobe, Transcranial magnetic stimulation

Mood computational mechanism underlying increased risk behavior in adolescent suicidal patients

Zhihao Wang¶[1], Tian Nan ¶[2], Ting Wang[3], Yinzhao Liu[4], Fengmei Lu[5], Yue Yu[5], Xiao Cai[5], Zongling He[5*], Yuejia Luo[2*], Bastien Blain[1]

[1]CNRS - Centre d'Economie de la Sorbonne, Panthéon-Sorbonne University, France
[2]School of Psychology, Sichuan Center of Applied Psychology, Chengdu Medical College, Chengdu, China
[3]Department of Cognitive Neuroscience, Faculty of Psychology and Neuroscience, Maastricht University, Maastricht, The Netherlands
[4]University of Groningen, Department of Biomedical Sciences of Cells & Systems, Section Cognitive Neuroscience, University Medical Center Groningen, Groningen, The Netherlands
[5]The Clinical Hospital of Chengdu Brain Science Institute, School of Life Science and Technology, University of Electronic Science and Technology of China, Chengdu, 611731, PR China,

¶These authors contributed equally to this work.

Abstract：Suicidal thoughts and behaviors (STB) are one of leading causes of death worldwide. Although literature has consistently reported increased risk behavior in patients with STB and has proposed mood problems as the core of STB, cognitive and affective computational mechanisms underlying increased risky behavior remain unclear. Here, we tested 58 patients with STB (S^+) and 25 without STB (S^-) who have been recruited from adolescent inpatients with affective disorders, in a gambling task with momentary mood ratings where patients were asked to make decisions between certain vs. gamble option. After identifying increased risk behavior in S^+ vs. S^-, we used approach-avoidance prospect theory model and momentary mood model to quantify patients' behavior and mood. Choice data analysis showed that heighted approach motivation mediated an increase in gambling choices with STB severity, suggesting impaired Pavlovian approach system in STB resulting in higher gambling in gains. Mood model showed lower mood sensitivity to certain reward in S^+ than S^-, which further explained increased gambling decisions in STB, offering a mood computational account for increased risk behavior in STB. These results remain significant after controlling for demographic and clinical variables and medication factors. Overall, our findings revealed cognitive and affective computational mechanisms underlying increased risk behavior in STB. This work has important implications for prevention and intervention of suicide, especially for clinical populations.

Keywords: suicidal, adolescent, affective disorder, momentary mood, prospect theory, risk

情景记忆的自我参照效应对价值决策的影响

朱靖涵[1] 王俭勤[2]（通讯作者）

1 复旦大学心理学系，上海，200433

2 复旦大学心理学系，上海，200433，wjq@fudan.edu.cn

摘 要 大量研究表明，自我参照加工会促进个体的情景记忆，而情景记忆能够指导个体进行价值决策。然而，目前尚未有研究直接考察情景记忆的自我参照效应是否能够有助于个体的价值决策。本研究采用联结记忆范式，以奖券游戏的形式，考察了自我参照效应是否会增强奖励经验相关的情景记忆，尤其是刺激-奖励之间的联结记忆，从而使被试在价值决策中表现更好。本研究基于 G. Power 功效分析招募了有效被试 38 名，采用 2（参照条件：自我、他人）× 2（奖励价值：高、低）被试内设计。被试先通过奖券游戏学习了“参照条件-图片-金额”的对应关系，并在 5 分钟的干扰任务后进行了项目记忆与联结记忆测试，最后完成了决策任务。结果发现：（1）对于刺激-奖励联结记忆，被试在自我参照条件下所报告的奖券金额与实际金额之间的误差显著小于他人参照条件下的误差，且被试倾向于在记忆中低估高价值奖券金额，高估低价值奖券金额，形成对于价值的错误记忆；（2）“参照条件”和“价值”在决策偏好上存在交互作用：自我参照条件下，被试选择高价值的比例显著高于低价值（$p<0.001$），但是他人参照条件下差异不显著；（3）被试对自我参照高价值奖券的项目记忆越好，则被试在决策时选择该奖券的比例越高（$r=0.36$，$p=0.028$）；被试对于自我参照高价值奖券的价值联结记忆正确率越高，则被试在两张均为自我参照条件但价值不同的奖券中正确选择高价值奖券的比例越高（$r=0.48$，$p=0.002$）。综上所述，本研究揭示了情景记忆的自我参照效应如何影响个体的价值决策，即自我参照效应可通过提高与自身相关的奖励记忆从而提升个体的决策表现，体现了自我参照效应的适应性功能。

关键词 自我参照效应，情景记忆，价值决策，联结记忆

The Influence of self-reference effect of episodic memory on

value-based decision-making

ZHU Jinghan[1], WANG Jianqin[1]
School of psychology, Fudan University, Shanghai 200433, China

Abstract： Numerous research has shown that the self-reference effect promotes information processing, thus improving episodic memory, and the episodic memory can provide people with effective guidance about value-based decision-making. However, few studies have examined whether the self-reference effect of episodic memory could directly help individuals perform better when making value-based decisions. In the form of a lottery game, this study adopted the paradigm of associative memory to investigate whether self-referential processing would enhance the episodic memory that related to reward experiences, especially the associative memory between the stimulus and the reward, leading to better performance in value-based decision-making. Based on the power analysis of G.Power, this study recruited 38 effective participants. The experiment adopted a 2(referential conditions: self and other) ×2(reward value: high and low) within-subjects design. The participants first learned the relationship between "referential condition-picture-value" through a lottery game, and then they conducted item memory and associative memory tests after a 5-minute disorder task. Finally, they completed the decision-making task. The results showed that: (1) For stimulus-reward associative memory, the error between the reported lottery amount and the actual amount under self-referential conditions was significantly smaller than that under other-referential conditions, and participants tended to underestimate high-value lotteries and overestimate low-value lotteries in memory, forming false memories of value. (2) There was an interaction between “referential condition” and “value” on decision preference: under self-referential condition, the proportion of participants choosing high value was significantly higher than that of low value ($p < 0.001$), but the difference was not significant under other-referential condition. (3) The better item memory in self-referential and high-value lotteries, the higher proportion of participants choosing this type of lotteries when making decisions ($r=0.36$, $p=0.028$); The higher accuracy of participants' associative memory for self-referential and high-value lotteries, the higher proportion of correctly choosing high-value lotteries between two lotteries that were both self-referential but had different values ($r=0.48$, $p=0.002$). In conclusion, this study reveals how self-reference effect of episodic memory affects individuals’ value-based decision-making, that is, the self-reference effect can enhance decision-making performance by improving self-related reward memory, which reflects the adaptive function of the self-reference effect.

Keywords： Self-reference effect, Episodic memory, value decision-making, Associative memory

预期对认知控制调节机制的影响

李庆一[1]　颜士博[1]　张一凡[1]　李葆明[1]　李政汉[1,2,3]（通讯作者）
[1] 杭州师范大学基础医学院生理学系脑科学研究所，杭州，311121，lizh@hznu.edu.cn
[2] 浙江省哲学社会科学培育实验室“杭州师范大学婴幼儿发展与托育实验室”，杭州，311121
[3] 浙江省认知障碍评估技术研究重点实验室，杭州，311121

摘要　**背景**：越来越多的研究表明，对分散注意力的信息的抑制可能不受灵活的、自上而下的控制，而是严重依赖于从过去的经验中得出的对事件可能性的预期。然而，关于目标和干扰位置的预期如何影响认知控制的机制尚不清楚。认知控制是指个体为了达到具体的目的和意图， 灵活地、自适应地调动注意资源的心理过程，具体表现为对任务相关刺激的加工增强和对任务无关刺激的加工抑制。前人围绕认知控制的调

节机制开展了大量研究，然而大多围绕加工增强与加工抑制的是非之争展开，且并未得到一致的结果。我们基于以往的研究提出假设，认为认知控制的调控机制并非一成不变或非此即彼的，而是会受到对目标和干扰预期的影响，具体采用哪种调节策略会根据当前的信息进行灵活调整。**方法：**本研究采用改编的空间注意资源分配任务，进行了单因素被试内设计，自变量为对目标和干扰的预期，具体通过目标刺激与干扰刺激的比例来表现，包括七种不同的水平分别为 1:1、1:3、1:5、3:1、3:3、5:1、6:6，其中 1:1 表示目标刺激和干扰刺激都固定出现在同一个位置，6:6 表示目标和干扰刺激均完全随机呈现，每个条件重复六次再切随机切换到其他条件。实验包括 5 个组块，每个组块包括 252 个试次，涵盖上述 7 个条件及每个条件可能出现的 6 种位置。共有 29 名被试参与了本研究。**结果：**目标与干扰刺激比例的主效应在反应时，$F(6,11) = 112.01$，$p < .001$，和正确率上 $F(6,11) = 16.28$，$p < .001$ 均显著。成对比较结果发现，1:1 水平反应时显著小于 1:3 与 1:5 水平下的反应时；1:1 水平的正确率显著高于 1:5 水平的正确率（$ps < .05$）。此外，1:1 水平下的反应时显著小于 3:1 与 5:1 条件下的反应时，1:1 条件下的正确率显著高于 3:1 与 5:1 水平的正确率且 3:1 水平下的反应时显著小于 5:1 水平下的反应时（$ps < .05$）。**结论：**认知控制对选择性注意的调控受到对目标和干扰预期的影响，是一个动态的过程。当干扰刺激范围扩大时，个体会调用更多认知资源增强对目标的注意；当目标刺激范围扩大时，个体会调用更多的认知资源抑制对干扰的注意。这些发现对于深入理解认知控制机制以及相关认知过程具有重要意义。

关键词 预期，认知控制，选择性注意，加工增强，加工抑制。

The effect of expectation on the regulatory mechanisms of cognitive control

Qingyi Li[1] Shibo Yan[1] Yifan Zhang[1] Baoming Li[1] Zhenghan Li[1,2,3*]

[1] Institute of Brain Science and Department of Physiology, School of Basic Medical Sciences, Hangzhou Normal University, Hangzhou, China, 311121, lizh@hznu.edu.cn

[2] Zhejiang Philosophy and Social Science Laboratory for Research in Early Development and Childcare, Hangzhou Normal University, Hangzhou, China

[3] Zhejiang Key Laboratory for Research in Assessment of Cognitive Impairments, Hangzhou, China

Abstract:

Background: A growing body of research suggests that the suppression of distracting information may not be solely governed by flexible, top-down control mechanisms. Instead, it heavily relies on expectations formed through past experiences. However, the precise ways in which expectations regarding target and interference locations impact cognitive control remain unclear. Cognitive control refers to the psychological process through which individuals dynamically allocate attention resources to achieve specific goals and intentions. This process involves enhancing the processing of task-related stimuli while inhibiting the processing of task-unrelated stimuli. Previous studies have primarily focused on the regulatory mechanisms of cognitive control, often debating between processing enhancement and processing inhibition, with inconsistent results. Building on prior research, we hypothesize that the regulatory mechanism of cognitive control is not static or binary but is flexibly

adjusted based on the current information and expectations of targets and disturbances. **Methods:** In this study, we employed a modified spatial attention resource allocation task using a single-factor within-subject design. The independent variable was the expectation of target and interference, which was indicated by the ratio of target stimuli to interference stimuli. There were seven different levels: 1:1, 1:3, 1:5, 3:1, 3:3, 5:1, and 6:6. For instance, 1:1 represented fixed positions for both target and interference stimuli, while 6:6 indicated completely random positions for both. Each condition was repeated six times before randomly transitioning to other conditions. The experiment comprised five blocks, each containing 252 trials, covering all seven conditions and six possible positions for each. **Results:** The ratio of target to interference stimulus had a significant main effect on response ($F(6, 11) = 112.01$, $p < .001$)and accuracy ($F(6, 11) = 16.28$, $p < .001$). Pairwise comparisons revealed that the reaction time at the 1:1 level was significantly lower than that at the 1:3 and 1:5 levels, and the correct rate at the 1:1 level was significantly higher than that at the 1:5 level (*ps* <.05). Moreover, the reaction time at the 1:1 level was significantly lower than that at the 3:1 and 5:1 conditions, and the correct rate at the 1:1 condition was significantly higher than that at the 3:1 and 5:1 levels. Additionally, the reaction time at the 3:1 level was significantly lower than that at the 5:1 level (*ps* <.05). **Conclusion:** The regulation of selective attention by cognitive control is a dynamic process that is influenced by expectations of target and interference stimuli. As the range of interference stimuli expands, individuals allocate more cognitive resources to enhance their attention to the target. Conversely, when the range of target stimuli widens, individuals allocate more cognitive resources to suppress attention to interference. These findings hold significant implications for a deeper understanding of cognitive control mechanisms and related cognitive processes.

Keywords: expectation, cognitive control, selective attention, processing enhancement, processing inhibition

老年人多维睡眠与不同层面认知老化的效应

林国俊[1]　徐佳杰[1]　喻婧[1]（通讯作者）

1 西南大学心理学部，重庆，400715，helen12@swu.edu.cn

摘 要　以往研究睡眠问题与认知老化的不良关系时，倾向于支持主客观的独立双路径模式。本研究结合标准曲线分析（specification curve analysis），旨在研究上述主客观睡眠与主客观认知之间的关系。研

究采集了 55 名社区老年人多维睡眠与认知评估数据，涵盖（1）主观睡眠评估（匹茨堡睡眠 PSQI 问卷，Epworth 嗜睡量表，Stop-Bang 量表）；（2）多导睡眠图采集的客观睡眠评估（睡眠阶段，睡眠指数，睡眠纺锤波，睡眠慢波）；（3）主观认知下降（SCD-Q9）；（4）客观整体认知表现（MoCA，MMSE）和情景记忆任务。我们先对多导睡眠仪中的睡眠阶段、睡眠指数、睡眠纺锤波和睡眠慢振荡进行了迭代主成分分析，分别提取第一主成分以代表四种客观睡眠模式。将四个客观睡眠主成分与三项主观睡眠作为自变量，将主客观认知评估作为因变量，运用标准曲线分析揭示老年人认知与睡眠的稳健性。结果发现，主客观睡眠都仅与客观认知存在稳健关系，具体表现在三种主观睡眠与总体客观认知能力，客观睡眠（只有睡眠指数）与情景记忆表现之间。主客观睡眠均与主观认知无稳健关联，但睡眠不良者要比睡眠良好者的 PSQI 得分与 SCD 的关联性更强。这些结果表明主客观睡眠都仅与客观认知存在稳健关系，而非遵从双路径模式。客观测量的睡眠可能更能发现正常老化过程中早期出现的认知问题，尤其是情景记忆能力的衰退。当缓解睡眠问题与认知老化的不良关系时，需聚焦在特定的睡眠干预与认知评估上。

关键词　睡眠，认知老化，记忆，规格曲线分析

Robust Associations between Objectively–Measured and Subjectively–Reported Sleep and Objective, but not Subjective, Cognition in Older Adults

Guo-Jun Lin, Jia-Jie Xu, Jing Yu
Faculty of Psychology, Southwest University, Chongqing 400715, China

Abstract： Previous studies investigating the association between sleep problems and cognitive decline preferred to support independent dual–pathways based on subjectivity and objectivity in older adults. Combining specification–curve analysis across all reasonable models, this study aims to investigate above robust association and explore the relationship between multidimensional sleep and diverse cognition. The Pittsburgh Sleep Quality Index (PSQI), Epworth Sleepiness Scale (ESS), Stop–Bang, home polysomnography, Subjective Cognitive Decline Questionnaire 9 (SCD–Q9), Mini–Mental Status Examination (MMSE), Montreal Cognitive Assessment (MoCA) and episodic memory task were collected from 55 community–dwelling older adults, with 30 from Cohort A and 25 from Cohort B respectively. Iterative principal component analysis was performed on sleep stages, sleep index, spindles and slow oscillation from polysomnography as a representation of four objective sleep components, which were together with subjective sleep inventory and cognitive performance by specification–curve analysis as to reveal the robustness of association between them. Robust association were found between subjectively–reported sleep, descending are Stop–Bang, PSQI and ESS and global cognition, as well as association between objectively–measured sleep, only sleep index, and memory performance were. Neither of sleep measurement is robustly associated with subjective cognitive decline, whose association with poor sleepers were stronger than with good sleepers yet. Both subjectively–reported and objectively–measured sleep are robustly associated with objective cognition, except that in the case of the former, subjectively perceived sleep problems are directly reflected in global cognition, whereas in the case of the latter, sleep patterns measured by instruments and not yet directly subjective perceived may only be reflected in memory performance as early stages of sleep problems. Taken together, objectively-measured sleep may be better at detecting the early onset of cognitive problems in normal aging, particularly episodic memory decline. Moreover, it highlights the importance of focusing on specific sleep, while mitigating the adverse association between sleep problems and cognitive decline.

Keywords： sleep, cognitive aging, memory, specification curve analysis

急性应激降低男性捐赠行为而非合作行为

张晨[1#] 张茗喆[2#] 张茜媛[3] 余思雨[3] 刘阳[3] 李先春[3] 李世佳[3]（通讯作者）

1 上海交通大学医学院附属精神卫生中心，上海，200030

2 北京师范大学认知神经科学与学习国家重点实验室，北京，100875

3 华东师范大学心理与认知科学学院，上海，200062，Email：sjli@psy.ecnu.edu.cn

摘 要 目的：急性应激反应是有机体在面对突发环境变化时产生的一种常见的应急响应，影响着人们的各种社会行为。其中，急性应激对于亲社会行为的影响在维持社会的稳定和谐方面有着重要的作用，受到了研究者们的广泛关注。关于急性应激下的人类行为，存在“战斗或逃跑”以及“照料与结盟”两种侧重点不同的理论，以往的实验室研究也存在大量不一致的结果，这可能是由于急性应激对于不同类型的亲社会行为存在不同的影响，需要通过更多直接测量不同种类亲社会行为的任务来加以验证。此外，既往研究也缺少来自脑机制的证据。**方法：**本研究招募了 55 名男性大学生被试（压力组=27），年龄范围在 18-26 岁之间(M=21.98, SD=2.54)。通过马斯特里赫特急性应激测试(MAST)诱发压力组被试进入急性应激状态，对照组被试完成非压力版本的 MAST，随后通过 Greater Good Game 范式测量两组被试的合作行为、自私行为和捐赠行为。在实验过程中通过功能性近红外光谱成像(fNIRS)记录被试大脑皮层的活动。同时，在实验过程中会四次收集被试的唾液皮质醇。**结果：**本研究的主要发现如下：(1)压力组被试的捐赠行为显著低于对照组，在自私行为和合作行为上与对照组没有显著差异。并且，相比于对照组被试，压力组被试在决策时，与亲社会情绪相关的双侧额极的激活程度显著降低。(2)在压力组中，压力诱导后的皮质醇曲线下面积(AUG)与捐赠行为存在一定程度的正相关。相比于皮质醇响应者，皮质醇不响应者表现出了更多的自私行为和更少的捐赠行为。(3)压力组中，捐赠行为与亲社会倾向正相关，而在对照组中，捐赠行为与亲社会倾向无显著相关。**结论：**本研究发现了急性应激会降低男性的捐赠行为，但对自私行为和合作行为没有影响。此外，急性应激降低了亲社会情绪相关的脑区双侧额极的激活程度。同时，本研究还揭示了急性应激状态下的皮质醇反应水平正向预测了捐赠行为。综上所述，本研究为急性应激会对不同类型的亲社会行为产生不同的影响提供了证据。对于纯粹利他行为，行为层面和神经层面的结果支持了“资源保护理论”。

关键词 急性应激，亲社会行为，皮质醇，功能性近红外光谱成像(fNIRS)，额极

Acute psychosocial stress reduces donation behavior but not economic cooperation in healthy young men

Chen Zhang[1#], Mingzhe Zhang[2#], Xiyuan Zhang[3], Siyu Yu[3], Yang liu[3], Xianchun Li[3], Shijia Li[3*]

1 Shanghai Mental Health Center, Shanghai Jiao Tong University School of Medicine, Shanghai, 200030, China

2 State Key Laboratory of Cognitive Neuroscience and Learning, and IDG/McGovern Institute for Brain Research, Beijing Normal University, Beijing, 100875, China

3 Shanghai Key Laboratory of Mental Health and Psychological Crisis Intervention, Affiliated Mental Health Center (ECNU), Institute of Brain and Education Innovation, School of Psychology and Cognitive Science, East China Normal University, Shanghai, 200062, China

Email：sjli@psy.ecnu.edu.cn

Abstract: ***Background:*** The acute stress response is a common rapid reaction sudden environmental changes, with the potential to impact diverse social behaviors. Understanding the influences of stress on prosocial behaviors is crucial for maintaining social stability and harmony. Previous studies have indicated that the effects of acute on prosocial behaviors highly depend on task design and individual differences. Moreover, further investigation is needed to uncover the undelying neurobiological mechanisms. ***Methods:*** Fifty-five healthy male students, aged 18-26 years (M = 21.98, SD = 2.54) were recruited, who were randomly assigned to either the stress or control group. The Maastricht Acute Stress Test (MAST) was administered in a controlled laboratory setting to induce acute stress. Following this procedure, participants engaged in a modified version of the Greater Good Game (GGG), aimed at evaluating their preferences for economic cooperation and donation behavior. Brain activity in the frontal regions was measured during the task using a portable functional near-infrared spectroscopy (fNIRS) device. ***Results:*** The main findings of this study are as follows: (1) Acute stress led to a decrease in the donation rate, while showing no discernible impact on the cooperation rate. (2) Stressed participants exhibited a positive correlation between their cortisol response and the donation rate, whereas no such correlation was observed in relation to the cooperation rate. Additionally, cortisol non-responders demonstrated significantly lower donation rates compared to cortisol responders and the control group. (3) The influence of acute stress was evident in reduced activations in the bilateral frontopolar and orbitofrontal cortex during the decision-making, process, regardless of conditions. Notably, the left pars opercularis, left superior temporal gyrus, and right temporopolar exhibited correlations with the donation rate under acute stress exclusively. ***Conclusion:*** This study affirms that acute stress adversely affects the preference for donation behavior, without a corresponding effect on the preference for economic cooperation in the GGG. Furthermore, the findings propose that both physiological individual differences (such as cortisol response) and psychological individual differences (such as prosocial tendencies) could substantially contribute to the way acute stress influences the donation preferences. Overall, this investigation advances our understanding of the diverse effects of acute stress on various forms of prosocial behaviors, while also providing behavioral and neurophysiological insights in line with the principles of the 'Conservation of Resources' theory.

Keywords: Acute stress, Prosocial behavior, Cortisol, Functional near-infrared spectroscopy (fNIRS), Frontopolar

篮球运动员在目标导向的动态视觉追踪任务下的不均匀注意分配

张琦[1]　王静[1]　李杰[2,3]（通讯作者）张禹[1]（通讯作者）

1 北京体育大学，北京，100091

2 杭州师范大学附属医院认知与脑障碍中心，杭州，311121

3 杭州师范大学心理科学研究所，杭州，311121，lijie.psy@hznu.edu.cn

摘 要　在传统的多目标跟踪(MOT)任务中，被跟踪目标的相对重要性是相等的。而在现实生活中的大多数情况，我们需要优先考虑某些目标，从而不平等地分配注意力。本研究修改了 MOT 范式，通过目标闪动的频率表示目标优先级高低，检验了改变目标优先级和目标数量的情况下，不同群体是否可以不平等地分配注意力。实验 1 关注在追踪中注意资源容量的有限性，考察了篮球运动员和普通大学生在追踪 2、4、6 个目标的平均和不平均条件下的追踪正确率。其中不平均条件指的是一半目标优先级高，另一半目标优先级低。将普通大学生和篮球运动员在平均条件、不平均条件下的低优先级和高优先级目标的追踪正确率进行重复测量方差分析，结果表明，组别和优先级高低的交互作用显著，$F(2,42)=3.347$, $p=.045$。在平均

条件和对低优先级目标的追踪中，篮球运动员显著好于普通大学生，$F(1,21)=20.418$, $p= .000$; $F(1,21)=7.481$, $p= .012$。在对高优先级目标的追踪中，两者的追踪正确率差异不显著。实验 2 主要关注追踪中注意资源容量的灵活性，细化了不同优先级的组合。实验 2a 追踪 4 个目标时的不平均包含 1 低 3 高和 1 高 3 低；实验 2b 追踪 6 个目标时的不平均包含四种条件，分别是 1 低 5 高、2 低 4 高、4 低 2 高和 5 低 1 高。结果表明，不平均条件的细化会显著的影响追踪不同群体的追踪正确率。实验 2a 的结果显示在基线和 1 低 3 高中无论是对低优先级还是对高优先级目标，都出现了篮球运动员的追踪正确率显著高于普通大学生的趋势(86.53%vs79.52%，p=.006；75.66%vs57.02%，p=.003)。但是篮球运动员和普通大学生在 1 高 3 低中对低优先级和高优先级的追踪正确率无显著差异。实验 2b 同理。在 2 低 4 高、4 低 5 高和 5 低 1 高的条件，篮球运动员对低优先级的目标的追踪正确率更高(61.45%vs51.68%, p=.002; 55.78%vs43.33%, p=.000; 67.60%vs56.51%, p=.000)。在 1 低 5 高条件下，对高优先级的目标的追踪正确率更高(75.41%vs69.45%，p=.002)。研究证明了个体可以将注意资源不均匀的分配到多个目标上，其中，相比于普通大学生，篮球运动员不仅具备更多的注意资源，而且可以根据任务要求更灵活的进行分配。研究结果为灵活注意资源理论做了支持和补充。

关键词　多目标追踪，注意，不均匀注意分配，篮球

Goal-directed unequal attention allocation during multiple object tracking of basketball players

Qi Zhang[1] Jing Wang[1] Jie Li[2,3] Yu Zhang[1]

1 Department of Psychology, Bei Jing Sports University, Beijing, 100091

2 Center for Cognition and Brain Disorders, the Affiliated Hospital, Hangzhou Normal University, Hangzhou, 311121

3 Institutes of Psychological Sciences, Hang Zhou Normal University, Hang Zhou,311121

Abstract：In traditional multiple object tracking (MOT) tasks, the relative importance of the object being tracked is equal. In most situations in real life, we need to prioritize certain goals, thus distributing attention unequally. In this study, the MOT paradigm was modified to indicate the priority of the goal through the frequency of the goal flash, and to test whether different groups can distribute attention unequally when the priority and number of goals are changed. Experiment 1 focuses on the finiteness of attention resource capacity in tracking, and examines the tracking accuracy of basketball players and ordinary college students under the average and uneven conditions of tracking 2, 4 and 6 goals. The unbalanced condition refers to that half of the goals have a high priority and the other half have a low priority. The tracking accuracy of low priority and high priority objects of ordinary college students and basketball players under average and unequal conditions was analyzed by repeated measurement ANOVA. The results showed that the interaction between group and priority level was significant, F (2,42) = 3.347, p =.045. In the average condition and tracking of low priority goals, basketball players are significantly better than ordinary college students, F (1,21) = 20.418, p =.000; F (1,21) = 7.481, p =.012. In the tracking of high-priority objects, there is no significant difference between the two tracking accuracy rates. Experiment 2 focuses on the flexibility of attention resource capacity in tracking and refines the combination of different priorities. In experiment 2a, the inequality of tracking 4 objects includes 1 low, 3 high and 1 high, 3 low; The uneven of experiment 2b tracking 6 objects includes four conditions: 1 low 5 high, 2 low 4 high, 4 low 2 high, and 5 low 1 high. The results show that the refinement of unequal conditions can significantly affect the tracking accuracy of different groups. The results of experiment 2a showed that the tracking accuracy of basketball players was significantly higher than that of ordinary college students (86.53%vs79.52%, p=.006; 75.66%vs57.02%,

p=.003). However, there is no significant difference between basketball players and ordinary college students in the accuracy of tracking low priority and high priority. Same thing with experiment 2b. Under the conditions of 2 low, 4 high, 4 low, 5 high and 5 low, 1 high, basketball players were more accurate in tracking low priority objects (61.45%vs51.68%, *p*=.002; 55.78%vs43.33%, *p*=.000; 67.60%vs56.51%, *p*=.000). Under the condition of 1 low and 5 high, the tracking accuracy of the high-priority object was higher (75.41%vs69.45%, *p*=.002). The research proves that individuals can unevenly allocate attention resources to multiple objects. Compared with ordinary college students, basketball players not only have more attention resources, but also can allocate them more flexibly according to task requirements. The results support and supplement the theory of flexible attention resources.

Keywords：multiple object tracking, attention, unequal attention allocation, basketball

强迫症患者行为学习双系统失衡特征及其神经机制

于权浩 [1,2,3] 高峰 [1,2,3] 曹妍媛 [1,2,3] 王向 [1,2,3] 樊洁 [1,2,3] 朱熊兆 [1,2,3]（通讯作者）

1 中南大学湘雅二医院医学心理研究中心，长沙，410011

2 中南大学医学心理研究所，长沙，410011

3 国家精神心理疾病临床医学研究中心，长沙，410011，Email: xiongzhaozhu@csu.edu.cn

摘 要 **背景：**基于行为学习双系统理论的框架下，强迫行为被认为是一种因刺激诱发的且对目标变化不敏感的过度习惯性行为。强迫行为的产生源自行为学习双系统的失衡。过去关于强迫症行为学习双系统失衡的研究较多关注行为反应阶段，在建立刺激—反应—结果联结的行为学习中强迫症患者表现出的特征尚不清楚。此外，过去关于强迫症行为学习双系统失衡的研究大多数为行为学研究，其失衡的神经机制尚未明确。**方法：**本研究纳入 49 名强迫症患者（Obsessive-Compulsive Disorder, OCD）和 38 名健康对照(Healthy Controls, HC)。被试首先完成强迫症状严重程度评估，然后完成 SOAT 的行为学习以及行为反应部分。行为反应阶段同时进行磁共振扫描。通过强化学习模型对行为学习阶段进行计算认知建模，采用分层贝叶斯的建模方法比较两组被试在学习阶段的学习率、强化敏感性以及坚持参数等指标，分析上述指标对行为反应阶段的影响。比较两组被试在行为反应阶段中负责习惯性行为和目标导向行为的脑区激活差异。**结果：**（1）在 SOAT 任务的行为学习阶段，OCD 组的正确率和反应时与 HC 组无显著差异（正确率：$F_{(1,82)}$= 0.104, $p > 0.05$；反应时：$F_{(1,82)} = 0.185, p > 0.05$）；基于强化学习模型结果发现，OCD 组的平均学习率、坚持参数，以及 3 种刺激—反应—结果的联结学习率以及显著低于 HC 组，强化敏感性参数显著高于 HC 组。（2）强迫症患者组平均学习率和坚持参数与 Y-BOCS 强迫行为得分表现出显著负相关($r = -0.311, p < 0.05$; $r = -0.315, p < 0.05$)，强化敏感性参数与强迫症状相关不显著。（3）在行为反应阶段，OCD 组的贬值敏感性指数以及对有价值结果反应率显著低于 HC 组（$p < 0.001$；$p < 0.05$），对贬值结果反应率显著高于 HC 组（$p < 0.001$）。（4）OCD 组平均学习率与对有价值结果反应率呈显著相关关系（$r = 0.373, p < 0.05$），坚持参数与对贬值结果反应率呈显著负相关关系（$r = -0.342, p < 0.05$）；OCD 组与 HC 组中均发现强化敏感性参数与对贬值结果反应率（OCD: $r = -0.382, p < 0.05$; HC: $r = -0.403, p < 0.05$）、贬值敏感性指数（OCD: $r = 0.432, p < 0.01$; HC: $r = 0.397, p < 0.01$）呈显著相关关系。（5）任务态磁共振结果发现，OCD 组在目标导向性行为与习惯性行为相竞争时以及执行习惯性行为时，均表现出眶额叶以及脑岛的激活显著低于 HC 组（团块水平 $p < 0.05$，FWE 校正），并且在执行习惯性行为时的条件下右侧眶额下回的激活与强迫行为严重程度显著负相关（$r = -0.394, p < 0.05$）；在对有价值刺激进行反应时，OCD 组在中央前后回的区域激活显著高于 HC 组（团块水平 $p < 0.05$，FWE 校正）。**结论：**（1）强迫症患者目标导向性行为和习惯性行为的学习能力受损，表现出无法根据预测误差及时更新行为联结强度，更容易怀疑已经建立的正确联结。强迫症患者双

系统行为学习能力受损主要与强迫行为而非强迫思维的症状严重程度有关。（2）强迫症患者在行为反应阶段，目标导向性行为表现不佳，过度依赖习惯性行为，表现出行为学习双系统失衡，强迫症患者在行为学习阶段的特征可以预测其行为反应阶段的行为模式。（3）强迫症患者过度依赖习惯性行为可能是因其眶额叶、脑岛区域的激活减弱从而导致对结果价值变化不敏感，提示强迫症患者可能由于编码预期结果价值的能力受损从而导致过度依赖刺激—反应联结。

关键词　强迫症，强迫行为，行为学习双系统，任务态功能磁共振

Characteristics and neural mechanism of dual-system imbalance in Obsessive-Compulsive Disorder patients

Quanhao Yu [1,2,3], Feng Gao [1,2,3], Yanyuan Cao [1,2,3], Xiang Wang [1,2,3],Jie Fan [1,2,3], Xiongzhao Zhu [1,2,3] (Corresponding author)

[1] Medical Psychological Center, the Second Xiangya Hospital, Central South University, Changsha 410011, China

[2] Medical Psychological Institute of Central South University, Changsha 410011, China

[3] National Clinical Research Center for Mental Disorders, Changsha 410011, China

Abstract*: *Background: Based on the dual-system theory, compulsive behavior is viewed as overly habitual behavior that is stimulus-driven and insensitive to changes in goals. The production of compulsive behavior arises from an imbalance between the two behavior systems. Previous research on the imbalance of the dual-systems in obsessive-compulsive disorder (OCD) has mainly focused on the behavioral response stage, and the characteristics exhibited by OCD patients in establishing the stimulus-response-reinforcement association are not yet clear. Additionally, most previous studies on the imbalance of the dual systems of behavior learning in OCD have been behavioral studies, and the neural mechanisms underlying the dual-system learning imbalance in OCD patients have not been elucidated. ***Methods:*** This study included 49 patients with obsessive-compulsive disorder and 38 healthy controls. Participants completed assessments of the severity of their compulsive symptoms, anxiety and depression, and demographic data collection. All participants completed the behavior learning phase of the Slip of Action Test (SOAT) in the laboratory, ensuring that each participant memorized the relationships between stimuli, behaviors, and outcomes. After that, they completed the outcome devaluation phase of SOAT in functional magnetic resonance imaging (fMRI). Reinforcement learning models were used for cognitive computational modeling of the learning phase, and hierarchical Bayesian modeling was used to compare the two groups of participants' learning rates, reinforcement sensitivity, persistence parameters, and their effects on behavioral response in the outcome devaluation phase. The impact of these parameters on behavioral responses during the reward devaluation stage were analyzed. Compare the differences in brain region activation between two groups of subjects responsible for habitual behavior and goal-directed behavior during the behavioral response phase. ***Results:*** (1) During the learning phase of SOAT, OCD patients showed no significant differences in accuracy and reaction time compared to healthy controls (ACC: $F_{(1,82)} = 0.104$, $p > 0.05$; RT: $F_{(1,82)} = 0.185$, $p > 0.05$). Based on the results of the computational cognitive model, OCD patients' three types of associative learning rates, average learning rate, and persistence parameter were significantly lower than those of healthy controls, while their reinforcement sensitivity parameter was significantly higher than that of healthy controls. (2) Average learning rate and persistence parameters were significantly negatively correlated with the Y-BOCS compulsive behavior score ($r = -0.311$, $p < 0.05$; $r = -0.315$, $p < 0.05$), while the reinforcement sensitivity parameter was not significantly correlated with OCD symptoms. (3) During the behavioral response phase, the OCD group had significantly lower

devaluation sensitivity and reaction rate to valuable results than the HC group ($p < 0.001$; $p < 0.05$), and a significantly higher reaction rate to devalued results than the HC group ($p < 0.001$). (4) The average learning rate in the OCD group was significantly positively correlated with the reaction rate to valuable results ($r = 0.373$, $p < 0.05$), and the persistence parameter was significantly negatively correlated with the reaction rate to devalued results ($r = -0.342$, $p < 0.05$). Both the OCD and HC groups showed a significant correlation between the reinforcement sensitivity parameter and the reaction rate to devalued results (OCD: $r = -0.382$, $p < 0.05$; HC: $r = -0.403$, $p < 0.05$), and the devaluation sensitivity index (OCD: $r = 0.432$, $p < 0.01$; HC: $r = 0.397$, $p < 0.01$). (5) The results of the task-state functional magnetic resonance imaging (fMRI) showed that in the competition between goal-directed behavior and habitual behavior, and during the execution of habitual behavior, patients with obsessive-compulsive disorder (OCD) exhibited significantly reduced activation in the orbitofrontal cortex and the insula (cluster level $p < 0.05$, family-wise error correction). Moreover, during the execution of habitual behavior, the activation of the right orbitofrontal cortex was significantly negatively correlated with the severity of compulsive behavior ($r = -0.394$, $p < 0.05$). When responding to valuable stimuli, patients with OCD showed significantly enhanced activation in the anterior and posterior cingulate regions (cluster level $p < 0.05$, family-wise error correction).***Conclusion:*** (1) The learning abilities of both goal-directed and habitual behaviors are impaired in patients with OCD, as they exhibit an inability to update the strength of behavior associations according to prediction errors and are more likely to doubt the correctness of established associations. The impairment of the dual-system learning abilities in patients with OCD is mainly related to the severity of compulsion rather than obsession. (2) In the behavior response stage, patients with OCD perform poorly in goal-directed behavior and overly rely on habitual behavior, leading to an imbalance in dual-system behavior. The characteristics of patients' behavior during the learning stage can predict their behavior patterns during the response stage. (3) The excessive reliance of patients with OCD on habitual behavior may be due to the reduced activation in the orbitofrontal cortex and insula, which leads to insensitivity to the change of the value of results. This suggests that patients with OCD may have impaired ability to encode the expected value of results, resulting in excessive dependence on stimulus-response associations.

***Keywords*：** Obsessive-Compulsive Disorder, Compulsive, Dual-system, functional Magnetic Resonance Imaging

负性效价预期想象的可控性调节了延迟折扣

陈玺雯 范聪（通讯作者） 罗文波（通讯作者）
辽宁师范大学脑与认知神经科学研究中心，大连，116029
通讯作者 E-mail: congfan1199@lnnu.edu.cn，luowb@lnnu.edu.cn

摘 要 跨期决策是既关乎人类个体利益、身体健康，又关乎国家经济的重要决策。然而，日常生活中，人们往往表现出延迟折扣，即相对于长远较大的奖励，人们更倾向于选择即时较小的奖励；这对人们理财和保健有消极影响。预期想象（episodic future thinking, EFT）影响延迟折扣。已有 fMRI 研究初步发现积极的预期想象降低延迟折扣的脑机制，但是消极效价对延迟折扣的影响机制仍存在争议。行为与环境可控性的理论认为，当人们生活在缺乏控制的严厉环境中时，通常会表现地更加冲动。因此，负性效价 EFT 的可控性可能会调节延迟折扣。为了探究这一问题，本实验设置了 EFT 的 4 个条件，分别为基线、负性可控、负性不可控和中性，操纵了延迟时间（1 个星期、1 个月、3 个月、6 个月、1 年和 3 年）和延迟奖励的金额幅度（小金额：200 元，大金额：1680 元），来探究其对延迟折扣任务的影响机制。我们通过要求被试事先对 EFT 事件的效价、可控性、个人相关性和生动性进行评分，来确定运用于延迟折扣任务中不同 EFT

条件下的提示事件。结果显示：（1）相对于负性可控条件，负性不可控条件下的延迟折扣率更高；（2）相比于基线条件，中性条件和负性可控条件均降低了延迟折扣率，而负性不可控条件与基线条件无显著差异；（3）当延迟时间较长时（3 年），相比于基线条件，负性不可控条件显著降低了延迟折扣率。结果表明，不可控的负性效价的预期想象有效降低了较长的延迟时间条件下的延迟折扣。本实验为正常群体的跨期决策的改善提供新的干预思路，未来研究需要重视负性事件的可控性对延迟折扣的影响，从而有助于人们在理财和保健中长远获益。

关键词 预期想象，跨期决策，延迟折扣，负性效价，可控性

The controllability of negatively-valenced emotion in episodic future thinking modulates delay discounting

Xiwen Chen, Cong Fan*, Wenbo Luo*
Research Center of Brain and Cognitive Neuroscience, Liaoning Normal University, Liaoning 116029, China

Abstract: Intertemporal decision-making is important for not only human's private interest and physical health but also the national economy. Nevertheless, in daily life, individuals tend to prefer immediate and smaller rewards to delayed and larger rewards, which is known as delay discounting (DD). Episodic future thinking (EFT) has been proven to influence DD. A fMRI study preliminarily has found the brain mechanism of the effect of positive EFT on reducing DD. However, there is still no inconsistent conclusion on the effect of negative EFT on DD. One theory about the controllability of behaviors and environments explains that people living in harsh circumstance lacking of control tend to be more impulsive. Thus, it is proposed that the degree of controllability of negative EFT would modulate the DD rate. In the study, we set up four EFT conditions including the baseline, neutral EFT, negative-controllable EFT and negative-uncontrollable EFT. We also manipulated delayed time (e.i. 1 week, 1 month, 3 months, 6 months, 1 year and 3 years) and the reward magnitude (small magnitude: 200CNY; large magnitude: 1680CNY) to investigate the effect of controllability of negative EFT on DD. Participants were required to evaluate valence, controllability, personal relevance and vividness of future events in advance to determine the EFT cuing events with different valences used in the DD task. The results were as follows: (1) the DD was steeper in negative-uncontrollable EFT than in negative-controllable EFT ; (2) compared to the baseline, both neutral EFT and negative-controllable EFT reduced DD, while negative-uncontrollable EFT has no difference in reducing DD with the baseline; (3)more importantly, when the delayed time was longer (e.i., 3 years), participants tended to choose delayed and larger rewards in the condition of negative-uncontrollable EFT compared to the baseline. The present findings mainly suggested that negative-uncontrollable EFT effectively reduced DD when the delay time was longer. The current study supports new insight for healthy groups on optimizing EFT by paying attention to the controllability of negative future events. In that case, individuals are able to gain long-term benefits in financial management and healthcare.

Keywords: episodic future thinking, intertemporal decision-making, delay discounting, negative valence, controllability

4.3 硕士生论坛—发展与教育心理学

家庭喂养与学前儿童饮食行为的关系——家庭教养方式的调节

杜巧金[1]　马东乐[1]　王健楠[1]　张洁[1]　周楠[1]（通讯作者）
1 首都师范大学学前教育学院，北京，100048
通讯作者 E-mail：nanzhou@cnu.edu.cn

摘 要　我国学前儿童饮食行为问题日益突出，不仅对儿童膳食营养和体质健康发展造成影响，而且给家长的喂养及教养方式也带来了挑战(Goodman et al., 2019)。儿童饮食习惯的养成受家庭环境影响(Steinsbekk et al., 2017)，家庭喂养行为作为饮食互动中的具体教养行为，与儿童的挑食、过饱响应、食物响应、情绪性进食等饮食行为有关(Zhou et al., 2015; Carnell et al., 2014; Jani et al., 2015)。教养方式作为家庭教育的整体氛围，则会调节特定教养行为与儿童发展状况间的关系(Darling & Steinberg, 1993)。因此，本研究拟通过建立调节模型，探究家庭教养方式在家庭喂养与学前儿童饮食行为之间的作用机制。

本研究选取北京市 360 名学前儿童（M = 4.41 ; SD = 0.72）及其母亲（M = 39.83 ; SD = 3.38）为研究对象，对管控型、工具型、情绪型、鼓励型喂养行为(Birch et al., 2001；Musher, 2007)、家庭教养方式(Robinson et al., 1995)和儿童饮食行为(Wardle et al., 2001)进行测量。采用 SPSS22.0 PROCESSv4.0 进行调节模型的分析。结果表明：(1)权威型教养方式调节了情绪性喂养行为与幼儿过饱响应饮食行为的关系，F (3, 368) = 8.64，$p < 0.001$，$R^2 = 0.07$，只有当权威型教养方式处于水平高时，情绪性喂养行为与幼儿过饱响应饮食行为呈显著正相关；（2）权威型教养方式调节了工具型喂养行为与幼儿食物响应行为，F (3, 356) = 6.92，$p < 0.001$，$R^2 = 0.06$，和幼儿情绪性饮食不足的关系，F (3, 356) = 3.34，$p < 0.01$，$R^2 = 0.04$，只有当权威型教养方式水平处于高时，工具型喂养行为与幼儿食物响应饮食行为、情绪性饮食不足行为呈显著正相关。

本研究初步揭示了权威型家庭教养方式在家庭情绪性和工具型喂养行为与儿童问题饮食行为间的调节作用机制。对于家长正确、合理地调整喂养行为以及教养方式，从而为幼儿良好饮食行为的形成与发展创设良好的家庭环境提供了实证研究支持。

关键词　学前儿童，饮食行为，家庭喂养，教养方式

The Association Between Family Feeding and Preschool Children's Eating Behaviors -- Moderation of Family Parenting Style

Qiaojin DU　Dongle Ma　Jiannan Wang　Jie Zhang　Nan Zhou
Capital Normal University，Beijing，100048

***Abstract*：** Eating behavior problems among preschool children in China are becoming increasingly prominent, not only impacting on children's dietary nutrition and physical health development, but also posing challenges to parents' feeding and parenting practices (Goodman et al., 2019). The development of children's eating habits is influenced by the family environment (Steinsbekk et al., 2017), and family feeding behaviors, as specific parenting behaviors in eating interactions, have been associated with children's eating behaviors such as picky eating, satiety responsiveness, food responsiveness, and emotional eating (Zhou et al., 2015; Carnell et al., 2014; Jani et al., 2015). Parenting styles, as the overall climate of family education, then moderates the relationship between specific parenting behaviors and children's developmental status (Darling & Steinberg, 1993). Therefore, the present study intends to investigate the mechanism of the role of family parenting styles in the relationship between family feeding and preschool children's eating behaviors by developing a model of

moderation.

In this study, 360 preschool children (M = 4.41 ; SD = 0.72) and their mothers (M = 39.83 ; SD = 3.38) in Beijing, China were selected to measure controlled, instrumental, emotional, and encouraging feeding behaviors (Birch et al., 2001; Musher, 2007), family parenting styles (Robinson et al. 1995) and children's eating behaviors (Wardle et al., 2001) were measured. Moderated models were analyzed using SPSS 22.0 PROCESSv4.0. The results showed that (1) authoritative parenting style moderated the relationship between emotional feeding behavior and toddler satiety responsiveness eating behavior, F (3, 368) = 8.64, $p < 0.001$, $R^2 = 0.07$, and emotional feeding behavior was significantly and positively related to toddler satiety responsiveness eating behavior only when authoritative parenting style was at a high level; (2) authoritative parenting style moderated the relationship between instrumental feeding behavior with toddler food responsiveness behavior, F (3, 356) = 6.92, $p < 0.001$, $R^2 = 0.06$, and toddler emotional under-eating, F (3, 356) = 3.34, $p < 0.01$, $R^2 = 0.04$, and instrumental feeding behavior was significantly positively correlated with toddler food responsiveness eating behavior, and emotional under-eating behavior, only when the level of the authoritative parenting style was at the level high. were significantly positively correlated.

This study preliminarily reveals the moderating mechanism of authoritative family parenting styles between family emotional and instrumental feeding behaviors and children's problematic eating behaviors. This study provides empirical support for parents to correctly and rationally adjust their feeding behaviors and parenting styles to create a good family environment for the formation and development of good eating behaviors in young children.

Keywords：preschool children, eating behavior, family feeding, parenting style

网络欺凌对留守中学生健康相关危险行为的影响：线上社交焦虑与抑郁的链式中介作用

孙云舒[1] 张珊珊[2]（通讯作者）

1 沈阳师范大学教育硕士研究生院，辽宁 沈阳，110034

2 沈阳师范大学教育科学学院，辽宁 沈阳，110034

摘 要 我国互联网普及率在未成年群体中已达到96.8%，网络不仅帮助青少年获取最新资讯、进行在线娱乐以及网络社交活动，其不当地使用也会给青少年带来心理上的威胁及伤害，其中，网络欺凌是网络使用不当的典型表现，主要指个体或团体通过电子或数字媒体，反复和长时间对他人进行故意的伤害，导致其不适的反应。根据一般压力理论，网络欺凌作为负性生活经历，可能是诱发留守中学生健康相关危险行为产生的网络风险因素，而线上社交焦虑和抑郁可能在其中分别起单独中介作用。根据社交重构假设理论和社交焦虑的认知行为模型，线上社交焦虑和抑郁可能在网络社交环境下存在关联性，推测其可能在网络欺凌对健康相关危险行为中起链式中介作用。本研究采用中学生网络和日常行为状况调查问卷、线上社交焦虑问卷、流调中心抑郁量表和青少年健康相关危险行为问卷对659名留守中学生进行调查。探讨网络欺凌与健康危险行为关系以及线上社交焦虑和抑郁在两者之间的链式中介作用。结果显示：（1）网络欺凌能够正向预测健康相关危险行为；（2）抑郁在网络欺凌和健康相关危险行为间存在单独中介作用；（3）线上社交焦虑和抑郁在网络欺凌和健康相关危险行为间存在链式中介效应。上述结果表明，网络欺凌是健康相关危险行为的重要影响因素，线上社交焦虑和抑郁在两者间发挥链式中介作用。

关键词 网络欺凌，健康相关危险行为，线上社交焦虑，抑郁，留守中学生

The impact of online bullying on health-related risk behaviors of left behind middle school students: the chain mediating effect of online Social anxiety and depression

Sun Yunshu, Zhang Jingqi, Zhang Shanshan,
1College School of Education, Shenyang Normal University, Shenyang, Liaoning 110034
2 College of Education Science, Shenyang Normal University, Shenyang, Liaoning 110034

Abstract： The internet penetration rate in China has reached 96.8% among underage groups. The internet not only helps teenagers obtain the latest information, engage in online entertainment, and social activities, but its improper use can also bring psychological threats and harm to teenagers. Among them, cyberbullying is a typical manifestation of improper internet use, mainly referring to individuals or groups repeatedly and intentionally harming others through electronic or digital media for a long time, A reaction that causes discomfort. According to the general stress theory,cyberbullying, as a negative life experience, may be an online risk factor that induces the health-related risk behaviors of left behind middle school students, and online Social anxiety and depression may play a separate mediating role in it. According to the social reconstruction hypothesis theory and the cognitive behavior model of Social anxiety, online Social anxiety and depression may be related in the online social environment, and it is speculated that they may play a chain mediating role in cyberbullying on health-related risk behaviors. In this study, 659 left behind middle school students were investigated by using the questionnaire of middle school students' network and daily behavior status, online Social anxiety questionnaire, the Center for Epidemiology Depression Scale and the Youth Health Related Risk Behavior Questionnaire. To explore the relationship between cyberbullying and health risk behaviors, and the chain mediating role of online Social anxiety and depression between them. The results show that: (1) cyberbullying can positively predict health-related risk behaviors; (2) Depression has a separate mediating effect between cyberbullying and health-related risky behaviors; (3) Online Social anxiety and depression have a chain Mesomeric effect between cyberbullying and health-related risk behaviors. The above results indicate that cyberbullying is an important influencing factor of health-related risk behaviors, and online Social anxiety and depression play a chain mediating role between them.

Keywords： Cyberbullying, health-related risk behaviors, online Social anxiety, depression, left behind middle school students

非对称联合运动中感觉运动交流的空-时映射关系

张珂[1] 童歆[1] 张琪涵[1,2]（通讯作者）白学军[1,2]（通讯作者）
1 天津师范大学心理学部，天津，300387；
2 教育部人文社会科学重点研究基地天津师范大学心理与行为研究院，天津，300387 bxuejun@126.com; zqhouou@126.com

摘 要 感觉运动交流(sensorimotor communication, SMC)指的是在工具性动作中嵌入交流性信号，由此该动作既有目的性属性，又有交流性属性。在复杂的联合行动和社会互动中，经常可以观察到感知运动交流。然而，感知运动交流背后的认知机制尚未厘清。本研究扩展了前人的研究，通过引入单人基线条件并设计了两类不同的非对称联合行动任务：距离任务和方向任务，从而探究个体间感觉运动交流的产生依

据。本研究采用2（合作意图：有、无）×2（任务特征：距离、方位）×4（目标：T1、T2、T3、T4）的被试内设计，考察了65名被试在不同实验条件下的动作表现。结果发现：（1）无论是距离任务还是方位任务，有合作意图条件下所有目标键的停留时间均大于无合作意图条件。（2）在有合作意图距离任务中，目标键T1、T2、T3、T4的停留时间及变异性逐渐增大，任务目标与个体的动作特征之间表现出“近小远大”的映射规律。（3）在有合作意图方位任务中，目标键T1、T2、T3、T4的停留时间及变异性有递增趋势，即信息发出者主要按“左上、右上、左下、右下”的顺序建立任务方位与个体动作特征之间的映射关系，以实现向他人传递信息的目的。这些结果表明，合作意图是感觉运动交流的前提；信息发出者感觉运动交流的产生主要依赖于任务目标与动作特征之间的映射关系。

关键词 感觉运动交流，非对称联合运动，信息发出者，空-时映射

Space-Time Mapping Relationships in Sensorimotor Communication during Asymmetric Joint Action

ZHANG Ke[1], TONG Xin[1], ZHANG Qihan[1,2], BAI Xuejun[1,2]

[1]Department of Psychology, Tianjin Normal University, Tianjin 300387, China

[2]Key Research Base of Humanities and Social Sciences, Institute of Psychology and Behavior, Tianjin Normal University, Tianjin 300387, China

***Abstract*：** Sensorimotor communication is frequently observed in complex joint actions and social interactions. However, it remains challenging to explore the cognitive foundations behind sensorimotor communication.

The present study extends previous research by introducing a single-person baseline condition and formulates two distinct categories of asymmetric joint action tasks: distance tasks and orientation tasks. This research investigates the action performance of 65 participants under various experimental conditions utilizing a 2 (cooperative intention: Coop, No-coop) × 2 (task characteristic: distance, orientation) × 4 (target: T1, T2, T3, T4) repeated-measures experimental design to investigate the cognitive mechanisms underlying sensorimotor communication between individuals.

The results showed, (1) In both the distance and orientation tasks, the dwell time for all target keys was significantly longer in the Coop condition than in the No-coop condition. (2) In the distance task with cooperative intention, the dwell time and its variability of T1, T2, T3, and T4 displayed an increasing trend, and observed a mapping relationship characterized by "near-small, far-large" between the task target and the individual's action characteristics. (3) In the orientation task with cooperative intention, the dwell time and variability of the target keys T1, T2, T3, and T4 had increasing trends. This suggests that message senders establish a mapping relationship between task orientation and action characteristics, following the sequence of “left-up, right-up, left-down, right-down” to transmit the message to others.

Those findings underscore the importance of cooperative intention as a prerequisite for sensorimotor communication. Furthermore, the generation of sensorimotor communication by the message senders relies on the mapping relationship between task targets and movement characteristics.

***Keywords*:** sensorimotor communication, asymmetric joint action, message sender, space-time mapping

情何以护心：社会情感能力对大学生心理健康的影响研究

陈玉蕾[1] 陈兆军[1] 王仕超[1]
1 厦门大学教育研究院，厦门，361005

摘 要　社会情感能力（Social Emotional Competency, SEC）作为个体适应社会环境的重要心理资源，被视为学生心理健康的有效保护因素，关系到学生未来成功和幸福。剖析社会情感能力对大学生心理健康的作用机制可以为培养身心健康发展的人才提供可参考的经验。本研究基于全国 1360 所本科高等学校 150098 名大学生的数据，构建了两个涉及社会情感能力、压力、应对方式和压力反应的综合分析模型，以深入探究“以情护心”的影响路径。

研究 1 通过构建平行中介模型首先考察了 SEC、学业压力、人际压力与压力反应之间的关系，结果发现：SEC 不仅能显著直接减轻学业压力、人际压力、生理反应和心理反应，还能通过学业压力和人际压力来间接降低学生的生理反应和心理反应。**研究 2** 在研究 1 的基础上进一步关注应对方式的作用，通过构建多重链式中介模型考察了 SEC、人际压力、三种应对方式和压力反应之间的影响关系，研究结果显示：除了直接缓解压力反应，SEC 还可以通过减轻人际压力、促进问题解决和寻求帮助以及降低问题回避的应对方式来间接缓解压力反应，其中降低人际压力和减少问题回避是 SEC 发挥保护作用的关键。

本研究探讨了大学生社会情感能力对心理健康的影响及其作用关系，可望为今后通过培养大学生社会情感能力来调适学业和人际压力、提升应对问题和抗压能力、维护和促进大学生心理健康提供理论参考和实践启示。

关键词　社会情感能力，心理健康，人际压力，压力反应，应对方式，多重中介模型

How Emotion Sustains the Mind: A Study on the Impact of Social Emotional Competency on the Mental Health of College Students

Yulei Chen[1], Zhaojun Chen[1], Shichao Wang[1]
1 Institute of Education, Xiamen University, No. 422, Siming South Road, Xiamen, Fujian, 361005, China.

Abstract: Social Emotional Competency (SEC) serves as a crucial psychological resource for individuals in adapting to their social environments and is regarded as an effective protective factor for students' mental health, bearing implications for their future success and well-being. Analyzing the influence mechanism of SEC on college students' mental health offers valuable insights for nurturing talents with holistic mental and physical development. Drawing from data of 150,098 college students across 1,360 undergraduate institutions nationwide, this study designed two comprehensive Multiple Mediation Models involving SEC, stress, coping strategies, and stress reaction, aiming to investigate the "Protecting the Heart with Emotion" impact pathway in-depth.

Study 1, through the construction of a parallel mediation model, primarily examined the relationships among SEC, academic stress, interpersonal stress, and stress reactions. Results demonstrated that SEC could not only notably decrease academic and interpersonal stresses, physiological reactions, and psychological reactions directly but also indirectly mitigate students' physiological and psychological reactions through academic and interpersonal stresses. Building on Study 1, Study 2 further delved into the role of coping strategies. By establishing a multiple chained mediation model, it inspected the interplay among SEC, interpersonal stress, three coping strategies, and

stress reactions. The outcomes revealed that apart from directly alleviating stress reactions, SEC can also indirectly moderate stress reactions by minimizing interpersonal stress, promoting problem-solving, seeking assistance, and reducing avoidance as coping strategies. Notably, decreasing interpersonal stress and limiting avoidance strategies emerged as key to SEC's protective function.

This research explored the influence of college students' SEC on their mental health and its underlying relationships. It is hoped to provide theoretical references and practical insights for future efforts in cultivating SEC in college students, facilitating adjustment to academic and interpersonal stresses, bolstering problem-solving and resilience capacities, and preserving and enhancing students' mental health.

Keywords： Social Emotional Competency, Mental Health, Interpersonal Stress, Stress Reaction, Coping Strategies, Multiple Mediation Model

共享阅读中母亲共读行为和儿童参与对儿童阅读理解的影响：基于fNIRS超扫描的研究

郑莎 [1,2] 刘小宁 [1,2] 徐晨晨 [1,2] 杜思敏 [1,2] 卢珊 [1,2](通讯作者) 王争艳 [1,2]

1 北京市“学习与认知”重点实验室，首都师范大学心理学院，北京，100048

2 首都师范大学儿童发展研究中心，北京，100048，通讯作者：卢珊 lushan79@163.com

摘 要 家庭阅读环境中的近端过程被视为“支持儿童发展的引擎”。共享阅读作为近端过程的典型活动，体现出成年人、儿童和书本的积极相互作用，对支持学龄前儿童阅读理解能力发展、促进其塑造完善的大脑阅读网络有重要意义。然而，针对共享阅读影响儿童阅读理解的神经基础的探索尚不充分。自然互动过程中互动双方的脑间同步性(IBS)被视作人际互动行为的潜在神经标志。基于此，本研究将探索共享阅读期间母亲共读行为和儿童参与影响儿童阅读理解的神经基础。本研究共招募了 33 对母子(儿童平均年龄 2.85 岁)。使用皮博迪图片词汇测验测量儿童词汇理解能力后，采用近红外光学脑成像的超扫描技术分别评估静息状态和共读任务状态时母子前额叶皮层和颞顶联合区的 IBS；而后针对所读内容寻问儿童问题，记录阅读理解得分；对母亲共读行为中的文本外话语(具体性/推理性话语)进行编码；对儿童的参与程度进行评分。结果发现，母亲具体性话语比例和推理性话语比例呈边缘显著负相关；具体性/推理性话语比例和儿童阅读理解得分无显著相关。控制母亲推理性话语比例后，母亲具体性话语比例和儿童右侧颞上回-母亲右侧中央后回的 IBS 增值显著正相关，儿童参与和儿童右侧颞中回-母亲右侧下顶叶区域的 IBS 增值显著正相关；控制父母受教育水平、儿童年龄和词汇理解能力后，与母亲具体性话语相关的 IBS 增值和儿童阅读理解得分显著正相关，说明在共享阅读期间，与母亲具体性话语相关的 IBS 增强趋势越高，即儿童右侧颞上回-母亲右侧中央后回的 IBS 增强趋势越高，儿童的阅读理解分数越高。本研究表明，在共享阅读活动中，母亲具体性话语和儿童参与分别与双方脑间的神经耦合呈正相关，儿童在处理听觉信息脑区和母亲在处理深浅感觉信息脑区的脑间同步性增强是母亲具体性话语促进儿童阅读理解能力的神经基础。这一结果启示父母在共享阅读活动中应使用与学龄前儿童认知水平相近的共读行为，以促进双方共同理解和信息传递，进而支持儿童早期阅读理解能力发展。

关键词 母亲共读行为，儿童参与，阅读理解，近红外光谱超扫描技术

The effects of maternal co-reading behavior and children's engagement on children's reading comprehension in shared reading: an fNIRS-based

hyperscanning study

Sha Zheng[1,2] Xiaoning Liu[1,2] Chenchen Xu[1,2] Simin Du[1,2] Shan Lu[1,2] (Corresponding Author)
Zhengyan Wang[1,2]
1 Beijing Key Laboratory of Learning and Cognition, School of Psychology of Capital Normal University, Beijing 100048, China
2Research Center of Child Development, Beijing 100048, China
Corresponding Author: Shan Lu, lushan79@163.com

Abstract: The proximal processes in home reading environments have been recognized as 'the engine that supports children's development'. As a typical activity of the proximal process, shared reading reflects the active interaction between adults, children and books, which is of great significance to support the early development of preschool children's reading comprehension ability and promote the formation of a well-developed brain reading network. However, the neural basis of shared reading affecting children's reading comprehension has not been sufficiently explored. The interpersonal brain synchronization (IBS) in natural interaction can be regarded as a potential neural marker of interpersonal interaction behavior. Based on this, the present study will explore the neural basis of the influence of maternal co-reading behavior and children's engagement on children's reading comprehension during shared reading. Thirty-three mother-child pairs were recruited for the study (mean age = 2.85 years). Children's vocabulary comprehension was measured using The Peabody Picture Vocabulary Test. We used hyperscanning techniques based on function near-infrared spectroscopy (fNIRS), recorded the brain activities of mother and child during resting state and co-reading task state, ealuated their IBS in the prefrontal cortex and the temporoparietal junction. Then, Children were asked questions about the book story, and reading comprehension scores were recorded based on children's responses. The extra-textual talk in maternal co-reading behaviours were coded as concrete utterances/inferential utterances. Finally we subjectively rated children's reading engagement. The results revealed a borderline significant negative correlation between the proportion of maternal concrete utterances and the proportion of inferential utterances; there was no significant correlation between the proportion of utterances/inferential utterances and children's reading comprehension scores. After controlling for the proportion of maternal inferential utterances, the maternal concrete utterances were significantly positively correlated with the IBS at the children's right superior temporal gyrus to the maternal postcentral gyrus. The children's engagement was significantly positively correlated with the IBS at the children's right superior temporal gyrus to the maternal inferior parietal, but supramarginal and angular gyri. After controlling for the parental education, children's age and vocabulary comprehension, the IBS value added associated with the maternal concrete utterance was significantly positively related to the children's reading comprehension, indicating that the higher the IBS enhancement trend related to maternal concrete utterance during shared reading, that is, the higher the IBS enhancement trend of children's right superior temporal gyrus to the maternal postcentral gyrus, the higher the reading comprehension score of child. The present study showed that maternal concrete utterance and children's engagement were positively associated with inter-brain neural coupling during shared reading activities, respectively. Furthermore, increased mother-child IBS between children's brain regions processing auditory information and maternal brain regions processing deep and shallow sensory information may serve as a neural indicator of the maternal concrete utterances promoting children's reading comprehension. The current study indicates that in shared reading activities, parents should adopt shared reading behaviors at a similar cognitive level as preschool children to promote shared understanding and information transfer, which in turn supports the early development of children's reading comprehension.

Keywords: maternal co-reading behavior, children's engagement, reading comprehension,

fNIRS-hyperscanning

压力知觉与幼儿教师负性情绪：情绪调节灵活性的调节作用

高甜雯[1] 吕怡晴[1] 代佳[1] 杜思奇[1] 郭梦欣[1] 曲方炳[1]（通讯作者）
[1]首都师范大学学前教育学院，北京，100048
Email: qufangbing@cnu.edu.cn

摘 要 目的：幼儿教师由于其教育工作和对象具有特殊性，往往面临着多重压力，压力的累积可能造成过多的负性情绪如焦虑、抑郁等。灵活地运用不同情绪调节策略有助于减缓其感知压力所造成的负性情绪。本研究探究幼儿教师压力知觉与其负性情绪体验之间的关系，以及情绪调节灵活性在两者关系中的作用机制，为提高幼儿教师心理健康提供理论依据和实践参考。方法：本研究以 468 名幼儿教师作为研究对象，采用压力知觉量表、贝克抑郁量表、特质-状态焦虑量表及情绪调节灵活性量表分别测查幼儿教师的压力知觉、抑郁情绪、焦虑情绪及情绪调节灵活性水平。结果：（1）幼儿教师压力知觉与抑郁和焦虑两种负性情绪显著正相关，压力知觉正向预测幼儿教师的抑郁、焦虑水平；（2）情绪调节灵活性在幼儿教师压力知觉与抑郁情绪间起负向调节作用，具体来说，在低压力知觉水平下，高低情绪调节灵活性的幼儿教师抑郁情绪不存在显著差异，而在高压力知觉水平下，情绪调节灵活性高的幼儿教师抑郁情绪显著低于情绪调节灵活性低的幼儿教师。本研究结果表明情绪调节灵活性能够缓冲幼儿教师压力知觉对情绪健康的不良影响，这为指导幼儿教师如何应对压力而减少负性情绪困扰提供了新思路，提示教育工作者可从情绪调节灵活性角度入手，促进幼儿教师的身心健康发展。

关键词 幼儿教师，压力知觉，负性情绪，情绪调节灵活性

Perceived Stress and Negative Emotion of Early Childhood Teachers: The Moderating Role of Emotion Regulation Flexibility

Gao Tianwen[1] Lv Yiqing[1] Dai Jia[1] Du Siqi[1] Guo Mengxin[1] Qu Fangbing[1] (Corresponding author)
College of Preschool Education, Capital Normal University, Beijing, 100048

***Abstract*: Objective:** As an occupation with a generally high sense of stress, early childhood teachers often face multiple stressors due to the specificity of their educational work and targets. The accumulation of stress may bring about negative emotion such as anxiety and depression. Early childhood teachers have frequent daily emotional labour, and being able to flexibly regulate their emotions may play an important role in mitigating negative emotions caused by perceived stress. The present study examined the relationship between perceived stress and negative emotions in early childhood teachers, and the mechanism of emotion regulation flexibility, in order to provide a theoretical basis and practical reference for improving the psychological health of this group. **Methods:** In this study, 468 teachers were selected by convenience sampling method, and the Chinese Perceived Stress Scale, Beck Depression Inventory, State-Trait Anxiety Inventory, and Flexible Emotion Regulation Scale were used to measure the perceived stress, negative emotion (including depression and anxiety), and emotion regulation flexibility of the early childhood teachers respectively. **Results:** (1) Perceived stress was significantly positively correlated with negative emotions, including depression and anxiety, and positively predicted the level

of negative emotions; (2) Emotion regulation flexibility played moderating role in the relationship between perceived stress and depression. Specifically, At a low level of stress perception, there were no significant differences in depression between early childhood teachers with low and high emotion regulation flexibility; At a high level of stress perception, the depression were significantly lower in early childhood teachers with high emotion regulation flexibility than in those who with low emotion regulation flexibility. The results show that emotion regulation flexibility can buffer the adverse effects of perceived stress on the emotional health of early childhood teachers, which provides new ideas for instructing them on how to cope with stress and reduce negative emotion , and suggests that educators can start from the perspective of emotion regulation flexibility to promote the physical health of early childhood teachers.

Keywords：Early Childhood Teachers; Perceived Stress; Negative Emotion; Emotion Regulation Flexibility

入园前家园共育对幼儿入园适应动态变化的影响研究

张亚欢[1]　邹昱欣[1]　王异芳[1]（通讯作者）

1 首都师范大学学前教育学院，北京，100048，wangyifang6275@126.com

摘 要　幼儿园是幼儿走向社会的第一步，入园适应是学前教育的开端。幼儿从家庭进入幼儿园的过程是从一个生态环境到另一个生态环境的过程，也是幼儿在成长过程中一段极为重要的经历。适应水平的高低不仅会影响到幼儿对幼儿园的融入程度，甚至还可能左右其心理和行为的长远发展。因此，本研究开展了向前一步的家园共育活动，旨在帮助初入园幼儿顺利度过入园适应期。

本研究以 427 名 3 岁幼儿及其家长为研究对象，在幼儿入园前一个月开展绘本阅读家园共育活动，入园后通过教师现场观察评分追踪幼儿初入园一个月的适应表现。运用多水平增长模型探讨幼儿初入园一个月的入园适应变化特征。分析结果发现：除认知与沟通维度外，幼儿在自我料理与情绪稳定、社会能力、学习倾向、班级规则等四个维度上的入园适应变化呈显著上升趋势；除班级规则适应维度，初始水平与变化速度呈正相关外，其余四个维度初始水平与变化速度呈负相关。研究中的家园共育可分为三种类型：无家园共育、有家园共育无反馈、有家园共育有反馈。采用两水平动态结构方程模型(DSEM)探讨家园共育入园准备对幼儿入园适应动态变化过程的影响。结果表明：幼儿入园适应五个维度平均水平从高到低依次为认知与沟通（4.21）、自我料理与情绪稳定（4.11）、班级规则（3.58）、社会能力（3.41）、学习倾向（3.28），且幼儿在入园适应五个维度上的自回归均呈显著正相关。与无家园共育组相比，有家园共育无反馈组和有家园共育有反馈组幼儿在自我料理与情绪稳定、社会能力、学习倾向三个维度的适应表现上有较强的自回归效应；以及在自我料理与情绪稳定、认知与沟通、学习倾向三个维度的适应表现上有较高的平均水平。进一步将家园共育频次和方式作为预测变量，以探究其对幼儿入园适应平均水平和自回归效应的影响。结果表明：幼儿年龄显著负向预测其在认知与沟通、社会能力、学习倾向、班级规则等四个维度上的自回归效应；家园共育频次显著负向预测幼儿在自我料理与情绪稳定维度上的平均水平。本研究结果表明，幼儿入园适应是一个动态变化的过程，开展入园前家园共育活动可以不同程度的影响幼儿入园适应表现，帮助幼儿完成新环境过渡。

关键词　家园共育，入园适应，动态变化

Study on the Influence of Home-School Cooperation before Kindergarten on the Dynamic Change of Children's Adaptation to Kindergarten

Yahuan Zhang[1], Yuxin Zou[1], Yifang wang[1] (corresponding author)
1College of Preschool Education, Capital Normal University, Beijing

Abstract：Kindergarten is the first step for children to go to society, and kindergarten adaptation is the beginning of preschool education. The process of children entering kindergarten from home is from one ecological environment to another ecological environment, and it is also a very important experience for children in the growth process. The level of adaptation will not only affect the degree of children's integration into the kindergarten, but also may affect their long-term psychological and behavioral development. Therefore, this study carried out a step forward home co-parenting activity to help the children successfully through the adaptation period.

In this study, 427 3-year-old children and their parents were selected as the research objects. A picture book reading home co-parenting activity was carried out one month before the children entered the kindergarten. After the children entered the kindergarten, the adaptation performance of the children was tracked through the on-site observation and rating of the teachers. The multi-level growth model was used to investigate the change characteristics of children's kindergarten adaptation in the first month. The results showed that, apart from the cognitive and communication dimensions, the children's adaptation in four dimensions, such as self-care and emotional stability, social ability, learning tendency and class rules, showed a significant upward trend. In addition to the class rule adaptation dimension, the initial level is positively correlated with the change rate, and the other four dimensions are negatively correlated with the change rate. There are three types of home co-breeding in the study: no home co-breeding, home co-breeding without feedback, and home co-breeding with feedback. Two-level dynamic structural equation model (DSEM) was used to investigate the influence of home co-parenting preparation on the dynamic process of children's adaptation to kindergarten. The results showed that the average level of the five dimensions of kindergarten adaptation from high to low was cognition and communication (4.21), self-care and emotional stability (4.11), class rules (3.58), social ability (3.41) and learning tendency (3.28), and the autoregressive correlation was significant in the five dimensions of kindergarten adaptation. Compared with the non-homesteading group, the children in the homesteading group without feedback and the homesteading group had a stronger autoregressive effect on the three dimensions of self-care, emotional stability, social ability and learning tendency. The average level of adaptive performance in three dimensions of self-care and emotional stability, cognition and communication, and learning tendency is higher. The frequency and mode of home co-rearing were further used as predictive variables to explore the effects on the average level of children's adaptation to kindergarten and the autoregressive effect. The results showed that age negatively predicted the autoregressive effect on cognition and communication, social ability, learning tendency and class rules. The frequency of home sharing significantly negatively predicted the average level of children's self-care and emotional stability. The results of this study show that children's adaptation to kindergarten is a dynamic process, and carrying out home co-parenting activities before kindergarten can affect children's adaptation to kindergarten to different degrees and help children complete the transition to a new environment.

Keywords：Home-School Cooperation, Adaptation to Kindergarten, Dynamic Change

父母体罚与学龄儿童执行功能的双向关系：基于随机截距交叉滞后模型的分析

刘玉清　邢晓沛（通讯作者）
首都师范大学心理学院，北京，100048，xingxiaopei2006@126.com

摘 要　作为中国文化背景下父母普遍使用的消极教养方式，体罚已经被证实会对儿童的自我调节发展特别是执行功能产生消极影响。家庭系统理论指出家庭是各成员之间相互影响的动态系统，父母行为既会影响儿童特征，也会受到儿童特征的影响，即两者之间可能存在相互影响的双向关系。在考察这一问题时，本研究拟在以下三点来推进以往研究：1.执行功能是一个多成分结构，研究者有必要深入揭示体罚与执行功能之间的双向关系是否存在成分特异性；2.鉴于父母在儿童发展中的角色差异，有必要将父母体罚纳入同一模型中探讨父母双方与儿童执行功能关系的独特模式；3.发展理论强调心理发展及环境效应主要发生在个体内层面，有必要将个体间效应分离后，在个体内层面探讨上述双向互动效应。基于此，本研究对 548 名学龄儿童及其父母进行 4 个时间点(间隔半年)的追踪测查，采用随机截距交叉滞后模型考察父亲和母亲体罚与儿童执行功能子成分的双向关系及其父母性别差异。研究使用父母和儿童报告的亲子冲突解决策略量表测查父母体罚，使用母亲报告的执行功能行为评定量表测查儿童执行功能。结果发现：在个体间层面上，父母体罚与执行功能三成分的随机截距之间均显著相关。在个体内层面上，父亲和母亲体罚与执行功能的双向关系上存在成分差异性。具体表现为，T1 和 T3 的行为调节能够显著预测 T2 和 T4 的母亲体罚，而不能预测父亲体罚；认知调节仅与母亲体罚在 T1 和 T2 之间存在显著的双向预测效应，而与父亲体罚无显著预测效应；情绪调节与父亲或母亲体罚之间均无显著预测效应。研究结论：体罚与学龄儿童执行功能的关系模式因父母性别和执行功能成分的不同而异。具体来说，儿童执行功能各成分与母亲体罚之间的关系更为密切。行为调节与母亲体罚的关系表现出儿童驱动效应，认知调节与母亲体罚之间存在双向关系。研究提示我们，提升儿童的执行功能更有助于改善母亲的教养质量，这进而会促进儿童后期自我调节能力的发展。

关键词　体罚，执行功能，学龄儿童，父母差异，双向关系

Reciprocal Relations between Parental Corporal Punishment and School-Aged Children's Executive Function: An Analysis based on Random Intercept Cross-Lagged Panel Model

Yuqing Liu, Xiaopei Xing (corresponding author)
Department of Psychology, Capital Normal University, Beijing

***Abstract*:** Parental corporal punishment (CP) is a commonly used harsh parenting practice in Chinese families, and it plays an important role in child self-regulation development, especially executive function (EF). According to family system theory, family is a dynamic interactive system in which all members are reciprocally influenced, and accordingly the relations between parental CP and children's EF are hypothesized to be bidirectional. Given this, the present study attempted to contribute to the current knowledge by three ways below: First, EF is evidenced to be a multidimensional construct involving different skills, it is necessary to explore how the above hypothesized reciprocal relations vary by EF component. Second, mothers and fathers play distinct roles in children development, it is necessary to simultaneously consider both maternal and paternal CP in the single

model and to investigate the unique effects of mothers and fathers on children's EF. Third, developmental theory is typically concerned with within-person variability, and developmental processes are often assumed to occur within, rather than between, individuals; Thus, it is necessary to separate between-person variance from within-person variance when examining the above reciprocal relations. A total of 548 school-aged children and their parents were followed across 4 time points (six months apart), and random intercept cross-lagged panel models were used to examine whether maternal and paternal CP and EF were reciprocally predicted at within-person level, separately for each EF component. Parental CP were assessed by the Parent-Child Conflict Tactics Scales (CTSPC), and children's EF was assessed by the Behavior Rating Inventory of Executive Function Second Edition (BRIEF2). The results were as follows: at the between-person level, there were significant correlations between the random intercepts of parental CP and three EF components. At the within-person level, the predictive effects between maternal and paternal CP and EF varied for three EF components. Specifically, behavioral regulation at T1 and T3 significantly predict maternal but not paternal CP at T2 and T4, and maternal but not paternal CP and cognitive regulation were reciprocally predicted between T1 and T2, and no significant prediction were found for emotional regulation. Taken together, the relation patterns between parental CP and EF would vary according to parent gender and EF components, in which child-driven effects were only found for relations between behavioral regulation and maternal CP, and reciprocal effects were only found for relations between cognitive regulation and maternal CP. A practical implication of this study is that training children's EF could help to decrease maternal negative behavior, which in turn could support the subsequent development of EF.

***Keywords*:** corporal punishment, executive function, school-aged children, father-mother difference, reciprocal relation

Achievement goal orientations in college students: Longitudinal trajectories, related factors, and effects on academic performance

Zhang Yifan [1], Liu Xinqiao [1,*], Cao Xiaojie [2]

1 School of Education, Tianjin University, Tianjin 300350, China

2 Graduate School of Education, Peking University, Beijing 100871, China

***Abstract*:** Achievement goal orientations have a significant impact on students' self-regulation and development. An individual's achievement goal orientations may change at some critical stages. The sample of this study came from a survey of college students conducted in China for four consecutive years. The study used a growth mixture model to identify the longitudinal trajectories of achievement goal orientations during the college years, constructed a logistic regression model to analyze the related factors of students in different classes, and further examined the effects on academic performance. The results indicate that the longitudinal trajectories of all the 2x2 achievement goal orientations can be divided into decreasing class and increasing class. Taking the increasing class as the reference, extraversion, high BMI, high sleep duration, and major are related factors of students in the decreasing class of performance-approach goals. Extraversion and father's education level are associated with students in the decreasing class of mastery-avoidance goals. Extraversion, high sleep duration, father's education level, family economic status, and family social status correlate with students in the decreasing class of mastery-approach goals.

***Keywords*：** Achievement goal orientations; Academic performance; Longitudinal trajectories; College students; Growth mixture model

对自我的关怀会拓展到亲社会行为吗？一项多水平元分析研究

李嘉仪[1] 陈旭[1] 刘欣怡[1]（通讯作者)

1 西南大学心理学部，重庆，400700，chloe671@163.com

摘 要 自我关怀(Self-Compassion)是指当个体在面对压力、痛苦、失败时等消极事件时，采用理解、接纳、不批判的方式来对待自我的态度。具体地，根据个体面对消极事件表现出的策略，自我关怀可视为包含六个子成分的结构，即自我友善(Self-Kindness)、普遍人性(Common Humanity)与正念观(Mindfulness)，以及自我苛责(Self-Judgment)、孤立感(Isolation)与过度沉浸(Over-Identification)。其中，前三种成分可被总括为自我关怀的积极维度，即自我温暖(Self-Warmth)；而后三种成分可被总括为自我关怀的消极维度，即自我冷酷(Self-Coldness)。以往研究指出，自我关怀作为个体的一种对待自我的积极态度，可以扩展到对他人的关怀，尤其是亲社会行为表现，但针对两者关系的研究结果并不一致。因此，为更好地澄清两者间的关系，本研究结合共情-利他假说（Empathy-Altruism Hypothesis），从亲社会行为的过程性，即从“意图”（共情关注）到“实践”（亲社会行为），采用多水平元分析进一步探索两者关系。通过文献检索，本研究共纳入 37 项研究，涉及 79 个效应量和 21982 名被试。漏斗图和 Egger’s 检验结果显示，本研究纳入的文献不存在发表偏差；主效应检验发现，自我关怀总分与亲社会行为呈正相关(r=0.246)，自我温暖与亲社会行为呈正相关(r=0.213)，自我冷酷与亲社会行为呈正相关(r=0.150)；调节效应检验了被试性别、文化、自我关怀维度等因素的影响作用，结果显示，文化调节了自我关怀总分与亲社会行为的关系，自我温暖与亲社会行为的关联显著大于自我冷酷(p＜0.05)。基于上述研究结果，本研究证实了自我关怀能正向影响亲社会行为，且自我温暖与亲社会行为的联系相较自我冷酷更大，这提示了自我温暖作为自我关怀的积极维度，其对于个体亲社会行为的表现起着更为重要的正向影响，这为亲社会行为的干预提供了新视角。同时，本研究也发现了自我关怀与亲社会行为的正向关系在东方国家中表现更为显著，再次表明了在探索两者关系时需考虑文化背景的重要性。综上，本元分析结果揭示了自我关怀与亲社会行为的关系，为自我关怀与亲社会行为的未来研究与干预提供了证据与方向。

关键词 自我关怀，自我温暖，自我冷酷，亲社会行为，多水平元分析

Does Self-Compassion Extend to Prosocial Behavior? A Multilevel Meta-analysis

Li Jiayi[1], Chen Xu[1], Liu Xinyi[1]

1 Department of Psychology, Southwest University, Chongqing

***Abstract*：** Self-Compassion is a kind of inner compassion that individuals can understand, accept and take a nonjudgmental attitude when facing stress, pain, and failures, rather than avoid or disconnect from them. Specifically, self-compassion consists of six components: Self-Kindness, Common Humanity, Mindfulness, Self-Judgment, Isolation, and Over-Identification. The first three components represent the positive dimension of self-compassion, known as Self-Warmth. The last three components are the negative dimension, known as Self-Coldness. Previous studies have pointed out that self-compassion, as a positive attitude towards oneself, can be extended to others, especially prosocial behavior. However, researchers have suggested inconsistent research

results on the relationship between self-compassion and prosocial behavior. To clarify the relationship between self-compassion and prosocial behavior, the present study combines the Empathy-Altruism Hypothesis to explore the relationship between the two variables. Thus, we focus on the process of prosocial behavior, specifically from "intention" (empathetic concern) to "action" (prosocial behavior). The present study conduct a multilevel meta-analysis to determine the relationship between self-compassion and prosocial behavior. It also takes into account potential moderators such as gender, culture, and self-compassion dimensions. Consequently, we extract 79 effect sizes from 37 studies, including 21,982 subjects. Based on funnel plots and Egger's test results, there is no publication bias in our study. The main effect analysis shows that the total score of self-compassion is positively correlated with prosocial behavior (r=0.246), self-warmth is positively correlated with prosocial behavior (r=0.213), and self-coldness is positively correlated with prosocial behavior (r=0.150). Moderation analysis suggests that culture moderates the relationship between the total score of self-compassion and prosocial behavior. Furthermore, the relationship between self-warmth and prosocial behavior is significantly higher than that between self-coldness and prosocial behavior (p< 0.05). According to the above results, this study confirms that there is a positive relationship between self-compassion and prosocial behavior. Moreover, we highlight that self-warmth, as a positive dimension of self-compassion, plays a more important role in individuals' demonstration of prosocial behavior compared to self-coldness, which provides a new perspective for the intervention of prosocial behavior. In addition, this study also found that the relationship between self-compassion and prosocial behavior is more significant in Eastern countries than that in Western countries, which emphasizes the influence of cultural background should be considered when exploring the relationship between self-compassion and prosocial behavior. In conclusion, the findings of our study were crucial for understanding the relationship between self-compassion and prosocial behavior, and the results provide evidence and direction for future research, as well as intervention for self-compassion and prosocial behavior.

Keywords ： Self-compassion, Self-warmth, Self-coldness, Prosocial behavior, Multilevel meta-analysis

执行功能与师生关系的变化轨迹对学龄儿童学业自我效能感的影响：独特效应和交互效应

艾慧玲　李竺　邢晓沛（通讯作者）

首都师范大学心理学院，北京，100048，xingxiaopei2006@126.com

摘　要　学业自我效能感在学生学习生涯中发挥重要作用，且得到国内外教育界的广泛关注。学业自我效能感的建立往往不是源于暂时的经验，而是源于经验的长期积累。然而很少有研究从动态发展的角度探讨影响学业自我效能感的因素。学龄阶段是儿童自我调节和师生关系发展变化的重要时期。儿童自我调节能力的迅速发展能帮助儿童应对学业压力增加过程中不断出现的新问题，同时持续性的积极师生关系也有助于学生问题解决自信心的增强。因此，有必要从动态变化的角度来探讨儿童自身因素和环境关系因素对学业自我效能感的影响。此外，儿童发展是自身与环境长期互动的结果，执行功能和师生关系分别作为个体认知和学校环境的重要部分，两者不仅会单独而且会通过交互效应共同作用于儿童的学业自我效能感。因此，本研究拟从发展变化的视角来探讨执行功能和师生关系影响儿童学业自我效能感的独特效应和交互效应。研究选取 526 名三到五年级的学龄儿童为被试进行了历时 6 个月的 3 次追踪测量，采用潜变量增长模型考察了儿童执行功能和师生关系的发展轨迹，并结合潜调节结构模型考察了执行功能和师生关系的初始水平和发展速度影响儿童学业自我效能感的独特效应和交互效应。结果发现：（1）在 6 个月内，学龄儿

童的执行功能有所增长，而师生关系质量有所下降；（2）执行功能和师生关系的初始水平和发展速度均能显著正向预测随后的学业自我效能感；（3）师生关系的初始水平和变化速度调节了儿童执行功能初始水平而非发展速度与学业自我效能感的关系。相较于初始师生关系较差或师生关系质量下降较快的儿童，初始师生关系较好或师生关系质量下降缓慢甚至有所上升的儿童，执行功能的初始水平对学业自我效能感的正向预测作用更强。研究结果有助于揭示个体因素与环境因素随时间交互影响学业自我效能感的复杂机制，对提高学龄儿童学业自我效能感具有实践指导意义。

关键词　学业自我效能感，执行功能，师生关系，纵向交互效应

The unique and interactive effects of trajectories in executive function and teacher-student relationship on academic self-efficacy of school-aged children

Huiling Ai, Zhu Li, Xiaopei Xing (corresponding author)
Department of Psychology, Capital Normal University, Beijing

Abstract：Academic self-efficacy plays an important role in children's academic success and has obtained considerable attention from educational researchers and practitioners to date. The development of academic self-efficacy is not only the outcomes of temporary experiences but rather stems from a sustained accumulation of mastery experiences. Nevertheless, few studies adopted a longitudinal dynamic perspective to explore the influencing factors of academic self-efficacy. Particularly, during the school-age years, a critical period for the development of children's self-regulation and changes of teacher-student relationship, self-regulation such as executive function develops rapidly in order to help children to effectively cope with new challenges, and meanwhile enduring positive teacher-student relationship also helps to enhance children's confidence in problem-solving. Given this, focusing on both individual (e.g., executive function) and external relationship (e.g., teacher-student relationship) factors and deeply exploring their unique and interactive effects on academic self-efficacy from a longitudinal perspective were believed to be important and necessary. Therefore, the current study conducted a longitudinal study across six months (3 months apart) to investigate the initial levels and growth rates of executive function and teacher-student relationship, and their unique and interactive effects on children's academic self-efficacy. Totally, 526 children in Grades 3 to 5 participated in this study, and latent variable growth model and latent moderated structural equation model were respectively employed to examine the above issues. The results indicated that: (1) children on average, experienced an increase in executive function and a decrease in relationship with their teachers over six months; (2) both the intercepts and slopes of executive function and teacher-student relationship positively predicted subsequent academic self-efficacy; and (3) both intercept and slope of teacher-student relationship could moderate the relation between the intercept (not the slope) of executive function and subsequent academic self-efficacy. Specifically, compared to those children with poor initial level or faster declining rate in teacher-student relationship, the initial level of executive function could be more strongly positively predicted later academic self-efficacy for those children with better initial level or slower declining rate or even rising rate in teacher-student relationship. In sum, our findings point to the importance of considering the complex longitudinal interactive effects of personal and contextual factors to improve children's academic self-efficacy.

Keywords：academic self-efficacy, executive function, teacher-student relationship, longitudinal interactive effect

父母教养行为、同伴互动和感觉加工敏感性对青少年亲社会行为的影响

摘 要 **目的：**通过两个研究探讨父母教养行为、同伴互动和感觉加工敏感性(SPS)对青少年亲社会行为的影响。**方法：**研究 1 采用问卷法招募了 600 名初中生，考察父母教养行为、同伴互动、SPS 和亲社会行为之间的相关关系以及可能存在的因果关系。研究 2 使用实验法招募了 233 名初中生，进一步探究父母教养行为、同伴互动、SPS 和亲社会行为之间的因果关系。**结果：**（1）父母积极教养行为、同伴积极互动能够正向预测青少年的亲社会行为；（2）与低 SPS 青少年相比，高 SPS 青少年在同伴积极互动时表现出更多的亲社会行为。（3）与高 SPS 青少年相比，低 SPS 青少年在父母积极教养行为时表现出更多的亲社会行为。**结论：**高 SPS 青少年的亲社会行为更受同伴互动的影响，而低 SPS 青少年的亲社会行为更受父母教养行为的影响，结果支持了环境敏感具有领域特殊性。

关键词 感觉加工敏感性，亲社会行为，父母教养行为，同伴互动，青少年

Effects of parenting behavior, peer interaction, and sensory processing sensitivity on adolescent pro-social behavior

Abstract：

Objective: Two studies were conducted to investigate the effects of parenting behaviors, peer interactions, and sensory processing sensitivity (SPS) on adolescents' pro-social behaviors. Methods: Study 1 recruited 600 middle school students using a scale approach to examine the correlations and possible causal relationships between parenting behaviors, peer interactions, SPS, and pro-social behaviors. Study 2 used an experimental method to recruit 233 junior high school students to further explore the causal relationships among parenting behaviors, peer interactions, SPS, and pro-social behaviors. Results: (1) Positive parenting behaviors and positive peer interactions positively predicted adolescents' pro-social behaviors; (2) Compared with low SPS adolescents, high SPS adolescents showed more pro-social behaviors during positive peer interactions. (3) Low SPS adolescents exhibited more pro-social behaviors when parents were positive parenting behaviors compared to high SPS adolescents. Conclusion: High SPS adolescents' pro-social behaviors are more influenced by peer interactions, whereas low SPS adolescents' pro-social behaviors are more influenced by parenting behaviors, and the results support the idea that environmental sensitivity is domain specific.

Keywords：Sensory Processing Sensitivity, Pro-social Behaviors, Parenting Behaviors, Peer Interactions, Adolescents

养育倦怠与生育意愿的关系：养育效能的中介作用

王佳[1] 卞小华[2]（通讯作者） 王宁霞[1]

1 大理大学教师教育学院，大理，671003

2 郑州师范学院教育科学学院，心理与行为科学国际联合实验室，郑州，450044

摘 要　生育意愿是生育需求的外在表现，直接对民众的生育行为和生育决策产生影响，这是关系国家根本的重大问题，这不但会影响到经济的发展，还会妨碍到整个社会的发展。目前已知影响适龄已育妇女再生育意愿的因素有很多，像一孩或二孩养育过程中亲子双方的互动，母亲的养育倦怠或养育效能等，但目前这些因素还没有得到重视。为人父母被证明为一段有压力的经历，父母的养育倦怠多数影响其养育孩子的质量，虽然很多科普读物都在探讨这一问题，但在心理学相关领域，关于此类研究还存在不足。最近的一项以随机样本为被试的研究表明，养育倦怠对生育意愿有显著影响。养育效能是父母对自己能否成功完成育儿行为的主观判断，是父母自评养育行为的重要指标。养育倦怠对生育意愿的影响得到了探索和证实，由于不同人的心理特质不同，对养育过程中的养育活动有不同的评价，由此会产生不同的生育抉择。目的：为了了解育龄妇女生育意愿现状，并探究养育倦怠、养育效能对生育意愿的影响。方法：采用《养育倦怠量表》（PBA）、《育儿胜任感量表》（PSOC）、《生育意愿调查表》测量工具，对河南省、山西省 312 名育龄妇女进行问卷调查，对养育倦怠、养育效能和生育意愿进行相关和回归分析。结果表明：①养育倦怠、养育效能与生育意愿在受教育程度上存在显著性差异，养育倦怠和养育效能在年龄上存在显著性差异，养育倦怠在家庭结构上存在显著性差异。②养育倦怠、养育效能和生育意愿三者存在两两相关。③养育倦怠负向预测生育意愿（β= -0.186，p<0.01），养育倦怠负向影响养育效能(β= -0.287，p<0.01)，养育效能显著正向影响生育意愿（β= 0.175，p<0.01）。④养育效能在养育倦怠和生育意愿间起部分中介作用。

关键词　生育意愿，养育倦怠，养育效能

The relationship between parenting burnout and fertility intention: the mediating role of parenting efficacy

JiaWang[1]　Xiaohua Bian[2](Corresponding author)　Ningxia Wang[1]

1 School of Teacher Education, Dali University ,Dali,Yunnan671003, China

2　School of Educational Science, International Joint Laboratory of Behavior and Cognitive Science, Zhengzhou Normal University, Zhengzhou, Henan 450044, China

Abstract: Fertility willingness is an external manifestation of fertility needs, which directly affects the reproductive behavior and decision-making of the public. This is a fundamental and significant issue related to the country, which not only affects economic development but also hinders the development of the entire society. At present, there are many factors known to affect the willingness of women of childbearing age to have another child, such as the interaction between parents and children during the process of raising one or two children, mother's parenting fatigue or parenting effectiveness, etc. However, these factors have not yet been taken seriously. Being a parent has been proven to be a stressful experience, and parental parenting fatigue mostly affects the quality of their child rearing. Although many popular science books are exploring this issue, there are still shortcomings in research related to psychology. A recent study using random samples as subjects showed that parenting burnout has a significant impact on fertility intention. Parental efficacy is the subjective judgment of parents on whether they can successfully complete their parenting behavior, and is an important indicator of parents' self-evaluation of parenting behavior. The impact of parenting burnout on fertility intention has been explored and confirmed. Due to the different psychological traits of different individuals, different evaluations of parenting activities during the parenting process can lead to different reproductive choices. Objective: To understand the current situation of childbearing age women's fertility intention and explore the impact of parenting burnout and parenting efficacy on

fertility intention. Method: A questionnaire survey was conducted on 312 women of childbearing age in Henan and Shanxi provinces using the "Parenting Burnout Scale" (PBA), "Parenting Competence Scale" (PSOC), and "Fertility Intention Questionnaire" measurement tools. Correlation and regression analysis were conducted on parenting burnout, parenting efficacy, and fertility intention. The results show that: ① There is a significant difference in educational level between parenting burnout, parenting efficacy, and fertility intention. There is a significant difference in age between parenting burnout and parenting efficacy, and there is a significant difference in family structure between parenting burnout and parenting efficacy. ② There is a pairwise correlation between parenting burnout, parenting efficacy, and fertility willingness Negative prediction of parenting burnout and fertility intention（ β= - 0.186 (p<0.01), negative impact of parenting burnout on parenting efficacy（ β= - 0.287, p<0.01), parenting efficacy significantly positively affects fertility intention（ β= 0.175, p<0.01). ④ Parenting efficacy plays a partial mediating role between parenting burnout and fertility intention.

Keywords：Fertility willingness, parenting fatigue, parenting effectiveness

学校环境下教师、同伴在场对儿童学习效果的影响

赵钰[1] 朱慧慧[1] 郑依凡[1] 周丹丹[1] 李永鑫[1]

河南大学心理与行为研究所，开封，475004,E-mail:liyongxin@henu.edu.cn

摘 要 “双减政策”政策下，如何提升儿童的学习效果成为当前的一大重要研究方向。课堂学习中，儿童对课堂知识的记忆效果是判断学习效果的重要指标。不同他人在场会影响儿童的记忆效果，说明儿童在学校的学习效果会受到身边他人的影响。儿童在学校接触个体一般区分为教师和同伴，受熟悉程度影响，同伴还可分为陌生同伴与熟悉同伴，儿童在学校需与这三类群体进行接触，那么儿童的学习效果是否受这三类群体的陪同而发生变化呢？以及这种变化又具有怎样的发展性特征呢？因此，本研究以小学一至六年级儿童为研究对象，结合实验和调查的方法，探讨教师、同伴在场对儿童学习效果的影响。研究发现：（1）教师或熟悉同伴在场影响了儿童的行为表现，儿童会牺牲反应时间以追求更高的准确性。（2）教师在场时，儿童学习更加认真，年级越低，教师在场的影响越明显，这点并不受教师所教授学科的影响。（3）陌生同伴的性别是影响儿童学习效果的关键因素，主要表现为异性陌生同伴在场会影响儿童行为表现。（4）同伴在场时，儿童学习效果都随年级的增长而增加。研究结果说明教师、同伴在场对儿童学习效果产生了不同影响，学校教育应关注此方面，同时要注意按照儿童认知发展规律合理设计学习任务。

关键词 他人在场，教师在场，同伴在场，学习效果

The Influence Of Teacher And Peer Presence On Children's Learning Results In School Environment

Zhao Yu, Zhu Huihui, Jia Yifan, Zhou Dandan, Li Yongxin

Institute of Psychology & Behavior, Henan University, Kaifeng, 475004

Abstract: Under the "double reduction policy" policy, how to improve children's learning effect has become an important research direction at present. In classroom learning, children's memory effect of classroom knowledge is an important index to judge the learning effect. Different presence of others will affect children's memory effect, indicating that children's learning effect in school will be affected by others around them. Children's contact with individuals in school is generally divided into teachers and peers. Affected by familiarity, peers can also be divided into unfamiliar peers and familiar peers. Children need to have contact with these three

groups in school, so does the learning effect of children change when accompanied by these three groups? Teacher and peer factors are important factors affecting children's learning effect. Therefore, this study takes children from grade 1 to Grade 6 as the research object, and explores the influence of teacher and peer presence on children's learning effect by combining experiment and investigation methods. The study found that: (1) The presence of teachers or familiar peers affected children's behavior, and children would sacrifice reaction time in pursuit of higher accuracy. (2) When teachers are present, children learn more seriously. The lower the grade, the more obvious the influence of teachers' presence, which is not affected by the subject taught by teachers. (3) The gender of strange companions is the key factor affecting children's learning effect, which is mainly manifested that the presence of strange companions of the opposite sex will affect children's behavior. (4) When peers are present, children's learning results increase with the growth of grade. The research results reveal the different effects of the presence of teachers and peers on children's learning. School education should pay attention to this aspect, and pay attention to the rational design of learning tasks according to the rules of children's cognitive development.

Keywords: presence of others, teacher presence, peer presence, learning result

家长数学教育焦虑影响儿童数学学习的积极干预策略研究

曲克蒙 1　赵钰 1　杨敏 1　周丹丹 1

河南大学心理与行为研究所，开封，475004,E-mail:zhoudandan666@henu.edu.cn

摘 要　家庭成员之间的情绪状态会相互影响，有研究发现家长数学教育焦虑会导致儿童数学学习成绩不佳。父母情绪会影响学生自主学习，自主学习指学习者从元认知、动机和行为方面积极主动地参与自己学习活动的过程，能促进儿童学习成绩的提升。家长数学教育焦虑导致儿童数学学习成绩不佳，自主学习可能是影响儿童数学学习效果的重内在因素。如果家长的数学教育焦虑严重影响着数困儿童的数学学习，那么对于这种现象，家长越早干预越有利于儿童的数学学习。而积极心理暗示能改善儿童自我认知，该方法能否改善儿童数学成绩，值得探讨。因此，本研究以小学生为对象，采用问卷法和实验干预法考察家长数学教育焦虑对数学学习困难儿童数学学习成绩的影响，揭示儿童自主学习能力在家长数学焦虑与数学学习成绩之间的中介作用，并进一步对数学学习困难儿童进行积极的暗示干预，考察其对儿童数学学习效果的提升。结果发现：(1)家长数学教育焦虑越高，其孩子的自主学习程度和数学成绩表现越差。(2)自主学习在家长数学教育焦虑与数困儿童数学成绩之间起部分中介作用，家长数学教育焦虑即能直接影响数困儿童数学成绩，也能通过影响自主学习间接影响数困儿童数学成绩。(3)积极暗示干预显著提高了数学学习困难儿童的数学成绩。本研究的发现提示家庭教育对学生学习至关重要，未来可开展相关活动对学生父母进行培训，并且研究说明了积极暗示是一种好的家庭教育手段，可以促进儿童的学习。

关键词　教育焦虑，自主学习，积极暗示，数困儿童

Active intervention strategies for parental math education anxiety affecting children's math learning

Qu Kemeng, Zhao Yu, Yang Min, Zhou Dandan

Institute of Psychology & Behavior, Henan University, Kaifeng, 475004

Abstract：The emotional states of family members affect each other, and studies have found that parents

'math education anxiety can lead to children's poor math performance. Parents mood can affect students 'autonomous learning, autonomous learning refers to the learners from the aspects of metacognition, motivation and behavior actively participate in the process of their learning activities, can promote children's learning performance, parents mathematics education anxiety will lead to children's math learning performance, autonomous learning may be an important factor affecting children's math learning effect. If parents 'math education anxiety seriously affects the math learning of children with digital difficulties, then for this phenomenon, the earlier parents intervene, the more conducive to children's math learning. Positive psychological suggestion can improve children's self-cognition, and it is worth discussing whether this method can improve children's math performance. Therefore, this study in the primary school students as the object, the questionnaire method and experimental intervention method of parents mathematics education anxiety on mathematics learning difficulties, reveals children's autonomous learning ability mediation between parents mathematics anxiety and mathematics learning performance, and further to mathematics learning difficulties children positive hint intervention, examine the promotion of children's mathematics learning effect. The results show that: (1) the higher the anxiety of parents in math education, the worse the children's independent learning degree and math performance.(2) Independent learning plays a partial intermediary role between parents 'math education anxiety and the math performance of children with math difficulties.Parents' math education anxiety can directly affect the math performance of children with math difficulties, and can also indirectly affect the math performance of children with math difficulties by affecting independent learning.(3) Actively suggested that the intervention significantly improved the math performance of children with math learning difficulties. The findings of this study suggest that family education is crucial for students 'learning, and future activities can be carried out to train students' parents, and the study shows that positive suggestion is a good means of family education that can promote children's learning.

Keywords：educational anxiety, independent learning, Positive suggestion, Mathematically disadvantaged children

道德推脱在亲子依恋与青少年亲欺凌旁观行为之间的中介作用：一项 18 个月的纵向分析

于明申[1] 杨凌青[1] 徐梓唯[1] 鲍振宙[1]（通讯作者）

[1]赣南师范大学教育科学学院 赣州 341000 通讯作者 E-mail：baozhenzhou0819@163.com

* 基金项目：教育部人文社会科学研究青年基金项目（编号：21YJC190001）；

江西省社会科学“十四五”（2021 年）基金项目（编号：21JY48）

摘 要 亲欺凌旁观行为是指青少年目睹欺凌时通过鼓掌、嘲笑或帮助欺凌者捉弄、折磨受害者的行为。研究发现，亲欺凌旁观行为直接增加了欺凌的发生率及强度。鉴于亲欺凌旁观行为在青少年中的高发生率和负面后果，研究青少年亲欺凌旁观行为的预测因素尤为重要。亲子依恋是指个体与其照顾者之间持久的情感联系。研究表明，亲子依恋水平较低的个体更容易出现欺凌行为。近年来，有研究者提出，亲子依恋与亲欺凌旁观行为之间的作用机制值得研究。道德推脱是指人们通过松懈的内部调节机制，将自己有害行为合理化的认知过程。根据一般攻击模型，亲子依恋可能会作为外界环境因素影响青少年的道德推脱水平，而道德推脱可能是影响校园欺凌发生和发展的潜在内部心理机制。值得一提的是，现有研究大多是横断设计，较难解释变量间的因果关系。此外，国内外探究亲子依恋与亲欺凌旁观行为关系的现有研究犹显不足。因此，本研究拟探究道德推脱在青少年亲子依恋水平与其亲欺凌旁观行为之间是否存在纵向中介作用，并检验该纵向中介模型是否存在性别差异。

采用校园欺凌参与者相关问卷、亲子依恋量表和道德推脱量表对 1438 名青少年进行三次追踪调查，每次调查间隔 6 个月，最终获得有效数据 1083 份。研究结果表明：（1）T1 时间的亲子依恋能够负向预测 T2 时间的道德推脱和 T3 时间亲欺凌旁观行为。（2）T2 时间的道德推脱能够正向预测 T3 时间校园欺凌中的亲欺凌旁观行为。（3）T2 时间的道德推脱在 T1 时间的亲子依恋与 T3 时间的亲欺凌旁观行为之间的间接效应显著。（4）道德推脱的纵向中介作用存在着性别差异。具体而言，该纵向中介模型对于男生显著，而对于女生不显著。研究结果表明，道德推脱作为亲子依恋和亲欺凌旁观行为之间联系的纵向中介因素，可能是减少校园欺凌的干预措施中的一个有效焦点。

关键词　青少年，亲子依恋，道德推脱，亲欺凌旁观行为，纵向中介

The Association between Parental Attachment and Adolescents' Pro-Bullying Behaviors is Mediated by Moral Disengagement: An 18-month Longitudinal Analysis

Yu Mingshen[1] Yang Lingqing[1] Xu Ziwei[1] Bao Zhenzhou[1] (Corresponding author)
School of Educational Science, Gannan Normal University, Ganzhou, 341000

Abstract：When adolescents witnessed the bullying, they assisted the bullies, laughing or cheering on the bullying, these behaviors were defined as pro-bullying bystander behavior. Pro-bullying bystander behavior has been found to predict increased incidence and intensity of bullying directly. Given the high incidence and negative consequences of pro-bullying bystander behavior among adolescents, it is particularly important to study the predictive factors of it. Parental attachment refers to an affectional bond between parents and children. Poor quality of parental attachment has been found to predict adolescents' pro-bullying bystander behaviors. The concept of moral disengagement refers to the "individual's tendency to use mechanisms conducive to a selective disengagement of moral censure". According to the general aggression model, moral disengagement might act as an underlying mediator of the association between family factors (e.g., parental attachment) and individual's negative behavior (e.g., pro-bullying bystander behavior). It is worth mentioning that most existing studies are cross-sectional designs, making it difficult to explain the causal relationship between variables. In addition, existing research at home and abroad on the relationship between parental attachment and pro-bullying bystander behavior is still insufficient. Therefore, we tested whether the adolescent's moral disengagement mediated the association and tested for gender differences in this process. A three-wave longitudinal study with a time interval of 6 months was conducted to test our hypotheses.

A total of 1083 adolescents (43.43% were boys) completed questionnaires concerning parental attachment, moral disengagement, and pro-bullying bystander behavior. The results showed that parental attachment at T1 negatively predicted moral disengagement at T2, and moral disengagement at T2 positively predicted adolescents' pro-bullying bystander behaviors at T3. Moral disengagement at T2 mediated the relationship between parental attachment at T1 and pro-bullying bystander behavior at T3. The longitudinal mediation was significant for boys but not for girls. Our findings indicated that moral disengagement, as a longitudinal mediating factor in the link between parental attachment and pro-bullying bystander behavior, might be a useful focus in interventions to reduce school bullying.

Keywords: adolescents, parental attachment, moral disengagement, pro-bullying bystander behavior, longitudinal mediating role

儿童与成人阅读中的工作记忆储存状态

王伊[1] 刘佳欣[2] 胡祎涵[1] 李京晓[1] 刘泽琪[2] 凌嘉[2] 周蔚[1]（通讯作者）
1 首都师范大学心理学院，北京，100048，zhouwei@cnu.edu.cn
2 首都师范大学初等教育学院，北京，100048

摘 要 工作记忆在阅读中起着非常重要的作用，负责存储信息同时连贯上下文。随着技术进步，越来越多的人开始电子阅读，使用超链接进行文本中或文本间跳转的超文本应用而生，这虽然增加了个体与文本的互动，但同时减少了语义线索，从而降低了文本连贯性，因此超文本对工作记忆的要求高于传统纸质文本。加之在 STEAM 教育盛行的背景下，个体不仅需要阅读记叙文，还要阅读大量的科普文、说明文等这类语义线索较少的文学体裁，如何帮助个体在当前时代下更好地阅读是值得关注的问题。本研究通过改变呈现记忆刺激到探测时间（序列回溯范式）来探究阅读超文本时，跳转前后的记忆存储效果；研究通过保持一个记忆刺激的负荷为高负荷状态，改变另一个记忆刺激的负荷，探究不同维度记忆负荷变化对于个体认知资源的影响；并使用语义相似度作为语义线索的指标，探究其对于个体阅读超文本的影响。由于既往研究通常使用色块、图形等无语义信息的刺激作为实验材料，所以本研究先以词汇为实验材料，在此基础上，实验二使用了更加复杂的说明文作为实验材料。两个实验均为 2（呈现刺激与探测时间间隔：长、短）*2（记忆负荷：高、低）*2（语义线索：高、低）三因素实验设计，被试为成年人和儿童（3 年级、5 年级），均使用线性混合模型进行两次差异检验。实验一的成人正确率结果发现，时间间隔和记忆负荷的交互作用显著，当其中一个刺激负荷变化时，有且只有一个时间间隔的正确率受到影响，儿童未发现该结果，实验二结果与实验一相似。进一步按照工作记忆容量对儿童进行分组，结果发现，低工作记忆容量组的语义相似度主效应显著。两个实验均发现成年人可以灵活地使用工作记忆的资源来维持某一维度的信息，儿童则不然。此外，语义线索类似于脚手架的作用，可以帮助工作记忆较低的个体阅读，但对于工作容量足够处理阅读信息的个体（5 年级儿童和成人），语义线索并不会对阅读产生影响。综上，在设计阅读文本时需要考虑个体的工作记忆水平，以帮助其阅读。

关键词 阅读，工作记忆，发展，语义相似度，超文本

The Working Memory Storage State in Reading for Children and Adults

Yi Wang[1] Jiaxin Liu[2] Yihan Hu[1] Jingxiao Li[1] Zeqi Liu[2] Jia Ling[1] Wei Zhou [1]
1 School of Psychology, Capital Normal University, Beijing, 100048, China
2 College of Elementary Education, Capital Normal University, Beijing, 100048, China

Abstract：Working memory (WM) plays a critical role in reading by briefly holding text propositions and actively processing coherence gaps. Hypertext, a form of digital reading, allows for navigation within and between texts through hyperlinks, which has been a prevalent way of reading. While this enhances interactivity between individuals and texts, it simultaneously diminishes semantic cues and reduces text coherence. Consequently, hypertext imposes higher demands on WM than traditional print texts. Moreover, under the prevalence of STEAM education, individuals are required to read not only narrative texts but also a substantial of scientific popularizations, expository texts, and other genres with limited semantic cues. Therefore, it is essential to address the question of how to help individuals to read in the current era. This study investigated the effects of memory storage during reading hypertext by manipulating the presentation of memory stimuli and probe time (using a

sequential change detection paradigm). Furthermore, it examined the impact of changing WM loads in different dimensions on individuals' cognitive resources by maintaining one memory stimulus at a high load while changing the load of another stimulus. The study also consisted the semantic similarity as an indicator of semantic cues to explore its influence on individuals' reading of hypertext. Stimuli lack of semantic information, such as color blocks and shapes has been wildly used in previous studies. Therefore, this study initially employed vocabulary as experimental material and subsequently employed more complex texts, i.e., expository texts, in Experiment 2. Both experiments followed a 2 (presentation stimulus-probe time interval: long, short) * 2 (WM load: high, low) * 2 (semantic similarity: high, low) three-factor experimental design. Both adults and children (3rd and 5th graders) participated in the experiment, and two separate linear mixed models were employed for each experiment. Results from Experiment 1 showed a significant interaction effect between time interval and WM load in the accuracy of adults' responses. Specifically, when one stimulus load changed, only the accuracy corresponding to a one-time interval was affected. However, children did not exhibit this pattern, and Experiment 2 showed consistent results. After grouping the children based on their WM capacity, the results showed a significant main effect of semantic similarity in the low WM capacity group. Both experiments consistently indicated that adults showed the ability to use WM resources flexibly to maintain information in a specific dimension, whereas children did not exhibit the same ability. Additionally, semantic cues are akin to scaffolding, aiding individuals with lower WM capacity while reading. However, for individuals with adequate WM capacity (i.e., 5th graders and adults), the semantic cues did not significantly impact their reading comprehension. It is necessary to consider the individual's WM in order to design a suitable text.

Keywords：reading, working memory, development, semantic similarity, hypertext

面孔吸引力对幼儿面孔情绪识别能力的影响

代佳　高甜雯　杜思奇　吕怡晴　郭梦欣　曲方炳（通讯作者）

首都师范大学学前教育学院，北京，100048，qufangbing@cnu.edu.cn

摘 要　面孔情绪识别是指对各种面孔情绪进行加工、判断和分类的过程，准确地识别他人的面孔情绪对于幼儿的适应和人际交往有重要作用。但面孔情绪识别受到多种因素的影响，以往研究对面孔吸引力是否影响面孔情绪识别的结论并不一致。本研究旨在进一步明晰两者之间的关系，设置高、低两种面孔吸引力条件，考察幼儿的面孔情绪识别成绩是否受面孔年龄及性别的影响。研究以 62 名幼儿为研究对象，采用情绪标签任务，使用 2（面孔吸引力：高、低）×2（面孔年龄：成人、儿童）×6（情绪类型：快乐、生气、惊讶、害怕、厌恶、中性）的混合实验设计，考察面孔吸引力与幼儿面孔情绪识别成绩之间的关系研究结果：（1）情绪类型主效应显著，面孔吸引力主效应不显著，情绪类型和面孔吸引力的交互作用显著，幼儿识别高兴、生气、厌恶、中性面孔情绪的成绩存在显著的面孔吸引力差异；（2）面孔年龄与情绪类型的交互作用显著，幼儿识别害怕、惊讶、高兴、厌恶面孔情绪的成绩存在显著的面孔年龄效应；（3）性别主效应显著，性别和情绪类型交互作用显著，女孩识别面孔情绪特别是厌恶、中性情绪时的成绩显著高于男孩，本研究结果表明，幼儿识别面孔情绪受到面孔吸引力高低、面孔年龄以及性别的影响，为进一步探明影响幼儿识别面孔情绪的因素提供了新思路。

关键词　面孔吸引力，面孔情绪识别，幼儿

The influence of facial attractiveness on facial emotion recognition ability of young children

Dai Jia, Gao Tianwen, Du Siqi, Lv Yiqing, Guo Mengxin, Qu Fangbing
College of Preschool Education, Capital Normal University, Beijing, 100048

Abstract：Facial emotion recognition refers to the process of processing, judging and classifying various facial emotions. Accurately recognizing others' facial emotions plays an important role in children's adaptation and interpersonal communication. However, face emotion recognition is affected by many factors. Previous studies have not reached the same conclusion on whether face attractiveness affects face emotion recognition. The purpose of this study was to further clarify the relationship between the two, set two conditions of high and low facial attractiveness, and investigate whether children's facial emotion recognition performance is affected by face age and gender. This study took 62 young children as research objects, adopted the emotional labeling task, and used the mixed experimental design of 2 (face attractiveness: high, low) ×2 (face age: adult, child) ×6 (emotion type: happy, angry, surprised, afraid, disgusted, neutral) to investigate the relationship between face attractiveness and children's facial emotion recognition performance. (1) The main effect of emotional type was significant, while the dominant effect of face attraction was not. The interaction between emotional type and face attraction was significant. There were significant differences in children's performance in recognizing happy, angry, disgust and neutral faces. (2) The interaction between facial age and emotional type is significant, and there are significant facial age effects in children's recognition of fear, surprise, happy and disgust facial emotions; (3) Gender has a significant main effect, and gender and emotion type have a significant interaction. Girls' performance in recognizing face emotions, especially disgust and neutral emotions, is significantly higher than that of boys. The results of this study show that children's face recognition emotions are affected by face attractiveness, face age and gender, providing new ideas for further exploring the factors affecting children's face recognition emotions.

Keywords：facial attractiveness, facial emotion recognition, young children

逆境中成长：童年期忽视与青少年抑制控制之间的 U 型关系及近期压力的调节作用

贾悦悦[1]　吕薇[1]（通讯作者）
1 陕西师范大学，西安，710062，xuan006@126.com

摘 要 研究表明，抑制控制与内外化问题密切相关，对青少年的发展至关重要。逆境与心理病理学维度模型（DMAP）表明，童年期忽视作为一种典型的剥夺逆境类型，通常对抑制控制有负面的线性影响。但压力接种模型认为童年期忽视也可能产生积极的影响。因此，目前还不清楚童年期忽视是增强还是损害了抑制控制能力，以及什么条件下可能产生这些结果。根据压力敏感模型和压力放大模型，最近的压力可能与早期的逆境相互作用，影响抑制控制。然而，很少有研究关注童年忽视和抑制性控制之间的非线性关系，以及这种非线性关系是否受制于不同的近期压力水平。因此，本研究试图探索在青少年中，童年期忽视和抑制控制之间的非线性关系，以及近期压力在其中的调节作用。279 名青少年（$M_{年龄}$ = 12.92±0.78 岁，138 名女生）首先完成了中文版的儿童创伤问卷（CTQ-SF）和感知压力量表（PSS），以评估童年期忽视和近期压力，然后他们完成了 Flanker 任务，并计算了个体内反应时间变异性（IIV）以衡量抑制控制。分层

回归结果显示，在一致、不一致和联合条件下的 IIV 有相同的模式。童年期忽视对 IIV 的线性和二次效应均显著，童年期忽视和近期压力之间的二次交互作用显著，但线性交互作用不显著。显著性区域检验显示，在中度或高度的近期压力下，童年忽视和抑制控制之间存在显著的 U 型的关系，在较低的近期压力下则不存在。这些发现表明，适度的童年期忽视经历与青少年的最佳抑制控制能力有关，而过多或过少的童年期忽视经历似乎不利于抑制控制能力，并且较高的近期压力会加剧这种负面影响。

关键词 童年期忽视，抑制控制，近期压力，U 型关系，个体内反应时变异性

Growing up in Adversity: A U-shaped Relation between Childhood Neglect and Inhibitory Control in Adolescents and the Moderating Role of Recent Stress

Jia Yueyue & Lü Wei*

Shaanxi Key Research Center for Children Mental and Behavior Health, School of Psychology, Shaanxi Normal University, 199 South Chang'an Road, Xi'an, China

Abstract: Studies have shown that inhibitory control is closely related to internalization and externalization problems and is crucial to the development of individuals, especially adolescents. Dimensional Model of Adversity and Psychopathology (DMAP) suggests that childhood neglect, as a typical type of deprivation adversity, has a special relationship with inhibitory control. Childhood neglect generally has a negative linear effect on an individual's cognitive development, including inhibitory control. However, various studies examining the relationship between childhood neglect and childhood inhibitory control deficits have produced inconsistent results. According to the stress inoculation model, childhood neglect may also have a positive effect. Therefore, it is unclear whether childhood neglect enhances or impairs inhibition and what conditions might produce these results. According to the stress-sensitive model, recent stress may interact with early adversity to affect inhibitory control. However, few studies have concerned a nonlinear relation between childhood neglect and inhibitory control, and whether the nonlinear relation is subjected to different recent stress levels. Thus, the present study sought to explore a quadratic relation between childhood neglect and inhibitory control among adolescents, and the moderating effect of perceived recent stress in the relationship.

Participants were recruited from a local secondary school with a total of 279 adolescents aged 11 to 15 (M_{age} = 12.92, *SD* = 0.78, 138 females). Participants firstly completed the Chinese version of the short form of Childhood Trauma Questionnaire (CTQ-SF) and the Perceived Stress Scale (PSS) to assess their childhood neglect and perceived recent stress, and then they completed the modified flanker task where intra-individual reaction time variability (IIV) was calculated to access their inhibitory control. Then, hierarchical multiple regression analyses were constructed. Gender, age, socioeconomic status (SES) and childhood abuse were included as covariates. Finally, the Johnson-Neyman technique was used to estimate the childhood neglect values at which the simple slopes of the quadratic were significant ($p < .05$) when perceived recent stress has been fixed at 1 *SD* above the mean, the mean value, and 1 *SD* below the mean.

Results revealed that IIV under incongruent, congruent and combined conditions have the same pattern. Both linear and quadratic effects of childhood neglect on IIV were significant, and the quadratic interaction between childhood neglect and recent stress was significant, but the linear interaction was not. The region of significance test showed a quadratic U-shaped relationship between childhood neglect and inhibitory control at moderate or high levels of recent stress. With the increase in recent stress, the quadratic relationship was more obvious. When

recent stress was low (-1*SD*), the effect of childhood neglect on IIV under combined condition was not significant. When recent stress was average, there was a significantly negative relationship between childhood neglect and IIV under combined condition when childhood neglect was less than -2.00*Z* and a significantly positive association when childhood neglect was greater than 0.50*Z*. When recent stress was high (+1*SD*), there was a significantly negative relationship between childhood neglect and IIV under combined condition when childhood neglect was less than -0.25*Z* and a significantly positive association when childhood neglect was greater than 0.58*Z*.

These findings suggest that moderate childhood neglect experiences are associated with optimal inhibitory control ability among adolescents, while too much or too little childhood neglect experiences appear to be detrimental to inhibitory control ability, and these negative effects would be aggregated by recent stress.

Keywords: childhood neglect, inhibitory control, recent stress, U-shaped relation, intraindividual reaction time variability

中国父母教养方式与儿童心理韧性关系的三水平元分析

陆瑜[1] 曹晓君[2]（通讯作者）

1. 西华师范大学教育学院，南充 637000

2. 四川师范大学心理学院，成都 610068

摘 要 当前研究采用三水平元分析方法，以中国儿童为样本，明确父母教养方式（积极/消极）与儿童心理韧性的关系。通过文献检索，共获得 41 项研究，含 416 个独立效应量,被试总数 27631 名。主效应检验发现，父母积极教养方式与儿童心理韧性呈显著正相关（r=0.375，95%CI[0.325，0.464]），父母消极教养方式与儿童心理韧性呈显著负相关（r=-0.177，95%CI[-0.227，-0.131]），儿童将会在父母积极教养方式中受益更多。调节效应检验发现，父母角色、儿童年龄对父母积极教养方式与儿童心理韧性的关系起调节作用，但对父母消极教养方式与儿童心理韧性关系的调节作用不显著。值得注意的是，父亲的积极教养方式与儿童心理韧性的相关性高于母亲的积极教养方式。此外，父母教养方式与儿童心理韧性的关系不受儿童性别、独生状况、居住地、文献发表时间和发表状态的调节作用。以上结果表明，父母积极教养方式和消极教养方式分别是儿童心理韧性发展的保护性因素和风险性因素，父母应采取温暖、民主等积极教养方式，帮助儿童发展心理韧性。

关键词 中国儿童，父母教养方式，心理韧性，三水平元分析，调节效应

儿童早期情绪调节能力发展轨迹的分类：线性与非线性方法比较

夏聪[1] 陈曦[2]（通讯作者）

1 华东师范大学心理与认知科学学院，上海，200062

2 华东师范大学心理与认知科学学院，上海，200062，xchen@psy.ecnu.edu.cn

摘 要 在早期情绪调节能力上呈现出不同发展轨迹的个体，可能在未来表现出不同的社会性发展结果，因此按照早期情绪调节能力的发展轨迹将个体分为不同类别，对于预测和预防未来的发展风险可能具有重要意义。然而，拟合发展轨迹所需的纵向追踪数据较为难得，当仅有三个时间点的追踪数据时，受限于常用的统计方法，研究者往往假定发展轨迹为线性。但大量神经科学证据表明儿童情绪调节相关脑区的发展轨迹呈二次曲线；而行为层面上，使用非线性方法研究该主题的研究较少。本研究的主要目的是比较线性模型（混合增长模型）和非线性模型（机器学习聚类）对儿童早期情绪调节能力发展轨迹的分类和拟

合效果，以及采用这两种方法分出的不同轨迹类别的儿童在未来行为适应上是否呈现显著差异。本研究分别使用混合增长模型和机器学习聚类结合二次函数拟合的方法，对 Early Head Start 项目中的 1200 名儿童（男生 598 名，女生 602 名）3 岁前的情绪调节能力发展轨迹进行分类，并对比不同类别儿童在 5 年级时的内化和外化问题，最后采用儿童在 14 个月时测量的家庭环境风险、父母教养方式、儿童气质预测其轨迹类别。结果表明：（1）混合增长模型划分出了三种类别，分别为高位缓慢上升组、低起点快速上升组和下降组；（2）机器学习聚类结合二次函数拟合的方法划分出了三种类别，分别为高位缓慢上升组、低起点快速上升组、U 型组;（3）相较于混合增长模型，非线性方法对儿童的情绪调节轨迹的拟合更准确，并且不同类别在 5 年级时的内化问题上有着更大的差异；（4）机器学习对发展轨迹类别的预测准确率优于线性模型。总结而言，本研究发现可采用机器学习方法将 0-3 岁儿童情绪调节能力的发展轨迹区分为 3 类二次函数，三种类别的儿童在 5 年级时的内化和外化行为问题上存在差异（U 型组问题更为严重），并且可采用机器学习模型预测该类别。该方法的分类和预测效果均优于混合增长模型。这一结果有助于更准确地识别在情绪调节能力发展上存在早期风险的儿童，便于精准干预。

关键词　情绪调节，发展轨迹，机器学习，儿童早期，行为问题

Classification of developmental trajectories of emotion regulation ability in early childhood: Comparation between linear and nonlinear approaches

Cong Xia[1]　Xi Chen[2]

1 The School of Psychology and Cognitive Science, East China Normal University, Shanghai, China

2 The School of Psychology and Cognitive Science, East China Normal University, Shanghai, China

Abstract：Individuals who show different developmental trajectories of emotion regulation abilities in early childhood may exhibit different social developmental outcomes in the future, so categorizing individuals according to their developmental trajectories of emotion regulation abilities in early childhood may be important for predicting and preventing future developmental risks. However, the longitudinal data needed to fit developmental trajectories are difficult to obtain. When longitudinal data are available for only three time points, limited by commonly used statistical methods, researchers tend to assume that the developmental trajectories are linear. However, rich evidence from neuroscience suggests quadratic developmental trajectories in brain regions related to emotion regulation in children; yet there are fewer behavioral studies that have examined this topic using nonlinear methods. The main objective of the present study was to compare the effectiveness of a linear approach (growth mixture model) and a nonlinear approach (machine learning clustering) in classifying and fitting the developmental trajectories of children's emotion regulation abilities in early childhood and examine whether children in different trajectory categories classified using these two approaches showed significant differences in their future behavioral adjustment. The present study used the growth mixture model and machine learning clustering combined with quadratic function fitting, respectively, to classify the developmental trajectories of emotion regulation abilities in the first three years for 1,200 children (598 boys and 602 girls) in the Early Head Start program and compared internalizing and externalizing problems of different categories of children in Grade 5,

and finally, examined children's home environmental risk, parenting style, and child temperament at 14-month-old as predictors of their trajectory categories. The results showed that (1) the mixed growth model delineated three categories, namely, the high slow-rise group, the low-start fast-rise group, and the decline group; (2) the machine learning clustering combined with quadratic function fitting delineated three categories, namely, the high slow-rise group, the low-start fast-rise group, and the U-shaped group; (3) the nonlinear approach fitted the developmental trajectories more accurately than the growth mixture model, and there were greater differences in internalizing problems at Grade 5 between the categories identified using the nonlinear approach; (4) machine learning predicted the categories of developmental trajectories with better accuracy than the linear model. In summary, this study found that a machine learning approach could be used to differentiate the developmental trajectories of emotion regulation abilities in 0-3 year old into three quadratic categories, that the three categories differed in internalizing and externalizing behavioral problems at Grade 5 (with more severe problems in the U-shaped group), and that a machine learning model could be used to predict the categories. The method outperformed the mixed growth model in both classification and prediction. This result can help to more accurately identify children who are at early risk in the development of their emotion regulation abilities and to facilitate precise interventions.

Keywords： emotion regulation, developmental trajectories, machine learning, early childhood, behavior problems

中国高中生焦虑抑郁问题发展及其影响因素：基于潜在转变分析

张馨予[1] 周广东[123]（通讯作者） 杨海波[123]

1 天津师范大学心理学部，天津，300387

2 教育部人文社会科学重点研究基地天津师范大学心理与行为研究院，天津，300387

3 学生心理发展与学习天津市高校社会科学实验室，天津，300387，zhouguangdong@tjnu.edu.cn

摘 要 近年来，青少年群体焦虑抑郁问题的发生率显著上升，且存在明显的异质性，并随着时间的推移呈现出不同的发展特点。为了解青少年焦虑抑郁问题随时间发展的特点及相关影响因素，本研究以某高中 736 名非毕业生为研究对象，分别在 2021 年 7 月 13 日和 2021 年 9 月 13 日进行两次施测。采用潜在剖面分析（LPA）确定焦虑抑郁问题的潜在类别，采用潜在转变分析（LTA）确定潜在类别的转变趋势，并采用多元逻辑回归分析评估内部（神经质）和外部（负性生活事件）对亚类别及转变趋势的影响。结果得到：（1）焦虑抑郁问题具有三个潜在类别：低抑郁组、低症状组和共病组。（2）低抑郁组和低症状组的时间稳定性较高，共病组的时间稳定性较弱。（3）随着时间的推移，低抑郁组有可能发展至低症状组，共病组具有恢复到低症状组的可能性。（4）神经质和负性生活事件显著影响焦虑和抑郁的潜在类别的划分，神经质得分较高或经历负性生活事件频率较高的个体更可能处于低症状组和共病组。（5）消极生活事件会影响焦虑抑郁问题的过渡模式，经历更频繁的负性生活事件的个体更有可能转变至低症状组和共病组。综上，本研究得到青少年焦虑抑郁问题存在异质性。随着时间的推移，焦虑抑郁问题既表现出较高的稳定性，也呈现出恶化或恢复的可能。此外，本研究还发现内部和外部因素均会影响个体焦虑抑郁问题的发生，且外部因素会影响个体焦虑抑郁问题的维持和转变。本研究提供了深入了解青少年焦虑抑郁问题的发展过程的参考，并向教育工作者提供了有效方向，即通过改善青少年的外部生活环境来缓解焦虑抑郁问题。

关键词 焦虑，抑郁，潜在转变分析，神经质，生活事件

The Development of Anxiety and Depression in Chinese High School Students and Its Influencing Factors: A Latent Transition Analysis

Xinyu Zhang[1] Guangdong Zhou[123] Haibo Yang[123]
1 Faculty of Psychology, Tianjin Normal University, Tianjin 300387, China
2 Key Research Base of Humanities and Social Sciences of the Ministry of Education, Academy of Psychology and Behavior, Tianjin Normal University, Tianjin 300387, China
3 Tianjin Social Science Laboratory of Students' Mental Development and Learning, Tianjin 300387, China

Abstract： In recent years, the prevalence of anxiety and depression among adolescents has increased significantly, showing obvious heterogeneity and presenting different developmental characteristics over time. To explore the characteristics of adolescent anxiety and depression, as well as their developmental patterns over time and related influencing factors, this study involved 736 non-graduates from a certain high school who completed two questionnaires on July 13, 2021, and September 13, 2021. The latent classes of anxiety and depression were determined using latent profile analysis (LPA). Additionally, latent transition analysis (LTA) was employed to identify the transformation trend of these latent classes. Multiple logistic regression analyses were conducted to evaluate the influence of internal factors (neuroticism) and external factors (negative life events) on the subcategories and transformation trends. The results were obtained: (1) Anxiety and depression were categorized into three latent classes: low-depression, low-symptom, and comorbid group. (2) The low-depression and low-symptom groups exhibited high time stability, whereas the comorbid group demonstrated weaker time stability. (3) Over time, individuals in the low-depression group tended to transition to the low-symptom group, while individuals in the comorbid group showed a potential return to the low-symptom group. (4) Neuroticism and negative life events significantly influence the classification of latent classes for anxiety and depression. Individuals with higher neurotic scores or a higher frequency of negative life events are more likely to belong to the low-symptom and comorbid groups. (5) negative life events influenced the transition patterns of anxiety and depression. Individuals who experienced more frequent negative life events were more likely to undergo transitions into the low-symptom and comorbid groups. In conclusion, this study found that there is heterogeneity in anxiety and depression among adolescents. Over time, these issues show both high stability and the possibility of worsening or improvement. Furthermore, the study revealed that both internal and external factors influence the occurrence of anxiety and depression in individuals, with external factors also impacting the maintenance and transition of these issues. This research provides insights into the occurrence and development of anxiety and depression among adolescents and offers effective directions to educators, suggesting that alleviating anxiety and depression issues can be achieved by improving the external living environment of young individuals.

Keywords： Anxiety, Depression, Latent Transition Analysis, Neuroticism, Life events

大学生网络游戏障碍的发展轨迹和预测因素：一个五波的纵向追踪调查

乔小飞 石绪亮（通讯作者）
河北大学教育学院，保定，071002，shixl163@163.com

摘 要 背景：网络游戏障碍逐渐成为全球的一大公共健康问题，在大学生群体当中尤其普遍。本研究旨在以大学生群体为研究对象，探讨网络游戏障碍的变化轨迹及其保护性和风险性因素。方法：本研究对广东省某高校的 5785 名学生展开 3 年追踪调查。采用自评问卷的方式评估网络游戏障碍、自我控制、自我怜悯、抑郁、同伴冲突。结果：（1）本研究发现了 3 类不同的网络游戏障碍轨迹：低而稳定组，上升组和下降组；（2）自我控制和自我怜悯是网络游戏障碍的保护因素；（3）抑郁和同伴冲突是网络游戏障碍的风险因素。结论：大学生的网络游戏障碍较为普遍，并表现出了明显的异质性。高校心理健康工作者应特别关注高风险群体及其影响因素，从而进行有针对性的预防和干预。

关键词 网络游戏障碍，轨迹，保护因素，风险因素，大学生

Developmental trajectories and predictors of internet gaming disorder among college students: A five-wave longitudinal investigation

Xiaofei Qiao, Xuliang Shi

School of Education, Hebei University Hebei, Baoding 071002

***Abstract*：** Background*:* Internet gaming disorder (IGD) is becoming a major public health problem around the world, which is particularly prevalent among college students. This study aims to examine the trajectories of internet gaming disorder, and explore the protective and risk predictors of IGD among college students. Methods*:* This study followed 5787 college students from universities in Guangdong Province over 3 years. Self-assessment questionnaires were used to assess IGD, self-control, self-compassion, depressive symptoms, peer conflict, and demographic characteristics. Results*:* (1) this study identified three distinct trajectories of IGD: low-stable pattern, increasing pattern, and decreasing pattern; (2) self-control and self-compassion were protective factors for IGD; (3) depressive symptoms and peer conflict were risk factors for IGD. Conclusions*:* IGD is highly prevalent and shows significant heterogeneity among college students. Mental health practitioners in universities should pay more attention to high-risk students and associated predictors, early target prevention and interventions should be designed to improve IGD.

***Keywords*：** internet gaming disorder, trajectories, protective factors, risk factors, college students

融合音乐训练的绘本阅读活动对 3-4 岁儿童言语能力的影响

王梓洋　刘世玉（通讯作者）

中国海洋大学教育系，青岛，266100

摘 要　早期言语能力被认为是预测儿童未来学业发展的一个重要指标，包含语音意识、言语表达及对言语和故事的理解等。绘本阅读能够有效提升儿童的言语和阅读能力。音乐与语言有着相似的特性和神经机制。音乐训练能够提高儿童听觉敏感度，对言语发展也起着积极作用。在阅读活动中加入节奏、律动等音乐训练，不仅能增强儿童的参与度与沉浸感，还能提高儿童的记忆力与兴趣，从而能更好地提升言语能力。然而，将二者融合应用于幼儿园集体活动中是否有效，仍有待深入研究。本研究旨在探讨融合音乐训练的绘本阅读活动对儿童言语能力的作用。为此，在幼儿园中进行准实验研究，随机选取某所公立幼儿园三个班级共 72 名小班儿童（$M_{月龄}$=48.63），并将这三个班随机分为实验组—融合音乐训练的绘本阅读组（N=23）、对照组—传统绘本阅读组（N=25）和空白组—无实验干预组（N=24）。实验前对三个班儿童进行言语能力前测，发现无显著差异。实验持续 8 周，每周 3 次，每次 10-15 分钟，实验班与对照班学习《小金鱼逃走了》、《鳄鱼怕怕，牙医怕怕》与《月亮的味道》三本绘本，每本学完后进行绘本故事理解测试。空白班不做干预，8 周后三个班进行言语能力后测。

研究结果表明：（1）融合音乐训练的绘本阅读活动能显著提升儿童的言语能力，尤其是言语理解与表

达能力，语音意识虽有提升但并未达到显著。（2）传统绘本阅读活动也能够显著提升儿童的言语能力，尤其是表达能力。言语理解有一定程度的提升，但无显著差异。对语音意识有较小影响。（3）组间比较结果得出，在言语能力的提升效果上，融合音乐训练的绘本阅读活动则更有效，实验组显著高于对照组（F=59.019,p<0.01），空白组实验前后得分无明显差异。故事理解测验中，实验组儿童得分显著高于对照组，尤其是对隐性问题的理解更好。本研究揭示了在幼儿园小班中将音乐训练融入到绘本阅读活动中的可行性与有效性。

关键词　音乐训练,绘本阅读,语音意识,言语理解,言语表达

The Impact of Integrated Music Training in Picture Book Reading Activities on the Language Abilities of 3-4-Year-Old Children

Ziyang Wang, Shiyu Liu (Corresponding Author)
Department of Education, Ocean University of China, Qingdao, 266100

Abstract: Early language ability is considered an important indicator for predicting children's future academic development, which includes phonological awareness, language expression, and comprehension of speech and stories. Reading picture books can effectively enhance children's language and reading abilities. Additionally, music and language share similar characteristics and neural mechanisms. Music training can improve children's auditory sensitivity and also positively influence language development. Incorporating rhythm, movement, and other music training elements into reading activities not only enhance children's engagement and immersion but also improves their memory and interest, leading to better language development. However, further research is needed to explore the effectiveness of integrating these two activities in collective educational settings, such as kindergarten. This study aims to investigate the role of integrated music training and picture book reading activities on children's language ability. A quasi-experimental research design was employed in a selected public kindergarten, randomly selecting three classes, a total of 72 preschool children were included in the study (M = 48.63 months). Randomly assigning children from three classrooms into three groups: experimental group—integrated music training and picture book reading group (N=23), control group—traditional picture book reading group (N=25), and blank group—no experimental intervention group (N=24). Before the experiment, a pretest on children's language ability was conducted, and there were no significant differences in language ability scores among the three groups. The experiment lasted for 8 weeks, with three sessions per week, each lasting 10-15 minutes. The experimental group and the control group studied three picture books: "The Goldfish Got Away," "The Crocodile and the Dentist," and "A Taste of the Moon." After studying each book, they underwent a picture book story comprehension test. The blank group received no intervention. After 8 weeks, all three groups underwent a posttest to assess their language abilities.

The research findings indicate that: (1) The integrated music training in picture book reading activities significantly improves children's language abilities, particularly in language comprehension and expression. Although there is some improvement in phonological awareness, it did not reach statistical significance. (2) Traditional picture book reading activities can significantly enhance children's language abilities, especially in terms of expression. There is a certain level of improvement in language comprehension, but no significant difference. There is a minor impact on phonological awareness. (3) The comparison between the groups revealed that in terms of the improvement in language ability, the integrated approach of music training and picture book reading was more effective. The experimental group showed a significant improvement compared to the control group (F=59.019, p<0.01), while the blank group did not show any significant difference in scores before and after

the experiment. In the story comprehension test, the children in the experimental group obtained significantly higher scores than those in the control group, particularly in their understanding of implicit questions. This study revealed the feasibility and effectiveness of integrating music training into picture book reading activities in kindergarten classrooms.

***Keywords*:** Music Training, Picture Book Reading, Phonological Awareness, Language Comprehension, Language Expression

儿童屏幕暴露与执行功能的关系元分析

苏俊月 吴小凤 刘畅海 唐邑 魏勇刚（通讯作者）

重庆师范大学教育科学学院，重庆市学前教育质量监测与评估研究中心，重庆 401331

摘 要 屏幕暴露（Screen Exposure），是指个体接触屏幕类电子媒介的一系列活动，如看电视、玩电子游戏、上网、使用手机等。在日新月异的数字化时代，儿童已然成为数字原住民，其屏幕暴露的时间逐年成倍增长。已有研究表明，屏幕暴露对儿童的认知发展等产生显著影响。执行功能作为个体认知发展的重要因子，常被用来探讨与屏幕暴露之间的关系，且这方面的研究还存在着大量争议。因此，有必要充分考察已有实证研究的综合结果，明确屏幕暴露与执行功能间的关系，从而对儿童屏幕暴露进行科学有效的规范和引导。本研究采集了国内外 15 项实证研究的 19 种效应值，涉及 6167 名儿童的屏幕暴露和执行功能变量，对其进行元分析，以确定儿童屏幕暴露与执行功能之间的关系，并探究人口学变量、屏幕暴露时长、电子媒介类型、研究属性测试等因素对二者关系的影响。结果表明，屏幕暴露较高的儿童往往有更低的执行功能，且受到被试年龄、屏幕暴露时长、出版年份等因素的影响。屏幕暴露与执行功能之间的负相关关系在 3-6 岁中最强，其次是 6-12 岁，0-3 岁最低；日均暴露时长大于 1 小时比小于 1 小时更强；随着出版年份的推移，表现出更强的相关性。综合以上发现，可以得出以下论断：儿童屏幕暴露时间越长，其执行功能水平越低，尤其是 3-6 岁这个儿童群体中表现出更强烈的低执行功能。据此，未来我们应有意识地对学前儿童的屏幕暴露时长进行控制，以促进其执行功能的有效发展。

关键词 屏幕暴露；执行功能；儿童

A Meta-Analysis of the Relationship between Screen Exposure and Executive Function in Children

Junyue Su Xiaofeng Wu Changhai Liu Yi Tang Yonggang Wei (Contacts author)

College of Education Science, Chongqing Normal University,, Chongqing Early Childhood Education Quality Monitoring and Evaluation Research Center, Chongqing ,401331

Abstract: Screen Exposure refers to a series of activities in which individuals are exposed to screen-based electronic media, such as watching TV, playing video games, surfing the Internet, and using mobile phones. In the rapidly changing digital age, children have become digital natives, and their screen exposure time is increasing exponentially year by year. Studies have shown that screen exposure has a significant impact on children's cognitive development. As an important factor of individual cognitive development, executive function is often used to explore the relationship with screen exposure, and there are still a lot of controversies in this area of research. Therefore, it is necessary to fully examine the comprehensive results of existing empirical studies and clarify the relationship between screen exposure and executive function, so as to scientifically and effectively

regulate and guide children's screen exposure. This study collected 19 effect sizes from 15 empirical studies at home and abroad, involving 6167 children's screen exposure and executive function variables, and conducted a meta-analysis to determine the relationship between children's screen exposure and executive function, and explored the influence of demographic variables, screen exposure duration, electronic media type, research attribute testing and other factors on the relationship. The results showed that children with higher screen exposure tended to have lower executive function, which was influenced by subjects' age, screen exposure time, and publication year. The negative correlation between screen exposure and executive function was strongest in 3-6 years old, followed by 6-12 years old, and lowest in 0-3 years old. The average daily exposure time of more than 1 hour is stronger than that of less than 1 hour. Stronger correlations were shown as the year of publication progressed. Based on the above findings, the following conclusions can be drawn: the longer children's screen exposure time, the lower their executive function level, especially in the group of 3-6 years old children showed a stronger low executive function. Therefore, in the future, we should consciously control the screen exposure time of preschool children to promote the effective development of their executive functions.

Keywords: screen exposure; executive function; children

中学生述情障碍与社交焦虑的纵向关系-基于潜在转变分析

李森鹏 刘志军（通讯作者）王姣

海南师范大学心理学院，海南，570100

摘 要 **目的：**运用追踪研究设计和潜在转变分析法研究中学生述情障碍潜在类别的转变特点及其影响因素。**方法：**以湖南省 7 所中学的 1447 名中学生为被试进行为期 6 个月的追踪，对数据进行潜在转变分析。**结果：（1）**中学生述情障碍可分为高述情障碍组、普通组和低述情障碍组 3 个类别。（2）高述情障碍组稳定性最弱，保持原潜在状态的概率为 37.7%，普通组和低述情障碍组保持原潜在状态的概率分别是 58.1%和 50.7%。（3）高述情障碍组倾向于向普通组转变，转变概率为 50.2%。（4）社交焦虑和性别在述情障碍类别转变中起显著作用。**结论：**中学生述情障碍存在 3 个潜在类别，不同类别随时间推移发生转变且受多种因素影响，述情障碍转变呈现出“缓解模式”。

关键词 述情障碍;社交焦虑;中学生;潜在转变分析;追踪研究

The Relationship between Alexithymia and Social anxiety in Middle School Students - Based on Latent transition Analysis

Li Senpeng Liu Zhijun Wang jiao

School of Psychology, Hainan Normal University，Hainan

***Abstract*:**

Objective: To study the transition characteristics and influencing factors of the latent class of alexithymia in middle school students by longitudinal design and latent transition analysis. **Methods**: A follow-up study was conducted on 1447 middle school students from 7 middle schools in Hunan Province at an interval of 6 months to

analyze the latent transition change. **Results**: (1) Alexithymia in middle school students can be divided into three categories: high alexithymia class, common class and low alexithymia class. (2) The stability of the high alexithymia class was the weakest, and the probability of maintaining the original latent state was 37.7%. The probability of maintaining the original latent state was 58.1% and 50.7% in the common class and the low alexithymia class, respectively. (3) The high alexithymia class tended to transition to the common class, and the probability of transition was 50.2%. (4) Social anxiety and gender play a significant role in the change of alexithymia. **Conclusion**: There are three latent class of alexithymia in middle school students, and the different class change over time and are affected by multiple factors. The transformation of Alexithymia presents a "mitigation mode".

Keywords：alexithymia，social anxiety, middle school students, latent transition analysis, longitudinal design

儿童第三方惩罚的偏好：双赢还是双输

马睿[1]　刘丽丝[1]　吴南[1,2]（通讯作者）

1 北京联合大学师范学院，北京，100101

2 北京联合大学儿童及青少年学习与心理发展研究所，北京，100101, wunantom@126.com

摘 要　在儿童中期，儿童的公平观念得到进一步发展，能够出现付出代价以维护公平的行为，但儿童偏好的公平方式仍需要进一步探索。双赢与双输是公平的两种形式，双赢指双方获利最大化，双输指双方损失最大化。双赢公平使得维护公平的第三方获得更多声誉收益，但违规者不会受到惩罚，即“利己不损人”；双输是更具威慑力的公平形式，违规者会受到惩罚，但是第三方维护公平的行为存在“出力不讨好”的可能。同时研究表明，弱者（即资源较少的一方）利益是否受损会影响儿童的公平行为。因此，本研究借鉴第三方惩罚的独裁者博弈范式设计了两个实验，探查一至四年级儿童作为第三方时的公平形式偏好并明晰年龄变化的模式。实验一（*N*=111）探查了第三方惩罚损害弱者利益时，儿童偏爱的公平方式。结果发现，儿童更偏爱“双赢”的公平形式。这意味着他们更倾向于通过帮助双方获利最大化来维护公平，而不会选择对违规者进行惩罚。但该范式中的双输公平会损害弱者的利益。因此，实验二（*N*=109）进一步探查了第三方惩罚不损害弱者利益时，儿童偏爱的公平方式。结果发现儿童同样偏爱“双赢”的公平形式，这表明即使在没有弱者利益受损的情况下，他们仍然倾向于支持双方互惠互利，以维护公平。综上，本研究得出以下结论：

1、多数一至四年级儿童会做出维护公平公正的第三方惩罚行为，且更偏好“双赢”的公平形式。

2、不论弱者利益受损时，还是利益不受损，女孩均更偏爱双赢公平。

关键词　儿童，第三方惩罚，公平，双赢，双输

Children's preference for third-party punishment: Win-win or Lose-lose?

Rui Ma[1], Lisi Liu[1], Nan Wu[1,2]

1 Teachers College of Beijing Union University, Beijing, 100011

2 Learning and Psychological Development Institution for Children and Adolescents, Beijing Union University, Bei Jing 100101

Abstract ： In middle childhood, children's conception of fairness undergoes further development, manifesting behaviors that involve costs to uphold fairness. However, the preferred mode of fairness for children still requires deeper exploration. "Win-win" and "lose-lose" represent two types of fairness, where win-win signifies the maximization of benefits for both sides, while lose-lose means maximization of losses for both. Win-win fairness provides more reputational benefits for a third party upholding fairness, yet doesn't penalize the transgressors, encapsulated as "benefitting oneself without harming others." In contrast, lose-lose fairness holds a more deterrent effect, penalizing the rule-breakers, but the third party's actions in upholding fairness might not always be acknowledged or appreciated. Studies also indicate that whether the underprivileged party (those with fewer resources) is harmed influences children's fairness behaviors. This research, inspired by the third-party punishment paradigm from the dictator game, designed two experiments to examine the fairness preference of children from first to fourth grade when acting as the third party, and to elucidate patterns across ages. In Experiment 1 (*N*=111), children's preferred form of fairness was explored when third-party punishment harmed the interests of the weaker party. The findings revealed that children favored the "win-win" fairness approach, suggesting they lean more towards helping both parties maximize gains rather than penalizing wrongdoers. However, in this paradigm, the lose-lose fairness approach harmed the underprivileged. Hence, Experiment 2 (*N*=109) further explored children's fairness preference when third-party punishment didn't harm the underprivileged party's interests. The results again indicated a preference for "win-win" fairness, suggesting that even without detriment to the weaker party, children still tend to support mutual benefits to uphold fairness. In conclusion, this study deduced:

1. Most children from first to fourth grade engage in third-party punitive actions to maintain fairness and equity, with a stronger inclination towards "win-win" fairness.
2. Regardless of whether the weaker party's interests are harmed or not, girls consistently favor win-win fairness.

Keywords：children, third-party punishment, equality, win-win equality, lose-lose equality

体重指数和小学儿童工作记忆的关系：体重污名的中介作用

刘丽丝[1] 马睿[1] 徐茜[1,2] 吴南[1,2,*]

[1]北京联合大学师范学院，北京，100101

[2]北京联合大学儿童及青少年学习与心理发展研究所，北京，100101

[*]通讯作者：wunantom@126.com

摘 要 随着超重和肥胖检出率的逐年上升，儿童肥胖已经成为危害其健康的公共卫生问题，肥胖对儿童的生理、心理和认知能力发展的影响越来越受到关注。研究显示肥胖会损害儿童的认知能力，较于正常体重的儿童，肥胖儿童的工作记忆表现更差。与此同时，在追求“瘦理想”的时代，肥胖问题导致的体重污名现象也值得重视。体重污名不仅危害个体的心理健康，还会对儿童的认知和学习产生消极影响。因此，本研究将探讨肥胖问题对儿童工作记忆的影响，以及体重污名（体重嘲笑、身体意象）在其中的作用。选取北京市某小学五、六年级的学生共 365 人，依据《中国学龄儿童青少年超重、肥胖筛查体重指数值分类标准》将被试分为肥胖组、超重组和正常体重组。使用 E-prime 编制的简体中文版“自动化运算广度任务”测量被试的工作记忆能力。体重污名则选取 Thompson 等人编制的感知嘲笑量表（Perception of Teasing Scale, POTS），对被试感知到嘲笑的频率和被嘲笑后的沮丧程度进行测量。身体意象采用 Evans 等人修订的体像量表简短版（Body Shape Questionnare-8C, BSQ-8C），考察被试对自己身体的满意程度。研究发现：（1）不同体重（正常体重、超重、肥胖）类型的儿童工作记忆不存在显著差异；肥胖儿童受到的体重污名显著

高于体重正常儿童。（2）儿童的 BMI 值与工作记忆相关不显著；儿童的 BMI 值与体重污名呈显著正相关；儿童的工作记忆与被嘲笑的频率呈显著负相关。（3）体重污名在 BMI 指数和工作记忆之间起完全中介作用。

关键词　肥胖儿童，体重指数，工作记忆，体重污名

The Relationship between Body Mass Index and Working Memory in Primary School Children: The Mediating Role of Weight Stigma

Lisi Liu [1], Rui Ma [1], Qian Xu [1,2], Nan Wu [1,2,*]

[1] Teachers College of Beijing Union University, Beijing, 100011

[2] Learning and Psychological Development Institution for Children and Adolescents, Beijing Union University, Beijing 100101

[*]Corresponding author, wunantom@126.com

Abstract：With the increasing prevalence of overweight and obesity, childhood obesity has become a public health concern, posing risks to the health and development of children. The impact of obesity on the physiological, psychological, and cognitive development of children is receiving growing attention. Researches have shown that obesity can impair children's cognitive abilities, with obese children exhibiting poorer performance in working memory compared to their normal-weight peers. Meanwhile, in an era that idealizes thinness, the issue of weight stigma resulting from obesity is also a matter of concern. Weight stigma not only affects individuals' mental well-being but also has negative consequences on children's cognition and learning. Therefore, this study aims to explore the influence of obesity on children's working memory and the role of weight stigma (weight-teasing and body image) in this context. The study selected a total of 365 students from grades five and six in a primary school in Beijing. Participants were categorized into obese, overweight, and normal-weight groups based on the "Chinese screening body mass index classification standard for school-age children and adolescents." The simplified Chinese version of the "Automated Operation Span Task," created using E-prime, was used to measure the participants' working memory capacity. Weight stigma was measured using the Perception of Teasing Scale (POTS), developed by Thompson et al., which assessed the frequency of perceived teasing and the level of distress experienced after being teased. Body image was evaluated using the shortened version of the Body Shape Questionnaire-8C (BSQ-8C), revised by Evans et al., to assess the participants' satisfaction with their own bodies. The study findings are as follows: (1) There are no significant differences in working memory between different weight types (normal weight, overweight, obese); Obese children experience significantly higher levels of weight stigma compared to children with a normal weight. (2) BMI in children is not significantly correlated with working memory; Children's BMI values are significantly positively correlated with weight stigma; children's working memory is significantly negatively correlated with the frequency of teasing. (3) Weight stigma acts as a complete mediator between BMI index and working memory.

Keywords：Obese children, BMI, Working memory, Weight stigma

“当心脚下”：底部视觉线索对边界定位的影响机制

沈婷[1] 吴梓瑶[1] 郝鑫[1]（通讯作者）
1 华中师范大学心理学院，武汉，430079，psyhaoxin@ccnu.edu.cn

摘 要 边界定位是人类必备的生存技能。自然界中有直立式和坠落式两种边界，尽管研究表明视觉线索影响直立式边界定位，但缺乏对坠落式边界的探讨，且忽略了底部视觉线索的作用。本研究聚焦底部视觉线索，考察多种视觉线索对两种边界定位的影响，并探讨二者加工机制的异同。实验 1 考察底部显著性和透明度对坠落式边界定位的影响，结果发现个体将高显著性、不透明的坠落式边界定位得更近，且在高、低显著性下，均认为不透明边界更近（前者差异更大），线性混合模型结果表明透明度有着更大的作用。实验 2 综合底部和前面视觉线索考察底部显著性和前面透明度对直立式边界定位的影响，结果发现个体认为高显著性、不透明直立式边界更近，且透明度同样有着更大权重。实验 3 通过眼动技术进一步探究底部透明度对坠落式和直立式边界定位的影响，并探讨二者加工机制的异同，结果发现个体对场景底部兴趣区、坠落式边界和不透明条件给予更多的注视。另外，对透明坠落式边界的总注视次数多于不透明条件，但在直立式边界中差异不显著，表明两种边界存在共享和分离的加工机制。

综上，本研究首次揭示底部视觉线索对边界定位的作用机制，尤其是坠落式边界；还发现显著性和透明度对边界定位的不同作用权重，为空间导航的认知计算机制提供重要理论价值。

关键词 视觉线索，显著性，透明度，边界定位

“Watch your feet”: the mechanism of bottom visual cues for boundary orientation

SHEN Ting[1], Ziyao Wu[1], HAO Xin [1,*]
School of Psychology, Central China Normal University, Wuhan, China

Abstract: Boundary orientation is an essential survival skill for humans. There are two types of boundaries in nature: upright (wall-up) and falling (drop-off) boundaries. Although research has shown that visual cues affect wall-up boundary orientation, there is a lack of exploration of drop-off boundary, and the role of bottom visual cues has been neglected. This study focused on bottom visual cues to examine the effects of multiple visual cues on the orientation of the two boundaries and to further explore the similarities and differences in the processing mechanisms of both. This study focused on bottom visual cues to examine the effects of multiple visual cues on the orientation of the two boundaries and to further explore the similarities and differences in the processing mechanisms of both. Experiment 1 examined the impact of bottom salience and transparency on the orientation of drop-off boundary, and found that individuals orientated high salience and opaque drop-off boundaries closer, and perceived opaque boundaries as closer at both high and low salience (with a greater difference in the former). The linear mixed model findings suggested that transparency had a greater effect. Experiment 2 combined bottom and front visual cues to examine the effects of bottom saliency and front transparency on the orientation of wall-up boundary, and found that individuals perceived high saliency and opaque conditions to be closer, and again transparency had greater weight. Experiment 3 further used eye-tracking technique to investigate the effects of bottom transparency on the orientation of the drop-off and wall-up boundaries, and to explore whether they share the same processing mechanism. The results found that individuals gave more attention to the region of interest at the bottom of the scene, the drop-off boundary and the opaque condition. In addition, the Fixation Count to the transparent drop-off boundary was more than that to the opaque condition, but the difference was not significant in the wall-up boundary, which indicated that there are shared and separate processing mechanisms for the two types of boundaries.

In summary, this study reveals the mechanism of bottom visual cues on boundary orientation for the first time, especially for drop-off boundary. It also shows the different role weights of saliency and transparency on boundary orientation, which provides an important theoretical value for cognitive computational mechanisms for spatial navigation.

Keywords：Visual cues, Salience, Transparency, Boundary orientation

急性应激与不同亲社会结果对努力型亲社会行为的影响

龚诗苗[1] 郝嘉佳[1]（通讯作者）

1 天津师范大学心理学部，天津，300387，haojiajia@tjnu.edu.cn

摘 要　急性应激会影响个体的情绪和行为。许多亲社会行为需要个体付出努力来为他人带来收益，或者帮助他人避免损失。本研究探讨急性应激和亲社会行为结果对努力型亲社会行为的影响，考查个体在急性应激条件下投入努力使得他人获得奖励或者避免损失的意愿和行为。实验设计为情境（奖励、损失）×组别（应激、对照）×努力水平（最大按键次数的 30%、50%、70%）×奖励水平（高、中、低）的混合设计，其中情境和组别为被试间因素。117 名被试随机分为两组，分别接受蒙特利尔脑成像应激任务（MIST）的应激版本或者对照版本，并完成奖励情境或损失情境下的努力型亲社会任务。结果发现，努力水平主效应显著，情境条件和努力水平的交互作用显著。简单效应发现，与帮助他人获得奖励付出努力相比，被试更愿意为他人避免损失而付出中低程度的努力。奖励水平的主效应显著，情境条件和奖励水平的交互作用显著。简单效应分析发现，与获得高奖励相比，被试在避免高损失条件中更加倾向于选择需要努力的亲社会行为。在避免损失的情境下，与避免低损失相比，被试在面对避免高损失时，更愿意选择需要努力的亲社会任务；在获得奖励的情境下，与获得低奖励相比，被试在面对高奖励时，更愿意选择需要努力的亲社会任务。综上所述，无论个体是否处于急性应激状态，相比于帮助他人获得奖励，被试更愿意为他人避免损失，以及需要付出努力的多少也会显著影响个体的努力型亲社会行为的选择。

关键词　急性应激，亲社会行为，努力，损失厌恶

The Effects of Acute Stress and Different Prosocial Outcomes on Prosocial Effort Behavior

Gong Shimiao[1] Hao Jiajia[1]

1 Faculty of Psychology, Tianjin Normal University, Tianjin, 300387, haojiajia@tjnu.edu.cn

Abstract：Acute stress affects an individual's emotions and behavior. Many prosocial behaviors require individuals to exert effort to bring gains to others or to help others avoid losses. The present study examined the effects of acute stress and prosocial behavioral outcomes on effortful prosocial behavior, examining individuals' willingness and behavior to invest effort to bring about rewards for others or avoid losses under acute stress conditions. The experimental design was a mixed context (reward, loss) × group (stress, control) × effort level (30%, 50%, 70% of the maximum number of keystrokes) × reward level (three levels), in which context and group were between-participants factors. 117 participants were randomly divided into two groups to receive either the stress or control versions of the Montreal Imaging of Brain Stress Task (MIST) and to complete either the reward or loss context of an effortful prosocial task. The results found a significant main effect for level of effort and a significant interaction between context condition and level of effort. A simple effect was that participants were more willing to exert a low to moderate level of effort to avoid loss for others than to help them gain a reward.The

main effect of reward level was significant, and the interaction between context condition and reward level was significant. Simple effects analyses found that participants were more inclined to choose prosocial behaviors that required effort in avoiding high loss than in receiving high rewards conditions. In the loss avoidance context, participants were more inclined to choose prosocial tasks that required effort when avoiding high losses than avoiding low losses. In the reward acquisition context, participants were more inclined to choose prosocial tasks that required effort when faced with high rewards than obtaining low ones. In summary, regardless of whether an individual is in an acute stress situation, subjects' greater willingness to avoid losses for others than to help them gain rewards and the amount of effort required also significantly affects an individual's choice of effortful prosocial behaviors.

Keywords：acute stress, prosocial behavior, effort, loss aversion

推理和阅读的双向建构：

额中回对视觉和凸显网络功能调控的中介作用

王笳力[1]　王延培[1]　马磊磊[1]　陶沙[1]（通讯作者）

1 北京师范大学认知神经科学与学习国家重点实验室，北京，100875，taosha@bnu.edu.cn

摘 要　推理作为一种复杂的高级认知技能，使儿童能够从一个熟悉任务的心理表征快速转移到另一个不熟悉的任务中，是在已有知识基础上得出新颖结论的能力。而阅读的过程也需推理能力的参与，儿童在实现阅读理解时会借助已有的知识系统或认知表征在新情境中进行推断和学习，从而理解语篇和句法。已有研究表明，推理能力的发展支持阅读的习得，而阅读的过程也可以促进认知能力的提升，但对于二者之间的双向作用关系和涉及的脑功能连接基础仍需要进一步探索。因此本研究旨在探查推理和阅读能力发展之间的纵向预测模式，以及该模式是如何通过特定脑区之间功能连接的变化所解释。为此，我们对于 464 名年龄介于 6 至 12 岁的儿童进行了两次推理和阅读能力的评估（平均年龄 8.96±1.31 岁，评估时间间隔为 1 年），并进行大脑结构像和静息态功能成像扫描。交叉滞后模型的结果显示，在控制了基线的阅读成绩后，基线的推理分数可以显著预测一年后的阅读成绩发展，这种预测关系不受背景变量，包括性别、年龄、父母受教育水平和家庭经济情况的影响。相反，在控制了基线的推理分数后，较低的阅读成绩显著预测了一年后的推理分数，而较高水平的阅读能力者的成绩对推理分数的预测关系则不显著。对脑功能机制的探索发现，左侧额中回与视觉和凸显网络之间的功能连接是推理和阅读能力共享的脑功能基础，其中，基线的推理分数对一年后阅读成绩的预测作用可以被共享的额中回-枕中回及额中回-脑岛间的功能连接所介导。综上，本研究发现了学龄儿童复杂的认知能力对阅读技能的稳定预测作用，且此关系模式的神经中介因素可能是额中回与视觉和凸显网络间的连通性。因此，针对推理能力的培养是优化儿童阅读技能和大脑发育的重要途径，值得在教育实践中予以重视。

关键词　推理，阅读，额中回，视觉网络，凸显网络

Bidirectional construction of reasoning and reading:

the mediating role of the functional regulation from the middle frontal gyrus to visual and salience networks

Jiali Wang[1], Yanpei Wang[1], Leilei Ma[1], Sha Tao[1]

1 State Key Laboratory of Cognitive Neuroscience and Learning, Beijing Normal University, Beijing, 100875

***Abstract*：** As a complex cognitive skill, reasoning supports children to swiftly transfer mental representations from familiar tasks to unfamiliar ones and derive novel conclusions based on existing knowledge. The process of reading also involves the engagement of reasoning abilities, as children utilize their learned knowledge systems and cognitive representations to infer and comprehend texts in new contexts, thereby understanding discourse and syntax. Existing research has indicated that the development of reasoning abilities supports the acquisition of reading skills, and in turn, the reading process can enhance cognitive abilities. However, the bidirectional relationship between these two factors and the underlying neural functional connections involved require further exploration. Therefore, this study aims to investigate the longitudinal predictive patterns between reasoning and reading abilities, as well as how these patterns are explained by changes in functional connectivity between specific brain regions. To achieve this, we conducted two rounds of reasoning and reading ability assessments for 464 children aged between 6 and 12 years (mean age 8.96 ± 1.31 years), with a one-year interval. And structural and resting-state functional imaging scans of the brain were performed. The results from the cross-lagged panel model revealed that, after controlling for baseline reading scores, baseline reasoning scores significantly predicted the development of reading abilities one year later. This predictive relationship remained robust, unaffected by background variables, including gender, age, parental education levels, and family economic status. Conversely, after controlling for baseline reasoning scores, lower reading scores significantly predicted reasoning scores one year later, while the predictive relationship for individuals with higher reading proficiency was not significant. Through exploring the brain functional mechanisms, we found that the functional connectivity between the left middle frontal gyrus and the visual and salience networks serves as the shared neural foundation for reasoning and reading abilities. Specifically, the predictive effect of baseline reasoning scores on subsequent reading performance was mediated by the shared functional connectivity between the middle frontal gyrus and the middle occipital gyrus, as well as between the middle frontal gyrus and the insula. In conclusion, this study discovers the stable predictive role of complex cognitive abilities on reading skills in school-age children, with the identified neural mediation factor being the connectivity between the left middle frontal gyrus and the visual and salience networks. Therefore, nurturing reasoning abilities is a crucial pathway to optimize children's reading skills and promote healthy brain development, warranting significant attention in educational practice.

***Keywords*：** reasoning, reading, middle frontal gyrus, visual network, salience network

童年晚期至青少年中期自我概念发展轨迹及父母教养的作用

莫亚连　武雨晴　张文新　纪林芹（通讯作者）

山东师范大学心理学院，济南，250014，sdjlq@126.com

摘 要　自我概念的发展是儿童心理发展的重要指标。根据依恋理论，与父母的互动影响儿童自我图式的构建, 父母的教养方式对儿童自我概念的发展有重要的影响。但特定领域自我概念发展的异质性以及父母教养方式对不同自我概念发展轨迹的影响尚不清楚。本研究对 2118 名四年级学生（T1 时平均年龄为 10.70±0.48 岁，男生为 51.9%）进行了 7 年的追踪，探讨社交、身体和一般自我概念的一般发展轨迹、异质发展轨迹和联合发展轨迹，并探讨父母教养方式的作用。结果：（1）潜增长模型表明，个体的社交自我概念在童年晚期至青少年早期呈上升趋势，随后略有下降；从童年晚期到青少年中期，身体自我概念呈轻微下降趋势。一般的自我概念在童年晚期表现出轻微的、不显著的增加，随后显著的下降。（2）增长混合模

型表明，社交自我概念呈现 3 条异质性轨迹：持续高（85.4%）、低上升（11.7%）和后期上升（2.9%），身体自我概念呈现 4 条异质性轨迹：持续高（45.0%）、中高下降（20.0%）、中等上升（17.0%）和持续低（18.0%），一般自我概念呈现 3 条异质性轨迹：持续高（87.5%）、低上升（10.0%）和后期上升（2.5%）；（3）平行增长混合模型表明，存在 3 个联合轨迹组：持续高组（87.0%）、中等上升组（9.0%）和中等稳定组（3.0%）；（4）多元 logistic 回归分析表明，相较于中等上升组，父母温暖水平较高、拒绝和惩罚程度较低的儿童更容易归属为持续高自我概念组。研究结果表明，儿童青少年的自我概念的发展存在个体差异，父母教养方式对儿童青少年自我概念的发展存在重要影响。

关键词 自我概念，发展轨迹，共同发展，教养方式

Self-Concept Trajectories from Late Childhood to Middle Adolescence: The Role of Parenting

Mo Yalian Wu Yuqing Zhang Wenxin Ji Linqin
School of Psychology, Shandong Normal University, Jinan 250014

***Abstract*:** Development of self-concepts is an important indicator of their mental development. According to attachment theory, children construct schemas about self from their interactions with parents. Parenting behavior is expected to be a key influence on the development of children's self- concepts. Nevertheless, little is known about the heterogeneity of specific self-concepts development and the influence of parenting styles on different developmental trajectories of self-concept. In this study, 2118 4th students (T1: M_{age} = 10.70 ± 0.48 years, 51.9% boys) were followed-up across 7 years to determine general developmental trajectory, heterogeneous trajectories and joint trajectories of social, physical and general self-concepts, and to examine the role of parenting styles. Results: (1) LGM indicated that social self-concept increased from late childhood to early adolescence, and then declined slightly. Physical self-concept showed a slightly decreasing trend from late childhood to middle adolescence. General self-concept showed a pattern of slight, nonsignificant increases across late childhood, followed by more significant declines. (2) GMM indicated three groups including persistent high (85.4%), low increasing (11.7%), and later increasing (2.9%) for social self-concept, and four heterogeneous trajectories including persistent high (45.0%), moderately high decreasing (20.0%), modest increasing (17.0%), and stable low (18.0%) for physical self-concept, and for general self-concept three heterogeneous trajectories including persistent high (87.5%), low increasing (10.0%), and later increasing (2.5%); (3) Parallel GMM identified three trajectories: persistent high (87.0%), modest increasing (9.0%), and modest stable (3.0%). (4) Multiple logistic regression analyses indicated children with higher parental warmth and lower parental rejection and punishment are more likely to belong to the persistent high self-concept group rather than the modest increasing group. Overall, these findings suggest that individual differences existed in the development of self-concept among from late children to middle adolescents, and highlight the importance of parenting in understanding the development of self-concepts.

***Keywords*:** self-concept, developmental trajectory, co-development, parenting

4.4 博士生论坛—应用心理学

婴儿图式影响道德困境中的义务论认知

张志聪 1　辛聪 2（通讯作者）
1 华东师范大学教育学部教育心理学系，上海，200062
2 南京师范大学心理学院，南京，210097，E-mail:xincongpsy@163.com

摘 要　婴儿图式是一种与儿童特征有关的认知图式，会对个体的注意、情绪、动机、行为和知觉等多个方面产生影响。在经典的两难电车困境中，当个体作为旁观者感知他人可能做出的功利主义或义务论道德选择时，可能会受到决策者所具有的婴儿图式的影响。在首次接触到道德判断的主体时，他们的名字和面孔是最有可能给我们留下第一印象的特征。在这项研究的三个实验中，我们关注的是人们会如何看待具有婴儿图式（与名字和面孔有关）特征的个体或人工智能在道德两难困境中的决策倾向。

首先，在实验 1 中测试了人们是否会认为具有婴儿图式姓名的人将做出更多的义务论道德决策。结果发现，参与者认为有重复叠音名字（刘果果，具有婴儿图式）的决策者做出功利性选择的可能性要显著低于没有重复叠音名字（刘果）的决策者。

然后，在实验 2 中进一步验证了面孔婴儿图式的影响，并探究了人际知觉（温暖和能力）的中介作用。结果显示参与者认为成熟面孔的人比娃娃脸（具有婴儿图式）的人做出功利性选择的可能性更高。娃娃脸可以显著预测温暖感知和道德判断感知，温暖感知可以显著预测道德判断感知。并且温暖感知在娃娃脸对道德决策感知的影响中起部分中介作用。娃娃脸和能力感知对道德判断感知的影响是显著的。而娃娃脸对能力感知的影响并不显著，能力感知的中介效应也不显著。

最后，我们在实验 3 中检查了这种效应是否对非人类的人工智能助手仍然成立。结果显示参与者认为低可爱度的人工智能助手比高可爱度（具有婴儿图式）的人工智能助手做出功利性选择的可能性显著更高，但感知温暖和能力的中介作用都不显著。

本研究通过三个实验验证了婴儿图式能够影响个体对他人做出道德两难决策的认知。个体会更倾向于认为具有婴儿图式的道德决策者更可能做出义务论的道德选择，即更加遵守不伤害无辜者的道德准则。
关键词　道德困境，婴儿图式，道德决策，道德认知，社会认知

Baby schema in moral dilemmas creates deontological perceptions

Zhang Zhicong[1], Xin Cong[2]
1 Faculty of Education, Department of Educational Psychology, East China Normal University, Shanghai, 200062
2 School of Psychology, Nanjing Normal University, Nanjing, 210097 E-mail: xincongpsy@163.com

Abstract：The Baby Schema is a kind of cognitive schema related to children's characteristics that can affect individual attention, emotion, motivation, behavior, and perception. In the classic trolley dilemma, individuals may be influenced by the decision-maker's baby schema when perceiving utilitarian or deontological moral choices made by others. When we first encounter moral decision-makers, their names and faces are the features that are most likely to leave a first impression on us. In the three experiments conducted in this study, we focused on how people perceive the moral choice tendencies of individuals or AI with baby schemas related to names and faces in moral dilemmas.

In the first experiment, we tested whether people believe that individuals with baby schema names would make more deontological moral decisions. It was found that participants perceived decision-makers with a repeated two-syllable name (e.g., Liu Guoguo, baby schema) to be significantly less likely to make utilitarian choices than decision-makers without a repeated two-syllable name (e.g., Liu Guo).

In the Experiment 2, we further investigated the effects of face baby schema and explored the mediating effect of interpersonal perception (warmth and competence). The results showed that participants perceived individuals with mature faces to be more likely to make utilitarian choices than those with baby-faced features (baby schema). Baby face significantly predicted warmth perception and moral judgment perception, with warmth perception playing a partial mediating role in the influence of baby face on moral decision perception. The influence of baby-faced features and competence perception on moral judgment perception was found to be significant. However, the influence of baby-faced features on competence perception and the mediating effect of competence perception were not significant.

Finally, we checked in Experiment 3 whether this effect still holds for non-human AI assistants. The results revealed that participants rated the low cuteness AI assistant as significantly more likely to make utilitarian choices than the high cuteness (baby schema) AI assistant, but the mediating role of perceived warmth and competence was not significant.

Overall, this study conducted three experiments to verify the baby schema can impact individual's perception that others make decision in moral dilemma. The findings provide evidence that individuals are more inclined to believe that moral decision-makers with baby schema are more likely to make deontological moral choices, indicating a stronger adherence to the moral code of not harming the innocent.

Keywords：moral dilemma, baby schema, moral decision, moral perception, social perception

违反测量不变性（noninvariance）对二阶潜增长模型参数估计的影响：四种方法的比较

马鹏[1] 温忠麟[1]
1 华南师范大学心理学院，广州，510631，2022010253@m.scnu.edu.cn

摘 要　二阶潜增长模型（SLGM）基于指标构建二阶因子模型，其中一阶因子模型部分是潜变量的测量模型，考虑了测量误差的影响。SLGM 需要满足纵向测量不变性假设，但在标度项为变化情况下，违反测量不变性的影响尚未得到充分了解。研究采用蒙特卡罗模拟法，考察 SLGM 测量参数在自由估计法、全强不变法、部分不变法和基于对齐法的验证性因子分析（AwC）等四种方法下，增长参数估计的表现。研究设置了 3 个变量：变化大小、变化的比例和变化的位置。模型识别采用尺度指标法，标度项设置为跨时间变化。评价指标采用模型不适当解比例，相对偏差，RMSE，95%CI 错误率。结果表明：（1）四种估计方法在满足纵向测量强不变性时，SLGM 增长参数估计表现一致。（2）模型适当解比例方面。AwC 法表现最优，大多数情况下全强不变法和部分不变法表现相似，自由估计法表现最差。（3）相对偏差方面和 RMSE 方面表现相似。AwC 法表现最优，大多数情况部分不变法表现略优于全强不变法，截距因子方差估计表现上全强不变法优于部分不变法，自由估计法始终表现最差。（5）95%CI 错误率方面。AwC 法在各种条件下表现最佳；部分不变法和全强不变法的估计表现均不佳，仅在小规模变化条件下因子方差和协方差估计方面，部分不变法略优于全强不变法；自由估计法表现不佳。结论：标度项跨时间变化情况下，研究者可优先使用 AwC 法；其次部分不变法和全强不变法差别不大，在变化规模和变化比例较小时，也可以使用这两种方法；自由估计法既可能导致严重的非适当解，也容易导致参数估计产生较大相对偏差，不建议使用。

关键词　纵向测量不变性，二阶潜增长模型，蒙特卡罗模拟，方法比较

The effect of violation of measurement invariance (noninvariance) on parameter estimation in second-order latent growth models: a comparison of four approaches

Ma Peng, Wen Zhonglin
School of Psychology, South China Normal University, Guangzhou 510631

Abstract：In order to estimate parameters in the second-order latent growth model, a measurement model is used. This method can fully account for the influence of measurement error, but it is unclear what the impact of measurement invariance will be. The effectiveness of the free estimation (FE), full strong invariance (FI), partial strong invariance (PI), and AwC approaches for parameter estimation of the second-order latent growth model has been tested using Monte Carlo simulation. Non-invariant size, non-invariant proportion, non-invariant location, and slope factor mean were the four variables included in the study. With a sample size of 500 and 1000 replications, the study used a second-order linear latent growth model with a one-dimensional 6-question, 4-wave measurement. Evaluation criteria such the proportion of proper solutions, relative bias, RMSE, and error rate of 95% CI error rate. The results show that (1) When longitudinal strong invariance is satisfied, the four estimation methods reliably estimate the SLGM growth parameters. (2) The AwC method performs best, FI and PI generally perform similarly, and the FE performs worst in terms of the proportion of appropriate solutions. (3) Relative bias and RMSE show similar patterns of performance, with AwC performing best, PI typically slightly outperforming FI, FI outperforming PI when estimating the variance of the intercept factor, and FE consistently performing worst. PI and FI perform poorly, with PI significantly beating FI only when estimating factor variances and covariance in the small-variance condition, with FE performing poorly in terms of 95% CI error rates in every condition. **Conclusion**: Researchers can give priority to the AwC method in the case of invariance in the scalar terms; secondly, there is little difference between PI and FI, which can also be used in the case of small invariance and small proportions of invariance; FE can lead to both serious inappropriate solutions and large relative biases in parameter estimates, and is not recommended.

Keywords：Measurement invariance, Second-order latent growth model, Monte Carlo simulation, Comparison of methods

山光水色与人间烟火：民乐诱发意象影响虚拟食物选择

邱林波　宛小昂（通讯作者）
清华大学心理学系，北京，100084，wanxa@mail.tsinghua.edu.cn

摘 要　背景音乐作为一种被广泛应用的营销手段，可以显著影响个体对于食物的选择。以往研究主要聚焦于背景音乐通过其诱发的情绪从而影响个体的食物选择这一机制，但是音乐不仅可以影响个体的情绪感受，还会影响个体的一系列认知加工过程。其中一个重要的认知过程是个体在听到音乐后，可能会自发地产生多个感觉通道的心理意象。本研究通过两个虚拟现实实验考察了中国民乐诱发的心理意象对个体的食物选择的影响，并且采用层级漂移扩散模型量化了食物选择中的决策过程。实验 1 中，被试需要在听背景音乐时在虚拟现实环境中完成食物选择任务。我们选择了两类音乐片段来作为实验材料，其中一类音乐片

段可以诱发城市意象，另一类音乐片段可以诱发自然意象。被试需要在两道荤菜和两道素菜中选择三道自己想吃的菜式，因此被试会做出以素菜为主的食物选择和以荤菜为主的食物选择。结果表明，相较于诱发城市意象的背景音乐，被试在诱发自然意象的音乐下会更多地做出以素菜为主的食物选择。层级漂移扩散模型的结果表明，被试在诱发自然意象的音乐下会更快地累积素菜为主的相关信息。实验 2 中，我们通过操纵音乐诱发意象的强度检验了音乐诱发的意象在食物选择过程中发挥的作用。被试被随机分到促进视觉意象组、弱抑制视觉意象组和强抑制视觉意象组中，在完成意象操纵任务后，他们还需要完成与实验 1 中相同的食物选择任务。结果表明，促进意象后诱发不同意象的音乐仍对被试的食物选择产生影响，而在抑制意象后则没有这样的结果。这证实了心理意象在背景音乐影响食物选择的过程中的作用。层级漂移扩散模型的结果表明，只有促进意象组的被试在诱发自然意象的音乐下会更快地累积素菜为主的相关信息。本研究的结果表明背景音乐会通过诱发心理意象从而影响个体的食物选择，揭示了背景音乐影响食物选择的认知机制。
关键词　背景音乐，心理意象，漂移扩散模型，虚拟现实，健康促进

Beauty of nature vs. bustle of city:

Chinese folk music influences virtual food choices via mental imagery

Linbo Qiu & Xiaoang Wan

Department of Psychology, Tsinghua University, Beijing

***Abstract*：** Background music is an effective marketing tool to impact consumer behaviors, especially food choices. Previous studies emphasized that background music might influence consumers' food choices via music-induced emotions. However, music not only influences individuals' emotion experiences but also engages a multitude of cognitive processes such as inducing visual imagery. We conducted two experiments to examine the influence of music-induced visual imagery on food choices. Additionally, we utilized hierarchical drift-diffusion models to investigate the cognitive processes underlying food choices. In Experiment 1, young healthy participants were required to select three dishes out of a choice set while listening to the background music. Two types of Chinese folk music were chosen as music stimuli, one known to induce urban imagery and the other, nature imagery. And each choice set consisted of two meat and two vegetable dishes, from which participants could choose either a meat-heavy meal (consisting of two meat and one vegetable dishes) or a vegetable-forward meal (consisting of one meat and two vegetable dishes). The results revealed that participants chose vegetable-forward meals more often while listening to the music inducing nature imagery compared to that inducing urban imagery, indicative of an effect of music on food choice. Moreover, the results of drift-diffusion models suggest that participants are more likely to accumulate evidence of vegetable-forward meals when listening to the music inducing nature imagery. In Experiment 2, we attempted to examine the role of music-induced visual imagery on food choices by manipulating the extent of music-induced visual imagery. The participants were randomly divided into three groups. The first group of participants were instructed to perform an imagination task designed to enhance their music-induced visual imagery before engaging in the food choice task; the second group was asked to perform an articulatory verbal suppression task to suppress their music-induced visual imagery only before the food choice task; whereas the third group was instructed to perform the same articulatory verbal suppression task during the whole experiment. Consequently, the participants whose music-induced imagery were enhanced still chose vegetable-forward meals more often while listening to the music inducing nature imagery compared to that inducing urban imagery. By contrast, the other two groups of participants whose music-imagery were suppressed

did not show such an indicative of an effect of background music on food choices. Moreover, the results obtained from the drift-diffusion models also confirmed that only the first group of participants were more likely to accumulate evidence of vegetable-forward meals when listening to the music inducing nature imagery. Collectively, these results confirmed the role of music-induced imagery in the process of food selection. In conclusion, the results of the present study provide empirical evidence regarding how music inducing different types of visual imagery can influence people's food choices. These findings shed light on the cognitive processes through which background music influences food choices based on music-induced visual imagery, which has direct implications in the practice of nudging consumers toward healthier and more sustainable food choices.
Keywords：background music, mental imagery, Drift-Diffusion Modeling, virtual reality, health promotion

高低权力者如何建构权力：权力视角的调节作用

王馨悦[1]　李虹[1]（通讯作者）
1 清华大学社科学院心理学系，北京，100086，lhong@mail.tsinghua.edu.cn

摘 要　本研究通过一系列实证研究揭示了权力层级与权力建构间的关系。我们在权力层级(即高权力者 vs 低权力者)和权力建构(即责任 vs 机会)间建立了稳定的联结，并发现了权力视角(即期望 vs 感知)的调节作用。研究结果表明，高权力者倾向于将权力建构为责任，但他们在行为层面或许并不像自己所认为的那样亲社会。相反，低权力者倾向于将期望的权力建构为责任而非机会，但将感知的权力建构为机会而非责任。此外，本研究通过结合期望-感知权力差距的观点，扩展了原有文献中文化培育权力概念的单一理论框架，并为调和以往文献中的不一致发现提供了新的见解。具体而言，不论在何种文化或社会环境中，当高低权力者从期望或感知的视角建构权力时，他们所使用的建构方式是不同的。值得注意的是，我们的研究结果强调，权力在本质上被建构为一种实现个人追求的机会，高权力者的社会化光环是极具迷惑性的，因此我们需要看到对权力进行限制的必要性和迫切性。
关键词　权力层级，权力建构，权力视角，责任，机会

How Power Holders and Powerless People Construe Power: the Moderating Role of Power Perspective

Xinyue Wang[1]　Hong Li[1]
1 Tsinghua University, Beijing, lhong@mail.tsinghua.edu.cn

Abstract：This article elucidates the relationship between power hierarchy and power construal through four empirical studies. We establish a robust association between power hierarchy (i.e., power holders and powerless people) and power construal (i.e., opportunity and responsibility), with power perspective (i.e., envisioned power versus perceptual power) serving as a moderating factor. Our findings reveal that power holders tend to construe power as responsibility, but their pro-social behavior may not align with their perceptions. Conversely, powerless individuals tend to construe envisioned power as responsibility rather than opportunity, while construe perceptual power more as opportunity than responsibility. Moreover, our work extends the culturally nurtured power concept theory to incorporate an envisioned-perceptual power gap perspective, providing insights to reconcile inconsistent

findings in the literature. Specifically, power construal in terms of responsibility versus opportunity differs when power holders and powerless people construe power from an envisioned or perceptual perspective, regardless of culture or society. Notably, our findings underscore that power is inherently construed as opportunity, and the power holders socialized gloss can be deceptive, highlighting the imperative need for constraints on power.
Keywords：Power Hierarchy, Power Construal, Power Perspective, Responsibility, Opportunity

为什么追求最优的人总是后悔：记忆偏向的作用

黄荷[1]　李虹[1]（通讯作者）
1 清华大学社会科学学院心理学系，北京，100084
通讯作者 E-mail: lhong@mail.tsinghua.edu.cn

摘 要　随着社会经济和生产力的迅速发展，我们在日常生活中拥有的选择也越来越多。选择的增加意味着我们会不断面临“选择-放弃”的决策权衡过程。在这个过程中，决策后悔成为一种主要的负面情绪。由于追求最优而产生的后悔，是一种普遍但却未被深入研究的情绪现象。追求最优作为一种人类普遍的动机，在经济学和心理学领域被称为“最优化”。西蒙指出，由于环境的复杂性和人类认知资源的有限性，最优化在决策中往往是非理性的。许多最优化的研究都表明，最优化者在决策后更容易陷入后悔情绪，尽管他们的决策结果（例如收入）在客观层面上来说往往更好。

本研究旨在以最优化者的记忆偏向为视角，从基础认知的层面加深对“最优化悖论”的理解。本研究的基本假设是：对已选选项的记忆偏向对最优化和决策后悔之间的关系具有中介作用。具体而言，相较于满意化者，最优化者对已选选项呈现出削弱的正性记忆偏向（甚至是负性记忆偏向），而这种差异在针对未选选项的记忆偏向中并不存在；这种削弱的正性记忆偏向导致了更强烈的决策后悔。通过三个实验（包括一个真实实验），我们利用多种方法（分层逐步回归、Bootstrap 中介分析、结构方程建模）验证了中介效应以及中介模型的稳定性和可靠性。

本研究发现，最优化者对已选选项呈现出削弱的正性记忆偏向（甚至是负性记忆偏向，实验 1），以及记忆偏向在最优化者的决策后悔中起到中介作用（实验 1~3）。其次，本研究还发现，最优化者的决策后记忆偏向呈现出负向发展轨迹（实验 3），进一步解释了最优化者呈现出长期后悔模式的原因。综上，本研究揭示了最优化悖论的产生机制，并在认知层面进行了深度剖析。这也是第一项在基础认知水平上解释最优化悖论的研究，可以进一步加深我们对最优化的运作方式以及最优化概念的理解。
关键词　最优化，后悔，记忆偏向，中介作用

Why People Pursuing the Best Always Regret: Effect of Reduced Positive Memory Bias

He Huang[1], Hong Li[1*]
1 Department of Psychology, Tsinghua University, Beijing, China
* Correspondence: lhong@mail.tsinghua.edu.cn

Abstract：With the growth of economics and productivity, we have too much rather than not enough at our disposal. We no longer have to settle for what’s available in the market; we can shop around and compare for the best deal. However, this abundance of choices also means that decision-making is often a process of selecting and forgoing. When faced with such trade-offs, post-decisional regret becomes a primary negative emotion and can pose a significant problem for individuals. Post-decisional regret resulting from the pursuit of best is a very

common yet undervalued phenomenon among all regrets. As an universal motivation, the pursuit of best is described as “maximization” in the fields of economics and psychology. Simon stated the irrationality of the pursuit of best in decision-making due to the constraints of environment and cognitive abilities. Almost all research on maximization reports people who pursuing the best (maximizers) are more engaged in post-decisional regret, despite often achieving better decision outcomes (e.g., income).

The present research aims to deepen our understanding about such maximization paradox at the basic cognitive level from the perspective of memory bias. We hypothesized that memory bias for selected options mediates the effect of maximization on post-decisional regret. More specifically, maximizers have a less positive memory bias merely for selected options than satisficers, but no difference exists in foregone options, which leads to more post-decisional regret. Across three studies (including one real-life experiment), we used multiple methods to confirm the stability and reliability of our proposed mediation model (hierarchical stepwise regression, bootstrap mediation analysis and structure equation modeling).

Our research found that maximizers exhibit reduced positive memory bias (and even negative memory bias, see Study 1) for selected options, and further demonstrated the mediating role of memory bias in maximizers’ post-decisional regret (Study 1~3). Finally, our findings also highlight a negative developmental trajectory in maximizers’ post-event memory bias (Study 3), explaining their long-term pattern of regret. In conclusion, our study focuses on the paradoxical phenomenon of why people pursuing the best but feeling more regret, and provides insights into the underlying cognitive mechanism, which is more fundamental than behavioral explanations. More importantly, this is the first study to explain this relationship at a basic cognitive level, which can deepen our understanding of how maximization operates and the concept of maximization itself.

Keywords：maximization, regret, memory bias, mediating effect

他人评论特征对网络过激评论的影响及其机制:基于群体极化视角

摘 要　为在我国社交媒体情境中探讨他人评论对个体发送过激评论的影响及其机制，本研究通过一个基于真实评论数据的文本分析和两个行为实验展开探索。研究一结果发现：评论区首条评论的过激程度和评论发表时的评论区过激表达氛围均能正向预测后来评论的过激程度。研究二结果发现：当他人评论表达观点与个体一致时，个体会感受到更强的群体认同感，但这并不会直接导致个体更容易发送网络过激评论，仍需他人的过激评论作为群体规则的参照。研究三结果发现：在他人评论观点与个体一致的情况下（高群体认同感），他人评论过激性可以通过负面情绪（愤怒、轻蔑、厌恶和负面效价）的正向中介作用使得个体更易发送网络过激评论，但情境攻击规范在其中的中介作用不显著。这些结果说明，他人评论观点的一致可以使个体产生临时的群体认同感，并且当他人评论为过激评论时，这种过激评论的群体规则会让个体更容易受到群体影响进而更可能发送过激评论，而负面情绪传染可能是内群体过激评论影响个体发送网络过激评论的重要中介机制。

关键词　社交媒体，群体认同感，网络过激评论，负面情绪，群体极化

The impacts of the characteristics of others’ comments on online flaming comments and its mechanism: From the perspective of group polarization

***Abstract*：** Online flaming comments have been a common phenomenon in social media at present, which are comments that combine strong negative emotional expression and aggressive expression on the internet. With the internet software become more social, netizens can see other people's comments and participate in discussion in more places. Previous research has found that when there are some flaming comments in the comment area, users are more likely to send online flaming comments, which exhibit clustering and infectious distribution and dissemination characteristics. These comments not only affect the rational judgment of users, but also hinder fostering a harmonious communication atmosphere, and may even threaten the physical and mental health of individuals and groups. Previous research has found that groups also have an important impact on individuals' online flaming comments in social media, which can be interpreted from the group polarization perspective.

In the past, few studies have explored the mechanism of online flaming comments from the perspective of group polarization. At the same time, most of the existing research has been conducted in the context of foreign social media, focusing more on the online flaming comments between different parties under the articles of political topics, which may be inconsistent with the situation of social media in China. This study selected Sina Weibo, a typical social media in China, as the background, collected and compiled Chinese experimental materials (including blog posts and comments under different conditions). Considering the shortcomings of previous research, this study, based on the perspective of dual component of social identity, reference information impact theory, social identity model of deindividuation effects, explored the specific mechanism of online flaming comments, to provide evidence for the intervention of online flaming comments.

Study 1 collected real comments from Sina Weibo, coded the degree of flaming of each comment, and explored the effect of "the degree of flaming of first comment in the comment area" and "the average flaming score of the previous comments in the comment area". Finally, a hierarchical linear model was conducted to analyze 2736 comments under 73 popular blog posts. The results showed that: in China's comment areas, online flaming comments exhibit clustering and infectious dissemination characteristics. Specifically, both the degree of flaming of first comment in the comment area and the average flaming score of the previous comments in the comment area can positively predict the comments' degree of flaming.

Study 2 used a 2 (the consistency on views with others' comments: consistent / inconsistent) ×2 (the degree of flaming of others' comments: normal comments / flaming comments) inter subject design to explore whether group identity can be formed when others' comments are consistent with their own view, and whether group identity and the degree of flaming of others' comments are key factors for individuals to post online flaming comments. 155 college students were randomly assigned to four groups to read a blog post and four corresponding comments. The results showed that: when others' comments have the same views with individuals, individuals would perceived higher levels of group identity. However, group identity didn't directly lead to the individuals were more likely to send online flaming comments, others' online flaming comments were also needed as the reference for group rules. Specifically, compared to the conditions of low levels of group identity, individuals with high levels of group identity would be more susceptible to the impacts of the degree of flaming of others' comments. Therefore, when both the group rules were sending online flaming comments and individuals perceived high levels of group identity, individuals were more likely to send online flaming comments.

Study 3 used a single factor (the degree of flaming of others' comments: normal comments / flaming comments) inter subject design, to explore whether the degree of flaming of others' comments have impacts on the indicators of online flaming comments through negative emotions and situational normative beliefs about cyber aggression in the context that others' comments have the same views. 224 college students were randomly divided into a normal comments group and a flaming group to read a blog post and four normal / flaming comments that have the same

views with their own. The results showed that: in the context that others' comments have the same views (at the condition of high levels of group identity), negative emotions (anger, contempt, disgust, and negative emotion valence) played a positive mediating role between the degree of flaming of others' comments and the indicators of online flaming comments, but the mediating effect of situational normative beliefs about cyber aggression was insignificant.

In summary, the theories of group polarization provides a good perspective for understanding how the characteristics of other people's comments lead individuals to send online flaming comments. The consistency on views with others' comments can create a temporary sense of group identity for individuals, and when others' comments are flaming comments, this group rule for flaming comments makes individuals more susceptible to group influence and more likely to send online flaming comments. And negative emotional contagion may be an important mediating mechanism between intragroup members' online flaming comments and individuals' possibility to send online flaming comments. Finally, this study discusses the shortcomings. Based on a group polarization perspective, future research can explore individual differences and the role of other cognitive mechanisms in the generation of online flaming comments, and can further explore individual psychology and behavior when the situation of comments area become more complex.

Keyword: online flaming comments, group polarization, group identity, negative emotions, social media

游戏障碍、风险性游戏使用、娱乐性游戏使用者时间知觉能力研究

单海迪[1]　黄川宁[1]　王粤[1]　苏杭[1]　郭垒[1]　钟娜[1]　赵敏[1]（通讯作者）

1 上海交通大学医学院附属精神卫生中心，上海市徐汇区宛平南路 600 号，200030　通讯作者

drminzhao@gmail.com

摘 要【目的】伴随着网络的普及，网络游戏使用问题受到越来越多的关注。研究发现，过度游戏会带来身体健康问题、学业成绩下降、睡眠模式紊乱、更差的精神状态，增加焦虑、抑郁和压力水平。特别是，游戏障碍的核心诊断标准之一为游戏行为失去控制，表现为游戏行为的发生、频率、强度、持续时间以及无法停止。这种时间丧失的背后可能是时间知觉方面的异常，且时间认知的异常在其他物质滥用障碍和行为障碍中已有体现。同时，游戏过度使用是一个从娱乐性使用、风险性使用、到成瘾性使用的连续发展过程。因此，本研究系统比较网络游戏成瘾者、风险性游戏使用者和娱乐性游戏使用者时间知觉能力的差异。
【方法】在大学生群体中，填写自评量表游戏障碍筛查量表（GDSS），GDSS 得分≥47 分的人群会进行一个依据 ICD-11 诊断标准的临床访谈，以确定是游戏成瘾还是风险性游戏使用人群。GDSS≤32 分人群被纳入到娱乐性游戏使用组，且通过临床访谈筛查，无过度游戏行为。所有被试会完成一个标准时间辨别任务，被试需要将比较时距 200，400，600，800，100ms 与标准时距 600ms 进行比较，以判断是长于标准时距还是短于标准时距，考察指标为主观相等点和考察时间辨别敏感度的韦伯系数。
【结果】本研究共入组 17 名游戏障碍者，32 名风险性游戏使用者和 45 名娱乐性游戏使用者，平均年龄为 19.21±0.45。对比发现，在主观相等点上三组被试（游戏障碍者：610ms；风险性：602ms；娱乐性：579ms）无显著差异（$F = 2.61$，$p = 0.07$）；在韦伯系数上，三组被试（游戏障碍者：0.071；风险性：0.091；娱乐性：0.079）无显著差异（$F = 1.14$，$p = 0.324$）。
【结论】游戏障碍者、风险性游戏使用、娱乐性游戏使用的时间知觉能力呈现不同的变化趋势，但仍需探讨背后的神经机制以及影响时间知觉的关键因素。

关键字 网络游戏障碍，时间知觉，风险性游戏使用

Investigation of Time Perception in Internet Gaming Disorder, At-risk Gaming, and Recreational Gaming

Haidi Shan[1] Chuanning Huang[1] Yue Wang[1] Hang Su[1] Lei Guo [1] Na Zhong[1] Min Zhao[1]

1 Shanghai Mental Health Center, Shanghai Jiao Tong University School of Medicine, 600 Wanping South Road, Xuhui District, Shanghai 200030, China

Corresponding author: Min Zhao, email: drminzhao@gmail.com

Abstract：Background: With the increasing popularity of the internet, the issue of problematic internet gaming has drawn more and more attention. Research has shown that excessive gaming can lead to physical health problems, academic performance decline, disrupted sleep patterns, and poorer mental health, such as increased anxiety, depression, and stress levels. One of the core diagnostic criteria for gaming disorder is the loss of control over gaming behavior, manifested by the occurrence, frequency, intensity, duration, and inability to stop gaming behavior. The underlying cause of this time loss may be abnormal time perception, which has also been observed in other substance use and behavioral disorders. Additionally, excessive gaming is a continuous development process from entertainment use, to risky use, and to addictive use. Therefore, this study aimed to systematically compare the differences in time perception abilities among internet gaming addicts, at-risk gaming users, and recreational gaming users.

Methods: University students completed the self-report game disorder screening scale (GDSS). Participants with a GDSS score ≥47 underwent a clinical interview based on the ICD-11 diagnostic criteria to determine if they were gaming addicts or at-risk gaming users. Participants with a GDSS score ≤32 were categorized as recreational gaming users and were screened to confirm the absence of excessive gaming behavior. All participants completed a standard time discrimination task, in which they compared time intervals of 200, 400, 600, 800, and 1000ms to a standard interval of 600ms to determine whether the interval was longer or shorter than the standard interval. The measured indices included subjective equality points and the Weber fraction, which assessed temporal discrimination sensitivity.

Results: The study included 17 internet gaming addicts, 32 at-risk gaming users, and 45 recreational gaming users, with an average age of 19.21±0.45. There was no significant difference in subjective equality points among the three groups (gaming addicts: 610ms; at-risk gaming users: 602ms; recreational gaming users: 579ms; $F = 2.61$, $p=0.079$). Similarly, there was no significant difference in the Weber fraction among the three groups (gaming addicts: 0.071; at-risk gaming users: 0.091; recreational gaming users: 0.079; $F = 1.14$, $p=0.324$).

Conclusion: The time perception ability of gaming disorder, risky game use and recreational game use showed different trends, but the underlying neural mechanism and key factors affecting time perception still need to be explored.

Keywords：Internet Gaming Disorder, Time Perception, At-risk Gaming

医学生睡眠拖延对学习投入的影响：基于日记法的研究

王慧[1] 路梦新[2] 封丹珺[1]（通讯作者）

1 山东大学护理与康复学院，济南，250012

2 青岛大学附属医院，青岛，266000

通信作者：fdj19@sdu.edu.cn

摘 要 目的：睡眠是人类的基本生理需求，对人类的身心健康具有极为重要的意义。然而，随着生活节奏的加快以及学习压力的增大，医学生的睡眠问题越来越突出，入睡时间逐渐变的越来越晚，睡眠时长也越来越少。不充足的睡眠问题严重影响了学生的注意力，降低学习投入，影响学业表现。睡眠拖延作为影响医学生晚睡和睡眠不足的重要原因，本研究拟采用密集纵向的日记法的研究设计，探讨医学生夜晚睡眠拖延对第二天学习投入的影响，并考察睡眠质量和睡眠时长在其中的中介作用，以期为采取措施促进医学生的学习投入、增进学业表现提供依据。

方法：本研究以山东省济南市某高校招募的 122 名医学生作为研究对象，并对其进行了连续 14 天的问卷追踪调查。研究对象完成一般资料调查表，并在每天早上醒来后报告昨晚的睡眠拖延，睡眠质量和睡眠时长；在每天晚上睡前填写当天的学业投入问卷。

结果：以睡眠质量为中介变量的多水平结构方程模型结果显示，在个体间水平，睡眠质量与更好的学习投入正相关(β=0.273，P<0.05)；在个体内水平，前一晚的睡眠拖延负向预测当晚的睡眠质量(β=-0.165，P<0.001)，当晚的睡眠质量又正向预测第二天的学习投入(β=0.082，P<0.01)，前一晚的睡眠质量在睡眠拖延与次日学习投入之间起完全中介作用(β=-0.012, 95%CI [-0.021, -0.003])。以睡眠时长为中介变量的多水平结构方程模型结果显示，在个体间水平，睡眠拖延与更短的睡眠时长有关(β=-0.498，P<0.001)；在个体内水平，前一晚的睡眠拖延与更短的睡眠时长有关(β=-0.207，P=0.118)，其余路径均不显著。

结论：医学生的睡眠拖延会降低当晚的睡眠质量，减少睡眠时长；睡眠拖延可通过降低当晚的睡眠质量，而非睡眠时长，从而影响医学生的学业投入。未来研究可采取应对拖延行为的有效策略，减少拖延行为的发生，从而改善医学生的睡眠质量，进而促进医学生的学业投入，提高学业表现。

关键词：医学生，睡眠拖延，学习投入，睡眠质量，日记法研究

The effect of bedtime procrastination on academic engagement in medical students: A Diary Study

Hui Wang[1], Mengxin Lu[2], Danjun Feng[1]

1 School of Nursing and Rehabilation, Shandong University, Jinan 250012, Shandong, China

2 Affiliated Hospital of Qingdao University, Qingdao 266000, Shandong, China

***Abstract*：Objectives:** Sleep is a basic physiological need of human beings, which is extremely vital to their physical and mental health. However, with the accelerated pace of life and increasing academic pressure, the sleep problem of medical students has become more and more prominent. Medical students experience less sleep duration and poorer sleep quality. Inadequate sleep problem seriously affects students' attention, reduces academic engagement and academic performance. Given bedtime procrastination is one of the most important reasons affecting medical students' sleep, this study aimed to use an intensive longitudinal diary study design to investigate the effect of medical students' night bedtime procrastination on their next-day study engagement, and to explore the mediating roles of sleep quality and sleep duration, which could provide evidence for taking measures to promote medical students' academic engagement and enhance academic performance.

Methods: A total of 122 medical students recruited from a university in Jinan, Shandong Province were investigated by questionnaires for 14 consecutive days. Study participants completed general information questionnaires and reported bedtime procrastination, sleep quality, and sleep duration upon waking up each morning; and filled out academic engagement questionnaires on the day before going to bed every night.

Results: The multilevel structural equation model with sleep quality as a mediator variable showed that sleep quality was positively associated with academic engagement (β=0.273, P<0.05) at the between-person level. At the within-person level, bedtime procrastination was negatively associated with medical students' night sleep quality (β=-0.165, P<0.001), which in turn positively predicted their next-day academic engagement (β=0.082, P<0.01).

Night sleep quality fully mediated the effect of bedtime procrastination on next-day academic engagement (β=-0.012, 95% CI [-0.021, -0.003]). The multilevel structural equation model with sleep duration as a mediator variable showed that bedtime procrastination was associated with shorter sleep duration (β=-0.498, P<0.001) at the between-person level. At the within-person level, bedtime procrastination was associated with shorter sleep duration (β=-0.207, P=0.118), with the rest of the paths being nonsignificant.

Conclusion: Bedtime procrastination was associated with shorter sleep duration and lower sleep quality at night. Medical students' bedtime procrastination can affect their next-day academic engagement by reducing sleep quality rather than sleep duration at night. Future research could adopt effective strategies for alleviating bedtime procrastination behaviors, thereby improving medical students' sleep quality, which in turn promotes their academic engagement and improves academic performance.

Keywords: medical students, bedtime procrastination, academic engagement, sleep quality, diary study

不同神经质水平抑郁症患者的核心症状：基于网络分析方法

马竹静 [a,1] 吴忠英 [a,1] 冯钰婷 [1] 关慕桢 [b] 郭力 [c] 金银川 [a] 刘斌 [a] 杨群 [a](通讯作者)

[a] 空军军医大学军事医学心理学系，西安，710032

[b] 西安医学院精神卫生学教研室，西安，710021

[c] 西京医院心身科，西安，710032

通讯作者：空军军医大学军事医学心理学系，杨群，Email：yangqun1125@hotmail.com

摘 要　已有研究认为，从潜在变量模型转向症状网络模型，可以更深入地了解精神病理学。本研究旨在探讨抑郁症患者不同神经质水平与抑郁症状之间的关系。研究基于精神障碍网络理论，采用抑郁自评量表和艾森克人格问卷对 2322 名门诊抑郁症患者进行调查，使用网络分析方法考察不同神经质水平患者的核心抑郁症状，并比较不同神经质水平患者的抑郁症状网络特征，通过 R 软件进行数据可视化。结果发现：（1）不同神经质水平患者的核心抑郁症状不同。对于稳定型神经质患者，核心抑郁症状是："无用感"和"空虚感"；对于中间型神经质患者，核心抑郁症状是："兴趣丧失"、"抑郁情绪"和"空虚感"；对于不稳定型神经质患者，核心抑郁症状是："无用感"、"绝望"和"兴趣丧失"。（2）不同神经质水平患者的抑郁症状网络结构不同。网络比较测试显示，稳定型神经质患者与不稳定型神经质患者在抑郁症状网络结构上存在显著差异。在网络连接强度方面，不稳定型神经质患者网络连接强度显著高于中间型和稳定型神经质患者。

以上结果为抑郁症的干预或治疗提供了一些建议。首先，干预神经质水平以改善抑郁症状可能对抑郁症患者尤为重要。其次，确定具体的抑郁症状有助于问题聚焦，使干预更具针对性；从理论上讲，针对核心症状能最大限度地减少神经质-抑郁网络中激活的症状数量。此外，网络模型可以评估症状网络中每个症状的相对重要性，这会对理解每个症状的临床意义产生直接影响。

关键词　抑郁症，神经质，精神障碍网络理论，网络分析法

Core symptoms of depression in outpatient with different levels of neuroticism: A Network Analysis Approach

Ma Zhujing[a,1], Wu Zhongying[a,1], Feng Yuting[a], Guan Muzhen[b], Guo Li[c], Jin Yinchuan[a], Liu Bin [a], Yang Qun[a,*] (Corresponding author)

a Department of Military Medical Psychology, Fourth Military Medical University, Xi'an, 710032

b Department of Mental Health, Xi'an Medical University, Xi'an, 710021

c Department of Psychiatry, Xijing Hospital, Xi'an, 710032
Department of Military Medical Psychology, Fourth Military Medical University, Yang Qun:
E-mail address: yangqun1125@hotmail.com

Abstract: Existing research proposed that shifting from a disorder-level analysis to a symptom-level analysis could provide a more fine-grained understanding of psychopathology. The current study aimed to explore the relationships between different levels of neuroticism and depressive symptoms of depression.

Based on the network analysis theory, this study used data collected from patients with MDD by using network method. The SDS scale and EPQ questionnaire were used to assess depressive symptoms and personality traits, respectively.

The result showed that the core symptoms, network structure, and global strength were varied in three groups. For patients with stable neuroticism, the core symptoms were Sense of futility, Emptiness of life; for patients with intermediate neuroticism, the core symptoms were Loss of interest or pleasure, Depressed mood, Emptiness of life. The unstable neuroticism group's core symptoms were Depressed mood, Sense of futility, Despair, Loss of interest or pleasure. Among them, the expected influence of symptom Depressed mood was significantly higher in unstable group than in the intermediate group and the expected influence of symptom Loss of interest or pleasure was significantly lower in the unstable group than in the intermediate group. The network comparison test showed that in the network structure, the stable group was different from unstable group but similar to the intermediate group and that in the global strength, the unstable group was significantly higher than the intermediate group and the stable group.

This research offers some suggestions for intervention or treatment towards depression. First, intervening in neuroticism to improve depressive symptoms may be particularly important among depression. Second, identifying specific symptoms may help focus on the problem and make the intervention more targeted; adjusting central component levels that might maximumly decrease the activated numbers of symptoms in the neuroticism-depression network theoretically. Furthermore, the network model can assess the relative importance of each symptom in the symptom network, which may have a direct impact on comprehending the clinical significance of each symptom.

Keywords: Depression, Neuroticism, Network theory of mental disorder, Network analysis method

使用治疗性电影制作降低儿童及青少年主动性和反应性攻击行为的系列实验研究

张羽璇
香港城市大学社会及行为科学系，香港，999077，yuxuan.z@my.cityu.edu.hk

摘 要　越来越多的儿童和青少年出现攻击性和暴力行为，迫切需要及时且有效的干预措施。治疗性电影制作是一种将艺术与叙事疗法相结合的方法，它引导参与者制作与其个人经历相关的微电影/视频，以达到心理治疗的效果。本研究采用治疗性电影制作作为干预方法，开展了三项使用混合研究方法（定量和定性研究）的子研究，来减少儿童和青少年的主动和反应攻击性。研究 1 在一所普通中学实施，采用 RCT 的实验设计（量性比较治疗组、安慰剂组、对照组）并对参与者进行访谈。 研究 2 在一个居民社区开展，定量比较了亲子组和对照组，并对家长和孩子进行访谈。研究 3 在一所有少年犯的特殊学校中实施，定量比较

了治疗组和对照组，并对教师和青少年进行访谈。所有研究都分三波时段收集数据：干预前、干预结束和干预后 3 个月。结果表明，治疗性电影制作可以有效减少儿童和青少年的主动和反应性攻击行为，增强他们的愤怒控制能力、情绪调节能力、同理心和解决问题的灵活性。然而，干预效果的持久性尚不确定。该系列研究为探索电影制作治疗方法奠定了理论基础，并提供了一套可用于学校或社会工作领域的可操作的治疗性电影制作方案。
关键词　治疗性电影制作，主动性攻击，反应性攻击

A serial experimental study of using therapeutic filmmaking to reduce proactive and reactive aggression in children and adolescents

Zhang Yuxuan
Department of Social and Behavioural Sciences, City University of Hong Kong, Tat Chee Avenue, Kowloon, Hong Kong 999077, China, yuxuan.z@my.cityu.edu.hk

Abstract：The growing number of young people with aggressive and violent behavior urgently calls for timely intervention for aggression. Therapeutic filmmaking is an approach combining art and narrative-based therapies to conduct participants to make micro-films/videos related to their personal experiences to achieve psychotherapeutic outcomes. This study used therapeutic filmmaking as an intervention approach and conducted three sub-studies with mixed method (quantitative & qualitative study) to reduce children and adolescents' proactive and reactive aggressiveness. Study 1 was implemented in an ordinary middle school, using a quantitative RCT design (treatment group, placebo group, control group) and interviewing participants. Study 2 was implemented in a residential community, quantitatively comparing parent-child and waiting-list groups and interviewing parents and children. Study 3 was implemented in a special school with juvenile delinquents, quantitatively comparing the treatment and control groups and interviewing teachers and adolescents. All the studies collected data in three waves: pre-intervention, post-intervention, and 3 months after intervention. Results showed that therapeutic filmmaking is effective in reducing proactive and reactive aggression in children and adolescents, strengthening their anger control, emotional regulation skills, empathy, and the flexibility of problem solving. However, the durability of intervention effects was unsure. This serial study laid a theoretical foundation for exploring this specific therapy approach of filmmaking and provided a set of operational therapeutic filmmaking strategies for use in schools or social work areas.
Keywords：therapeutic filmmaking, proactive aggression, reactive aggression

飞行空间情境意识预期及其工作记忆机制

张军恒　晏碧华（通讯作者）
陕西师范大学心理学院暨陕西省行为与认知神经科学重点实验室
西安,710062,E-mail：yanbihua@snnu.edu.cn

摘　要　情境意识丧失导致的决策错误可能引发飞行事故。飞行情境中，既要对座舱内部保持良好的情境意识，利用仪表信息掌控飞行态势，还需关注座舱外物体的运动态势，根据其位置、速度等信息评估其对飞行安全的影响，做出预期决策。关注座舱外情境变化时，干扰等外部因素导致感知中断的情况可能发生，探讨在缺少感知信息时如何对抗外部因素带来的负荷并利用预期做出判断，能够为飞行监控和风险决策提

供科学依据。

采用掩蔽范式模拟动态情境缺失，探讨情境意识预期的特性和视听干扰对预期的影响及其工作记忆机制。情境为第一视角飞行场景，运动客体为飞机或云朵，背景为静止大山。实验 1 控制掩蔽时间（1s、3s、5s、7s）和干扰（有、无），掩蔽期间飞机继续沿固定路径飞行，掩蔽结束后情境恢复，飞机的位置可能存在偏差，被试需尽快判断它的位置是否正确，探讨时间因素和干扰对预期的影响；实验 2 固定掩蔽时间 3s，控制干扰时间（0s、1s、2s、3s），探讨预期的保持、更新及其工作记忆机制；实验 3 将干扰分类（视空、听觉）代表不同工作记忆负荷，加入云朵运动模拟复杂情境中相对位置变化，探讨不同类型干扰对单、多客体运动预期影响的差异及其工作记忆机制。因变量是预期判断的正确率、反应时以及辨别力水平 *d'*。

结果：（1）情境缺失时间越长空间运动预期越差，情境缺失 5s 左右，预期完全失准，干扰会损害预期，且在情境缺失 1s 时损害最大；（2）固定情境缺失 3s，干扰持续 0s、1s、2s 时空间运动预期无显著差异，且都优于干扰持续 3s 时；（3）视空干扰比听觉干扰对空间运动预期的损害更大；（4）情境越复杂，空间运动预期越差；（5）视空干扰对多客体空间运动的预期损害更大，听觉干扰对单、多客体空间运动预期的影响无显著差异。

结论：预期拥有与工作记忆视空模板子系统有关的动态更新机制，情境缺失时间变长、情境复杂化和干扰都能损害预期，持续干扰会导致情境意识丧失，对预期的损害不可逆，短时间内中断干扰，预期会有所恢复。

关键词 情境意识，预期，视听干扰，工作记忆

Projection of flight space situation awareness and its working memory mechanism

ZHANG Junheng, YAN Bihua (corresponding author)
(School of Psychology, Shaanxi Normal University, Xi′an 710062, China)

Abstract: Errors in decision-making due to loss of situation awareness may cause flight accidents. In a flight situation, it is necessary to maintain a good situation awareness of the cockpit interior, use instrument information to control the flight situation, and also pay attention to the movement of objects outside the cockpit, assess their impact on flight safety based on their position, speed, and other information, and make anticipatory decisions. When we pay attention to the change of the situation outside the cockpit, the interruption of perception caused by external factors such as interference may occur, and we will explore how to combat the load brought by external factors when there is a lack of perceptual information and make a judgement by using anticipation, so as to provide a scientific basis for flight monitoring and risk decision-making.

This study used masking paradigm to simulate situational loss and explored the characteristics of situation awareness predicted function, the impact of audiovisual interference on projection, and the mechanism of working memory. The situation was a first-view flight scene, in which an airplane or clouds moved on the background (static mountains). Experiment 1 controlled the masking time (1s, 3s, 5s, 7s) and interference (with, without). During the masking period, the airplane continued to fly along a fixed path. After the masking was completed, the situation was restored, the position of the aircraft may be biased, the subjects immediately judged whether the airplane's position should be correct, explored the impact of time factors and workload on spatial movement projection. Experiment 2 fixed the masking time (3s) and controlled the interference time (0s, 1s, 2s, 3s), and explored whether projection could be restored after interference in situational loss, to explore the rules of projection renewal and its working memory mechanism. In Experiment 3, the classification of interference (visuospatial and auditory) represented different working memory loads, and clouds motion was added to simulate

relative position changes in complex dynamic situation. The differences in the impact of different interference types on single and multiple object movement projection and their working memory mechanisms were explored. The dependent variables are the correct rate, reaction time of the subject's judgment and *d'*(sensitivity).

The findings of the three experiments were as follows. First, the longer the time of situation loss, the worse the spatial movement projection of airplane. When the situational loss for about 5s, the spatial movement projection would be completely inaccurate. Interference damaged the projection of spatial motion, and when the situational loss for 1s, the damage was greatest. Second, there was no significant difference in the projection of spatial motion under the conditions of situation loss time of 3s and interference duration of 0s, 1s, and 2s. The projections when the situational loss for 0s, 1s, and 2s were better than when the situational loss for 3s. Third, visuospatial interference had a greater impact on spatial motion projection than auditory interference. Then, the more complicated the situation was, the worse the projection of spatial motion was. Finally, visuospatial interference had a greater impact on spatial motion projection for multiple objects. There was no difference in the impact of auditory interference on spatial motion projection between single object motion situation and multiple objects motion situation.

In conclusion, projection possessed a dynamic updating mechanism related to the working memory visuospatial sketchpad subsystem. Prolonged situational absence, situational complexity, and interference can impair projection. Persistent interference can lead to loss of situational awareness and irreversible damage to projection. If interference was interrupted in a short period of time, projection will recover somewhat.

Keywords: situation awareness, projection, audio-visual interference, working memory

父母反思功能与孤独症谱系障碍儿童问题行为的关系：一项交叉滞后分析

张畅[1]　周婷[1]（通讯作者）　易春丽[2]　刘松怀[3,4,5]　张雁[3,5]

1 北京大学医学心理学系，北京，100191，zhouting.92@bjmu.edu.cn

2 北京大学心理与认知科学学院，北京，100871

3 首都医科大学康复医学院，北京，100068

4 中国康复研究中心北京博爱医院心理科，北京，100068

5 中国康复研究中心国家孤独症康复研究中心，北京，100068

摘 要　背景：在对典型发展儿童的研究中发现，父母更优的反思功能水平与儿童更安全的依恋类型，更好的社会情绪适应有关。相较于典型发展儿童，问题行为在孤独症谱系障碍儿童中更高发、更严重，对此类儿童的社会康复造成消极影响，并给家庭教养带来沉重负担。目前对父母反思功能和孤独症谱系障碍儿童问题行为关系的研究较少，且以横断面研究为主，需要进一步研究探索孤独症谱系障碍儿童的问题行为与父母反思功能的纵向关系。

目的：检验父母反思功能与孤独症谱系障碍儿童问题行为的关系。

方法：采用追踪研究设计，采用父母反思功能问卷（PRFQ，The Parental Reflective Functioning Questionnaire），和儿童长处与困难问卷（SDQ，strength and difficulties questionnaire）对 121 名孤独症谱系障碍儿童的父母进行三次问卷调查，每次调查间隔三个月。PRFQ 包括前心智化、对儿童心理状态的确定性，对儿童心理状态的兴趣及好奇心三个维度，SDQ 包括内化问题行为（情绪症状、同伴问题）和外化问题行为（多动/注意缺陷、品行问题）两个分量表。采用交叉滞后模型进行数据分析。

结果：1）父母前智化和对儿童心理状态的兴趣及好奇心得分呈下降趋势，父母对儿童心理状态的确定性和儿童内外化问题行为三次测量得分相对稳定；2）交叉滞后分析显示，父母前心智化与儿童的内化问题

行为可以相互预测，前测（Tn）的父母前心智化可以显著积极预测后测（Tn+1）的儿童内化问题行为，前测（Tn）的内化问题行为可以显著积极预测后测（Tn+1）的父母前心智化。

结论：父母反思功能与孤独症谱系障碍儿童问题行为存在双向关系，父母更好的反思功能与孤独症谱系障碍儿童更少的内化问题有关，父母反思功能的提升或对孤独症谱系障碍儿童内化问题行为的改善具有积极作用。

关键词　父母反思功能，儿童问题行为，孤独症谱系障碍，交叉滞后分析

The Relationship between Parental Reflective Functioning and Behavioral Problems in Children with Autism Spectrum Disorder: A Cross-Lagged Analysis

Chang Zhang[1] , Ting Zhou[1] , Chunli Yi[2] , Songhuai Liu[3,4,5] , Yan Zhang[3,5]

1 Department of Medical Psychology, School of Health Humanities, Peking University, Beijing, China

2 School of Psychological and Cognitive Sciences and Beijing Key Laboratory of Behavior and Mental Health, Peking University, Beijing, China

3 Faculty of Rehabilitation Medicine, Capital Medical University, Beijing, China

4 Department of Psychology, Beijing Bo'ai Hospital, China Rehabilitation Research Center, Beijing, China

5 China Autism Rehabilitation Research Center (CARRC) of China Rehabilitation Research Center, Beijing, China

Abstract： Background: According to the extant literature focusing on typically developed children, higher levels of parental reflective functioning were associated with children's secure attachment and better socioemotional functioning. Compared with typically developed children, behavioral problems are more frequent and severe in children with autism spectrum disorders (ASD), which hindered the child's social rehabilitation and placed a heavy burden on parenting. Because there have been limited studies on the relationship between parental reflective functioning and behavioral problems in children with ASD and most of them were cross-sectional studies, further research was needed to explore the longitudinal relationship between parental reflective functioning and behavioral problems in children with ASD.

Objective: To examine the relationship between parental reflective functioning and behavioral problems in children with ASD.

Methods: A longitudinal design was used in the present study. A total of 121 parents of children with autism spectrum disorder were investigated and completed the Parental Reflective Functioning Questionnaire(PRFQ) and the Strength and Difficulties Questionnaire (SDQ) at three timepoints(T1, three months after T1, and six months after T1). The PRFQ consists of three subscales: pre-mentalizing, certainty about mental states and interest and curiosity. The internalizing behavioral problems composite (emotional symptoms and peer problems) and externalizing behavioral problems composite (conduct problems and inattention hyperactivity) were calculated using the SDQ. The cross-lag model was used for data analysis.

Results: 1) The scores for pre-mentalizing and interest and curiosity decreased significantly, while the scores for certainty about mental states, internalizing behavioral problems and externalizing behavioral problems were relatively stable across the three timepoints. 2) The results of the cross-lag analysis showed that the relationship between parental reflective functioning and internalizing behavioral problems was bidirectional over the six months. Scores on the pre-mentalizing subscale at T_n significantly predicted internalizing behavioral problems at T_{n+1}, and internalizing behavioral problems at T_n significantly predicted scores on the pre-mentalizing subscale at T_{n+1}.

Conclusion: Parental reflective functioning and internalizing behavioral problems in children with ASD have a bidirectional predictive relationship. Improvement of parental reflective functioning may have a positive effect on reducing internalizing behavioral problems in children with ASD.

Keywords: Parental reflective functioning, Behavioral problems, Autism spectrum disorder, Cross-lagged analysis

不同戒断期毒品成瘾者认知神经控制与迷走神经功能缺陷及失调研究

李欣，王振宏（通讯作者）

陕西师范大学心理学院，陕西（高校）儿童青少年心理与行为健康哲学社会科学重点研究基地，西安，710062，wangzhenhong@snnu.edu.cn

摘 要　执行脑功能受损往往被认为是毒品成瘾者复吸的关键。个体内反应时变异（Intraindividual Reaction Time Variability, IIRTV）是认知神经控制和注意控制的行为指标，同时也是执行功能的核心组成部分。此外，基线期的呼吸性窦性心律不齐（respiratory sinus arrhythmia, RSA）反映了迷走神经调节能力，它在药物滥用中也起着重要作用。本研究旨在检验毒品成瘾者的认知神经控制或注意控制（indexed by IIRTV）和迷走神经调节（indexed by baseline RSA）是否受损，以及是否会随着戒断而恢复。本研究使用双选择 oddball 任务测量 IIRTV，采集心电数据换算出基线 RSA。本研究对比了两个戒断组（短期戒断组，$N = 21$；长期戒断组，$N = 47$）和健康对照组（$N = 35$）的 IIRTV 和基线 RSA，并探究了 IIRTV 和基线 RSA 是否在两个戒断组间存在差异。结果发现：（1）健康对照组的 IIRTV 显著低于短期戒断组；（2）长期戒断组的 IIRTV 显著低于短期戒断组；（3）健康对照组基线 RSA 显著高于长期戒断组。研究结果表明，毒品成瘾者在认知神经控制和迷走神经调节能力方面存在缺陷，以 IIRTV 为指标的认知神经控制会随着戒断而恢复，但迷走神经调节能力并未恢复。因此，通过戒断干预，毒品成瘾者受损的认知神经控制能力可能会得到恢复，但受损的迷走神经调节能力难以恢复。

关键词　毒品成瘾者，个体内反应时变异，呼吸性窦性心律不齐，可恢复性

A Study on Cognitive Neurocontrol and Vagal Nerve Function Dysfunction of Drug Addicts in Different Abstinence Phases

Xin Li, Zhenhong Wang (Corresponding Author)

School of Psychology, Shaanxi Normal University, Shaanxi Provincial Key Research Center of Child Mental and Behavioral Health, Xi'an 710062, wangzhenhong@snnu.edu.cn

***Abstract*:** Background: Impaired executive function in drug addicts tends to be considered the key to relapse. Intraindividual reaction time variability (IIRTV) is a behavioral indicator of cognitive neurocontrol or attentional control, representing a core component of executive function. Moreover, resting or baseline respiratory sinus arrhythmia (RSA) reflects vagal regulation capacity, which also plays an important role in substance use disorders.

Objectives: This study intends to examine whether the cognitive neurocontrol or attentional control indexed by IIRTV and vagal regulation indexed by baseline RSA are impaired in drug addicts compared with the healthy control group and whether they will recover with abstinence.

Methods: The two-choice oddball task was used to measure IIRTV, and electrocardiogram (ECG) data were collected to obtain baseline RSA. We compared drug addicts' IIRTV and baseline RSA in abstinence groups (short-term abstinence group, $N = 21$; long-term abstinence group, $N = 47$) vs. healthy control group ($N = 35$), and compared differences between the abstinence groups.

Results: (1) The IIRTV of the healthy control group was significantly lower than the short-term abstinence group; (2) the IIRTV of the long-term abstinence group was significantly lower than the short-term abstinence group; (3) the baseline RSA of the healthy control group was significantly higher than the long-term abstinence group.

Conclusion: The results indicate that drug addicts have deficits in cognitive neurocontrol and vagal regulation capacity. Moreover, the cognitive neurocontrol indexed by IIRTV can recover with abstinence intervention in addicts while vagal regulation capacity can't. Therefore, the impaired cognitive neurocontrol may be recovered with abstinence intervention, however, it is difficult to recover the impaired vagal regulation capacity in addicts.
***Keywords*:** drug addicts, IIRTV, baseline RSA, rehabilitation

AI 还是人类？不同设计来源影响消费者对广告的反应

郭曦玉[1]　黄建平[2]　宛小昂[1]（通讯作者）

1 清华大学心理学系，北京，100084，wanxa@mail.tsinghua.edu.cn

2 苏州大学心理学系，苏州，215123

摘 要　人工智能（artificial intelligence；AI）技术有望在未来几十年内从根本上改变广告和营销行业。因此，对于广告营销学者和商家而言，了解消费者如何评估 AI 设计的广告与人类设计的广告至关重要。先前研究发现消费者对 AI 创作的广告表现出复杂的态度并且会受到广告诉求的影响。鉴于平面广告在营销中的广泛应用以及 AI 绘画技术的发展，在本研究的两项实验中，我们探讨了消费者如何对由人类设计和真正由 AI 设计的广告图片进行反应，以及设计来源标签所发挥的作用。另外，我们还关注了产品类型是否会调节不同设计来源对消费者反应的影响。在两项实验中，被试被随机分配到功能型产品组或享乐型产品组，之后对随机出现的由人类设计或由 AI 设计的广告图片进行购买意愿、广告态度、设计创新感知、设计质量感知和设计美学感知五个方面的评价。实验一中未告知被试每张广告图片的设计来源，而在实验二中则告知被试。实验一发现，当不存在设计来源标签时，消费者无法明确区分 AI 设计的广告，从而并不会产生机器启发式而只根据对广告图片本身的整体印象进行判断和评价，使得 AI 设计的广告图片在五个方面都更加获得消费者的青睐。实验二表明，无论产品类型是什么，相较于未告知，告知消费者广告图片的设计来源会削弱 AI 设计在购买意愿上的积极影响。这可能是因为广告设计需要创造力，这通常被认为只存在于人类领域。因此，当消费者被告知广告图片是由 AI 自主创作时会感受到机器所带来的威胁，进而为了保护个体身份的独特性而使得 AI 设计的积极影响消失。这些研究结果揭示了由 AI 设计的广告图片可以在一定程度上获得消费者的积极评价，同时对于广告商是否选择在广告中突出 AI 设计标签具有借鉴意义。

关键词　人工智能，标签，广告设计，产品类型，消费者反应

AI or human? Different design sources affect consumer response to advertising

Xiyu Guo[1] Jianping Huang[2] Xiaoang Wan[1]
1Department of Psychology, Tsinghua University, Beijing, 100084
2Department of Psychology, Soochow University, Suzhou, 215123

Abstract： Artificial intelligence (AI) technology is expected to fundamentally change the advertising and marketing industry in the coming decades. Therefore, it is crucial for advertising and marketing scholars as well as practitioners to understand how consumers evaluate AI-designed advertisements versus those designed by humans. Previous research has found that consumers show complex attitudes toward AI-created ads and are affected by advertising appeals. Given the widespread use of print advertising in marketing and the development of AI painting technology, in two experiments, we investigated how consumers respond to advertising images designed by humans and those actually designed by AI, and the role of design source labels. Additionally, we focused on whether the impact of different design sources on consumer responses differed by product type. In two experiments, the participants were randomly assigned to the functional product group or the hedonic product group. They were asked to evaluate the purchase intention, advertising attitude, design innovation perception, design quality perception and design aesthetic perception for each advertisement that appeared randomly. In Experiment 1, the participants were not informed of the design source of each advertisement picture, whereas the participants were informed in Experiment 2. Experiment 1 found that when there is no design source label, consumers cannot clearly distinguish AI-designed advertisements. They made judgments only based on the overall impression of the advertisement image itself rather than machine heuristics, resulting in AI-designed advertisement images were more favored by consumers in five aspects. Experiment 2 showed that, regardless of the product type, compared to not being informed, informing consumers of the design source of advertising images weakened the positive impact of AI design on purchase intention. This may be because advertising design requires creativity, which is generally considered to exist only in the human realm. Therefore, when consumers know that advertising images are created by AI autonomously, they will feel the threat brought by the machine. In order to protect individuals' uniqueness, the positive impact of AI design will disappear. These findings reveal that advertising pictures designed by AI can obtain positive influence on consumers to a certain extent, and at the same time have reference significance for whether advertisers choose to highlight AI-designed labels in advertisements.

Keywords： artificial intelligence, label, advertising design, product type, consumer response

垃圾分类标识的具体优势效应及助推策略：一个行为实验研究

曹盖[1] 曹蓉[1]（通讯作者） 刘鹏[1]
1 西北大学公共管理学院，西安，710069，通讯作者 E-mail：caorong@nwu.edu.cn

摘 要 2019 年我国发布了全国统一的垃圾分类标识，以消除人们不知如何分类的疑惑进而指导其进行正确的分类。尽管标识研究领域发现标准化的标识对于用户行为理解和遵从的有效性很强，但是当前标准化垃圾分类标识情境下我国的垃圾分类率仍在较低。为提高居民垃圾分类效率，本研究通过两个实验探索抽象和具体分类标志之间的认知加工差异，并在此基础上提出一种提高垃圾分类效率的助推策略。实验 1 将

垃圾分类标识分为抽象条件（包括可回收物、有害垃圾和厨余垃圾分类标志）和具体条件（包括纸张、塑料、玻璃、金属、纺织品、电池、家用化学品、灯管和厨余分类标志等）。采用 Go/NoGo 任务用于模拟垃圾分类行为，当垃圾刺激与分类标识匹配时（Go 条件），被试根据指导按键，而在两者不匹配时，则不按键（NoGo 条件）。结果表明，被试对具体条件的反应速度显著快于抽象条件，表明具体分类标识在认知加工过程中消耗更少的认知资源，从而提高了垃圾分类效率。实验 2 将以抽象标识为主导的现有分类标识组合形式（传统条件），优化为以凸显具体分类标识的组合形式，即将具体分类标识放置在垃圾箱的上部，并放置在黄色框架中以吸引注意力（助推条件）。结果表明，与传统条件相比，助推条件下消耗的认知资源更少，从而提高了对于垃圾进行分类的加工效率。据此，本研究不仅验证了垃圾分类领域的具体优势效应，而且利用人们的认知特性设计符合个体决策加工规律的垃圾分类设施以提高垃圾分类效率，为在中国背景下补充现有的垃圾分类政策工具提供了有效的助推策略。
关键词　助推，垃圾分类标识，垃圾分类行为，具体优势效应，行为实验

The Concreteness Effect and Nudge Strategy of Garbage Classification Signage Based on a Behavioral Experiment

Gai Cao[1], Rong Cao[1*], Peng Liu[1]

[1] School of Public Administration/ School of Emergency Management, Northwest University, Xi'an, China

[*]Corresponding author: Rong Cao (E-mail: caorong@nwu.edu.cn)

Abstract： In 2019, China standardized nationwide garbage classification signage to eliminate confusion about how to separate garbage and thus guiding people to sort garbage correctly. However, although research in the signage field has found that standardized signs are effective in understanding and complying with user behavior, the reality is that standardized gclassification signs are not effective in improving residential garbage classification efficiency. To improve residential garbage classification efficiency, we explored the cognitive processing differences between abstract and concrete classification signs and proposed a nudging strategy to improve garbage classification behavior through two experiments. Experiment 1 divided garbage classification signs into an abstract condition (including recyclables, hazardous garbage, and food signs) and a concrete condition (including paper, plastic, glass, metal, textiles, batteries, household chemicals, tubes, and food signs). Go/NoGo task were used to simulate garbage classification behavior, participants were instructed to press a key when the garbage stimulus matched the classification signs (Go condition) and not press the key when the two didn't match (NoGo condition). The results showed that responses for the concrete condition were faster than those for the abstract condition, suggesting concrete signs consume fewer cognitive resources and thus improving garbage classification efficiency. Experiment 2 optimized the current bin signage, which is dominated by abstract signs (traditional condition), into a bin signage that highlighted concrete classification signs. The concrete signs were placed on the upper part of the bins and in a yellow frame to attract attention (nudging condition). The results suggested that the nudging condition consumed fewer cognitive resources than the traditional condition, which in turn enhanced the processing garbage classification efficiency. To our knowledge, this study not only validates the concreteness effects in the garbage classification field, but also utilized people's cognitive characteristics to design garbage classification facilities that conform to the rules of individual decision processing to improve the efficiency of garbage classification， providing an effective nudge strategies to complement existing garbage classification management policy tools in a realistic Chinese context.

Keywords： nudge, garbage classification signage, garbage classification behavior, the concreteness effect,

behavioral experiment

音乐偏好影响在线行为：通过决策树方法揭示中国成年人网络谩骂的因素

陈倩[1, 2] 杨晨[3] 董柔纯[4] 马诗浩[1, 2] 宋友志[1, 2] 周宗奎[1, 2]（通讯作者）

1 华中师范大学心理学院，武汉，430079

2 青少年网络心理与行为教育部重点实验室，武汉，430079，通讯作者 E-mail：zhouzk@ccnu.edu.cn

3 马克斯-普朗克人类认知与脑科学研究所，莱比锡 04103，德国

4 江苏第二师范学院，南京，210013

摘 要 网络谩骂是我们日常生活中普遍存在的一种现象，它通常是冲动和非计划的，涉及使用一般被认为是亵渎的词语。以往研究发现网络谩骂通常会给个人和网络环境带来有害影响，然而，目前尚不清楚人们在社交网络平台上何时以及为何进行谩骂，这使得改善网络谩骂行为变得困难。基于音乐可以塑造个人并可以作为一种有效干预工具的观点，本研究从音乐这个新颖的角度出发，试图揭示中国成年人网络谩骂这个复杂现象的影响因素，并为干预网络谩骂行为提供实证证据，特别是基于音乐的网络谩骂干预潜能的实证证据。基于三元交互理论和双系统理论，本研究采用 1378 名中国成年人的自我报告数据系统的测试了网络谩骂的决策树分类模型，并揭示了音乐偏好在其中的作用。具体而言，首先，本研究基于原版的音乐偏好短测验(Bonneville-Roussy, et al., 2013; Rentfrow & Gosling, 2003)确认了一种可靠有效的问卷工具，用于衡量中国文化中的音乐偏好。随后，利用基于分类树的机器学习技术构建了一个关于网络谩骂的多因素路径模型。结果表明，本研究成功构建了一个包含 10 个特征的分类决策树模型，其中压力被确定为模型的根节点。具体来看，对于压力水平较低的个体，性别、社交网络平台成瘾、情感虐待、生活在农村地区以及朋友支持与网络谩骂相关。对于压力水平较高的个体，较少的身体虐待、较低的社交网络平台成瘾、较弱的激烈音乐偏好以及较高的宜人性是网络谩骂的保护因素。总的来说，本研究为深入了解网络谩骂现象的发生机制提供了初步的证据，并强调了开发有针对性的干预措施以减少网络谩骂行为的潜力。

关键词 网络谩骂，音乐偏好，压力，虐待，分类树模型

Music may affect online behavior: Exploring the factors of swearing on social networking sites among Chinese adults using classification trees

Qian Chen[a,b], Chen Yang[c], Rou-Chun Dong[d], Shi-Hao Ma[a,b], You-Zhi Song[a,b], Zong-Kui Zhou[a,b*]

a Key Laboratory of Adolescent Cyberpsychology and Behavior (CCNU), Ministry of Education, Wuhan 430079, China;

b School of Psychology, Central China Normal University, Wuhan 430079, China;

c Research Group Milestones of Early Cognitive Development, Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig 04103, Germany;

d Preschool Education School, Jiangsu Second Normal University, Nanjing 210013, China.

Abstract：Swearing on social networking sites (SNS) is a prevalent unplanned situation in our daily life, which may bring harmful aspects to individuals and the internet environment. However, when and how people swear on the SNS is not clear, which has made it difficult to improve. Building on the idea that music can shape individuals and serve as an intervention tool, the purpose of this paper is to explore the role and intervention potential of music in influencing swearing on SNS under complex situations. This study used 1378 Chinese adults' self-reported data to test the proposed model of swearing on SNS and emphasized the role of music preference. Initially, the study confirmed a reliable and valid instrument to measure music preference within Chinese culture. Subsequently, a multifactor path model of swearing on SNS was constructed using a classification tree-based machine learning technique. Results indicated that for individuals with lower stress level, gender, SNS addiction, emotional abuse, living in a rural area, and friend support are associated with swearing on SNS. For individuals with higher stress level, less physical abuse, lower SNS addiction, weaker intense music preferences, and higher agreeableness, are protective factors for swearing on SNS. Overall, this study provides insights into the phenomenon of swearing on SNS and highlights the potential for developing targeted interventions to reduce such behavior.

Keywords：Swearing on SNS, Music preference, Stress, Abuse, Classification tree machine learning

多脑经颅电刺激促进人类合作行为的脑机制研究

卢宏亮[1]，邢辰[1]，张明明[2*]，朱霞[1*]

[1]中国人民解放军空军军医大学军事医学心理学系，陕西西安，710032

[2]上海师范大学教育学院，上海，200233

通讯作者：张明明，E-mail: zmm2019@shnu.edu.cn；朱霞，E-mail:zhuxia@fmmu.edu.cn

摘 要 合作对于多个个体实现共同目标至关重要。合作行为与神经变异之间的因果关系尚未得到充分探讨，而这是帮助我们深入理解人类合作行为产生和演化的关键。本研究试图借助多脑经颅电刺激——经颅超电刺激技术（Hypertranscranial electrical stimulation, hyper-tES）阐明人类合作行为潜在脑机制的作用规律，即脑间同步（Interbrain synchronization，IBS）如何影响和促进合作行为。124 名健康成年人两两随机组合为 62 对，并随机分为直流超电刺激组（hyper-tDCS）、交流超电刺激组（hyper-tACS）和假刺激组（sham），每对参与者通过功能性近红外成像(Functional near-infrared spectroscopy，fNIRS）进行前额叶与右侧额下回皮层血流的连续超扫描记录，同步接受右侧额下回经颅超电刺激干预。结果发现两种超电刺激技术均可以提高合作表现，仅 hyper-tACS 可以优化合作任务中的速度-准确性平衡；hyper-tACS 有效增加前额叶的 IBS，且提升效益可以维持至刺激后静息态。我们的研究强调了 IBS 在人类合作行为产生与促进中的关键作用，以及两种经颅电刺激干预技术在不同时间窗口的潜在应用，这可能为改善社交障碍个体的合作能力提供治疗选择。

关键词 合作，脑间同步，经颅超刺激，近红外超扫描

The neural mechanism of multibrain transcranial electrical stimulation improving human cooperative behavior

Hongliang Lu [1], Chen Xing [1], Mingming Zhang [2*], Xia Zhu [1*]

[1]Department of military medical psychology, Air force military medical university, Xi 'an 710032, China

[2]Department of Psychology, College of Education, Shanghai Normal University, Shanghai 200233, China

[*]Address correspondence to: Mingming Zhang; zmm2019@shnu.edu.cn, Xia zhu; zhuxia@fmmu.edu.cn

Abstract： Cooperation is crucial for individuals to achieve common goals. However, the causal relationship between cooperative behavior and neural variation, which was the key to help to deeply understand the emergence and evolution of human cooperative behavior, has not yet been fully explored. In the present study, we attempted to clarify how the potential brain mechanisms, interbrain synchronization (IBS), facilitate cooperation using hypertranscranial electrical stimulation (hyper-tES). A total of 124 healthy young adults were randomly divided into three groups (hyper-tACS, hyper-tDCS and sham) and received modulation of the right inferior frontal gyrus (IFG) while undergoing functional near-infrared spectroscopy (fNIRS). Multibrain tES improved cooperative performance, and only hyper-tACS can optimize speed-accuracy trade-off; Increased IBS induced by hyper-tACS can be extended to the rest state of poststimulation phase. Our findings highlight the importance of IBS for cooperation through the organic integration of hyper-tES and fNIRS, as well as potential applications of two interventions to improve cooperation in different temporal windows, which may provide potential treatment options to improve cooperative skills of individuals with impairment of social interaction.

Keywords： Cooperation, Interbrain synchronization, Hypertranscranial electrical stimulation, Functional near-infrared spectroscopy

精神病风险综合征个体的 N200 反应及其与临床结局的关系：一项基于三刺激视觉 Oddball 范式的队列追踪研究

侯永青 [1,2]　夏海硕 [1]　何天宝 [2]　张博华 [1,3]　邱桂平 [1,3,4]　陈安涛 [1,5]（通讯作者）

1 西南大学心理学部，重庆，400715

2 广元市精神卫生中心，四川广元，628000

3 澳大利亚阿德莱德弗林德斯大学教育、心理与社会工作学院，阿德莱德，3127

4 宁夏大学教师教育学院，银川，750021

5 上海体育大学心理学院，上海，200438，E-mail:chenantao@sus.edu.cn

摘 要　精神病风险综合征（psychosis risk syndrome，PRS）早于精神病出现，评估精神病高风险个体的神经心理异常有助于精神病的早期识别和早期积极干预。本研究的目标是讨论在有干扰刺激时，PRS 个体的 N200 和 P300 反应是否存在缺损并与其临床结果有关。共有 223 名参与者，包括 122 名符合 PRS 标准的个

体，50 名情绪障碍个体（emotional disorder，ED）和 51 名健康对照个体（healthy controls，HC）。使用由不同颜色的正方形图片组成的有干扰刺激的三刺激视觉 Oddball 范式，采集所有参与者的 EEG 数据。对几乎所有的 PRS 个体随访追踪 12 个月并将其重新分成了三个组别：PRS-conversion，PRS-symptomatic，and PRS-remission，比较临床结果各组在基线 N200 和 P300 反应上的差异。PRS 组的平均 N200 波幅显著大于 HC 组 ($p = 0.002$，$d = 0.53$)；ED 组的平均 N200 波幅介于 HC 和 PRS 之间，但与 HC 和 PRS 的差异均未达到统计学意义($p = 0.15$，$d = 0.27$；$p = 0.17$，$d = 0.22$)。在随访 12 个月后的临床结果各组上，PRS-conversion 组的基线平均 N200 波幅显著大于 PRS-symptomatic 组($p = 0.043$，$d = 0.58$)和 PRS-remission 组($p = 0.046$，$d = 0.50$)，也显著大于 HC 组($p < 0.001$，$d = 0.97$)。PRS-symptomatic 组和 PRS-remission 组的基线平均 N200 波幅均显著大于 HC 组($p = 0.023$，$d = 0.46$；$p = 0.044$，$d = 0.38$)，但 PRS-symptomatic 组和 PRS-remission 组之间无显著差异($p = 0.93$，$d = 0.02$)。在 P300 反应上未发现任何有统计学意义的结果 ($ps > 0.05$)。本研究发现 PRS 及转化为精神病的 PRS 个体在有干扰刺激的注意加工中存在明显的 N200 波幅缺损，N200 波幅具有作为 PRS 临床结果预后生物标志物的潜力。

关键词　精神病风险综合征，视觉注意加工，N200，P300，三刺激视觉 Oddball 范式

N2 Responses in Youth with Psychosis Risk Syndrome and its Association with Clinical Outcomes: A Cohort Follow-Up Study Based on Three-Stimulus Visual Oddball Paradigm

Yongqing Hou[1,2], Haishuo Xia[1], Tianbao He[2], Bohua Zhang[1,3], Guiping Qiu[1,3,4], Antao Chen[1,5]

[1]Key Laboratory of Cognition and Personality of Ministry of Education, Faculty of Psychology, Southwest University, Chongqing, China; [2]Clinical Laboratory of Psychiatry, Mental Health Center of Guangyuan, Sichuan, China; [3]College of Education, Psychology and Social Work, Flinders University, Adelaide, Australia; [4]College of Education, Ningxia University, Yinchuan, China; [5]School of Psychology, Shanghai University of Sport, Shanghai, China.

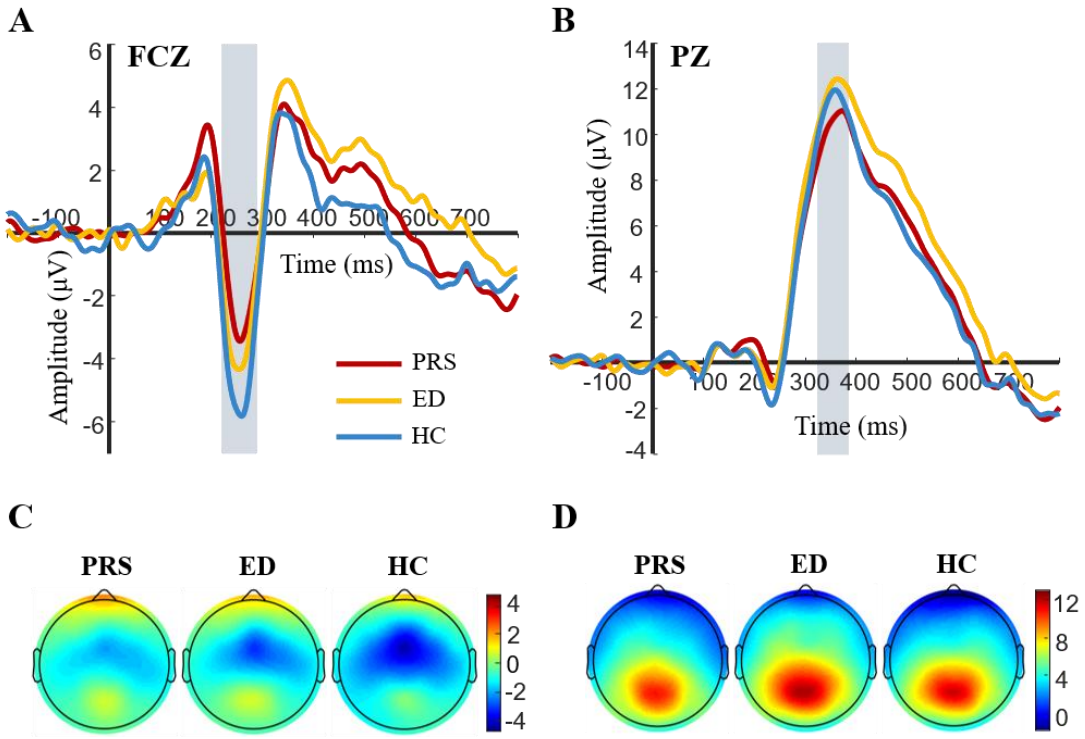
Corresponding Author: Antao Chen (E-mail: xscat@swu.edu.cn).

Abstract：Schizophrenia often occurs in youth, and psychosis risk syndrome (PRS) occurs before the onset of psychosis. The present study aimed to determine whether the visual event-related potential responses in youth with PRS were defective in the presence of interference stimuli and associated with their clinical outcomes. In total, 223 participants, including 122 patients with PRS, 50 patients with emotional disorders (EDs), and 51 healthy controls (HCs) were assessed. Baseline electroencephalography was recorded during the three-stimulus visual Oddball task. The event-related potentials induced by square pictures with different colors were measured. Almost all patients with PRS were followed up with for 12 months and reclassified into three groups: PRS-conversion, PRS-symptomatic, and PRS-remission. The differences in baseline event-related potential responses were compared among the clinical outcome groups. The average N2 amplitude of the PRS group was significantly less negative than that in the HC group ($p = 0.002$, $d = 0.53$). The baseline average N2 amplitude in the PRS-conversion group was significantly less negative than that in the PRS-symptomatic ($p = 0.043$, $d = 0.58$), PRS-remission ($p = 0.046$, $d = 0.50$), and HC groups ($p < 0.001$, $d = 0.97$). The average N2 amplitude did not differ between PRS-symptomatic and PRS-remission groups ($p = 0.93$, $d = 0.02$). However, it was significantly less negative in the PRS-symptomatic and PRS-remission groups than in the HC group ($p = 0.023$, $d = 0.46$; $p = 0.044$, $d = 0.38$). No statistically significant results were found in the P3 response. This study found that youth

with PRS had significant N2 amplitude defects in attention processing with interference stimulus. N2 amplitude shows a potential prognostic biomarker of clinical outcome in the PRS.

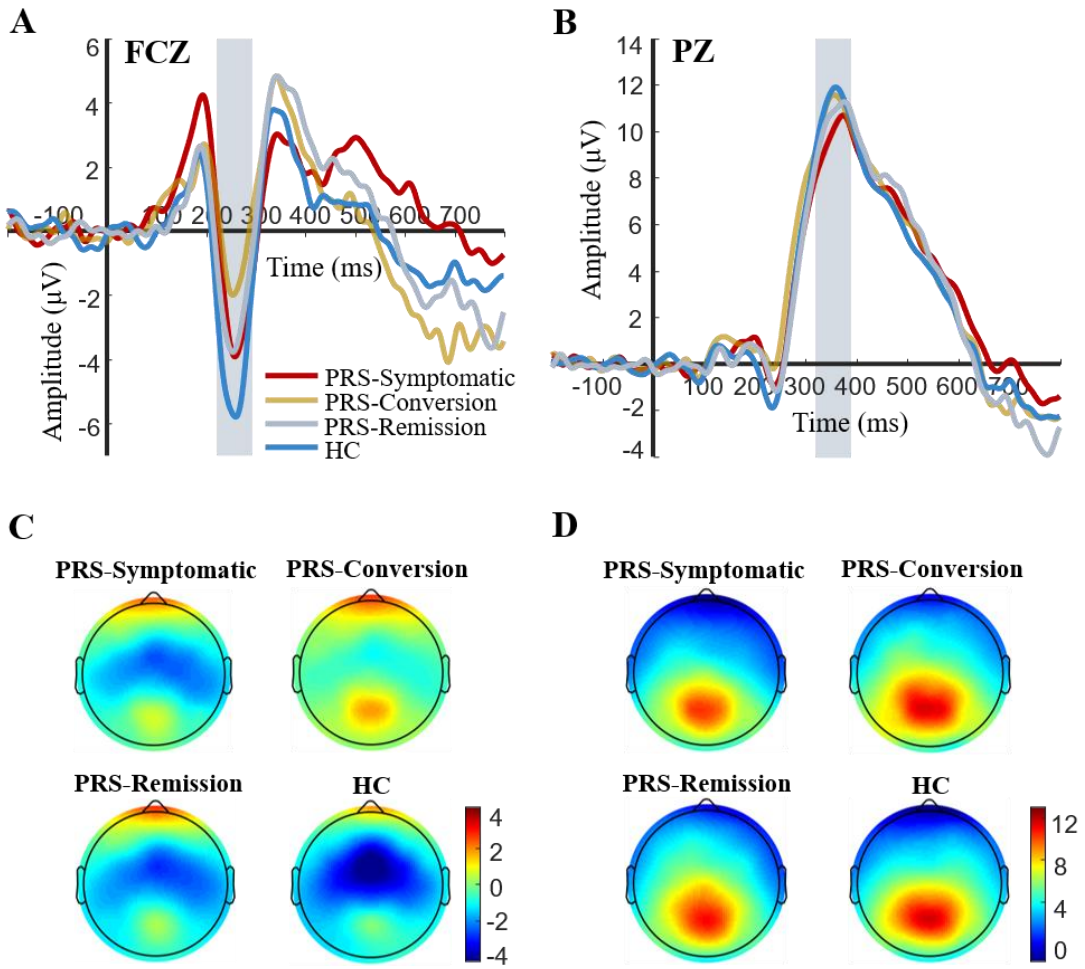
Keywords **：** Psychosis risk syndrome (PRS), Visual attention processing, N2, P3, Three-stimulus Oddball paradigm

Figure 1. N2, P3 waveform and topographic maps of PRS, ED, and HC [a]



[a] Panel A shows the waveform of the three groups on the FCZ electrode, with an obvious N2 component. Panel B shows the waveform of the three groups on the PZ electrode, with an obvious P3 component. Panel C shows the topographic map of the average amplitude of the three groups in the 220–280 ms time window. Panel D shows the topographic map of the average amplitude of the three groups in the 325–375 ms time window. PRS = psychosis risk syndrome; ED = emotional disorder; HC = healthy control.

Figure 2. N2, P3 waveform and topographic maps of clinical outcomes after follow-up [a]



[a] Panel A shows the waveform of clinical outcomes after follow-up at FCZ electrode. Panel B shows the waveform of clinical outcomes after follow-up at PZ electrode. Panel C shows the topographic map of the average amplitude of clinical outcomes after follow-up during 220–280 ms time window. Panel D shows the topographic map of the average amplitude of clinical outcomes after follow-up during the 325–375 ms time window. PRS = psychosis risk syndrome; HC = healthy control.

青少年网络成瘾的潜在转变分析：负性生活事件的预测作用及对人生意义的影响

张琳然 [1]　辛素飞 [2](通讯作者)

1 鲁东大学教育科学学院，烟台，264001

2 鲁东大学教育科学学院，烟台，264001，通讯作者 xinsufei2005@163.com

摘　要　本研究运用潜在剖面分析与潜在转变分析考察青少年网络成瘾的潜在类别与转变情况，进一步探究

青少年负性生活事件在网络成瘾类别转变中的作用，以及网络成瘾与人生意义的关系。采用负性生活事件量表、网络成瘾量表和人生意义量表，对 1164 名学生进行为期一年的追踪研究，共收集三次数据（T1=2021 年 5 月; T2= 2021 年 11 月; T3=2022 年 5 月）。潜在类别分析结果表明：青少年网络成瘾存在 3 个潜在类别：无网络成瘾组、正常使用网络组和高网络成瘾组。潜在转变分析结果表明：从 T1 到 T2，保持在各组的概率分别为无网络成瘾组(69.7%)、正常使用网络组(57.7%)、高网络成瘾组(73.1%)，在发生转变的青少年中，T1 时属于正常使用网络和高网络成瘾组的青少年更可能随着时间推移转变到无网络成瘾组(转变概率分别为 20.3%、5.6%)，无网络成瘾组向正常使用网络组和高网络成瘾组转变的概率分别为 25.1%和 5.2%。从 T2 到 T3，保持在各组的概率分别为无网络成瘾组(83.4%)、正常使用网络组(65.3%)、高网络成瘾组(61.2%)，在发生转变的青少年中，T2 时属于正常使用网络和高网络成瘾组的青少年更可能随着时间推移转变到无网络成瘾组(转变概率分别为 23.9%、7.8%)，无网络成瘾组向正常使用网络组、高网络成瘾组转变的概率分别为 14.9%、1.8%。青少年人生意义在网络成瘾潜在类别上存在显著差异。研究结果有助于对青少年网络成瘾的不同阶段提供针对性的预防与干预，提高青少年的人生意义，促进青少年的健康发展。

关键词 网络成瘾，负性生活事件，人生意义，潜剖面分析，潜转变分析

Latent transition analysis of adolescent Internet addiction: the predictive role of negative life events and their impact on life meaning

Linran Zhang Sufei Xin

LuDong University School of Educational Science, Yantai, 264001

Abstract： This study used latent profile analysis and latent transition analysis to investigate the potential categories and transformations of adolescent Internet addiction, and further explored the role of adolescent negative life events in the category transformations of Internet addiction, as well as the relationship between Internet addiction and life meaning. The negative life events scale, Internet addiction Scale and Meaning of Life scale were used to follow 1170 students for one year, and the data were collected three times (Time 1 = May 2021; Time 2 = November 2021; Time 3 = May 2022). The analysis of potential categories shows that there are three potential categories of adolescent Internet addiction: no Internet addiction group, normal Internet use group and high Internet addiction group. The results of latent transition analysis show that: From T1 to T2, the probability of staying in each group was 69.7% (no Internet addiction), 57.7% (normal Internet use) and 73.1% (high Internet addiction). The adolescents in the normal and high Internet addiction groups at T1 were more likely to change to the no Internet addiction group over time (20.3% and 5.6%, respectively), and the transition probabilities from the no Internet addiction group to the normal Internet use group and the high Internet addiction group were 25.1% and 5.2%, respectively. From T2 to T3, the probability of staying in each group was no Internet addiction group (83.4%), normal Internet use group (65.3%) and high Internet addiction group (61.2%). The adolescents belonging to the normal Internet use group and the high Internet addiction group at T2 were more likely to change to the no Internet addiction group over time (23.9% and 7.8%, respectively), and the transition probabilities of the no Internet addiction group to the normal Internet use group and the high Internet addiction group were 14.9% and 1.8%, respectively. There are significant differences in the potential categories of Internet addiction among adolescents of life meaning. The results of this study are helpful to provide targeted prevention and intervention for different stages of adolescent Internet addiction, improve the meaning of life and promote the healthy development of adolescents.

Keywords： internet addiction, negative life events, meaning in Life, latent profile analysis, latent transition

analysis

自我身体抚触对青少年状态自悯的干预效果

赵旭航[1 2]　张瀚之[3]　李晓茹[4]（通讯作者）
1 复旦大学，上海，200433
2 University of Southampton, 南安普顿，SO17 1BJ
3 The University of Melbourne，墨尔本，VIC 3010
4 复旦大学社会发展与公共政策学院，上海，200433，lixiaoru@fudan.edu.cn

摘 要　青春期是发展的关键阶段，充满着压力和挑战，同时也是精神障碍发展的易感期。先前研究表明，自悯(self-compassion)是青少年心理健康的保护因素，但目前缺乏有效且简便的工具干预青少年自悯。**目的：**本实验基于具身认知理论，设计并检验了包含了自我身体抚触元素的两种自我抚慰方式对青少年状态自悯、积极消极情绪、心率及心率变异性的干预效果。**方法：**本实验采用双因素混合设计，其中干预方式（混合干预、自我身体抚触、自我语言抚慰和对照组）作为组间变量，实验阶段（前测和后测）作为组内变量，状态自悯、积极消极情绪和心率及心率变异性为因变量。本实验共募集 124 名青少年被试，其中男性 37 名，女性 87 名，年龄范围 14-19 岁(M = 16.17， SD = 1.1)，采用随机区组对被试进行分组，每组人数均为 31 人。**程序：**被试首先佩戴心率测试仪器并全程记录；随后进行 5 分钟的静坐任务，结束后立即测量基线情绪；随后进行 8 分钟的消极情绪启动任务，结束后立即测量前测情绪和前测状态自悯；随后进行分组干预，其中自我身体抚触组遵循指导语录音依次双手抚摸脸颊、一只手抚摸胸口一只手抚摸腹部、双手自我拥抱进行自我安抚；自我语言抚慰组则根据慈心禅指导语录音进行自我祝福；混合干预则根据录音前半段进行自我祝福，后半段进行自我身体抚触；对照组为观看一段自然纪录片。上述干预时长均为 6 分 33 秒，随后测量后测情绪和状态自悯；最后静坐 5 分钟。**结果：**对实验数据进行重复测量方差分析和 Bonferroni 事后检验，研究结果显示, 消极情绪启动任务之后，各组被试的消极情绪与基线相比显著提升，并且没有组间差异；混合干预(0.48±0.11, p < .001)和自我身体抚触(0.50±0.11, p < .001)能够显著提高被试的状态自悯水平，自我语言抚慰(0.31±0.11, p = .193)和对照组(0.26±0.11, p = .69)的状态自悯前后测差异不显著；干预组和对照组均能减轻消极情绪和提高积极情绪。此外，未发现自我身体抚慰对心率及心率变异性的影响。**结论：**自我身体抚触能够帮助青少年在经历消极情绪时提升状态自悯水平，缓解消极情绪和改善积极情绪。
关键词　青少年，状态自悯，自我身体抚触，具身认知，干预

The Effects of self- Soothing Touch on Adolescents' State Self-Compassion

Xuhang Zhao[1 2]　Hanzhi Zhang[3] Xiaoru Li[4]
1 Fudan University，Shanghai
2 University of Southampton, Southampton
3 The University of Melbourne，Melbourne
4 Fudan University，lixiaoru@fudan.edu.cn

Abstract：Adolescence is a critical stage of development, full of pressures and challenges, and also a vulnerable period for the development of mental disorders. Previous research has suggested that self-compassion may be a protective factor for adolescent mental health, but there is currently a lack of effective and convenient tools to intervene in adolescent self-compassion. **Objective:** This study, based on embodied cognition theory, designed

and tested the intervention effects of two self-soothing tools on adolescents' state self-compassion, positive and negative affect, heart rate, and heart rate variability. **Methods:** This study used a two-factor mixed design, in which the intervention method (combined intervention, self-soothing touch, self-soothing talk, and control group) served as the between-subjects variable, and the experimental stage (pre-test and post-test) as the within-subjects variable, with state self-compassion, positive and negative affect, and heart rate and heart rate variability as dependent variables. This study recruited a total of 124 adolescent participants, including 37 males and 87 females, aged 14-19 years *(M* = 16.17, *SD* = 1.1). Participants were randomly grouped, with 31 people in each group. **Procedure:** Participants first wore heart rate monitors for continuous recording; then performed a 5-minute resting task, after which baseline emotion were immediately measured; then underwent a negative emotion induction task, after which pre-test emotions and pre-test state self-compassion were immediately measured; then underwent group intervention, where the self-soothing touch group followed the guidance audio recording and sequentially touched their cheeks, chest and abdomen, and hugged themselves; the self-soothing talk group performed self-blessing according to loving-kindness meditation guidance audio; the combined intervention group performed self-blessing in the first half according to the recording and self-soothing touch in the second half; the control group watched a nature documentary, after which post-test emotions and state self-compassion were measured; finally, they rested for 5 minutes. Results: Repeated measures ANOVA and post-hoc tests on the experimental data showed that after negative emotion induction, all groups' negative emotions significantly increased compared to the baseline, and there were no between-group differences; the combined intervention (0.48±0.11, $p < .001$) and self-soothing touch (0.50±0.11, $p < .001$) significantly improved participants' state self-compassion levels, while the self-soothing talk (0.31±0.11, $p = .193$) and control group (0.26±0.11, $p = .69$) showed no significant pre-post test differences in state self-compassion; both the intervention and control groups could alleviate negative affect and improve positive affect. Moreover, no effects of self-soothing touch on heart rate and heart rate variability were found. Conclusion: Self-soothing touch can help adolescents who are experiencing negative affect improve their immediate level of self-compassion, alleviate negative affect and enhance positive affect.

Keywords：adolescents, state self-compassion, self-soothing touch, embodied cognition, intervention

健康环境悖论视角下青少年受欺负与抑郁的关系

——基于 HLM 模型分析

李梦鸽[1] 陈玉萍[1] 陈庆伟[2,3] 汝涛涛[2,3](通讯作者)周国富[2,3](通讯作者)

1.华南师范大学心理学院光与身心健康实验室，广州，510631

2.华南师范大学国家绿色光电子国际联合研究中心，广州，510631

3.华南师范大学华南先进光电子研究院广东省光信息材料与技术重点实验室&彩色动态电子纸显示技术研究所，广州，510631 通讯作者邮箱： taotao.ru@m.scnu.edu.cn 和 guofu.zhou@m.scnu.edu.cn

摘 要 近年来，研究者在校园欺凌干预实践中发现存在健康环境相悖现象，即在欺凌行为经常发生的学校，个体遭受欺负后反而较少出现内外化问题等适应不良症状；在欺凌行为较少发生的学校，受欺负个体反而出现较多适应不良症状(Yun & Juvonen, et al., 2022)。但以往研究仅限于讨论班级欺凌行为的发生频率对健康环境悖论现象的影响(刘晓薇 等人, 2021)，并未探究影响班级欺凌行为发生的重要因素——班级欺凌态度对受欺负影响抑郁的健康环境悖论机制。抑郁的素质-压力模型认为生活事件所诱发的压力是导致抑郁的危险因素；归因理论认为，人们会将自身的经历与他人的经历进行比较，进而对自身的的经历进行归因。如果在反对欺凌的环境中遭受欺凌这一压力事件，个体会倾向于认为是自身内在稳定的因素导致被欺凌，会进一步增加受欺凌个体产生抑郁的风险。因此，本研究使用嵌套模型(HLM)考察青少年受欺负与抑郁之

间的关系，并探究班级欺凌态度的跨层调节作用。采用受欺负量表、反刍思维量表、贝克抑郁量表以及欺凌态度量表对中国 3743 名青少年进行调查研究。结果发现：受欺负与反刍思维、抑郁呈显著负相关，与班级欺凌态度呈显著正相关；反刍思维与抑郁呈显著负相关，与班级欺凌态度呈显著正相关；抑郁与班级欺凌态度呈显著正相关。受欺负对抑郁具有正向影响作用；反刍思维在受欺负与抑郁之间起中介作用；班级欺凌态度在受欺负与反刍思维之间起负向跨层调节作用，在受欺负与抑郁之间起负向跨层调节作用。本研究表明，受欺负个体的抑郁情绪会受班级欺凌态度的跨层负向影响，即相比于班级欺凌态度消极的环境，在班级欺凌态度积极的环境中，青少年遭受欺凌后反而会更少产生反刍思维与抑郁。本研究为进一步理解受欺负与抑郁之间的关系提供了新的跨层视角，且本研究进一步验证并拓展了健康环境相悖的适用范围，为今后的反欺凌实践以及受欺凌个体的心理干预提供了新的参考视角。
关键词　受欺负，反刍思维，抑郁，班级欺凌态度，健康环境悖论

The Relationship between Adolescent Victimization and Depression from the Perspective of the Health Context Paradox —— Based on the HLM Model

Mengge Li[1], Yuping Chen[1], Qingwei Chen[2,3], Taotao Ru[2,3], Guiofu Zhou[2,3]

1 School of Psychology, South China Normal University, Guangzhou 510631

2 Lab of Light and Physio-psychological Health, National Center for International Research on Green Optoelectronics, South China Normal University, Guangzhou 510006

3 Guangdong Provincial Key Laboratory of Optical Information Materials and Technology & Institute of Electronic Paper Displays, South China Academy of Advanced Optoelectronics, South China Normal University, Guangzhou 510006

Corresponding author email: taotao.ru@m.scnu.edu.cn & guofu.zhou@m.scnu.edu.cn

Abstract: In recent years, researchers have discovered a health context paradox in the context of school bullying interventions, whereby individuals who are bullied less frequently exhibit more maladaptive symptoms, including internalizing and externalizing problems, compared to those who are bullied more frequently (Yun & Juvonen, et al., 2022). However, previous research has only focused on the impact of the frequency of class bullying on the health context paradox (Liu et al., 2021), without exploring the role of an important factor influencing the occurrence of class bullying - class bullying attitude - in the mechanism of the health context paradox affecting depression in individuals who are bullied. The trait-stress model of depression suggests that stress induced by life events is a risk factor for depression, and attribution theory suggests that individuals compare their own experiences with those of others and attribute their experiences accordingly. If individuals experience bullied in an environment that opposes bullying, they are more likely to attribute the bullied to stable internal factors, which further increases the risk of depression. Therefore, this study employs a hierarchical Linear modeling (HLM) to investigate the relationship between being bullied and depression among adolescents, as well as the cross-level moderating effect of class bullying attitudes. A survey was conducted on 3,743 Chinese adolescents using measures such as the Victimization Scale, Rumination Scale, Beck Depression Inventory, and Bullying Attitude Scale. The results revealed that being bullied is significantly negatively correlated with rumination and depression, and significantly positively correlated with class bullying attitudes. Rumination is significantly negatively correlated with depression and significantly positively correlated with class bullying attitudes. Depression is significantly positively correlated with class bullying attitudes. Being bullied has a positive influence on

depression, rumination plays a mediating role between being bullied and depression, and class bullying attitudes play a negative cross-level moderating role between being bullied and rumination and a negative cross-level moderating role between being bullied and depression. This study demonstrates that the depression of individuals who are bullied is negatively influenced by class bullying attitudes at a cross-level, meaning that compared to a negative class bullying attitude environment, adolescents who experience bullied in a positive class bullying attitude environment are less likely to engage in rumination and develop depression. This study provides a new cross-level perspective for further understanding the relationship between being bullied and depression, and further confirms and expands the applicability of the health context paradox. It also offers new reference perspectives for future anti-bullying practices and psychological interventions for individuals who are bullied.
Keywords: victimization, rumination, depression, class bullying attitudes, health context paradox

权力感、解释水平与最优化行为：中介效应与边界条件的探讨

景家驹[1]　李虹[1]（通讯作者）
1 清华大学社会科学学院心理学系，北京，100084
通讯作者 E-mail: lhong@mail.tsinghua.edu.cn

摘 要　权力感如何影响个体的决策行为一直是社会心理学领域的重要研究课题。在决策过程中，对于最优选项的追求是理想化的结果，但囿于个体的有限性，最优化的目的往往难以达成。本研究旨在探究高权力者在决策过程中的是否偏好采用最优化行为以实现其目的，这一过程是否受到解释水平的中介，高权力者在公开/私密情境中的最优化行为是否会出现系统性偏差。本研究的基本假设是：高权力感个体在决策中更倾向于采用最优化行为，这一过程是由于高权力感导致个体更多关注对象的渴望性特征；公开/私密情景调节了权力感和解释水平对最优化行为的影响。

三个研究探讨了权力感、解释水平和最优化行为之间的关系。研究 1 首先通过回忆法和角色扮演范式探索权力感与最优化行为的关系。结果显示，相较于低权力感个体，高权力感个体在决策任务中展现出更强的最优化倾向。研究 2 继续采用回忆法，进一步验证了权力感对于渴望性特征偏好的影响。结果发现，与低权力感个体相比，高权力感个体更倾向于选择具有较高渴望性特征的选项，这可能是他们在决策中表现出更强最优化行为的一个重要原因。研究 3 则采用了角色扮演范式来操纵权力感，同时探究解释水平对权力感与最优化行为关系的中介作用，并进一步探讨了作为边界条件的公开（vs.私密）情境对于中介过程的影响。结果显示，解释水平中介了权力感对最优化行为的影响。具体而言，高权力感个体偏好具有较高渴望性特征的选项，这进一步导致了他们在决策中的更多地采用最优化行为。在公开情境中，高权力感个体的最优化行为倾向表现得更为明显。

本研究揭示了权力感、解释水平和最优化行为之间的关系，并为我们理解这三者之间的相互作用机制提供了新的理论视角。特别是，研究强调了解释水平在权力感影响最优化行为过程中的中介作用，以及公开/私密情境作为边界条件对于这一过程的影响。这些发现对于理解高权力感个体的决策倾向，以及如何有效地影响和引导他们的决策行为，都具有重要的理论和实践意义。
关键词　权力感，最优化行为，解释水平，公开情境，私密情境

Power, the Construal Level and Maximizing Behavior: A Discussion on Mediating Effects and Boundary Conditions

Jiaju Jing[1], Hong Li[1*]

1 Department of Psychology, Tsinghua University, Beijing, China
* Correspondence: lhong@mail.tsinghua.edu.cn

Abstract: How the sense of power affects individual decision-making has long been a crucial research problem in the field of social psychology. In the decision-making process, pursuing the best is the ideal outcome; however, given individuals' limitations, the maximizing goal is often challenging to accomplish. This research aims to explore whether individuals with a high sense of power prefer to adopt maximizing behavior to achieve their goals during the decision-making process, whether this process is mediated by the construal level, and whether systematic bias appears in the maximizing behavior of high-power individuals in public/private contexts. The basic hypothesis of this study is that individuals with a high sense of power tend to adopt maximizing behavior in decision-making, a process resulting from high power leading individuals to focus more on the desirable characteristics of an object; public/private contexts moderate the effect of the sense of power and the level of explanation on maximizing behavior.

Three studies investigated the relationship between the sense of power, the construal level, and maximizing behavior. Study 1 first used recall methods and role-playing paradigms to explore the relationship between the sense of power and maximizing behavior. The results showed that compared to individuals with a low sense of power, those with a high sense of power display a stronger tendency towards maximizing in decision-making tasks. Study 2 used the recall method to further verify the impact of the sense of power on the preference for desirable characteristics. The results revealed that, compared to individuals with a low sense of power, those with a high sense of power are more inclined to choose options with higher desirability features, which might be a significant reason for their stronger maximizing behavior in decision-making. Study 3 employed a role-playing paradigm to manipulate the sense of power, concurrently examining the mediating role of the construal level on the relationship between the sense of power and maximizing behavior, and further investigating the influence of public (vs. private) contexts as boundary conditions on the mediation process. The results showed that the construal level mediates the effect of the sense of power on maximizing behavior. Specifically, individuals with high power prefered options with higher desirability features, leading them to adopt maximizing behavior more frequently. In public contexts, the maximizing behavior tendency of individuals with high power was more pronounced.

This research uncovers the relationship between the sense of power, the construal level, and maximizing behavior, and provides a novel theoretical perspective for understanding the interaction mechanism among these three factors. In particular, the research emphasizes the mediating role of the construal level, and the impact of public/private contexts as crucial boundary conditions. These findings carry important theoretical and practical implications for understanding the decision-making tendencies of individuals with a high sense of power and for effectively influencing and guiding their decision-making behavior.

Keywords: the sense of power, maximizing behavior, the construal level, public, private

沮丧应激与状态焦虑的关系：急性应激下 HPA 轴功能的调节作用

王润琪 [1,2]　王霈珊 [1,2]　王晓宇 [1,2]　孙向红 [1,2]　张亮 [1,2 *]

1 中国科学院心理研究所，北京，100101

2 中国科学院大学，北京，100101，通讯作者：张亮 zhangl@psych.ac.cn

摘 要　当代社会快速变动的生活环境和多元的压力场景，使得人们常常处于高度的焦虑状态之中。挑战与沮丧的应激理论自提出后在工业组织领域得到了很多研究的检验，也为许多应激相关的现象提供了解释。本研究将挑战与沮丧应激理论应用于解释日常生活中应激和焦虑的关系，并检验了 HPA 轴功能对于应激引

起焦虑的缓冲作用，为应激与焦虑间的关系做出进一步的解释，并提供了生理证据的支持。实验使用了中文修订版的学生挑战与沮丧应激量表，测量近 6 个月内挑战和沮丧的应激水平，同时测量了状态焦虑水平，并通过特里尔社会应激任务，检测急性应激后 60 分钟内唾液皮质醇水平的变化。研究结果发现，近期的沮丧应激水平能够正向预测当前的状态焦虑水平，而挑战应激并不预测状态焦虑的水平。更重要的是，我们发现，急性应激任务后个体 HPA 轴的恢复情况，即皮质醇在恢复阶段的下降率调节了沮丧应激与状态焦虑之间的关系。当应激源被撤销后，对于皮质醇下降率较低的个体，其皮质醇水平不能迅速且完全地恢复到基线，他们在生活中的沮丧应激会引发更高的焦虑水平；相对地，对于皮质醇恢复较快的个体，他们能在应激任务结束后迅速地恢复到基线水平，且由生活中的沮丧应激引起的焦虑水平相对较低。本研究在挑战与沮丧的应激框架下探讨了生活应激源对焦虑的影响，以及在急性应激环境下 HPA 轴功能的调节机制。同时，我们从资源和需求的角度，讨论了生理韧性在缓解应激源引发焦虑中的作用。
关键词　挑战-沮丧应激，状态焦虑，皮质醇，TSST，HPA 轴功能

Association between hindrance stress and state anxiety: the moderating role of HPA-axis function to acute stress

Wang Runqi
Institute of Psychology, CAS, Beijing, 100101
University of Chinese Academy of Sciences, Beijing, 100049
Wang Peishan
Institute of Psychology, CAS, Beijing, 100101
University of Chinese Academy of Sciences, Beijing, 100049
Wang Xiaoyu
Institute of Psychology, CAS, Beijing, 100101
University of Chinese Academy of Sciences, Beijing, 100049
Sun Xianghong
Institute of Psychology, CAS, Beijing, 100101
University of Chinese Academy of Sciences, Beijing, 100049
Zhang Liang
Institute of Psychology, CAS, Beijing, 100101
University of Chinese Academy of Sciences, Beijing, 100049

Abstract：Nowadays, young adults are facing stressors from several aspects. They have already become the most anxious groups in Chinese society and in risk of developing a series of anxiety disorders. The theory of challenge-hindrance stress was proposed to explain the positive and negative outcomes of different stressors. It has been widely tested mostly in the field of organization and management. In the current study, we used the challenge-hindrance stress theory to clarify the association between stress in daily life and anxiety. We also examined the HPA-axis function buffering the influence of daily stress on anxiety. Physiological evidence was provided through experiments. In the study, we used the edited Chinese version of challenge-hindrance stress scales to measure challenge and hindrance stress over 6 months. The level of anxiety was measured by state-trait anxiety inventory. We also carried out a Trier Social Stress Test (TSST) in laboratory and recorded the change of cortisol level during the 60 minutes right after the acute stress. Results show that the recent level of hindrance stress positively predicts trait anxiety, but the level of challenge stress does not predict trait anxiety. It is also found that, the cortisol decline rate during the recovery of acute stress moderates the association between stress and

anxiety. To be exact, individuals with low cortisol decline rate could not recover to baseline level even after rather long rest, and hindrance stress in their lives would lead to higher level of anxiety. But for individuals who has high cortisol decline rate after acute stress, they recover fast to baseline after the stressor disappear, and they become less anxious although facing the same level of hindrance stress. The current study checked the association between stress and anxiety under the framework of challenge-hindrance stress. We examined the moderating mechanism of HPA-axis function, and discussed the effect of physiological toughness from the respective of resources and demands.

Keywords：challenge-hindrance stress, state anxiety, cortisol, TSST, HPA-axis function

4.5 博士生论坛—基础心理学

儿童工作记忆刷新能力的发展

刘格格[1]　李富洪[2]（通讯作者）

1 江西师范大学心理学院，南昌，330022

2 江西师范大学心理学院，南昌，330022，lifuhong@jxnu.edu.cn

摘 要　工作记忆刷新(working memory updating)是指个体根据新呈现的信息不断更改工作记忆内容的过程，体现了人们不断对记忆中内容进行修正的能力，是执行功能的重要组成部分。研究者在 6 个月大的婴儿身上已经观察到刷新能力的出现，这种能力在整个童年时期会持续发展。本文总结了研究儿童刷新能力的五种范式：N-back 任务(N-Back Task)、活动记忆任务(Running Memory Task)、隐形位移任务(Invisible Displacement Task)、旋转任务(Rotating Task)和检索转换替代任务(Retrieval Transformation and Substitution Task)，并从不同的角度探讨了每种范式的优势和不足。此外，文章从儿童认知发展的角度，总结了与儿童刷新能力的发展相关的能力—工作记忆表征与存储容量以及抑制控制能力的发展之间的关系。研究人员还发现了儿童工作记忆刷新功能的可塑性，这意味着工作记忆刷新训练可以有效改善个体的刷新能力。因此，本文对儿童刷新训练的有效性、持续性和训练任务的类型进行了简要分析。然而，儿童工作记忆刷新能力的发展仍有许多未解决的问题需要不断探索，后续研究可关注以下问题：改进儿童工作记忆刷新的研究范式；开发针对学习障碍儿童的刷新能力的训练工具；推进不同年龄儿童刷新能力发展的测量和评估。

关键词　儿童，工作记忆刷新，工作记忆容量，抑制控制，刷新训练

The development of working memory updating in children

Liu Gege[1] Li Fuhong[2](Corresponding author)

1 college of psychology, jiangxi normal university, nanchang, China, 330022

2 college of psychology, jiangxi normal university, nanchang, China, lifuhong@jxnu.edu.cn

Abstract：Working memory updating(WMU) is an important component of executive function(EF). Researchers have observed the updating function in infants as young as six months old, and this ability continues to develop throughout childhood. This article summarizes five paradigms for studying children's updating ability: N-Back Task, Running Memory Task, Invisible Displacement Task, Rotating Task and Retrieval Transformation and Substitution Task, exploring the strengths and weaknesses of each paradigm from different perspectives. In addition, from the perspective of the development of children's cognitive abilities, the article summarizes the relevance between working memory representation and storage capacity, and the development of inhibitory control

ability. Researchers have also discovered the plasticity of children's working memory updating, meaning that updating training is effective. Therefore, this article provides a preliminary summary of the effectiveness of updating training for children's working memory and the types of training tasks. However, there are still many unsolved issues in the development of children's working memory updating that need to be explored continuously, including: improving the paradigm of children's working memory updating; developing the tools of updating training for children with learning disabilities; promoting the measurement and assessment of updating development in different ages of children.

Keywords：children, working memory updating, working memory capacity, inhibitory control, updating training

病态赌博成瘾患者眶额皮质脑区局部解剖特征

董浩浩[1]　苗程菓[1] Sescousse G[2]　李岩松[1]（通讯作者）

1 南京大学大学心理学系，南京，210023

2 里昂国家科学研究中心，里昂，法国

摘 要　赌博成瘾（Gambling Disorder，GD）作为一种行为成瘾，其核心症状表现为奖赏和决策功能受损，同时可能伴随着脑眶额叶皮质（Orbitofrontal Cortex，OFC）区域局部解剖特征的异常。该脑区的局部解剖特征可以根据重要的脑沟回的连接模式分成三种类型：I型，II型 和III型。 以往研究发现，药物成瘾患者与该分型的变化有关。我们是否可以在行为成瘾的患者身上发现类似的结果仍然是急需我们回答的重要问题。为了回答这一问题，我们对 206 名 GD 患者和 206 名健康对照个体的脑结构像的数据进行分析以便揭示赌博成瘾患者脑眶额叶皮质区域局部解剖特征的特点。为了实现这一步目标，我们首先利用 FreeSurfer 软件对每个患者和正常对照个体的脑结构图像进行重建和皮质分割，并根据沟回的特征对眶额叶皮质进行分型。为了确保对分型判断的客观性，我们要求两名研究者独立学习分类标准并使用健康对照组的数据进行训练，然后他们独立评估所有样本，并统计分析两位评分者的评价一致性。针对评估不一致的样本，进行独立的重新评估。最后，两名研究者共同对剩余不一致的样本（占总数的 16%）进行了最后的评定。在个体分型的基础上，我们接下来完成了统计分析。结果显示，健康对照组的 OFC 分型比例与已有的黄金标准无显著差异（左侧：$\chi^2 = 1.1, p = .57$; 右侧：$\chi^2 = .67, p = .71$），证实了我们的评估方法的有效性。然而，对比赌博成瘾患者和健康对照组，我们并未发现 OFC 分型比例的显著差异（左侧：$\chi^2 = 1.5, p = .46$; 右侧：$\chi^2 = .39, p = .82$）。这一结果与一项已经发表的研究结果不一致。通过对比我们的研究和之前发表的一项研究的分析方法，导致结果不一致的可能原因是因为判断分型图像的质量导致的。因此，我们的研究为理解赌博成瘾患者眶额叶皮质区域局部解剖特征的特点提供了新的重要的证据，同时也表明更加精确和客观可靠的方法对于描述额叶皮质区域局部解剖特征的特点有重要的影响。

关键词　赌博成瘾，眶额叶皮质脑区局部解剖特征。

Characterizing the orbitofrontal sulcogyral patterns in Gambling Disorder

Haohao Dong[1] Chengguo Miao[1] Sescousse G[2] Yansong Li[1]

1 Department of Psychology, Nanjing University, Nanjing, 210023

2 National Centre for Scientific Research, Lyon, France

Abstract：Gambling Disorder (GD) is a type of behavioral addiction characterized by impaired reward and

decision-making functions, possibly accompanied by abnormalities in the local sulcogyral patterns of the Orbitofrontal Cortex (OFC) area. The local sulcogyral patterns of this brain region can be divided into three types based on the connection patterns of important brain sulci and gyri: Type I, Type II, and Type III. Previous studies have found a relationship between the changes in these types and drug addicts. It remains an important question whether similar findings can be discovered in patients with behavioral addictions. To answer this question, we analyzed brain structure image data from 206 GD patients and 206 healthy control individuals to reveal the characteristics of the local sulcogyral patterns of the OFC area in GD patients.To achieve this goal, we first used FreeSurfer software to reconstruct and segment the brain structure images of each patient and healthy control individual, and typed the OFC based on the patterns of the sulci and gyri. To ensure objectivity in the judgment of typing, we required two researchers to independently study the classification criteria and train with data from the healthy control group. They then independently assessed all samples and statistically analyzed the consistency of the two evaluators' evaluations. For samples with inconsistent evaluations, an independent re-evaluation was performed. Finally, the two researchers jointly made the final evaluation of the remaining inconsistent samples (16% of the total).Based on the individual typing, we then completed the statistical analysis. The results showed that the proportion of OFC typing in the healthy control group was not significantly different from the existing gold standard (left: $\chi^2 = 1.1$, $p = .57$; right: $\chi^2 = .67$, $p = .71$), confirming the validity of our evaluation method. However, we did not find a significant difference in the proportion of OFC typing between the gambling addiction patients and the healthy control group (left: $\chi^2 = 1.5$, $p = .46$; right: $\chi^2 = .39$, $p = .82$).This result is inconsistent with the results of a previously published study. By comparing our research and the analysis method of a previously published study, the potential cause of the inconsistency may be due to the quality of the typing image judgment. Therefore, our study provides new important evidence for understanding the characteristics of local sulcogyral patterns of the OFC area in GD patients, and also indicates that more precise and reliable methods have a significant impact on describing the characteristics of local sulcogyral patterns of the frontal cortex area.
Keywords：Gambling Disorder, orbitofrontal sulcogyral patterns

大鼠局部场电位中的伤害性丘脑响应

李镇江[1,2] 张峰瑞[1,2] 岳路鹏[1,2] 胡理[1,2]（通讯作者）

1 中国科学院心理健康重点实验室(中国科学院心理研究所), 北京 100101;

2 中国科学院大学心理学系, 北京 100049，通讯作者 E-mail：huli@psych.ac.cn

摘 要 丘脑核及其投射的皮层靶点已被揭示参与疼痛信息处理。伤害性激光刺激诱发的脑响应反映了人类和动物痛觉系统的激活并与疼痛感知密切相关。为探究丘脑的激光诱发脑响应特征，本研究采用自由活动大鼠的激光诱发脑响应模型，结合伤害性激光刺激和在体电生理技术刻画了皮层和丘脑的脑响应特征。研究发现，丘脑和皮层具有类似的脑响应并被刺激强度显著调节，但丘脑场电位波形存在与皮层不同的早期小波响应（small wave, SW），其 N1 成分显著落后于皮层 N1 和丘脑本身的信息输出。结果表明内外侧疼痛通路中丘脑皮层脑区均参与疼痛强度信息编码，丘脑场电位中的伤害性丘脑响应不是 N1 而是 SW，本研究扩展了丘脑疼痛响应和编码特征的认识，有助于疼痛机制的系统性理解。

关键词 丘脑，激光诱发脑响应，疼痛，伤害性丘脑响应

Nociceptive thalamic responses of local field potentials in rats

Zhenjiang Li[1,2], Fengrui Zhang[1,2], Lupeng Yue[1,2], Li Hu[1,2,*]

[1]CAS Key Laboratory of Mental Health, Institute of Psychology, Chinese Academy of Sciences; 100101 Beijing, China;
[2]Department of Psychology, University of Chinese Academy of Sciences; 100101 Beijing, China;
*Corresponding author: Li Hu Email: huli@psych.ac.cn

Abstract: The role of the thalamic nucleus and its cortical targets in pain processing has been extensively studied. Laser-evoked brain responses have been shown to reflect the activation of pain systems and are closely associated with pain perception in both humans and animals. In this study, we aimed to characterize the brain responses in the thalamus and cortex using a model of laser-induced brain responses in freely moving rats. By combining noxious laser stimulation with in vivo electrophysiological techniques, we investigated the similarities and differences in the brain responses between these regions. Our findings revealed that both the thalamus and cortex exhibited similar brain responses that were significantly modulated by the intensity of the stimulation. However, we observed a distinct characteristic in the thalamic field potential waveform, namely an early small wave response (SW) that differed from the cortex. Notably, the N1 component in the thalamus showed a significant delay compared to both the N1 of the cortex and the thalamus itself. These results suggest the involvement of both thalamic and cortical regions in encoding pain intensity information along the medial and lateral pain pathways. Furthermore, we propose that the SW, rather than the N1, represents the nociceptive thalamic response in the thalamic field potential. This study contributes to a more comprehensive understanding of the thalamic pain response and its encoding characteristics. The findings shed light on the complex mechanisms underlying pain processing and provide valuable insights for future research in the field of pain neuroscience.

Keywords: thalamus, laser-evoked brain responses, pain, nociceptive thalamic response

肯定而非支持：价值肯定比情感支持更能缓解能力应激反应

王帅 [1,2] 赵小淋 [1,2] 周美君 [1,2] 杨娟 [1,2]（通讯作者）
1. 西南大学心理学部，重庆市，400715；
2. 教育部认知与人格重点实验室，重庆市，400715
通讯作者 valleyqq@swu.edu.cn

摘 要 能力应激 (Achievement Stressor)是最为常见的一种应激来源，它是指一切可以对人们自身能力感知产生威胁的事件或情景，如学业考试、工作面试、公众演讲等具有挑战性的任务。社会奖赏作为缓解能力应激反应的有效方式，可以进一步分为价值肯定与情感支持。许多研究表明，无论是价值肯定还是情感支持都可以有效地缓解能力应激反应，但并未有研究关注两类社会奖赏对能力应激的缓解效应是否存在差异。本研究选取 85 名在校大学生(55 名女生)作为被试，随机分配到价值肯定组、情感支持组和控制组，通过写作任务启动相应的奖赏类型，随后使用特里尔社会应激范式引发所有被试的能力应激反应。以奖赏启动类型为自变量，以在实验过程中多次采集的唾液皮质醇 (4 次)、心率 (8 次)、主观应激报告 (7 次)、应激后情绪反应和认知能力为因变量，采用传统曲线下面积增量 (AUCi; area under the curve increase)与潜在增长曲线模型 (LGCM; latent growth curve modeling) 两种方法验证研究假设。结果表明：（1）在皮质醇 AUCi 方面，价值肯定组显著低于情感支持组和控制组，而情感支持组显著低于控制组。（2）在心率 AUCi 方面，不同奖赏启动虽然不存在显著差异，但从趋势上看，价值肯定组的心率 AUCi 水平最低。更重要的是，在构建心率的 LGCM 中，相对于情感支持组，价值肯定组的被试在应激恢复阶段心率下降速率更快。（3）在应激主观报告方面，价值肯定组显著低于情感支持组和控制组，而情感支持组与控制组无显著差异。此外，价值肯定组比情感支持组和控制组表现出更强的应激后积极情绪和更高的认知能力。以上结果都表明，

虽然价值肯定与情感支持奖赏都能缓解能力应激反应，但价值肯定比情感支持的缓解效应更强。本研究提示当人们面临诸如重大考试、面试等能力应激事件时，价值肯定比情感支持更能缓解人们的应激反应，同时提高在应激情景下的任务表现。
关键词　能力应激，价值肯定，情感支持，特里尔社会应激范式

Affirmation Rather than Support: Value Affirmation Is More Effective than Emotional Support in Buffering Achievement Stressor

Shuai Wang[1,2], Xiaolin Zhao [1,2], Meijun Zhou [1,2], Juan Yang[1,2]*

1 Faculty of Psychology, Southwest University, Chongqing 400715, China

2 Key Laboratory of Cognition and Personality, Southwest University, Chongqing 400715, China

***Abstract*:** Achievement stress is the most common stressor, referring to all events or situations that can pose a threat to people's perception of their own abilities, such as challenging tasks including academic exams, job interviews, public speeches, etc. Social rewards, as an effective way to buffer achievement stress reactions, can be further divided into value affirmation and emotional support. Many studies have shown that both value affirmation and emotional support can effectively buffer achievement stress responses, but few research has focused on whether there is a difference in the buffering effect of two types of social rewards on achievement stress. In this study, 85 college students (55 females) were selected as participants and randomly assigned to the value affirmation group, emotional support group, and control group. The corresponding reward types were manipulated through writing tasks, and then Trier's Social Stress Test was used to trigger the achievement stress of all participants. Using the reward types as the independent variable and multiple collections of salivary cortisol (4 times), heart rate (8 times), subjective stress reports (7 times), post-stress emotional response, and cognitive ability during the experimental process as the dependent variables, the research hypotheses were validated using two methods: AUCi (area under the curve increase) and LGCM (latent growth curve modeling). The results showed that: (1) In terms of cortisol AUCi, the value affirmation group was significantly lower than the emotional support group and the control group, while the emotional support group was significantly lower than the control group. (2) In terms of heart rate AUCi, although there was no significant difference in reward types, the value affirmation group had the lowest heart rate AUCi level in terms of trend. More importantly, in constructing LGCM for heart rate, participants in the value affirmation group had a faster rate of heart rate decline during the stress recovery phase compared to those in the emotional support group. (3) In terms of subjective stress reporting, the value affirmation group was significantly lower than the emotional support group and the control group, while there was no significant difference between the emotional support group and the control group. In addition, the value affirmation group exhibited stronger post-stress positive emotions and higher cognitive abilities than the emotional support and control groups. The above results indicate that although both value affirmation and emotional support rewards can buffer achievement stress reactions, value affirmation has a stronger buffering effect than emotional support. This study suggests that when people face achievement stress events such as major exams and interviews, value affirmation is definitely more effective than emotional support in buffering their stress response and improving task performance in stressful situations.

Keywords： Achievement Stressor, Value Affirmation, Emotional Support, Trier Social Stress Test

Feeling worse but not doing better: The impact of teachers' angry feedback on junior high school students

Abstract: Teachers may sometimes lose their temper and express anger toward their pupils. Some studies showed that teachers' angry expressions benefit students' learning, while others reported the opposite. Given that the effect of teachers' angry expressions on junior high school students has not been experimentally tested, the current study verified the effect of teachers' angry expressions on junior high school students' emotional experience, cognitive inference, and learning performance. In a vignette experiment (Study 1), participants felt angrier, made more negative inferences, and had lower willingness to improve learning performance after a teacher expressed anger rather than neutral expression. Replicating the findings in Study 1, participants in two separate field experiments (Study 2) felt worse, made more negative inferences, and had worse scores on subsequent tests after being confronted with an angry rather than a neutral teacher. In both studies, teachers' emotional displays affect junior-high-school students' learning performance partially through the chain mediation of emotional reactions and cognitive inference. These findings suggested that junior high school teachers should be cautious when displaying anger toward students.

Keyword: teachers' angry expressions, junior high students, Emotions as Social Information

摘 要 教师有时可能会对学生发脾气和表达愤怒。一些研究表明教师愤怒表达会促进学生的学习表现，但是，也有研究的结果与之相反。鉴于现有研究并未有教师愤怒表达对中学生影响的实验研究，当前研究探究教师愤怒情绪对中学生情绪体验、认知推断和学习表现的影响。在情景实验中（研究 1），相比经历教师中性情绪表达的被试，经历教师愤怒情绪表达的被试会感到更加愤怒，对教师有着更多地消极推断，并且有着更低的行为提升意向。与研究 1 结果相似的是，被试在两个现场实验中（研究 2），相比经历教师中性情绪表达的被试，经历教师愤怒情绪表达的被试会感到更加糟糕的情绪体验，对教师有着更多地消极推断，并且有更低的测验分数。在这两个研究中，教师情绪能够通过学生的情感体验和认知推断的链式中介对学生的学习表现产生影响。这些研究结果表明，中学教师应当持谨慎向学生表达愤怒。

关键字：教师愤怒表达，初中生，情绪社会信息模型

疼痛脑脊表征的偏侧性特点研究

魏朝行 [1, 2] 孔亚卓 [1,2]（通讯作者）

中国科学院行为科学重点实验室(中国科学院心理研究所), 北京 100101;

中国科学院大学心理系, 北京 100049.

通讯作者 E-mail: kongyz@psych.ac.cn

摘 要 躯体感觉是否具有灵敏偏侧性，目前仍存在争议，并且，针对疼痛的脑脊传导通路进行疼痛偏侧性特点研究的相关工作至今尚未开展。为了深入探讨这一问题，我们采用了较大的样本量（N=92），通结

合脑脊同步功能成像的热痛刺激任务，获得了一些重要的发现：对于相同刺激温度的疼痛强度和不愉悦度评分，右手的主观感受高于左手；前颞部皮层（frontal operculum cortex）的结构不对称性程度与双手主观疼痛强度感受差异显著相关；双手手前颞部皮层及脊髓背角 C6 皮节热痛激活差异与主观疼痛强度感受差异呈显著相关。这些发现揭示了感觉偏侧性与运动偏侧性可能存在的关联性，且疼痛感受的偏侧性可能受多重因素影响，包括感觉类型、刺激模式以及神经解剖结构等，为深入理解疼痛感受及其神经机制提供了新的视角和启示。

关键词 皮层脊髓同步成像, 疼痛，偏侧性，利手

Lateralization Characteristics of Pain in the Brain and Spinal Cord

Zhaoxing Wei[1, 2] Yazhuo Kong[1,2] (Corresponding Author)

1. CAS Key Laboratory of Behavioral Science, Institute of Psychology, Chinese Academy of Sciences, Beijing 100101, China;
2. Department of Psychology, University of Chinese Academy of Sciences, Beijing 100049, China

Corresponding E-mail: kongyz@psych.ac.cn

***Abstract*:** The question of whether somatosensory perception exhibits lateralized sensitivity remains controversial. Furthermore, to date, no studies have specifically investigated the lateralized characteristics of pain through its brain-spinal transmission pathways. To delve deeper into this issue, we employed a larger sample size (N=92) and combined it with a thermal pain stimulation task using simultaneous cortico-spinal functional imaging. We made several significant findings: 1) For the same stimulus temperature, subjective pain intensity and unpleasantness ratings were higher for the right hand than the left hand; 2) The degree of structural asymmetry in the frontal operculum cortex was significantly positively correlated with the difference in pain intensity between the two hands; Differences in activation in the frontal operculum cortex and the dorsal horn of the C6 spinal segment between the left and right hands were positively correlated with differences in subjective pain intensity. These findings shed light on the potential association between sensory lateralization and motor lateralization. The lateralized perception of pain may be influenced by multiple factors, including the type of sensation, stimulus modality, and neuroanatomical structures, offering new insights and perspectives for a deeper understanding of pain perception and its neural mechanism.

***Keywords*:** Simultaneous cortico-spinal imaging, Pain, Lateralization, Handedness

仪式缓解状态焦虑：仪式效能感和仪式象征意义在其中的作用

周雅洁 [1,2] 陈文锋 [3] 刘长虹 [4] 傅小兰 [1,2]（通讯作者）

1 中国科学院心理研究所，北京，100101

2 中国科学院大学心理学系，北京，101408，fuxl@psych.ac.cn

3 中国人民大学心理学系，北京，100872

4 英国伯恩茅斯大学心理学系

摘 要 **目的：**仪式有助于调节情绪，例如当人们面临考试和比赛等焦虑事件时会选择做仪式动作缓解自己的状态焦虑水平。在对仪式的调节中，仪式效能感和仪式象征意义是两个重要的影响因素。因此，本研究旨在操纵新仪式动作象征意义的有无，分别考察仪式效能感和仪式象征意义在降低状态焦虑中的作用。

方法：研究 1 没有赋予新仪式动作象征意义，共分为 4 组：高仪式效能感组、低仪式效能感组、随机动作组和无动作组。实验阶段测量了三次被试的状态焦虑水平：休息之后（前测）、观看恐怖视频后（中测）、完成动作或回忆图片后（后测）。高、低仪式效能感组和随机动作组在观看恐怖视频前学习“仪式”或“随机”标签的动作，在观看恐怖视频后完成学习过的动作。无动作组在观看恐怖视频前观察一组图片，观看恐怖视频后进行图片再认任务。研究 2 赋予新仪式动作象征意义，共分为 3 组：高仪式效能感组、低仪式效能感组和随机动作组。状态焦虑水平测量方法同研究 1。在观看恐怖视频前，高、低仪式效能感组学习“仪式”标签动作的同时获取仪式动作被赋予的象征意义，随机动作组学习“随机”标签动作。在观看恐怖视频后，高、低仪式效能感组和随机动作组完成学习过的动作。

结果：在不知道仪式的象征意义时，仪式效能感更高的被试在完成仪式后状态焦虑缓解值更大（研究 1）。在知道仪式的象征意义时，仪式效能感不影响状态焦虑，高、低仪式效能感组的状态焦虑缓解值都显著大于随机动作组（研究 2）。

结论：当仪式的象征意义未知时，仪式通过仪式效能感影响状态焦虑，导致对仪式动作效能有更强信念的个体焦虑缓解值更大。当仪式的象征意义已知时，仪式通过仪式象征意义直接影响状态焦虑，而仪式效能感对状态焦虑的缓解不产生显著影响。

关键词 仪式，仪式效能感，仪式象征意义，状态焦虑

Rituals reduce state anxiety through perceived ritual efficacy and ritual symbolism

Yajie Zhou[1,2] Wenfeng Chen[3] Chang Hong Liu[4] Xiaolan Fu[1,2](corresponding author)

1 Institute of Psychology, Chinese Academy of Sciences, Beijing, 100101, China

2 Department of Psychology, University of Chinese Academy of Sciences, Beijing, 101408, China, fuxl@psych.ac.cn

3 Department of Psychology, Renmin University of China, Beijing, 100872, China

4 Department of Psychology, Bournemouth University, Dorset, United Kingdom

***Abstract*：Objective:** Enacting rituals can help regulate emotions, particularly when experiencing anxiety. In the regulation, perceived ritual efficacy and ritual symbolic meaning may be two of key factors. The aim of this study was to examine the influence of perceived ritual efficacy and ritual symbolic meaning on reducing state anxiety, separately by introducing a novel ritual action with symbolic meaning or not.

Methods and Measures: In Study 1, the role of ritual actions without assigned symbolic meaning was investigated. It consisted of four conditions: high ritual efficacy, low ritual efficacy, random action and no action. The levels of state anxiety were measured three times: after rest (pre-test), after view a horror movie (mid-test), and after perform actions or recall pictures (post-test). The participants in high ritual efficacy, low ritual efficacy and random action condition learned actions labeled ritual or random before viewing a horror movie and perform learned actions after viewing a horror movie. In contrast, no action group observed pictures before viewing a horror movie and recalled pictures after viewing a horror movie. In Study 2, the role of ritual actions with assigned symbolic meaning was investigated. It consisted of three conditions: high ritual efficacy, low ritual efficacy, and random action. The levels of state anxiety were measured as in Study 1.The participants in high ritual efficacy and low ritual efficacy condition learned actions labeled ritual and knew assigned symbolic meanings before viewing a

horror movie and performed learned actions after viewing a horror movie. In contrast, random action group learned actions labeled random before viewing a horror movie and performed learned actions after viewing a horror movie.

Results: The results revealed that participants who perceived higher ritual efficacy experienced a significant reduction in state anxiety following rituals, particularly when they were unaware of the ritual symbolic meanings associated with the rituals (Study 1). In contrast to participants who perceived actions as a random sequence, those with knowledge of ritual symbolic meanings reported significantly lower anxiety scores after engaging in rituals, no matter what the perceived ritual efficacy on state anxiety was (Study 2).

Conclusion: When symbolic meaning is unknown, rituals influence state anxiety through perceived ritual efficacy, resulting in relief of state anxiety for individuals who hold a relatively strong belief in the efficacy of ritual action. When symbolic meaning is known, however, rituals directly influence state anxiety through ritual symbolic meaning, while the degree of belief in ritual efficacy does not have a significant impact on the relief of state anxiety.

***Keywords*:** ritual, perceived ritual efficacy, ritual symbolic meaning, state anxiety

工作记忆中时空背景对项目重复提取的促进作用

张亚亚[1] 严艳梅 1 夏立坤[2] 丁锦红[1]（通讯作者：dingjh@cnu.edu.cnu ）

1 首都师范大学心理学院，北京，100037

2 首都师范大学信息工程学院，北京，100037

摘 要 时间和空间信息与非时空特征信息一起，都会被编码到工作记忆的表征中。这些时空信息作为信息提取的重要线索，通过眼睛的注视或扫描路径恢复帮助记忆提取。然而，考虑到时间和空间是两个不同维度，它们在工作记忆表征中是以独立方式还是整合方式存在还不清楚。另一方面，当时空信息的完整性发生改变时，其促进作用是否也随之变化？

本研究采用延迟匹配任务和眼动追踪技术，考察记忆表征变化在记忆提取中的作用以及记忆表征恢复与更新的限制条件。实验一控制再认旧刺激与学习阶段序列呈现的 4 个客体时间序列（相同 VS 不同）与空间位置（相同 VS 不同），在学习阶段要求被试记住序列呈现在屏幕中四个象限的客体及其位置；测试阶段在屏幕中央依次呈现 8 个再认刺激（新旧各半），要求被试判断是否与学习阶段的 4 个客体相同。实验二中，学习阶段要求被试记住同时呈现的 5 个物体及其位置；测试阶段则要求被试判断空间分布与学习阶段一致的 5 格物体中有多少物体与学习中的物体相同并通过按键反应。两者全部不同和全部相同分别按键盘上的左右箭头键；1～2 个相同按向上箭头；3～4 个相同按向下箭头。

结果显示，当编码与提取的时空信息全部相同时，正确率随提取次数升高，反应时、平均注视时间、转移熵逐次降低，扫描路径相似性、静息熵无变化；时空信息部分相同时，正确率、平均注视时间、扫描路径相似性逐次降低，反应时、静息熵、转移熵无变化；时空信息完全不同时，正确率随提取逐渐先降低后稳定不变，反应时、平均注视时间、扫描路径相似性、转移熵逐次降低，静息熵无变化。上述结果表明，个体依据完整时空整合信息直接激活与之绑定的客体信息促进记忆提取，不需要重构背景；部分相同的时空信息破坏完整的时空表征，重构时空表征的稳定性降低进而干扰记忆维持与提取，随时间变化时空表征的稳定性越来越差；没有相同时空信息时，记忆提取随时间推移受到编码阶段形成的记忆表征（自上而下）影响越来越弱，当前输入的视觉刺激（自下而上）的影响越来越强。

关键词 视觉工作记忆，时空表征，扫描路径，重复提取

The Facilitating Effect of spatiotemporal Context on Repeated Retrieval in Working Memory

Yaya Zhang[1] Yanmei Yan[1] Likun Xia[2] Jinhong Ding[1] (Corresponding author:dingjh@cnu.edu.cnu)
1 School of psychology, Capital Normal University, Beijing, 100037
2 School of Information Engineering, Capital Normal University, Beijing, 100037

Abstract： Temporal and spatial features of a visual event are often incidentally encoded together to support memory retrieval. New theories of gaze recovery propose that gaze recovery supports the retrieval of memory representations through the recovery of spatiotemporal context. However, gaze recovery needs to rely on spatiotemporal information associated with encoding, but the effect of different spatiotemporal contextual similarities on the retrieval process of working memory representations is unclear.

In this study, we used a delayed matching task and eye-tracking technology to examine the role of memory representation changes in memory extraction and the constraints on memory representation recovery and updating. Experiment 1 controlled the temporal sequence (same vs. different) and spatial location (same vs. different) of the four objects presented in the sequence of recongnitional old stimuli and the learning phase. In the learning phase, subjects were asked to memorize the objects and their locations in the four quadrants of the screen in which the sequence was presented; in the testing phase, eight recongnitional stimuli (half of the old and half of the new) were presented in turn in the center of the screen, and subjects were asked to judge whether they were the same as the four objects in the learning phase. In Experiment 2, the learning phase required subjects to memorize 5 objects and their locations presented simultaneously; the testing phase required subjects to judge how many of the 5 frames of objects whose spatial distribution coincided with the learning phase were the same as the objects in the learning phase and to respond by pressing a key. All different and all the same pressed the left and right arrow keys on the keyboard, respectively; 1 or 2 the same pressed the up arrow; 3 or 4 the same pressed the down arrow.

The results showed that when the encoded and retrieved of spatiotemporal information were identical, accuracy increased with each retrieval trial, while response time, average fixation time , and gaze transition entropy decreased incrementally. However, scan path similarity and resting entropy remained unchanged. When the spatiotemporal information partially matched, accuracy, average gaze duration, and scan path similarity decreased progressively, while response time, gaze stationary entropy, and gaze transition entropy remained unchanged. When spatiotemporal information is completely different, accuracy decreases with the number of extractions, response time, average fixation time, scan path similarity, gaze transition entropy decreases, and gaze stationary entropy is unchanged.These findings suggest that individuals rely on complete spatiotemporal integration to directly activate associated object information for memory retrieval, without the need for reconstructing the background context. Partially matching spatiotemporal information disrupts stable spatio-temporal representations, thereby interfering with memory maintenance and retrieval. As time elapses, the stability of spatiotemporal representations deteriorates. In the absence of matching spatiotemporal information, memory retrieval becomes less influenced by the memory representation formed during encoding (top-down) and stronger influenced by the current visual stimulus input (bottom-up).

Keywords： visual working memory, spatiotemporal representation, scan path, item retrieval.

精神分裂症患者社会协作期间的异常群脑网络和人际同步过程

王雅婕[1]，温雅岚[1]，郑磊磊[2],陈骥[1,3*]，林铮[2*]，潘亚峰[1*]（通讯作者）

1 浙江大学心理与行为科学系，杭州，310058

2 浙江大学医学院附属第二医院精神科，杭州，310027

3 浙江大学医学院附属第四医院精神科，义乌，322000

yafeng.pan@zju.edu.cn

摘 要　精神分裂症是一种常见的精神障碍，患者常常表现出社交功能缺损。由于社会协作行为的复杂性，我们对精神分裂症中社交缺陷的计算和神经机制仍然知之甚少。为了填补这一知识空白，我们招募精神分裂症个体并指导其与健康被试进行配对（精分-常人组）完成社会协作任务（即，协作手指按键任务）。同时，我们也招募了健康对照配对（常人-常人组）参与任务，以便进行对比分析。在任务中，被试配对要么接受彼此的按键声音反馈，要么仅接受一方的按键声音反馈。被试配对的按键反应时被用来计算人际同步指标；基于该指标，我们进一步采用了动力系统模型来解析个体内和个体间的同步模式。任务期间，我们还使用近红外脑成像技术同步测量了他们的脑活动，来深入探讨精神分裂症患者社会协作缺陷的群脑机制。行为学结果表明，精神分裂症个体在与健康伙伴协作时表现出较不稳定的行为和较差的人际同步。此外，我们使用动力系统对双人的同步行为进行建模，计算建模的结果表明，当健康伙伴无法接受到精神分裂症个体的按键反馈时，双人动力系统中的个体间耦合系数较低，这些结果表明精神分裂症患者在协会协作方面存在缺陷。在群脑水平上，我们还发现精分-常人组相比常人-常人组表现出异常的脑间同步模式，这与行为同步呈正相关。另外，我们使用了偏最小二乘法来捕捉脑间连接和症状之间的潜在关系，结果表明脑间连接的预测分数与真实的阳性和阴性症状评定量表得分呈正相关。综上，本研究揭示了精神分裂症患者中的社会协作缺陷以及潜在的异常计算和群脑神经特征。这些发现有望为未来的治疗策略提供新的思路和方向，以帮助精神分裂症患者缓解其社交功能障碍。

关键词　社交协调，精神分裂症，人际同步，近红外超扫描，动力系统

Aberrant multi-brain network and interpersonal synchronization during social coordination in schizophrenia

Ya-Jie Wang[1], Yalan Wen[1], Leilei, Zheng[2], Ji Chen1[3*], Zheng Lin[2*], Yafeng Pan[1*]

1 Department of Psychology and Behavioral Sciences, Zhejiang University, Hangzhou, China

2 Department of Psychiatry, Second Affiliated Hospital, School of Medicine, Zhejiang University, Hangzhou, China

3 Department of Psychiatry, The Fourth Affiliated Hospital, Zhejiang University School of Medicine, Yiwu, Zhejiang, China

yafeng.pan@zju.edu.cn

***Abstract*:** Schizophrenia (SCZ) is a prevalent mental disorder often characterized by social function impairments. Given the complexity of social coordination behavior, our understanding of the computational and neural mechanisms underlying social deficits in SCZ remains limited. To address this knowledge gap, we recruited individuals with SCZ and instructed them to pair with healthy participants (SCZ-HC dyads) to perform a joint finger-tapping task. Additionally, we also included HC-HC dyads to participate in the task for comparative analysis. In the task, participant either received auditory feedback from their partner or from their own. The reaction time were used to calculate interpersonal synchronization indices. Based on these indices, we further employed a

dynamical system model to parse intra- and inter-individual synchronization patterns. Concurrently, we used near-infrared brain imaging technology to simultaneously measure their brain activity, aiming to delve into the group brain mechanisms of social coordination deficits in SCZ.

Behavioral results revealed that individuals with SCZ demonstrated less stable behavior and poorer interpersonal synchronization when cooperating with healthy partners. Additionally, we used a dynamical system to model the synchronous behavior of the dyad, and the results of the computational modeling indicated that when the healthy partner could not receive the auditory feedback from SCZ, the inter-individual coupling coefficient was lower. These findings suggest a deficiency in social coordination in patients with SCZ. At the group brain level, we also found that the SCZ-HC dyads exhibited abnormal inter-brain synchronization patterns compared to the HC-HC dyads, which positively correlated with behavioral synchronization. Furthermore, we employed partial least squares to capture the potential relationships between inter-brain connectivity and symptoms. The results indicated that the predictive scores of inter-brain connectivity were positively correlated with the actual scores of Positive and Negative Syndrome Scale. In summary, our study unveils social coordination deficits in individuals with SCZ, along with potential abnormal computational and group brain neural features. These findings are expected to provide novel insights and directions for future therapeutic strategies, aimed at alleviating social dysfunction in patients with SCZ.

Keywords：social coordination, schizophrenia, interpersonal synchronization, hyperscanning, fNIRS, dynamical system

运动物体意图和物理原因的联合感知

摘 要　智能体的运动（motion）是由其意图性行为和其所处系统的物理约束共同导致的。因此，人类视觉需要推断出最合理的物理-心理联合假设（joint physics-mind hypothesis）来解释物体运动。我们设计了一个遛狗的视觉运动，以数个小圆代表运动客体：其中一个圆（“狗”）正在追逐另一个圆（“猫”），当“狗”过于靠近“猫”的时候，第三个圆（“主人”）通过一根有弹性的拉绳用力拉“狗”阻碍其对“猫”的追逐。根据联合感知理论，当物理-心理二者中某一方面的感知被破坏或削弱时，另一方面的感知也将会相应地受到损害。在本研究中，实验一发现破坏对物理系统的感知会削弱对追逐意图的感知；实验二验证了破坏追逐意图的感知会对直观物理系统的感知产生损害；实验三表明该场景下不同的意图识别之间也会产生影响。上述现象说明，对物理系统和意图的感知之间存在着相互依赖，同时意图的感知之间也存在着关联。因此，人类能够联合感知场景背后的心理和物理机制。

关键词　视觉，追逐，意图，心理理论，直觉物理

Jointly Perceiving Intention and Physics

Abstract：The motion of an agent is influenced by both its intentional behavior and the physical constraints of its environment. Human vision relies on inferring the most plausible joint physics-mind hypothesis to explain observed object motion. We designed a visual motion scene involving dog walking, represented by several small discs: one disc ("dog") chasing another disc ("cat"), and when the "dog" gets too close to the "cat," a third disc ("master") forcefully drags the "dog" with an elastic rope to hinder its pursuit of the "cat". According to the theory of joint perception, impairing or undermining perception in one aspect will also affect perception in the other aspect accordingly. In this study, experiment 1 explored whether disrupting perception of the physical system would undermine perception of the chasing intention; experiment 2 examined whether disrupting

perception of the chasing intention would also impair perception of the intuitive physical system; experiment 3 shows that there is also an effect between different intention recognition in this scene. These results suggest a mutual dependency between perception of the physical system and intention, as well as an interrelation among different intention perceptions. Therefore, humans are able to jointly perceive the mental and physical mechanisms behind the scene.

Keywords ： Vision, Chasing; Intention, Theory of Mind, Intuitive Physics

经皮耳部迷走神经电刺激对注意系统的影响：以点探测范式为例

陈钰昕[1, 2]　杨皓宇[1, 2]　胡理[1, 2]　吕雪靖[1, 2]（通讯作者）

1 中国科学院心理健康重点实验室（中国科学院心理研究所），北京 100101

2 中国科学院大学心理学系，北京 100049

摘 要　经皮耳部迷走神经电刺激（transcutaneous auricular vagus nerve stimulation, taVNS）具有调控注意理论和解剖基础，但目前相关研究结果并不一致，这可能归因于 taVNS 对不同注意系统调控效果存在独立性以及交互作用。因此，本研究以点探测范式为例，试图解构 taVNS 对不同注意系统的调控效果。结果表明，与对照组相比，施加在左耳的 taVNS 显著改善了右手反应的整体行为表现。此外，taVNS 还可显著提高右手反应相关的脑电 P3 成分振幅，且相关分析显示其与反应时的变化显著相关。频谱分析表明，taVNS 可降低刺激对侧初级体感运动皮层在基线段的高频-α神经振荡的功率谱密度。总的来说，本研究提供了行为和大脑证据，表明 taVNS 在警觉增强方面具有良好的作用，可能对之后 taVNS 调控注意网络的研究具有启发性意义。

关键词　经皮迷走神经电刺激，注意，警觉，执行控制，脑电

The modulation effects of transcutaneous auricular vagus nerve stimulation (taVNS) on attention system: Taking the dot-probe task as an example

Chen Yuxin[1, 2]　Yang Haoyu[1, 2]　Hu Li[1, 2]　Lu Xuejing[1, 2]

[1]CAS Key Laboratory of Mental Health, Institute of Psychology, Beijing 100101, China

[2]Department of Psychology, University of Chinese Academy of Science, Beijing 100049, China

Abstract： Transcutaneous auricular vagus nerve stimulation (taVNS) operates on a foundation of regulatory theories and anatomical bases pertaining to attention. However, current research yields inconsistent results, potentially due to the distinctive and interactive effects of taVNS on the different attention systems. Hence, this study utilizes the dot probe task to deconstruct the modulation effects of taVNS on distinct attention systems. The findings demonstrated that taVNS administered to the left ear significantly enhanced the overall behavioral performance of right-hand responses, compared to the control group. Additionally, taVNS significantly augments the amplitude of the P3 component associated with right-hand responses, which correlates with taVNS-induced variations in reaction time. Spectral analysis reveals that taVNS could reduce the power spectral density of the high-α oscillations in the stimulated-contralateral primary sensorimotor cortex during the baseline segment. In conclusion, this study provided behavioral and brain evidence supporting the potent role of taVNS in enhancing

alertness.

Keywords **：** transcutaneous vagus nerve stimulation, attention, alerting, executive control, electroencephalographic (EEG)

超重/肥胖对大脑“感觉运动-跨模态”系统动态活动的影响

韩金凤[1] 陈红[12]（通讯作者）

1 认知与人格教育部重点实验室，西南大学心理学部，重庆，400715

2 西南大学心理学与社会发展研究中心，重庆，400715，通讯作者 Email: chenhg@swu.edu.cn

摘 要 超重/肥胖会对大脑结构和功能产生系统性的负面影响，从而降低个体认知能力和引发情绪失调问题。然而，这些有害影响如何在大脑动态中具体表现需要进一步探究。本研究中，基于两个独立静息态功能 fMRI 数据集 (N_{BBP} =1,923; N_{HCP} =998) 和一个纵向数据集 ($N_{BBP\text{-}follow\text{-}up}$ =34)，首先采用隐马尔可夫模型 (HMM) 识别出大脑激活状态由若干个子状态聚合的两个“元状态”表征，一个元状态反映的是感觉运动系统（包括视觉、感觉运动、听觉和语义加工皮层）关联的大脑激活增强，另一个元状态反映的是跨模态系统（包括联合皮层和关键皮层下结构）关联的大脑激活增强。其次，通过一般线性模型研究发现超重/肥胖影响的大脑激活状态更多地滞留于感觉运动系统主导的元状态，难以向跨模态系统关联的元状态进行转移。最后，进行关联分析和建立中介模型，结果表明体重指数 (Body mass index, BMI) 会通过增加在感觉运动系统主导的元状态中的持续时间，以及减少在跨模态关联系统主导的元状态中的持续时间，进而降低个体的认知能力。另外，与感觉运动系统相关的元状态也可以显著介导 BMI 与精神病理症状之间的正向关系。综上，研究从脑动力学视角揭示了超重/肥胖对大脑“感觉运动-跨模态”层级结构的不良影响，并为进一步研究超重/肥胖相关的大脑功能障碍和心理健康问题提供新的理论视角。

关键词 身体质量指数，超重/肥胖，静息态功能磁共振，大脑动态，“感觉运动-跨模态”系统

Elevated body mass index impacts the brain-state dynamics within sensorimotor-to-transmodal hierarchy

Jinfeng Han[1], Hong Chen[1,2]

[1] Key Laboratory of Cognition and Personality, Ministry of Education, Faculty of Psychology, Southwest University, Chongqing, China

[2] Research Center of Psychology and Social Development, Faculty of Psychology, Southwest University, Chongqing, China

Abstract：Overweight and obesity, as commonly indicated by a higher body mass index (BMI), are associated with functional alterations in the brain, which may potentially result in cognitive decline and emotional illness. However, the manner in which these detrimental impacts manifest in the brain’s dynamic characteristics remains largely unknown. Based on two independent resting-state fMRI datasets (n_BBP=1,923; n_HCP=998), we employed a hidden Markov model (HMM) to identify the spatiotemporal features of brain activity states. Subsequently, we examined the changes in brain-state dynamics and the corresponding functional outcomes that arise with an increase in BMI. Elevated BMI tends to shift the brain’s activity states towards a greater emphasis on a specific set of states—the metastate—that are relevant to the joint activities of sensorimotor systems, making it harder to transfer to the metastate of transmodal systems. These findings were reconfirmed in a longitudinal sample (n_BBP=34) that exhibited a significant increase in BMI at follow-up. Importantly, the alternation of

brain-state dynamics specifically mediated the relationship between BMI and adverse functional outcomes including cognitive decline and symptoms of mental illness. The altered brain-state dynamics within the sensorimotor-to-transmodal hierarchy provide new insights into obesity-related brain dysfunctions and mental health issues.

Keywords： BMI, overweight/obesity, resting-state fMRI, brain-state dynamics, sensorimotor-to-transmodal hierarchy

不确定情境影响疼痛与无疼痛刺激知觉加工的时间进程

庄昀[1 2] 赵科[1 2] 傅小兰[1 2]（通讯作者）

1 中国科学院心理研究所，北京，100101

2 中国科学院大学心理学系，北京，100101，fuxl@psych.ac.cn

摘 要 刺激的不确定性会影响疼痛刺激的知觉。但不确定情境下，疼痛与无疼痛刺激的加工如何受到影响尚未明了。本研究采用基于线索的 NPU 威胁范式（NPU-threat task），将不确定条件与确定条件分成不同的区组，探究不确定情境对疼痛与无疼痛刺激的行为反应与脑电活动的影响。结果显示，不确定情境不仅影响对疼痛刺激的反应，而且会影响对无疼痛刺激的知觉加工。在不确定情境下，人们甚至会对中性结果产生强度接近疼痛事件的神经激活。在不确定情境下疼痛刺激加工相比确定情境表现出更大的激活，主要体现在早期的N1和P2波幅。在不确定情境下，无疼痛试次的中央区晚期正电位（late positive potential, LPP）波幅达到了疼痛试次的水平，远高于确定情境。此外，时间-频率分析结果显示，早期（200ms 前），不确定情境下的疼痛刺激诱发了更强烈的 alpha（8-13 Hz）、beta（16-30 Hz）频段振荡，而在晚期（200ms 后），即使在没有疼痛刺激的情况下，不确定情境依然诱发了 delta-theta（2-8 Hz）频段振荡的增强。这些结果表明，不确定情境对疼痛和非疼痛刺激的知觉加工具有时间效应，在疼痛刺激后的早期阶段和无疼痛刺激后的晚期阶段，情绪唤醒和神经反应明显增强。

关键词 不确定情境，疼痛，无疼痛刺激，时间进程

Temporal Effect of Uncertain Context on the Perceptual Processing to Painful and Non-Painful Stimulation

Yun Zhuang[1 2] Ke Zhao[1 2] Xiaolan Fu[1 2]

[1]State Key Laboratory of Brain and Cognitive Science, Institute of Psychology, Chinese Academy of Sciences, Beijing, 100101, China

[2]Department of Psychology, University of Chinese Academy of Sciences, Beijing, 100049, China

Abstract: Uncertainty can influence the perception of noxious stimuli. However, how perception of painful and non-painful stimuli is affected under prolonged uncertain contexts is still unknown. To address this issue, we conducted an experiment using a cue-based NPU-threat task with uncertain and certain trials separated into different blocks, to investigate the influence of uncertain context on the behavioral responses and electroencephalogram (EEG) activities to painful and non-painful stimuli. The results revealed that under uncertain context, when faced with neutral outcomes, individuals even exhibited neural activations with comparable intensities to those of painful events, reflecting similar patterns observed in behavioral results. Specifically, neural

responses elicited by painful stimuli displayed stronger early N1 and P2 amplitudes under uncertain context compared to certain context, while the late positive potential (LPP) amplitudes for non-painful stimuli reached the level of painful stimuli under uncertain context, significantly exceeding the amplitudes observed under certain context. Furthermore, the time-frequency results demonstrated that in the early stage (200 ms before), painful stimulations under uncertain context induced stronger neural oscillations in the alpha (8-13 Hz) and beta (16-30 Hz) band, while in the late stage (200 ms later), uncertain context induced increase in delta-theta band (2-8 Hz) oscillations even in the absence of pain stimulations. These results showed a temporal effect of uncertain context on the perceptual processing to painful and non-painful stimulation, with stronger emotional arousal and neural responses evident in the early stage following painful stimulation and in the late stage following non-painful stimulation.

Keywords：uncertain context, pain, non-painful stimuli, temporal effect

比较奖励联结的分心刺激捕获内部注意与外部注意的差异

廖洁洁[1]　陈玉洁[1]　张慕贤[1]　莫雷[1]（通讯作者）

1 华南师范大学心理学院，广州，510631

摘 要　根据注意对象的不同，人类的注意可以分为外部注意与内部注意两大类，分别指对外界刺激物的注意，和对内在心理表征的注意。关于外部注意的研究运用训练-测试范式发现了奖励驱动注意捕获效应，即在训练阶段与奖励建立联结的刺激，在测试阶段作为分心刺激捕获注意资源，对测试任务产生消极影响。奖励驱动注意捕获效应在外部注意领域中获得大量研究证实，对当今社会中的肥胖、成瘾等问题的解决提供了可靠方案。然而，尚未有研究对奖励驱动注意捕获效应是否在内部注意中存在这一问题进行探索。此外，如果奖励驱动注意捕获效应在内部注意和外部注意都存在，那么这两者有何差异？基于这两个问题，本研究设计了两个实验，实验一旨在探讨奖励驱动对内部注意资源的捕获效应是否存在，实验二将其与奖励驱动对外部资源的捕获效应的比较。实验一采用训练-测试范式，在训练阶段建立高低奖励与红绿颜色的联结，在测试阶段比较红绿颜色作为分心刺激对内外部注意的影响。实验一的结果显示，无论在外部注意任务还是在内部注意任务中，与高奖励联结的颜色作为分心刺激时对测试任务的干扰作用都大于与低奖励联结的颜色作为分心刺激时对测试任务的干扰作用。这一结果说明奖励驱动注意捕获效应不仅在外部注意中存在，在内部注意中也存在。实验一中内部注意与外部注意下的奖励驱动注意资源捕获并无差异，研究者认为可能是在内部注意任务中以颜色为联结高低奖励的刺激不可避免地混入外部注意的作用，因此掩盖了真正的内外部注意差异。基于此，实验二采用奖励线索范式，在线索阶段将高低奖励与位置信息建立联结，在测试阶段比较高低奖励联结的位置对测试任务的影响。实验二结果表明，相较于外部注意，奖励驱动注意捕获效应对内部注意的损害作用更大。由此可见，奖励联结的分心刺激对内部注意和外部注意都有捕获作用，并且对内部注意具有更强的干扰作用。

关键词　奖励，内部注意，外部注意，分心物，注意捕获

Comparison between reward-driven capture of internal and external attention

Jiejie Liao[1]　Yujie Chen[1]　Muxian Zhang[1]　Lei Mo[1] (corresponding author)

1 School of Psychology, South China Normal University, Guangzhou 510631

Abstract：According to different targets, human attention can be divided into two categories: external attention and internal attention, which refer to attention to external stimuli and attention to internal psychological representations respectively. Research on external attention employed the train-test paradigm and discovered the reward-driven attentional capture effect, that is, the stimulus bond with reward in training phase captured attention resources as a distractor in the subsequent testing phase. The reward-driven attention capture effect was confirmed by a large number of studies in the field of external attention, and provided a reliable solution to the problems of obesity and addiction in today's society. However, no studies have explored whether the reward-driven attention capture effect exists in internal attention. Also, if the reward-driven attentional capture effect exists for both internal and external attention, what is the difference between them? Based on these two questions, two experiments were conducted. The first experiment was designed to explore whether the reward-driven capture influenced internal attention resources. The second experiment compared it with the reward-driven capture effect on external resources. Experiment 1 adopted the training-test paradigm to establish the connection between high/low rewards and red/green colors in the training stage and compared the effects of red-green colors as distractors on internal and external attention in the test stage. The results of experiment 1 showed that the color associated with high reward has a greater disturbing effect on the test task as a distractor than the color associated with low reward, regardless of external or internal attention task. This result suggested that the reward-driven attention capture effect existed not only in external attention, but also in internal attention. In experiment 1, there was no reward-driven capture effect difference between internal and external attention tasks. The researchers believed that it might be that the color stimuli used to associate with high/low rewards were inevitably mixed with the effect of external attention, thus masking the real difference between internal and external attention. Based on this, experiment 2 used the reward-cue paradigm. The cue stage established a connection between high/low rewards with locations. In the test stage, comparisons for distracting effect of locations previously associated with high/low rewards were made between external and internal attention tasks. The results of experiment 2 showed that the reward-driven attentional capture effect had a greater damaging effect on internal attention than external attention. The distracting effect of reward association has a capture effect on both internal attention and external attention and has a stronger disturbing effect on internal attention.

Keywords：reward, internal attention, external attention, distractor, attentional capture

面孔中基于物体注意效应的争议：双矩形范式中 ERP 的证据

谢桐　付世敏（通讯作者）

广州大学教育学院心理系，脑与认知科学中心，广州，510006

摘 要　基于物体的注意（Object-based attention OBA）是一种视觉的选择性注意机制，它指注意选择物体为单位进行加工。在双矩形范式中，先前的研究表明各种不同的物体都可以引发 OBA 效应。然而，关于面孔能否引发 OBA 效应存在争议。现有研究主要采用行为实验方法探究此问题，然而，行为数据可能无法完全揭示面孔加工时间对 OBA 效应的影响。为了克服这一局限性并更全面地了解面孔对 OBA 机制的影响，本研究采用事件相关电位（ERP）技术重复之前的研究（Xie，Fu，& Mento，2022，2023），从电生理学角度提供面孔是否能引发 OBA 效应的证据。

本研究采用双矩形范式，在实验中呈现了面孔和非面孔物体。为了考虑注意的水平偏差，我们还引入了不呈现任何物体的基线条件。该条件旨在测量注意在水平和垂直方向上的差异，并利用这些差异来校正 OBA 效应。

在行为数据中，我们观察到非面孔物体中的 OBA 效应，但是在面孔中并未发现 OBA 效应。 根据 ERP 结果，我们确定了与 OBA 机制相关的两个成分：N1 和 P300。在面孔和非面孔物体中，物体内条件都引发

了更大 N1 的振幅。然而，P300 仅在非面孔物体中表现出更大的振幅，而在面孔中则没有出现差异。基于 ERP 结果，我们提出 N1 和 P300 成分反映了不桐时间上的 OBA 机制。在早期阶段，大脑有无法在面孔中提取社会信息。因此，无论是面孔还是非面孔物体都引发了相似的 N1 成分。在后续阶段中，物体得到充分加工，大脑将两个面孔知觉为一个整体，从而导致面孔和非面孔物体的 P300 成分出现差异。

总而言之，在双矩形范式中，面孔无法引发 OBA 效应，可能是因为对面孔的加工使得大脑将两个面孔知觉为同一整体。然而，在面孔被加工之前，面孔 OBA 效应可以通过 N1 成分表现出来。
关键词　基于物体的注意，面孔，双矩形范式，事件相关电位

Controversy of Face Involvement in Object-Based Attention: ERP Evidence from the Double-Rectangle Paradigm

Tong Xie　Shimin Fu*

Department of Psychology and Center for Brain and Cognitive Sciences, School of Education, Guangzhou University, Guangzhou 510006, China

Abstract： Object-based attention (OBA) is a specific type of visual selective attention mechanism where attentional resources are allocated based on an object as a cohesive unit. Numerous studies using the double-rectangle paradigm have consistently demonstrated the presence of the OBA effect in various objects. However, the involvement of faces in the OBA effect has sparked controversy. Note that the existing studies investigating the OBA effect in faces primarily rely on behavioral indicators, which may not fully capture the temporal dynamics of face processing and its impact on the OBA effect. To address this limitation and gain a more comprehensive understanding of how faces affect object-based mechanisms, this study aimed to replicate our previous studies (Xie, Fu, & Mento, 2022, 2023) using the event-related potential (ERP) technique, providing electrophysiological evidence to determine whether faces can elicit the OBA effect.

The double-rectangle paradigm was utilized in this study, wherein two rectangles were replaced by either two different human faces or non-face objects. To account for potential confounding factors of horizontal bias, a baseline condition was included in which no objects or faces were presented. This condition aimed to measure the horizontal and vertical attentional engagements and utilize their differences to correct for the OBA effect.

In behavioral data, we observed a significant OBA effect in non-face objects. However, for faces, no evidence of the OBA effect was found. Regarding the ERP results, two components were identified as being related to the OBA mechanism. The N1 component showed a larger amplitude in the within-object than between-object conditions, irrespective of whether faces or non-face objects were presented. However, the P300 component exhibited a larger amplitude exclusively in non-face objects. Based on the ERP results, we propose that the N1 and P3 components reflect the object-based mechanism at different time courses, thereby determining whether the OBA effect can be elicited by an object. During the early stages of processing, our brain has limited time to extract social information from faces. Consequently, both faces and non-face objects elicit similar N1 components regarding the object-based mechanism. However, as the processing of object content unfolds in the later stages, our brain perceives the two faces as a unified whole. As a result, the P3 component exhibits differences between faces and non-face objects.

In summary, faces can not elicit the OBA effect in the double-rectangle may be attributed to the brain perceiving two faces as a unified whole. Before faces are processed, the OBA effect in faces can be revealed by the larger N1.

Keywords: object-based attention, faces, double-rectangle paradigm, ERP

一天内脑功能活动的重测信度：基于脑血流的研究

郭博文[1 2]　毛天欣[1 2]　饶恒毅[1 2]（通讯作者）

1 脑机协同信息行为教育部和上海市重点实验室，上海，201620

2 上海外国语大学国际工商管理学院，上海，201620，hengyi@gmail.com

摘 要　动脉自旋标记(Arterial Spin Labeled, ASL)灌注磁共振成像越来越多地用于评估健康和临床人群的局部脑活动和脑血管功能。ASL 灌注成像通过对静息态或任务执行期间的绝对脑血流量(cerebral blood flow, CBF)进行测量，提供了大脑局部活动的定量指标。以往的研究探讨了静息态和任务态以及任务引发的脑血流变化量在不同天的重测信度，然而，人类的行为和神经活动受到昼夜节律和稳态睡眠压力的调控，一天内的重测信度如何尚不清楚。本研究采用 ASL 灌注成像扫描方法，测量了 38 名健康被试在一天中六个时间点（8:00、10:00、13:00、15:00、18:00 和 20:00）静息态和精神运动警戒任务(Psychomotor Vigilance Test, PVT)中的脑血流。行为结果显示，相比于以往研究，一天内的重测信度较差，晚上 20：00 的平均重测信度相比于其它时刻明显下降，且重测信度随着测量时间间隔呈现整体下降的趋势。神经层面上，对于静息态和任务态的绝对脑血流，灰质、白质及大部分任务相关脑区和脑网络在一天内均表现出很高的重测信度。而任务引发的脑血流变化量则在各脑区和脑网络中表现出很差的重测信度。对于各个时刻点的进一步分析发现，相比于灰质，白质随时间点的波动较小。此外，对于静息态和任务态的绝对脑血流，灰质、任务激活脑区以及大部分脑网络在晚上 20：00 的平均重测信度相比其它时间点显著降低，且重测信度随测量的间隔时间呈现整体下降的趋势，但任务引发的脑血流变化量则随时间点及测量时间间隔没有显示出一致的变化规律。本研究对功能磁共振研究的可重复性具有一定的启发意义，表明测量时间早晚是影响功能磁共振领域可重复性的重要因素，未来的功能磁共振研究应尽量避免在晚上进行扫描，以减小测量时间对其可重复性的影响。

关键词　节律，脑血流，重测信度，磁共振成像

Test-retest reliability of cerebral blood flow for assessing brain function in a day

Bowen Guo[1 2], Tianxin Mao[1 2], Hengyi Rao[1 2] (Corresponding Author)

1 Key Laboratory of Brain-Machine Intelligence for Information Behavior (Ministry of Education and Shanghai), Shanghai, 201620

2 School of Business and Management, Shanghai International Studies University, Shanghai, 201620, hengyi@gmail.com

Abstract: Arterial spin labeled (ASL) perfusion magnetic resonance imaging (MRI) is increasingly used to assess regional brain activity and cerebrovascular function in both healthy and clinical populations. ASL perfusion imaging provides a quantitative measure of regional brain activity by determining absolute cerebral blood flow (CBF) values at a resting state or during task performance. Previous studies have explored the test-retest reliability of resting and task-state and task-induced cerebral blood flow across days; however, human behavior and neural

activity are modulated by circadian rhythms and homeostatic sleep pressure, in this case how is the test-retest reliability in a single day is unclear. To address this gap, we conducted a study with 38 healthy participants, quantifying CBF during at resting-state and a simple and reliable psychomotor vigilance test (PVT) at six fixed times (8:00 h, 10:00 h, 13:00 h, 15:00 h, 18:00 h, and 20:00 h) by ASL perfusion MRI. Behavioral results showed worse test-retest reliability in the day compared to other studies, with a decrease in mean test-retest reliability at 20:00 pm, and an overall trend of decreasing with scan intervals. Imaging results showed high test-retest reliabilities for absolute CBF in both resting and task-state in gray matter, white matter, and task-related brain regions and brain networks in the day. However, task-induced CBF changes showed poor test-retest reliability across brain regions and networks. Further analyses revealed that white matter showed less fluctuations with time points compared to gray matter. Additionally, the average test-retest reliability of gray matter, task-related brain regions, and most of the brain networks at 20:00 PM were significantly lower compared with other time points for absolute CBF in resting and task-state, and the test-retest reliability showed an overall decreasing trend with the scan intervals. However, task-induced CBF changes did not show consistent patterns with the time points and the scan intervals. This study also has some heuristic significance for the repeatability of functional magnetic resonance, indicating that time of day may be an important factor affecting the reproducibility of functional magnetic resonance, and future magnetic resonance research should try to avoid scanning at night to minimize the effect of time on its reproducibility.

Keywords：circadian rhythmicity, CBF, test-retest reliability, magnetic resonance imaging

从儿童到成年时期神经灵活性的功能分化

黄子懿　尹大志（通讯作者）

华东师范大学心理与认知科学学院，上海，200062, 通讯作者 E-mail（dzyin@psy.ecnu.edu.cn）

摘 要　人类大脑的功能组织可以灵活地重组以适应时刻变化的环境需求，即使在不做任务时也如此。大脑各个功能系统表现出不同程度的神经灵活性（NF），但是我们对 NF 的功能组织是如何发展、又是如何分化的知之甚少。为此，我们将研究 NF 在全脑和功能系统水平上的发展与功能分化以及它们与智商（IQ）的关系，使用 Consortium for Reliability and Reproducibility（CoRR）NYU2 公开数据库 41 名儿童、39 名青少年和 49 名成人的静息态功能磁共振成像数据。我们将大脑分为 200 个皮层脑区和 32 个皮层下脑区，组成 7 个皮层网络和 1 个皮层下网络，借助滑动时间窗技术（窗长 44 秒）建立动态功能连接矩阵，保留每个窗内最强的 3 条连接。我们将 NF 定义为每个脑区的功能连接模式在时间上的复杂性（香农熵）。我们对三组被试的 NF 进行方差分析（ANOVA）和事后检验，并对有显著组间差异的系统建立年龄的线性和二次项回归模型。为研究 NF 的功能分化，我们将功能系统内的分化定义为该系统 NF 分布的香农熵，熵越大，分化程度越高；我们将功能系统间的分化定义为两个系统 NF 分布的生态位重叠（NIO，一项生态学指标），重叠越小表示距离越远，分化程度越高。我们同样对功能分化指标进行 ANOVA、事后检验和回归分析，并对各项指标与 IQ 的关系进行回归分析。结果表明：（1）全脑的 NF 随年龄线性增加（$p = 0.004$），主要由背侧注意网络（DAN）($p < 0.001$)和皮层下网络（SUB）($p < 0.001$)驱动；（2）额顶网络（FPN）NF 分布的熵从儿童到成年初期随年龄线性增加（$p = 0.003$)；（3）功能系统间平均 NIO 随年龄线性降低（$p = 0.03$），SUB-感觉运动网络（SMN）的 NIO 随年龄线性降低（$p < 0.001$)，边缘网络（LIM）-FPN 的 NIO 从儿童到成年初期随年龄非线性地降低（$p = 0.02$）；（4）默认网络（DMN）的 NF 均值与 IQ 呈倒 U 型关系（$p = 0.01$），DMN NF 分布的熵与 IQ 正相关（$p = 0.03$），DMN-FPN 的 NIO 与 IQ 负相关（$p = 0.05$），SMN-DAN 的 NIO 与 IQ 呈倒 U 型关系（$p = 0.02$）。我们的研究表明从儿童到成年时期大脑的灵活性逐步增加，同时出现系统内和系统间的功能分化，并且灵活性和功能分化与 IQ 有关。

关键词　神经灵活性，大脑发育，功能分化，静息态功能磁共振成像，智商

Functional differentiation of neural flexibility from childhood to adulthood

Ziyi Huang and Dazhi Yin*
School of Psychology and Cognitive Science, East China Normal University, 200062, Shanghai

Abstract：Functional brain organization can flexibly reconfigure in response to time-varying demands from the environment even at rest. Numerous studies have consistently reported a heterogeneous distribution of neural flexibility (NF) across different functional systems, however, how the functional organization of NF evolves and differentiates during development remains largely unknown. To address this, we investigated the development and differentiation of NF at the whole-brain and system levels and their relationship with IQ, using resting-state functional MRI data of 41 children, 39 adolescents, and 49 adults from publicly available datasets NYU2 in Consortium for Reliability and Reproducibility (CoRR). The brain was divided into 200 cortical and 32 subcortical regions that were grouped into 7 cortical and 1 subcortical networks. Applying the sliding-window technique (window length = 44s), we built dynamic functional connectivity matrices and reserved the strongest 3 connections for each window. NF was quantified as the complexity (Shannon entropy) of the functional connectivity profiles across temporal windows of each region. We conducted an analysis of variance (ANOVA) and then a post-hoc analysis among the three groups, after that we estimated linear and quadratic regression models for age effects. To investigate the functional differentiation of NF during development, we considered the entropy of flexibility distribution of each system as within-system differentiation. The larger entropy, the higher degree of within-system differentiation. We used niche overlap (NIO, a measure from ecological research) of flexibility distributions between two systems to define between-system differentiation. The smaller overlap, the greater distance and the higher degree of differentiation between the two systems. ANOVA, post-hoc, and regression analyses were also conducted on metrics of functional differentiation, and the relationship between IQ and all the metrics was examined using regression analyses. We found that (1) NF of the whole brain linearly increased during development (p = 0.004), mainly driven by dorsal attention network (DAN) (p < 0.001) and subcortical network (SUB) (p < 0.001); (2) the entropy of flexibility distribution of fronto-parietal control network (FPN) showed linear increase from childhood to the early adulthood (p = 0.003); (3) the mean NIO between each two functional systems linearly decreased with age (p = 0.03), NIO between SUB and sensorimotor network (SMN) linearly decreased with age (p < 0.001), and NIO between limbic network (LIM) and FPN nonlinearly decreased from childhood to the early adulthood (p = 0.02); (4) the mean NF of default mode network (DMN) and IQ showed an inverted-U shape relationship (p = 0.01), the entropy of flexibility distribution of DMN was positively correlated with IQ (p = 0.03), NIO between DMN and FPN was negatively correlated with IQ (p = 0.05), and NIO between SMN-DAN and IQ showed an inverted-U shape relationship (p = 0.02). Our study demonstrated that the brain is increasingly flexible from childhood to adulthood, the functional differentiation of neural flexibility occurs at both within- and between-system levels, and flexibility and functional differentiation are associated with IQ.

Keywords：neural flexibility, brain development, functional differentiation, resting-state fMRI, IQ

语音一致性调节汉字加工中的长时字形启动效应

陈怡彤[1]　张岑[2]　贺文惠[2]　魏硕池[2]　邹坤宇[2]　李兴珊[3]　赵丽波[2]（通讯作者）

1 浙江大学心理与行为科学系，杭州，310012
2 北京航空航天大学心理系，北京，100191
3 中国科学院心理研究所，北京，100101
libozhao@buaa.edu.cn

摘 要　长时字形启动效应指的是加工某个字（启动项）的经验对之后加工其它与其字形相似的字（目标项）所产生的影响。探讨长时字形启动效应的认知机制对于理解语言加工和语言学习之间的交互作用具有重要的理论意义。已有研究在长时字形启动效应的方向上尚未取得一致发现，存在促进效应、抑制效应和没有效应三种截然相反的结果，长时字形启动效应是否稳定存在也因而面临着争议。基于联结主义的理论框架，我们提出：长时字形启动效应可能受到启动词和目标词之间语音一致性的调节，如果这项调节因素得到控制，效应就会稳定出现。本研究以汉字及其声旁作为启动词和目标词，通过三个不同任务的实验，我们发现：命名任务中，启动词和目标词语音一致时，命名启动词会促进后续对目标词的命名，即出现促进的长时字形启动效应；启动词和目标词语音不一致时，则出现抑制的长时字形启动效应。实验结果支持了联结主义的观点。本研究的发现有助于证实长时字形启动效应的可靠性、稳定性及普遍性，并揭示其潜在的机制，同时也为语言加工与语言学习之间的相互作用提出了未来的研究方向。

关键词　长时字形启动，语音一致性，词汇加工，词汇学习，联结主义

The Phonological Congruency Modulated Long-Term Form Priming of Chinese Characters

Yitong Chen[1]　Cen Zhang[2]　Wenhui He[2]
Shuochi Wei[2]　Kunyu Zou[2]
Xingshan Li[3]　Libo Zhao[2]
1 Department of Psychology and Behavioral Sciences, Zhejiang University, Hangzhou, 310012, China
2 Department of Psychology, Beihang University, Beijing, 100191, China
3 Key Laboratory of Behavioral Science, Institute of Psychology, Chinese Academy of Sciences, Beijing, 100101, China

Abstract：Elucidating the interaction between lexical processing and word learning is essential for a complete understanding of the underlying mechanisms of each of them. Long-term priming for words reflects an interplay between lexical processing and word learning. Although robust long-term priming effects have been found between two occurrences of the same word and between semantically similar words, it remains unclear whether long-term priming between orthographically similar words (i.e., long-term form priming) is a reliable effect. Following the theoretical analysis based on the connectionist framework, we articulated the possibility that long-term form priming might be modulated by the phonological congruency between the prime and target words, and that if this modulator was under control, reliable effects of long-term form priming would emerge. However, this hypothesis has not been adequately tested empirically. The present study tested this hypothesis by using Chinese phonograms and the phonetic radicals embedded in them as the prime and target items. In three experiments that varied in the types of stimuli and testing tasks, we consistently found that when the prime and target had the same phonology, naming the prime facilitated later processing of the target, while when they had different phonologies, the priming effect was inhibitory. These observations were consistent with the connectionist account of long-term priming for words. Our finding helped confirm the reliability, generalizability and robustness of long-term form priming and informed its underlying mechanisms, and suggested promising future directions on

the interactions between lexical processing and word learning.

Keywords：long-term form priming, phonological congruency, connectionist, lexical processing, word learning

焦点解决团体辅导对网瘾大学生注意网络的干预—基于 ERPs 的证据

摘 要 探究针对大学生网络成瘾的改善方法具有十分重要的临床价值。本研究以“以现在和未来为导向”的焦点解决短期疗法（Solution-Focused Brief Therapy, SFBT）为理论核心，以团体辅导的形式进行干预，结合行为及脑电技术，探讨：1）在行为层面通过干预改善网络成瘾大学生行为表现和注意网络功能；2）在电生理层面进一步探讨网络成瘾大学生干预后的注意网络神经活动变化。结果发现：1）SFBT 团辅改善网络成瘾分数与执行网络功能，而注意警觉网络和注意定向网络没有明显差异；2）SFBT 团辅干预可以改善个体注意执行网络的神经活动，提高个体将注意资源分配于处理冲突和干扰信息的能力；3）行为表现越差的个体，在完成一致目标时所产生的 P3 波幅越大。本研究从行为和神经生理层面较为全面地探讨焦点解决团体辅导对网络成瘾大学生干预效果，发现焦点解决团体辅导可以有效改善网瘾大学生的网瘾相关症状表现，并且进一步提高注意执行网络功能，丰富了网络成瘾大学生的注意网络神经基础的研究，为网络成瘾的临床干预提供了坚实地理论依据。

关键词 网络成瘾，焦点解决，团体辅导，注意网络，干预，事件相关电位（ERPs）

自上而下和自下而上控制在新颖性加工中的作用

李芊芊[1] 谷传华[1] 周宗奎[1]（通讯作者）

1 青少年网络心理与行为教育部重点实验室，华中师范大学心理学院，武汉，430079，zhouzk@ccnu.edu.cn

摘 要 独创性的观点意味着它是新的、不寻常的、新颖的和出乎意料的。研究证明新颖性因素会引起执行系统更多的激活，这个系统负责冲突检测和解决的过程。然而，有关执行控制在新颖性加工中的作用及神经机制的研究较少。为了探究认知控制是否以及如何参与新颖性观点的加工，本研究采用了 AX-CPT 范式，将刺激材料从字母替换为中文短语，并使用脑电技术来考察认知控制的作用。实验采用创造性问题的解决方案作为探针刺激，包括新颖和常见的观点。“X”探针代表指定的某个解决方案，而其他解决方案则作为“Y”探针。对于线索刺激，“A”线索由能够概括创造性问题的短语表示，而“B”线索代表与该问题无关的其他短语。本研究采用被试内设计，新颖和常见条件在不同的 block 之间平衡。反应时和错误率作为行为指标，而线索 P3、N2、探针 P3 和额中线 theta-ERS 作为大脑激活的指标。实验结果表明：相比于常见条件，新颖条件下的反应时更长，错误率更低。无论在新颖还是常见条件下，线索 P3 效应都显著。相比于常见条件，新颖条件下 AY 试次诱发的 N2 波幅更大，而探针 P3 波幅更小。此外，额中线 theta-ERS 的结果也发现了新颖条件下与 AY 试次相关的更大的 theta-ERS。可以得出以下结论：新颖和常见观点的加工都涉及自上而下的控制。与常见观点的加工相比，在加工新颖观点时冲突监测增加，而反应抑制减少。这提高了对新颖观点信息的注意，使其更容易被后续编码和加工。因此，新颖观点加工不仅包含自上而下控制，还涉及自下而上的控制。

关键词 认知控制，自上而下控制，自下而上控制，新颖性加工

The Role of Top-Down and Bottom-Up Control in Novelty Processing

Qianqian Li, Chuanhua Gu, Zongkui Zhou

Key Laboratory of Adolescent Cyberpsychology and Behavior, Ministry of Education, School of

Psychology, Central China Normal University, Wuhan, 430079

Abstract：An original idea means it is new, unusual, novel and unexpected. Novelty factors have been proven to lead to more activation in the executive system, which is responsible for the process of conflict detection and resolution. However, there is little research on the role and neural mechanisms of executive control in novelty processing. In order to find out whether and how the processing of novel ideas recruits cognitive control, this study employed the AX-CPT paradigm, replacing the stimulus material from letters to Chinese phrases, and using EEG technology to examine the role of cognitive control. In the experiment, probe stimulus were solutions to given creative problems, including novel and common ideas. “X” probes were represented by the specified solutions, while other solutions were served as “Y” probes. For cue stimulus, “A” cues were represented by phrases summarizing creative problems, while “B” cues were other phrases that unrelated to given problems. In a within-subjects design, novel and common conditions are balanced between blocks. The reaction time and error rate are used as behavioral indicators, and cue-P3, N2, probe-P3, and FM-theta-ERS are served as indicators of brain activation. The results showed that compared to the common condition, the reaction time is longer and the error rate is lower in the novel condition. The cue-P3 effect is significant under both novel and common condition. In the novel condition, the N2 amplitude induced by AY trials is larger, while the probe-P3 amplitude is smaller compared to the common condition. Additionally, the results of FM-theta-ERS also revealed a larger theta-ERS related to AY trials in the novel condition. The results indicated that both the processing of novel and common ideas involves top-down control, and compared to processing common ideas, conflict detection increases while response inhibition decreases when processing novel ideas. This enhances attention to the information of novel ideas and makes it easier to be subsequently encoded and processed. Consequently, processing novel ideas not only contains top-down control, but also involves bottom-up control.

Keywords：Cognitive control, Top-down control, Bottom-up control, Novelty processing

4.6 博士生论坛—发展与教育心理学

Relationship between parental school involvement and its barriers: Based on latent class and correspondence analyses

Abstract：Parental school involvement is critical for students’ academic and educational success. Few studies have explored the relationship between parental school involvement and its barriers with latent class and correspondence analyses, which visually present the relationship between the two variables. In this study, the latent class analysis revealed sub-populations of parental school involvement and its barriers. The correspondence analysis demonstrated the relationship between the classes of both parental school involvement and its barriers. Data were obtained from parents of primary (N = 628) and secondary (N = 679) school students in China. The results showed: (1) six distinct classes of parental school involvement, namely the High Involvement in Child’s Things, All High Involvement, High Initiative Involvement, High Passive Involvement, Medium Involvement, and Low Involvement classes; (2) five classes of barriers to parental school involvement, namely the High Work-Transportation, High Work, Medium Personal, High Transportation, and None Barriers classes; (3) a visual pattern of the relationship between six classes of parental school involvement and five classes of barriers to parental school involvement. Specifically, the High Involvement in Child’s Things, All High Involvement, and High Initiative Involvement classes were closer to the None Barriers class; Medium Involvement was related to

High Work Barriers; Low Involvement to Medium Personal Barriers; and High Passive Involvement to High Transportation Barriers. This study clarifies relationships between the latent classes of parental involvement in school and the latent classes of barriers to involvement, which support the reformulated explanatory model of barriers to parental involvement in education.

***Keywords*：** Parental school involvement, Barriers to parental school involvement, Latent class analysis, Correspondence analysis

多重慢性应激对急性应激反应的累积和性别分化效应:

基于进化视角的启示

刘念琪[1] 陈建文[1]（通讯作者）

1 华中科技大学教育科学研究院心理所，武汉，430074

通讯作者 E-mail：chenjianwen@hust.edu.cn

摘 要 关于不同类型的慢性应激对急性应激源反应的影响的文献很少。本项全国性的横断面调查时间为中国从“清零”政策调整到“新冠放开”政策一周左右，即于 2022 年 12 月 16 日至 22 日进行。在控制人口统计学、社会经济变量和创伤事件经历后，采用多元线性回归模型，分别验证不同类型的慢性压力经历对急性压力源的心理、生理和行为反应的单独及累积效应。感知压力和性别被列为慢性压力与急性压力反应之间的重要影响变量。本研究共纳入 3147 名被试参与分析，其中 77.2%为女性。结果表明，多重慢性压力对急性压力的心理反应（$F = 12.387$, $P < 0.001$，偏$\eta2 = 0.056$）和生理反应（$F = 12.929$, $P < 0.001$, partial $\eta2 = 0.059$）具有累积效应。感知压力部分中介了慢性压力对急性压力反应的影响（间接效应占总效应的 20.54%）。性别调节了情感照顾类慢性压力对急性压力生理反应的影响（$P < 0.05$, 95% CI = 0.008 ~ 0.552）。本研究证实了多重慢性压力对急性压力反应的累积效应，支持了压力源对生物体“磨损”效应的进化观点。性别分化效应表明，在人际关怀的慢性压力下，女性对急性压力的反应比男性更强烈，这从进化的角度支持了性选择理论。

关键词 新冠政策调整，清零政策，新冠放开，慢性压力，急性压力反应，感知压力，性别差异，进化

Cumulative and sex-differentiated effects of multiple chronic stresses on acute stress responses:

Implications from an evolutionary perspective

Nianqi Liu[1], Jianwen Chen[1], * (Corresponding Author)

1 Faculty of Psychology, Institute of Educational Science, Huazhong University of Science and Technology, Wuhan, Hubei Province, 430074

* Email: chenjianwen@hust.edu.cn

***Abstract*：** There is a scarcity of literature on the impact of different types of chronic stress on responses to an acute stressor. The nationwide cross-sectional study was conducted on December 16-22, 2022, around one week after the policy adjustment from “zero-COVID” to “living-with-COVID” in China. After controlling for demographics, socioeconomic variables, and traumatic events experiences, the multiple linear regression models

were used to verify the effects of different types of ongoing chronic stress on the psychological, physiological, and behavioral acute stress responses, with perceived stress and sex considered as influencing factors. A total of 3147 participants, with 77.2% women, were involved in the analyses. The results show that there were cumulative effects of multiple chronic stresses on psychological ($F = 12.387$, $P < 0.001$, partial $\eta2 = 0.056$) and physiological ($F = 12.929$, $P < 0.001$, partial $\eta2 = 0.059$) acute stress responses, with perceived stress served as a mediator between chronic stress and acute stress response (20.54% of indirect effect). There was moderating effect of sex in the effect of chronic sympathetic-caregiving stress on acute physiological stress response ($P < 0.05$, 95% CI = 0.008~0.552). The study verified the cumulative effects of multiple chronic stresses on the responses to acute stressors, supporting the evolutionary view of the "wear and tear" effect of stressors on organisms. The sex-differentiated effect indicates that women respond more strongly to the acute stress under the chronic stress of interpersonal care than men, which sides the sexual selection theory from an evolutionary perspective.

***Keywords*：** policy adjustment, zero-COVID policy, living-with-COVID policy, chronic stress, acute stress response, perceived stress, sex difference, evolution

依恋调节情绪冲突加工中的情绪-认知平衡

张孟可[1] 李松[1] 刘欣怡[1] 李晴[1] 陈旭[1,*]

1 西南大学心理学部，重庆，400715

* 西南大学心理学部，重庆，400715，chenxu@swu.edu.cn

摘 要 对情绪冲突进行快速准确的识别并加以控制有助于个体的情绪调节和人际适应，这涉及情绪和认知功能之间的交互。依恋的功能神经解剖模型(NAMA)认为，成人依恋风格的个体差异在调节情感评估和认知控制之间的平衡方面起着关键作用。然而，目前关于依恋风格(人格特质)和依恋情境启动(情境因素)如何调节情绪冲突加工的具体特征尚不清楚。因此，本研究设计了 3 个行为实验来探讨依恋相关的认知-情感模式及其在情绪冲突加工中的表现。实验 1（N = 138）采用情绪性的颜色-词汇 Stroop 任务，结果发现依恋回避与（依恋相关的）积极词汇产生的干扰效应减少有关，表明高依恋回避个体倾向采用认知控制，并抑制对情绪信息的注意偏向，表现出相对较强的抑制控制能力。实验 2（N = 151）通过情绪面孔-词汇 Stroop 任务来评估个体的情绪冲突控制能力。结果显示，依恋焦虑分数正向预测了（依恋相关/无关的）积极词汇产生的干扰效应，表明高依恋焦虑个体在面对积极干扰物时惯用情感评估而非认知控制策略，表现出相对较差的情绪冲突控制能力。另外，实验 3（N = 143）采用了相同的情绪冲突范式并结合回忆书写任务，探究依恋情境启动对个体情绪冲突加工表现的影响，以及依恋风格在其中的调节作用。结果显示，与依恋安全启动和中性控制组相比，依恋威胁启动降低了个体的情绪干扰效应。此外，消极情绪的唤醒在依恋威胁启动和情绪干扰效应之间起到了部分中介的作用。更重要的是，依恋焦虑调节了依恋安全启动与情绪干扰效应之间的关系，即只有在高依恋焦虑组被试中，依恋安全启动才能正向预测情绪干扰效应。这些发现强调了依恋风格与依恋情境启动共同影响个体在情绪冲突加工中的情绪-认知平衡，进而影响其行为表现。综上，本研究认为情绪冲突加工中的情绪-认知平衡可能受到个体的依恋风格、依恋情境启动和二者交互的调节，这进一步拓展了 NAMA，同时也凸显了依恋对社会信息加工的重要性。

关键词 情绪冲突，成人依恋风格，依恋情境启动，情感评估，认知控制

The role of attachment in adjusting emotional-cognitive balance during emotional conflict processing

Mengke Zhang[1], Song Li[1], Xinyi Liu[1], Qing Li[1], Xu Chen[1,*]
[1] Faculty of Psychology, Southwest University, Chongqing 400715, China
* Corresponding author
Xu Chen
Faculty of Psychology, Southwest University, No.2 Tiansheng Street, Beibei District, Chongqing 400715, China
E-mail: chenxu@swu.edu.cn

Abstract： The effective identification and control of emotional conflict contribute to individuals' emotional regulation and interpersonal adaptation, involving the interaction between emotion and cognition. The functional neuro-anatomical model of human attachment (NAMA) proposed that individual differences in adult attachment styles play a key role in adjusting the balance between affective evaluation and cognitive control. However, little is known about the specific characteristics of emotional conflict processing that are modulated by attachment styles and attachment (in)security priming. Accordingly, the present study adopted three behavioral experiments to investigate attachment-related cognitive-affective patterns in emotional conflict processing. In Experiment 1 (N = 138), an emotional color-word Stroop task was used and it revealed that attachment avoidance was associated with reductions in emotional Stroop interference for (attachment-related) positive words, suggesting that individuals with high attachment avoidance were related to a predominant use of cognitive control and suppression of emotional attentional biases, indicating relatively strong inhibitory control ability. In Experiment 2 (N = 151), participants performed an emotional face-word Stroop task to assess their ability to emotional conflict control. The results showed that attachment anxiety score predicted greater Stroop interference induced by (non/attachment-related) positive words, indicating that individuals with high attachment anxiety habitually use emotional evaluation rather than cognitive control when facing positive distracters, leading to relatively worse performance in emotional conflict control. Furthermore, Experiment 3 (N = 143) employed the same paradigm combining a recall writing task to explore the effects of attachment security or threat priming on emotional conflict processing, as well as the moderating role of attachment styles in this association. The results of experiment 3 revealed that attachment threat priming reduced the emotional interference effect compared to attachment security and neutral control conditions. Furthermore, the arousal of negative emotion played a partial mediating role on the relationship between attachment threat priming and emotional interference effect. Crucially, attachment anxiety moderated the relationship between attachment security priming and emotional interference effect, as attachment security priming could predict individuals' emotional interference effects only in participants with high attachment anxiety. This emphasizes the attachment-related person-situation interaction on emotional-cognitive balance during emotional conflict processing. In summary, these findings have expanded the NAMA and provided corresponding evidence that the emotional-cognitive balance during emotional conflict processing is modulated by attachment styles, attachment (in)security priming, and their interaction, which highlights the contribution of attachment to social information processing.

Keywords： Emotional conflict, Adult attachment styles, Attachment (in)security priming, Affective evaluation, Cognitive control

5-8 岁儿童对领导者权利和责任的认知

王千[1]　陈逸菲[1]　李燕芳[1]（通讯作者）
1 北京师范大学中国基础教育质量监测协同创新中心，北京，100875,liyanfang@bnu.edu.cn

摘 要　领导-成员等级关系是社会等级关系中的一种重要形式，在我们的社会生活中无处不在。儿童和成人是如何认知领导者的呢？儿童和成人是将领导者认知为享有更多权利的个体还是承担更多责任的个体呢？为了回答这一问题，该研究设计了一个涉及资源分配和劳动贡献情境的群体合作情境。实验 1 发现，在资源分配情境中，5-8 岁的儿童和成人期望领导者（与组员相比）会获得更多的奖励；而在劳动贡献情境中，儿童和成人期望领导者（与组员相比）更多的劳动任务。这些发现表明，与组员相比，儿童和成人将领导者视为要承担更多责任同时也享有更多权利的个体。实验 2 进一步考察了“被选为领导者”和“拥有决策权”这两个领导者的关键特征在儿童和成人权利和责任归因中所起的作用。结果表明，“被选为领导者”在儿童和成人权利和责任的归因中起到了重要作用。决策权仅在 7-8 岁儿童对权利的归因，以及成人对责任和权利的归因中发挥了作用。
关键词　儿童，领导等级关系，社会认知

Children and Adults Hold Leaders as Both Responsible and Entitled

Wang Qian[1]　Chen Yifei[1]　Li Yanfang[1]
Collaborative Innovation Center of Assessment for Basic Education Quality Beijing Normal University, Beijing, 100875

Abstract：Leadership hierarchies are one of forms of social hierarchical relations, which are ubiquitous in our social lives. Little is known about how children perceive the leadership hierarchies with age within a Chinese cultural context. To address this question, we designed a group cooperation scenario involving a resources allocation situation and a labor contribution situation. Experiment 1 revealed that in resource allocation situation, 5- to 8-year-olds and adults expected leaders to take more resources from a joint pool than nonleaders; while, in labor contribution situation, children and adults expected leaders to undertake the additional tasks than nonleaders. These results provide evidence that children and adults construe leaders both as more responsible and entitled individuals, relative to nonleaders. In experiment 2, we further investigated how much being elected as a leader and having decision power- two key features of leaders manipulated in Experiment 1 - contributed to children’s and adults’ attribution of increased responsibility and entitlement. Results suggested that election as a leader played a robust role in both children’s and adults’ attribution of increased entitlement and responsibility. Meanwhile, decision power also plays a role in 7- to 8-year-olds’ attribution of increased entitlement and in adults’ increased attribution of responsibility and entitlement.
Keywords：Children, Leadership hierarchies, Social cognition

家庭风险与青少年抑郁的关系:心理韧性与学校联结的补偿与保护作用

夏艳雨[1]　陈小鹏[1]　李丹[1]（通讯作者）
1 上海师范大学心理学系，上海, 200234 通讯作者 E-mail（lidan501@126.com）

摘 要　家庭是青少年发展的核心社会化背景。在家庭中遇到的各种风险，如低社会经济地位、亲子分离、家庭冲突、无效教养等，均会严重威胁青少年心理健康发展。然而，并不是所有暴露在家庭风险下的青少年都会出现不适应的情况，保护因素以削弱原有风险破坏力，从而对处境不利的青少年提供补偿/保护机会。本研究考察了保护因素（心理韧性和学校联结）在家庭风险（社会经济风险、家庭关系风险、父母教养风险）与青少年抑郁纵向关系中的补偿与保护作用，以及保护因素的补偿与保护作用是否在城市和农村背景下有差异。经过为期一年追踪调查，本研究共计追踪到1270名中学生及其他们的父母，其中城市地区有789名中学生(M_{age}=15.35岁，SD=0.49)，男生占比48.5%；农村地区共计481名中学生(M_{age}=15.82岁，SD=1.18)，男生占比40.0%。在T1阶段，通过青少年和父母的自我报告获取了社会经济风险、养育风险和家庭关系风险，以及青少年报告T1阶段的抑郁和心理韧性水平。在T2阶段，青少年报告了T2抑郁水平和学校联结状况。结果发现：(1)城市地区父母教养风险、农村地区家庭关系风险能正向预测T2青少年抑郁；(2)心理韧性与学校联结对城市与农村地区T2青少年抑郁均显著负向预测，起到补偿作用；(3)在城市地区中，心理韧性在社会经济风险与抑郁关系中起保护-增进作用，学校联结在社会经济风险与抑郁的关系中起着保护-反应作用、在家庭关系风险与抑郁中起着保护-恒定作用。在农村地区中，心理韧性在父母教养风险与抑郁关系中起着保护-恒定作用；(4)心理韧性与学校联结在农村地区社会经济风险与抑郁关系中起着三重交互作用，即社会经济风险对低心理韧性青少年抑郁的正向预测在高学校联结中消失。研究结果为理解不同地区风险因素与保护因素如何交互影响青少年发展提供更深入的证据。
关键词　青少年，家庭风险，抑郁，心理韧性，学校联结

The Association Between Family Risk and Adolescent Depression: The Compensatory and Protective Roles of Psychological Resilience and School Connectedness

Xia Yanyu[1], Chen Xiaopeng[1], Li Dan[1](corresponding author)
(1.Department of Psychology, Shanghai Normal University, Shanghai, 200234)

***Abstract*:** Family is the central socialization context for adolescent development. Family risks, such as low family socioeconomic status, parent-child separation, family conflict, and ineffective parenting, have been found to threaten adolescent mental health development. Nonetheless, not all adolescents exposed to family risks experience maladjustment. Protective factors can provide compensatory/protective opportunities for disadvantaged adolescents by reducing the destructive power of the risks that are already present. The present study examined the compensatory and protective effects of psychological resilience and school connectedness in the longitudinal associations between multiple family risks (ie., socio-economic risk, family relationship risk, parenting risk) and depression in Chinese adolescents, and whether the moderating roles differed between rural and urban contexts. A total of 1,270 adolescents and their parents were followed up for one year in this study (789 from urban areas, M_{age}=15.35 years, 48.5% were male; 481 from rural areas, M_{age}=15.82 years, 40.0% were male). At T1, adolescents and parents self-reported family risks including socio-economic risk, parenting risk, and family relationship risk, while adolescents also reported their levels of depression and psychological resilience. At T2, only adolescent depression levels and school connectedness were reported. Results showed that (1) T1 urban parenting risk and rural family relationship risk positively predicted T2 depression, respectively. (2) Psychological resilience and school connectedness both negatively predicted T2 depression in both regions, suggesting a compensatory role; (3) For adolescents in the urban area, psychological resilience played a protective-enhancing role in the association between socio-economic risk and depression. School connectedness played a

protective-reactive role in the association between socio-economic risk and depression and a protective-stabilizing role in the association between family relationship risk and depression. For adolescents in the rural area, psychological resilience showed a protective-stabilizing role in the relationship between parenting risk and depression. (4) There was a significant three-way interaction between psychological resilience, school connectedness and socio-economic risk in predicting youth depression in rural over time, suggesting that the positive prediction of socio-economic risk on depression among adolescents with low psychological resilience would disappear at high school connectedness. The findings provide for a greater understanding of how family risk and protective factors interact across regions to influence adolescent development.
Keywords：adolescents, family risk, depression, psychological resilience, school connectedness

大学生问题性网络使用与抑郁之间的独特关系：一项交叉滞后网络分析

贾继超[1]　童薇[2]　方晓义[1]（通讯作者）　王芳宇[1]　冉恒月[3]　郭雨馨[1]

1 北京师范大学发展心理研究院，100875，通讯作者 E-mail（fangxy@bnu.edu.cn）

2 上海师范大学心理系，上海，200233

3. 浙江大学心理与行为科学系，浙江，310058

摘 要　问题性网络使用和抑郁是大学生中常见的两种心理病理学问题，常常伴随发生。然而，这两种心理病理学问题之间的路径关系尚存争议：去分化假说认为，问题性网络使用是抑郁的预测因子；而自我医药假说则认为抑郁是问题性网络使用的影响因素。相关的实证结果也并不一致。为解决这一问题，本研究拟采用网络视角在更精细的症状层面上估计问题性网络使用与抑郁之间的横断关系、纵向关系及纵向关系的变化。对 2420 名大学生（基线时平均年龄 = 18.35 岁，*SD* = 0.84；女生占 67%）为被试进行四次追踪，收集大学生从大一到大四每学年的问题性网络使用的症状（即*耐受症状*、*强迫性使用*、*戒断症状*、*人际和身体问题*和*时间管理问题*）和抑郁的症状（即*能量缺失*、*食欲下降*、*不恰当的负罪感*、*抑郁情绪*、*兴趣下降*、*睡眠障碍*、*精神激越*、*自杀意念*和*注意力不集中或犹豫不决*），构建四个横断网络和三个交叉滞后网络。总体而言，大一至大四的四个横断网络结果一致显示，*人际和身体问题*是连接问题性网络使用和抑郁的重要桥节点。此外，交叉滞后网络的结果显示，几乎所有的桥边线都是从问题性网络使用出发指向抑郁，支持了去分化假说。进一步分析交叉滞后网络中的桥节点发现，在 T1→T2 网络和 T2→T3 的网络中，*时间管理问题*是最具影响力的桥节点，它最能够预测下一时点的抑郁症状。而在 T3→T4 网络中，*耐受症状*是最具影响力的桥节点，它最能激活 T4 网络中的抑郁症状。整体而言，这些发现刻画了大学生问题性网络使用和抑郁在同时期的共病关系、纵向关系以及纵向关系的变化，揭示了在大学的不同阶段，连接问题性网络使用和抑郁的整体网络的中心症状，为发展和制定大学生心理健康干预方案提供了理论指导。
关键词　问题性网络使用，抑郁，交叉滞后网络分析，大学生

Unique Relationships Between Problematic Internet Use and Depression Across the College Years: A Cross-Lagged Panel Network Analysis

Jichao Jia[1] Wei Tong[2] Xiaoyi Fang[1] Fangyu Wang[1] Hengyue Ran[3] Yuxin Guo[1]

1 Institute of Developmental Psychology, Beijing Normal University, Beijing, 100875
2 Department of Psychology, Shanghai Normal University, Shanghai, 100875
3 Department of Psychology and Behavioral Sciences, Zhejiang University, Zhejiang, 310058

Abstract： Problematic internet use (PIU) and depression are common among college students and usually co-occur. However, models on the pathway to relationship between PIU and depression dispute greatly. The deindividuated hypothesis assumed that PIU are predictor of depression, while self-mediated hypothesis assumed depression are case of PIU. Existing empirical literature often treating the PIU and depression as two latent variables also yielded mixed results. To clarify the dynamic relationship between PIU and depression, the present study adopted the network perspective to estimate the contemporaneous co-occurring relationship and the directionality of the temporal relationships between them among college students on a more fine-grained level. A total of 2,420 college students (*M* age= 18.35, *SD* = 0.84; 68% girls) completed the four annual times of survey. PIU (i.e., *tolerance symptoms*, *compulsive use*, *withdrawal symptoms*, *interpersonal and physical problems* and *time management problems*) and depression (i.e., *loss of energy*, *decrease appetite*, *inappropriate guilt*, *depressed mood*, *diminished interest*, *sleep disturbance*, *psychomotor agitation*, *suicidal ideation* and *inattention or indecisiveness*) were measured at T1 to T4. Four contemporaneous networks and three cross-lagged panel networks were examined. Overall, the results of contemporaneous networks across T1 to T4 consistently indicated that the *Interpersonal and Physical Problems* is the influential bridging nodes connect PIU and depression. In addition, the results of cross-lagged panel networks supported the deindividuated hypothesis, as almost all bridge edges in these networks were directed from PIU to depression, not the other way around. Among the PIU nodes, *Time Management Problems* was the most contagious nodes connect depression symptoms at next time in both T1 → T2 network and T2 → T3 networks. *Tolerance Symptoms* was the most contagious nodes connect depression symptoms at T4 in T3 → T4 network. These findings demonstrate the contemporaneous comorbidity, the directionality of temporal relationships, and the changes of the temporal relationships between PIU and depression symptoms across colleges students, and revealed the potential influencers in different stage of college.

Keywords： problematic internet use, depression, cross-lagged panel network analysis, college students

依恋关系在代际共育家庭中女性抚养者自我控制与幼儿自我控制之间的中介作用：主客体互倚性分析

崔秀敏[1] 蔺秀云[2]（通讯作者）

1 北京师范大学未来教育学院，珠海，519087

2 北京师范大学发展心理研究院，北京，100875，linxy@bnu.edu.cn

摘 要　随着社会节奏的加快，祖辈-父辈共同养育第三代的育儿模式已成为当今我国社会的普遍抚养模式。然而，幼儿在祖辈和父辈抚养者面前的自我控制能力却不尽相同。研究表明，幼儿的自我控制能力对其今后的身心发展、入学准备、人际关系、社会能力及创造力等方面影响重大。本研究采用幼儿依恋量表、3-5 岁儿童自我控制父母版问卷、家长自我控制量表简版对深圳市 495 名平均年龄为 4.40 岁的幼儿的祖母与母亲进行施测，旨在探讨祖辈-父辈共同养育的三代家庭中，女性抚养者的自我控制与学龄前儿童的自我控制之间的关系，以及祖孙依恋、亲子依恋在其中的中介作用。结果发现：（1）母亲的自我控制可以通过祖孙依恋、亲子依恋而间接影响幼儿的自我控制，与此同时，祖母的自我控制也可以通过祖孙依恋、亲子依恋而间接影响幼儿的自我控制。（2）母亲和祖母的自我控制与亲子依恋、祖孙依恋存在显著的主效应和客体效应。（3）亲子依恋、祖孙依恋均对幼儿的自我控制有影响，祖孙依恋到祖母评价幼儿自我控制的效果显著高于亲子依恋到母亲评价幼儿自我控制的效果。通过将自我调节的代际传递模型和自我控制理论拓展到三代家庭，本研究揭示了母亲和祖母共育家庭中自我控制代际传递的机制以及母亲和祖母对幼儿的影响方式的差异，强调了将家庭视为相互依存的动态系统以及将代际照顾者之间的互动纳入儿童发展研究的重要性，可以为幼儿自我控制能力的提升与干预方案提供依据，针对性的为三代家庭提供帮助。

关键词 三代家庭，自我控制，依恋，代际传递，主客体互倚

The associations between maternal caregivers' self-control, attachment and preschool children's self-control in Chinese urban three-generation families: Test of actor, partner, and mediating effects

Xiumin Cui[1], Xiuyun Lin[2 *]

1 College of Education for the Future, Beijing Normal University at Zhuhai, Zhuhai 519087, China

2 Institute of Developmental Psychology, School of Psychology, Beijing Normal University, Beijing 100875, China

Abstract：In China, mother-grandmother co-parenting has emerged as one of the predominant parenting styles. Surprisingly, less is known about the impacts of dynamic interaction among subsystems on children in three-generation households. The current study examined how maternal caregivers' self-control specifically correlates with preschoolers' self-control and how caregiver-child attachment functions as a mediator in a mother-grandmother dyadic situation. A final sample of 495 mother-grandmother dyads in Southern China was recruited in this study. Mothers and grandmothers completed measures assessing caregivers' self-control, caregiver-child attachment, children's self-control and sociodemographic characteristics. The findings showed that both mothers' and grandmothers' self-control were indirectly linked to the child's self-control via the child's attachment to them and to their co-parents, implying that caregiver-child attachment played a major role in the intergenerational transfer of maternal caregivers' self-control. Significant actor and partner effects were obtained between mothers' and grandmothers' self-control and their kids' attachment to them. Additionally, the relationship

between grandmother-child attachment and the grandmother's report of child self-control was stronger than that between mother-child attachment and the mother's report of child self-control. By extending the intergenerational transmission model of self-regulation and self-control theory to three-generation families, the present results illustrated the mechanism of intergenerational transmission of self-control in mother-grandmother co-parenting families and the differences in influence modes of mothers and grandmothers on children. Further, the novel findings uncovered in this paper emphasize the importance of considering the family as an interdependent dynamic system and including dyadic interactions between intergenerational caregivers in studies of preschool children's development in three-generation households.

Keywords: three-generation families, maternal caregivers' self-control, children's self-control, attachment, intergenerational transmission

心理时间旅行中的积极偏向：基于个体与集体时间自我评价的证据

皮瑜[1]　张锋[2]（通讯作者）

1 山东师范大学心理学院，济南，250014

2 河南大学心理与行为研究所，开封，475004，通讯作者邮箱：zgfzhang@163.com

摘 要　心理时间旅行是指个体主观地将自我定位到曾经经历过的事件来重新体验自己的过去(情景记忆)，或者将自我定位到未来的某个事件预先体验自己的未来(情景预见)。时间自我评价是个体对过去、现在、未来的自我的诸多特性的认知和评价。本研究通过两个系列实验探讨了大学生的个体时间自我评价和集体时间自我评价。实验一 (N = 30) 采用基于社会比较的个体时间自我评价任务，实验二 (N = 23) 采用基于社会比较的个体时间自我评价任务，每个任务包括 3 个 block (过去、现在和未来)，每个 block 有两个阶段：首先启动被试的个体时间自我/集体时间自我，要求被试在两分钟之内描述五年前/现在/五年后的自己/中国人；然后进行词汇判断任务，让被试用积极和消极的人格形容词来评价过去、现在和未来的自己和他人/中国人和美国人。研究结果发现：(1) 实验一的被试均采用更多积极词、更少消极词来评价过去、现在和未来的个体自我，且个体自我评价在过去、现在和未来维度上存在积极递增效应。(2) 实验二的被试均采用更多积极词、更少消极词来评价过去、现在和未来的集体自我。这些结果表明，中国大学生的个体自我评价和集体自我评价均存在积极偏向，并具有跨时间的一致性。

关键词　个体时间自我评价，集体时间自我评价，时间自我参照范式，积极偏向

Positive Bias in Mental Time Travel: Evidence from Individual and Collective Time Self-evaluation

Pi Yu[1], Zhang Feng[2] (Corresponding Author)

1 School of Psychology, Shandong Normal University, Jinan 250014

2 Department of Psychology and Institute of Psychology and Behavior, Henan University, Kaifeng 475004, Email: zgfzhang@163.com

Abstract： Mental time travel refers to individuals subjectively re-experiencing their past by orienting the self to a past event (situational memory) or pre-experiencing their future by orienting the self to a future event (situational foresight). Temporal self-evaluation is the individual's perception and evaluation of the many characteristics of the past, present, and future selves. The present study aimed to investigate individual and collective time self-evaluations of university students through two series of experiments. Experiment 1 (N=30) used a social

comparison-based individual temporal self-evaluation task, and Experiment 2 (N=23) used a social comparison-based collective temporal self- evaluation task. Each task consisted of 3 blocks (past, present and future) with two phases per block: Participants' temporal selves were initiated by asking them to describe themselves/Chinese past/present/future within two minutes; then an adjective judgment task was conducted to explore individual temporal self-evaluation/collective temporal self-evaluation by asking them to evaluate themselves and others /Chinese and Americans' past, present, and future using positive and negative adjectives. The results showed that: (1) Participants in Experiment 1 all used more positive adjectives and fewer negative adjectives to evaluate the past, present, and future of their individual selves, and there was a positive incremental effect of individual self-evaluation on the past, present, and future dimensions. (2) Participants in Experiment 2 all used more positive adjectives and fewer negative adjectives to evaluate their collective selves in the past, present, and future. In conclusion, the results of the present study demonstrated that individual and collective self-evaluations were positively biased in the past, present, and future.

Keywords： individual temporal self-evaluation, collective temporal self-evaluation, temporal self-reference paradigm, positive bias

高依恋焦虑者会轻信他人吗?——来自行为与 ERP 的证据

鲍秀琴 张孟可 陈旭（通讯作者）
西南大学心理学部，重庆，400715
通讯作者 E-mail: chenxu@swu.edu.cn

摘 要 人际信任被称为社会发展的粘合剂，是指在人际交往中个体基于对他人的积极期待而甘愿将自己置于弱势地位的倾向。信任是个体对他人可信特征的认知思考与双方关系情感考量的混合体。个体是否信任某对象受其可信度与双方关系亲近度的影响。适当的信任有助于个体的社会化，不信任或轻信（脱离对方可信度而依赖与其关系亲近度所表现出的信任）他人均不利于个体的社会化乃至社会的和谐。依恋的神经整合模型认为信息加工依托的认知控制与情感评估系统的动态平衡状态受个体依恋风格的调节，高依恋焦虑者（高 AX）较高的亲近需求导致其依赖情感评估系统处理社会信息。对情感评估系统的依赖致使认知控制功能的妥协会让高依恋焦虑者的行为失调。在面对不同可信度与关系亲近度对象时，其是否会轻信高亲近者呢？然而，当前对依恋焦虑者人际信任的研究主要是在特质视角下开展，忽视了信任客体——对象特征的影响，导致目前尚不清楚依恋焦虑者的人际信任特征。本研究借助 ERP 技术记录 60 名被试在 2（依恋风格：高、低依恋焦虑者）×2（对象可信度：高、低可信度）×2（关系亲近度：朋友与陌生人）的混合设计中完成掷硬币任务（以个体相信对象关于硬币朝向的陈述作为其信任指标）时的脑电成分，以探究对象可信度与关系亲近度对依恋焦虑者人际信任决策的影响及决策时的时程特征，从而揭示其人际信任特征。行为结果表明，高 AX 不论对象可信度的高低，对朋友的信任高于陌生人；低依恋焦虑者（低 AX）在面对低可信对象时更信任朋友，面对高可信对象时其信任不存在关系亲疏远近的差异。电生理学结果显示，低可信对象诱发高 AX 较大的 P1（100-150ms），高可信陌生人比高可信朋友诱发其较短的 P2（150-230ms）潜伏期与更负的 N2（280-360ms），高低可信条件下朋友均比陌生人诱发其更正的 LPP（500-600ms），但对象诱发的晚期（700-800ms）LPP 波无差异；低可信陌生人比低可信朋友诱发低 AX 较短的 P2 潜伏期与更负的 N2，高可信朋友比低可信朋友与高可信陌生人诱发其更大的 LPP；PCA 分析发现，高低可信条件下朋友均诱发高低 AX 比陌生人更正的 LPP（454ms）。该研究说明，高 AX 会轻信高亲近者，对他们有着积极的期待，其信任决策过度依赖双方关系亲近度而忽视可信度特征，认知控制功能的妥协使得其不能有效地分辨对象间的差异且对他们有着稳定的情感价值投入。本研究拓展了依恋的神经整合模型在人际交往领域的应用，同时也进一步深化对依恋焦虑者人际信任对象特征依赖性的认识与理解。

关键词：人际信任，依恋焦虑，轻信，认知控制系统，情感评估系统，事件相关电位

Are individuals with high attachment anxiety credulous others?

Evidence from a behavioral and ERPs study

Bao Xiuqin, Zhang mengke, Chen Xu
Faculty of Psychology, Southwest University, Chongqing, 400715
Corresponding author E-mail: chenxu@swu.edu.cn

Abstract: Interpersonal trust is known as the adhesive of social development, which refers to the tendency of individuals in interpersonal communication to willingly place themselves in a disadvantaged position based on positive expectations of others. Trust is a blend of individuals' cognitive thinking about the trustworthy characteristics of others and their emotional consideration of the relationship between the two parties. Whether an individual trusts someone is influenced by both the perceived trustworthiness of the person and the closeness of the relationship between them. Appropriate trust is beneficial to an individual's socialization, while distrust or credulity trust (trust solely based on relationship closeness rather than the perceived trustworthiness of the other party) towards others is detrimental to both an individual's socialization and social harmony. The integrative neural model of attachment proposes that the dynamic balance between cognitive control and affective evaluation systems, which underlies information processing, is modulated by an individual's attachment style. High attachment anxiety individuals (high AX) with greater need for closeness rely more heavily on their affective evaluation system to process social information. The reliance on affective evaluation system at the expense of cognitive control functions can lead to behavioral dysregulation in individuals with high attachment anxiety. When faced with individuals of varying trustworthiness and relationship closeness, would they be more prone to indiscriminately trust those who are closer to them? However, previous research on interpersonal trust among attachment anxious individuals has primarily been conducted from a trait perspective, neglecting the influence of partners' characteristics, resulting in unclear interpersonal trust characteristics of attachment anxious individuals. This study employed ERP (event-related potential) technology to record the EEG components of 60 participants in a 2 (attachment style: high and low attachment anxiety) x 2 (trustworthiness of the partner: high and low trustworthiness) x 2 (relationship closeness: friends and strangers) mixed design during a coin-tossing task. The task involved using the individual's belief in the partner's statements about the coin's orientation as a measure of their trust. The aim was to investigate the influence of partner trustworthiness and relationship closeness on interpersonal trust decision-making in individuals with attachment anxiety, as well as the temporal characteristics of the decision-making process, in order to reveal their interpersonal trust characteristics. The behavioral results indicated that high AX individuals, regardless of the trustworthiness of the partner, exhibited higher levels of trust towards friends compared to strangers. On the other hand, low attachment anxiety individuals (low AX) showed greater trust towards friends when facing low trustworthy partners, while there were no differences in their trust levels based on relationship closeness when facing high trustworthy partners. The electrophysiological results revealed that low trustworthy partners elicited greater P1 (100-150ms) in high AX individuals. High trustworthy strangers elicited shorter P2 (150-230ms) latency and more negative N2 (280-360ms) compared to high trustworthy friends. Friends, under both high and low trustworthy conditions, elicited more positive late positive potential (LPP) in the range of 500-600ms compared to strangers. However, there were no differences in the LPP wave between partners during the late stage (700-800ms). Low trustworthy strangers elicited shorter P2 latency and more negative N2 in low AX individuals compared to low trustworthy friends. High trustworthy friends elicited larger LPP compared to both low trustworthy friends and high trustworthy strangers in low AX individuals.

PCA analysis revealed that friends, under both high and low trustworthy conditions, elicited more positive LPP (454ms) in low and high AX individuals compared to strangers. This study demonstrates that individuals with high attachment anxiety (high AX) are credulous closer others and have positive expectations towards them. Their trust decision-making excessively relies on relationship closeness while disregarding the trustworthiness characteristics. The compromise in cognitive control functions hinders their ability to effectively distinguish between different partners and results in unstable motivational value investment in them. This study extends the application of the neural integration model of attachment in the field of interpersonal relationships, and further deepens the understanding of the reliance of interpersonal trust partner characteristics in attachment anxiety individuals.
Keywords： interpersonal trust, attachment anxiety, credulity, cognitive control system, affective evaluation system, event-related potentials (ERPs)

假新闻，真危害：负面假新闻对社会判断的影响及其机制

徐旋[1, 2] 高崚峰[3] 陈倩[1, 2] 周宗奎[1, 2]（通讯作者）

1 青少年网络心理与行为教育部重点实验室，武汉，430079

2 华中师范大学心理学院，武汉，430079

3 浙江师范大学心理与脑科学研究院，浙江，310012

通讯作者 zhouzk@ccnu.edu.cn（周宗奎）

摘 要 在数字时代中，真假混杂的新闻塑造着个人的观点和态度。由于负性信息偏向的存在，大量负面假新闻借助社交媒体广泛传播，并误导读者。近年来，负面假新闻在卫生事件、社会舆论、国际关系等领域表现出巨大破坏力，引发了公众担忧。研究者已开始关注于负面假新闻的辨别力影响因素和干预措施，但目前少有研究考察负面假新闻的影响后效。以往研究显示，即使个体知道某信息是不可靠的，仍会降低对信息涉及人物的社会判断。故本研究基于评价性条件作用和双系统理论，设计两项实验以考察负面假新闻对社会判断的影响，并揭示认知负荷和社交媒体指标（转发量）在该过程中的作用。本研究将标准化新闻标题与中性面孔配对形成新闻材料，邀请被试在阅读后对面孔进行信任度和喜爱度的 9 点评价。实验一采用 2(新闻真实性:真实/虚假)×3(测试时间:前测/后测/一天后)的被试内设计,54 名被试在阅读 6 条负面真新闻和 6 条负面假新闻后,对新闻涉及面孔进行喜爱度和信任度评价。线性混合模型的结果显示，与负面真新闻相似，负面假新闻显著降低了个体对新闻涉及面孔的信任度。实验二采用 2(认知负荷:高/低)×2(转发量:高/低)的混合实验设计,77 名被试被随机分到高认知负荷组和低认知负荷组,阅读 12 条转发量高低各半的负面假新闻后，对面孔进行喜爱度和信任度评价。线性混合模型的结果显示，高认知负荷和社交媒体指标显著增加了负面假新闻对社会判断的影响。综上所述,负面假新闻能显著降低个体对涉及人物的社会判断,并且认知负荷和社交媒体指标在其中发挥着“雪上加霜”的加剧作用。这表明，即使负面新闻被标注为虚假，其仍然产生有害影响。为降低负面假新闻的危害，降低阅读者的认知负荷和重视社交媒体指标的作用可能是有效策略。

关键词 假新闻，社会判断，认知负荷，社交媒体指标

Fake news, real harm: the impact and mechanisms of negative fake news on social judgement

Xuan Xu[1, 2] Ling-feng Gao[3], Qian Chen[1, 2], Zong-kui Zhou[1, 2,*]

1 Key Laboratory of Adolescent Cyberpsychology and Behavior (CCNU), Ministry of Education, Wuhan, China
2 School of Psychology, Central China Normal University, Wuhan, China
3 Institute of Psychological and Brain Sciences, Zhejiang Normal University, Jinhua, China
* Corresponding author: zhouzk@mail.ccnu.edu.cn (Zong-kui Zhou).

Abstract: In the digital age, the mixture of true and false news shapes individuals' viewpoints and attitudes. Due to the presence of negativity bias, a large number of negative fake news articles spread widely through social media, misleading readers. In recent years, negative fake news has demonstrated significant destructive power in various fields such as public health events, social discourse, and international relations, leading to public concerns. Researchers have begun to focus on the factors influencing the discernment of negative fake news and intervention measures, but there is currently limited research on the consequences of the influence of negative fake news. Previous studies have shown that even when individuals know that certain information is unreliable, it still reduces their social judgments of the individuals involved in the information. Therefore, based on the evaluative conditioning and dual-system theory, this study designed two experiments to investigate the impact of negative fake news on social judgments and to reveal the roles of cognitive load and social media metrics (such as sharing) in this process. The study created news materials by pairing standardized news headlines with neutral faces, and participants were invited to rate the trustworthiness and likability of the faces on a 9-point scale after reading the materials. Experiment 1 used a within-subject design with a 2 (News Authenticity: Real/Fake) × 3 (Testing Time: Pretest/Posttest/One Day Later) structure. A total of 54 participants read six negative real news and six negative fake news articles, and evaluated the likability and trustworthiness of the faces involved in the news. The results of the linear mixed model showed that, similar to negative real news, negative fake news significantly reduced individuals' trust in the faces involved. Experiment 2 employed a mixed design with a 2 (Cognitive Load: High/Low) × 2 (Social Media Metrics: High/Low) structure. A total of 77 participants were randomly assigned to the high cognitive load group or the low cognitive load group. They read 12 negative fake news articles with an equal number of high and low social media metrics, and evaluated the likability and trustworthiness of the faces. The results of the linear mixed model showed that high cognitive load and high social media metrics significantly increased the impact of negative fake news on social judgments. In conclusion, negative fake news significantly reduces individuals' social judgments of the individuals involved, and cognitive load and social media metrics exacerbate this effect. This suggests that even when negative news is labeled as fake, it still has harmful effects. To mitigate the harm of negative fake news, reducing readers' cognitive load and emphasizing the role of social media metrics may be effective strategies.

Keywords: Fake News, Social Judgment, Cognitive Load, Social Media Metrics

童年期逆境和受欺凌对青少年非自杀性自伤的交互影响：感知学校安全的调节作用和性别差异

杨洋　王晨旭　张李斌　张云运（通讯作者）
北京师范大学 中国基础教育质量监测协同创新中心，北京，100875，yyzhangff@bnu.edu.cn

摘 要　非自杀性自伤是世界范围内青少年面临的公共健康问题，在我国也呈现高发态势（青少年群体发生率在22%左右）。自伤不仅导致青少年身体组织受损，也使其面临抑郁、焦虑，甚至自杀的风险。鉴于

自伤在青少年群体中的高发性及其后果的严重性，更有针对性地探讨其产生机制具有重要意义。结合生态系统理论和自伤的人际理论来看，家庭系统带来的远端压力（童年期虐待与忽视）和同伴系统带来的近端压力（受欺凌）是青少年产生自伤行为的重要风险因素，但两者共同影响青少年自伤的作用模式（累积风险模型 VS.匹配/不匹配模型）尚未可知。此外，由于学生在学校中自伤的现象越来越频繁，以往的研究一直强调学校自伤干预的重要性，但是缺乏学校环境因素对青少年自伤影响和作用机制的探讨。本研究通过问卷调查，选取 1775 名初中生（平均年龄 14.22±1.04 岁，男生 914 名）为被试，考察了童年期逆境、受欺凌对青少年非自杀性自伤的交互影响模式以及感知学校安全的调节作用和性别差异。结果发现：（1）童年期逆境和受欺凌对青少年非自杀性自伤的影响遵循累积风险模型，童年期逆境水平越高的青少年在经历受欺凌后更容易自伤；（2）感知学校安全在累积影响机制中发挥调节作用。具体而言，感知学校安全水平越高，童年期逆境和受欺凌对自伤的累积作用越强，而感知学校安全水平越低，童年期逆境和受欺凌对自伤的累积作用越弱甚至消失，体现了“健康环境悖论”；（3）影响模式存在显著的性别差异。就女生而言，仅受欺凌和忽视对自伤的交互影响均遵循累积风险模型；就男生而言，受欺凌和虐待对自伤的交互影响遵循累积风险模型，而受欺凌和忽视对自伤的交互影响受到感知学校安全水平的增强。本研究通过检验累积风险模型和匹配/不匹配模型两种竞争性假设，揭示了家庭系统远端压力和同伴系统近端压力对自伤的累积风险效应，并发现了学校安全氛围下青少年自伤发生的“健康环境悖论”，为后续开展具有针对性的学校自伤干预工作提供了实证支持。

关键词　童年期逆境，受欺凌，感知校园安全，非自杀性自伤，健康环境悖论

How Childhood Adversity and Victimization Interact to Influence Adolescent Non-Suicidal Self-Injury: The Moderating Role of Perceived School Safety and Sex Difference

Yang Yang　Wang Chenxu　Zhang Libin　Zhang Yunyun

Collaborative Innovation Center of Assessment toward Basic Education Quality, Beijing Normal University, No.19 Xin Jie Kou Wai Street, Hai Dian District, Beijing 100875

***Abstract*:** Non-suicidal self-injury (NSSI) is a public health problem for adolescents worldwide, and is also showing a high prevalence in China (the incidence among adolescence is around 22%). NSSI not only leads to damage to body tissues, but also puts adolescents at risk for depression, anxiety, and even suicide. Given the high prevalence of NSSI among adolescents and the seriousness of its consequences, it is important to explore the mechanisms in a more focused manner. In conjunction with the ecosystem theory and the interpersonal theory of NSSI, both distal pressures from the family system (childhood abuse and neglect) and proximal pressures from the peer system (victimization) are important risk factors for adolescents to engage in NSSI, but the mode of action in which the two work together to influence adolescents' NSSI (cumulative risk model vs. match/mismatch model) is not yet known. In addition, because adolescents are injuring themselves more frequently in schools, previous research has emphasized the importance of self-injury interventions in schools, but there is a lack of exploration of the impact and mechanisms of school environmental factors on adolescent's NSSI. In this study, 1775 middle school students (M_{age} = 14.22 ± 1.04 years, 914 boys) completed the questionnaire to examine the pattern of interaction effects of childhood adversity and victimization on adolescents' NSSI, as well as the moderating effects of perceived school safety and gender differences. The results found that (1) the effects of childhood adversity and victimization on adolescents' NSSI followed a cumulative risk model, which means that adolescents with higher levels of childhood adversity more likely to engage in NSSI after experiencing bullying; (2) perceived school

safety played a moderating role in the cumulative impact mechanism. Specifically, the higher the level of perceived school safety, the stronger the cumulative effect of childhood adversity and victimization on NSSI, while the lower the level of perceived school safety, the weaker or even absent the cumulative effect, reflecting the 'healthy context paradox'; (3) there were significant gender differences in the pattern of effects. For girls, the cumulative effect of childhood and neglect and victimization on NSSI followed a cumulative risk model; for boys, the interaction effects of victimization and childhood abuse on self-injury followed a cumulative risk model, while the interaction effects of victimization and childhood neglect on NSSI were enhanced by the level of perceived school safety. By testing two competing hypotheses (the cumulative risk model and the match/mismatch model), this study revealed the cumulative risk effects of distal family system pressure and proximal peer system pressure on NSSI, and identified the 'health environment paradox' of NSSI among adolescents in a safe school environment, providing empirical support for school self-injury interventions.

***Keywords*:** Childhood adversity, Victimization, Perceived school safety, Non-Suicidal Self-Injury, Healthy context paradox

精神分裂与抑郁症的期待和即时情绪反应特征：基于网络分析的再探

沈蕾[1] 谢驰[1] 王毅[2] 严超[1]（通讯作者）

1 华东师范大学心理与认知科学学院，上海，200062

2 中国科学院心理研究所，北京，100101

通讯作者：严超，cyan@psy.ecnu.edu.cn

摘 要　快感缺失是多种精神障碍共有的核心症状之一，愉悦情绪加工异常是其背后的病理心理机制。然而，愉悦情绪加工是一个多维结构，包含期待与即时性愉悦情绪。为理解不同情绪反应在精神分裂症谱系与抑郁症谱系障碍的共同和独特机制，从跨诊断和跨谱系的视角，基于网络分析的方法可以更深入探究奖赏期待与获取阶段的情绪反应之间的关系和相互作用，将有助于揭示不同精神障碍背后的情绪加工异常的本质。本研究共纳入 821 名被试，包括 175 名被诊断为精神分裂症(n = 115)或重性抑郁障碍(n = 60)的临床患者，83 名分裂型人格特质和 110 名亚临床抑郁个体以及 394 名健康对照，所有被试完成奖赏延迟任务。结果发现，相较于亚临床和健康对照，临床精神障碍患者在期待和获得奖赏时的愉悦体验显著下降，亚临床与健康对照的情绪反应特征类似，但亚临床个体的负性情绪在奖赏损失条件下显著增强。在精神分裂谱系，相对于健康对照，精神分裂患者在期待和获取阶段对奖赏刺激的愉悦感较低，并在奖赏损失和错失条件下也表现出较低的负性情绪水平，表明其情绪反应普遍降低，但分裂型人格特质个体的期待和即时情绪与健康对照无显著差异，情绪体验相对完好。而在抑郁症谱系，抑郁患者对奖赏期待和获得的愉悦感显著减少，但对奖赏损失和错失引起的负性情绪体验与健康对照无显著差异，亚临床抑郁个体则在期待损失阶段的负性情绪显著高于健康对照。谱系间组间分析显示，两类精神疾病谱系下个体的期待和即时愉快情绪与健康对照相比显著下降，但抑郁谱系相较于精神分裂谱系，个体对奖赏损失的负性情绪更高。进一步基于网络分析结果发现，亚临床群体的期待和即时情绪反应的网络全局强度显著低于临床患者(S = 1.509, p = .049)和健康对照(S = 1.561, p = .013)，表明其情绪反应之间的关联较低，其反应模式更不稳定且波动更强。此外，精神分裂和抑郁谱系的情绪反应的网络结构存在显著差异(M = 0.551, p = .0005)，与精神分裂谱系相比，抑郁症谱系在奖赏期待和即时阶段中的愉快情绪反应的连接强度较弱 (t = -0.304, p = .032)。综上，我们的研究结果表明，临床障碍患者的期待和即时愉悦情绪反应钝化，亚临床群体情绪反应间连接的不稳定

性可能是转化为临床水平的高风险机制，而情绪反应特征存在跨谱系的特异性，抑郁症谱系相对于精神分裂症谱系障碍的愉快体验和动机之间连接模式的减弱可能是不同谱系障碍快感缺失的潜在机制。

关键词　精神分裂症，重性抑郁障碍，网络分析，快感缺失，期待性愉悦

Characteristics of Anticipatory and Consummatory Affective Responses in Schizophrenia and Depression: A Re-examination Based on Network Analysis

SHEN Lei[1]　XIE Chi[1]　WANG Yi[2]　YAN Chao[1]

1 School of Psychology and Cognitive Science, East China Normal University, Shanghai

2 Institute of Psychology, Chinese Academy of Sciences, Beijing

***Abstract*:** Anhedonia is a core symptom shared by multiple psychiatric disorders, and abnormal processing of positive affect underlies its pathopsychological mechanism. However, positive affect processing is a multidimensional structure that encompasses anticipatory and consummatory pleasure. In order to understand the common and unique mechanisms of different affective responses in schizophrenia spectrum and depression spectrum disorders, from a transdiagnostic and cross-spectrum perspective, a network analysis-based approach can explore the relationship and interactions between affective responses during reward anticipation and outcome in more depth, and will help to reveal the nature of the abnormalities of affective processing underlying different psychiatric disorders. This study recruited a total of 821 participants, including 175 clinical patients diagnosed with either schizophrenia (n=115) or major depressive disorder (n=60), 83 individuals with schizotypal traits, 110 individuals with subclinical depression, and 394 healthy controls. All participants completed the reward delay task. The results revealed that compared to subclinical and healthy control groups, clinical patients experienced a significant decrease in pleasure during reward anticipation and outcome. The subclinical individuals showed similar affective response characteristics to healthy controls, but their negative affect significantly increased under reward loss conditions. In the schizophrenia spectrum, relative to healthy controls, schizophrenia patients experienced lower pleasure during reward anticipation and consumption phase, and also showed lower levels of negative affect under reward loss and omission conditions, indicating a general reduction in affective responses. However, individuals with schizotypal traits did not show significant differences in anticipatory and consummatory affective responses compared to healthy controls, suggesting relatively intact affective experiences in the subgroup. In the depression spectrum, the depressed patients showed a significant reduction in pleasure during reward anticipation and consumption. However, their negative affective experiences in response to reward loss and omission did not significantly differ from those of healthy controls. On the other hand, the individuals with subclinical depression exhibited significantly higher levels of negative emotions during the anticipation of reward loss compared to healthy controls. The inter-spectrum group analysis revealed that the individuals in both schizophrenia and depression spectrum showed a significant decrease in anticipatory and consummatory pleasure compared to healthy controls. However, individuals in the depression spectrum exhibited higher levels of negative affect in response to reward loss compared to those in the schizophrenia spectrum. Based on further network analysis, it was found that the global strength of the network for anticipatory and consummatory affective responses in the subclinical group was significantly lower than that of clinical patients (S = 1.509, p = .049) and healthy controls (S = 1.561, p = .013). This indicated that the

associations between affective responses in the subclinical group were lower, suggesting a less stable and more fluctuating response pattern. Additionally, there were significant differences in the network structure of affective responses between the schizophrenia and depression spectrum (M = 0.551, p = .0005). Specifically, in comparison to the schizophrenia spectrum, the depression spectrum exhibited weaker connections in the strength of pleasurable affective responses during reward anticipation and consumption (t = -0.304, p = .032). In conclusion, our study results indicated that clinical patients with psychiatric disorders exhibited blunted anticipatory and consummatory pleasure affective responses, and the instability of affective response connections in subclinical individuals might serve as a high-risk mechanism for transitioning to clinical levels. Moreover, there were specific characteristics in affective responses that vary across different spectra. The weakening of connections between pleasurable experiences and motivational processes in the depression spectrum relative to the schizophrenia spectrum might underlie the potential mechanisms of anhedonia in different spectrum disorders.

Keywords：schizophrenia, major depressive disorder, network analysis, anhedonia, anticipatory pleasure

催产素受体基因与家庭功能对学前儿童亲社会行为的交互影响：来自两个不同家庭社会经济地位样本的验证

刘倩文[1]　王振宏[1]（通讯作者）

1 陕西师范大学心理学院,陕西(高校)哲学社会科学重点研究基地-儿童青少年心理与行为健康研究中心，西安，710062，wangzhenhong@snnu.edu.cn

摘 要　儿童亲社会行为是指儿童在社会交往中自发地对他人表达关心和共情，并做出有益于他人的行为。儿童亲社会行为在学前阶段快速发展，并出现个体差异。研究表明，催产素受体基因(oxytocin receptor gene, OXTR)是影响个体亲社会行为的潜在候选基因之一。以往研究多采用单基因位点的方法探讨 *OXTR* 基因及其与环境因素交互对亲社会行为的影响，但研究结果并不一致且缺乏外部验证。本研究采用 *OXTR* 多基因位点累加评分(multilocus genetic profile score, MGPS)的方法，通过方便取样选取了来自高家庭社会经济地位和中低家庭社会经济地位的两个独立样本，考察了 *OXTR* 基因与作为家庭心理社会环境核心因素的家庭功能对学前儿童亲社会行为的交互作用。运用父母报告的《家庭亲密度与适应性量表》以及《长处与困难问卷》中的亲社会行为分问卷来测量家庭功能与儿童亲社会行为，采集儿童的唾液样本进行基因位点分型并基于此计算 *OXTR* MGPS。来自高家庭社会经济地位的 421 名学前儿童($M_{年龄}$ = 4.95 岁，SD = 0.95)样本的研究结果发现，*OXTR* MPGS 的二次项与家庭功能显著交互作用于儿童的亲社会行为。具体而言，*OXTR* MGPS 得分较高和较低的儿童均表现出对家庭功能影响的高敏感性，即在家庭功能较好的情况下会表现出更多的亲社会行为，在家庭功能较差的情况下则会表现出更少的亲社会行为，但家庭功能对 *OXTR* MGPS 得分中等学前儿童亲社会行为的影响不显著。这一结果在来自中低家庭社会经济地位的 326 名学前儿童($M_{年龄}$ = 4.91 岁，SD = 0.84)样本中也得到了验证。研究结果表明，*OXTR* MGPS 与儿童环境敏感性之间呈非线性（U 型）关系，较高和较低的 *OXTR* MGPS 都可能表征着高环境敏感性，进而与家庭功能等环境因素交互影响学前儿童的亲社会行为。研究结果为深入理解儿童社会行为的基因-环境交互机制提供了不同的证据。

关键词　学前儿童，亲社会行为，催产素受体基因，家庭功能，环境敏感性

The interactive effect of the oxytocin receptor gene and family functioning on preschoolers' prosocial behaviors: A replication in two samples with different socioeconomic backgrounds in China

Qianwen Liu Zhenhong Wang[1] (Corresponding author)
1 School of Psychology, Shaanxi Normal University, Shaanxi Provincial Key Research Center of Child Mental and Behavioral Health, Xi'an, 710062, wangzhenhong@snnu.edu.cn

***Abstract*:** Prosocial behaviors are considered voluntary actions performed to benefit others, which develop rapidly in preschoolers. Previous studies suggested that the oxytocin receptor (OXTR) gene is a potential candidate gene for prosocial behaviors. However, it remains unclear whether and how *OXTR* gene interacts with family environments to contribute to prosocial behaviors. This study examined the interactive effect of the *OXTR* gene using a multilocus genetic profile score (MGPS) approach and family functioning on preschoolers' prosocial behaviors in two dependent samples with different backgrounds. The saliva of preschoolers was collected to genotype the *OXTR* SNPs, and their parents completed questionnaires to assess family functioning and preschoolers' prosocial behaviors. In the primary sample of 421 preschoolers (M_{age} = 4.95 years, *SD* = 0.95) with higher family SES, a quadratic instead of a linear interactive effect was found. That is, preschoolers with a higher or lower *OXTR* MGPS were highly sensitive to family functioning, and their prosocial behaviors were more strongly affected by family functioning than those in preschoolers with a moderate *OXTR* MGPS. Comparable results were replicated in an independent sample of 326 preschoolers (M_{age} = 4.91 years, *SD* = 0.84) with lower-middle family SES. In conclusion, the present study first revealed the quadratic relationship between *OXTR* MGPS and preschoolers' prosocial behaviors under different levels of family functioning with replication in two samples with different SES backgrounds and highlighted a U-shaped curve of the relationship between *OXTR* MGPS and children's environmental sensitivity, which provide a new understanding of the complex interplay between genes and environments in children's social behaviors.

***Keywords*:** preschooler, prosocial behaviors, oxytocin receptor gene, family functioning, environmental sensitivity

学业倦怠对青少年抑郁的纵向影响：个体认知偏差与圈子倦怠规范的作用

宋省成 黄垣成 李彩娜（通讯作者）

陕西师范大学心理学院，陕西（高校）哲学社会科学重点研究基地-儿童青少年心理与行为健康研究中心，西安，710062，chinali7371@163.com

摘 要　学业倦怠是指学生不能有效应对学业压力而产生的应激反应，是导致青少年消极认知和抑郁最突出的风险因素之一。抑郁认知理论（The Cognitive Theory of Depression）认为个体在信息加工过程中的认知

偏差是抑郁的高危因素，因此，学业倦怠可能会通过个体自身的认知偏差进一步加剧其抑郁症状。然而以往研究多聚焦于个体层面，忽视了同伴圈子这一重要微观系统可能在其中发挥的作用。根据健康环境悖论（The Healthy Context Paradox），在相对“健康”的社会环境中（如低学业倦怠规范），个体可能会产生更多的认知偏差；而同伴濡染假说（The Peer Contagion Hypothesis）则认为，低学业倦怠规范的环境有利于纠正个体的偏差认知与行为。圈子倦怠规范缓解了倦怠个体的认知偏差还是进一步加剧其认知偏差仍需进一步探讨。综上，本研究旨在考察学业倦怠对青少年抑郁的纵向影响及认知偏差的中介作用，重点从圈子视角考察学业倦怠规范对该过程的影响。

本研究采用青少年自我报告法和同伴提名法对陕西省 904 名青少年（57%男生; M_{age} = 12.73, SD = 0.43）进行为期两年的追踪调查，多层线性分析得到 151 个圈子（M_{size} = 5.09, SD =1.89）。结果发现：（1）认知偏差在学业倦怠和抑郁之间起完全中介作用，即 T1 学业倦怠能够导致青少年的认知偏差从而增加其两年后抑郁的风险。（2）圈子学业倦怠规范在“学业倦怠-认知偏差”路径中起调节作用，即在低学业倦怠规范下，个体的学业倦怠对认知偏差的预测作用更强，这也在圈子层面支持了健康环境悖论。结果进一步表明，个体的认知因素作为抑郁产生的重要近端因素，是学业倦怠影响抑郁的重要中介机制，且低圈子学业倦怠规范加剧了“学业倦怠—认知偏差—抑郁”的恶性循环。该研究结果有利于我们从圈子的视角理解抑郁发生的内部机制，从而对抑郁的预防和干预提供参考依据。

关键词 学业倦怠，认知偏差，抑郁，圈子学业倦怠规范

反应性攻击青少年的恐惧过度泛化:来自行为和近红外的证据

摘 要 青春期是反应性攻击行为爆发的敏感时期，而反应性攻击行为常伴随着负性的情绪唤醒，如愤怒、焦虑。值得注意的是，焦虑症的典型特征之一是对条件性恐惧的过度泛化。本研究采用经典的恐惧泛化范式，通过反应性主动性攻击问卷筛选出高、低反应性攻击被试，以主观预期评分和内侧前额叶的激活情况作为指标，考察青少年反应性攻击与恐惧泛化之间的关系。行为结果发现：恐惧习得、泛化阶段中，高反应性攻击组对条件刺激和泛化刺激的主观预期评分显著高于低攻击组。近红外结果发现：恐惧泛化过程中泛化刺激诱发了高反应性攻击组较低的内侧前额叶激活。研究结果表明，反应性攻击青少年存在恐惧过度习得和泛化。研究提示对反应性攻击青少年的恐惧调节能力进行训练的必要性。

关键词 反应性攻击，青少年，恐惧泛化，内侧前额叶

Increased overgeneralization of fear and reduced medial prefrontal engagement in adolescents with reactive aggression

Abstract: Adolescence represents a sensitive period for the emergence of reactive aggression, often accompanied by the arousal of negative emotions such as anger and anxiety. It is noteworthy that one of the typical characteristics of anxiety disorders is the excessive generalization of conditioned fear. In this study, we employed a classic fear generalization paradigm and identified high and low reactive aggression groups through reactive-proactive aggression questionnaire. We utilized subjective expectancy ratings and assessed the activation of the medial prefrontal cortex as indicators to investigate the relationship between reactive aggression and fear generalization in adolescents. Behavioral results revealed that during fear learning and generalization phases, the high reactive aggression group exhibited significantly higher subjective expectancy ratings for conditioned and generalized stimuli compared to the low aggression group. Near-infrared spectroscopy results indicated that during

the fear generalization process, generalized stimuli elicited lower medial prefrontal cortex activation in the high reactive aggression group. The findings suggest the presence of fear overgeneralization in adolescents with reactive aggression, highlighting the necessity for training interventions targeting fear regulation in this population.

Keywords： Reactive aggression, Adolescence, Fear generalization, Medial prefrontal cortex.

抑制控制在数学概念推理中的作用：一项 fNIRS 研究

柳东林[1] 王丽娟[1]（通讯作者）

1 东北师范大学心理学院，长春，130024，wanglj699@nenu.edu.cn

摘 要 错误概念是学生学习中的常见阻碍之一，并干扰科学概念学习。当学生学习与错误概念相冲突的科学概念时，新的科学概念并不总能取代旧的错误概念，二者可能同时存在于学生的长期记忆中。研究者使用快速推理任务证明错误概念会干扰科学理论的检索，学生在推理过程中需要抑制错误概念才能做出正确的判断。最近的研究表明，反应抑制和语义抑制均参与科学推理。数学学习是学校教育的中心目标，也是人生成功的重要先决条件。大量研究表明数学领域广泛存在错误概念，如学生通常存在“当比较两个简分数，尤其是分数单位的大小时，分母较大的分数更大”的错误概念，即“1/9 大于 1/8”。然而，目前研究未能发现抑制在数学子领域如代数、几何和单位转换的作用，并且也没有神经科学证据直接支持反应抑制和语义抑制参与数学概念推理。基于此，本研究共招募了 30 名大学生，通过近红外成像技术结合经典抑制任务和快速推理任务来探究上述问题。研究分为两个步骤。第一步，使用 Go/Nogo 任务和 Stroop 任务分别测量了被试的反应抑制和语义抑制能力，同时使用 fNIRS 记录他们在任务中的大脑活动；第二步，被试进行快速判断任务，同时使用 fNIRS 记录他们在任务过程中的大脑活动。结果表明，个体在判断冲突的问题时，反应更慢，正确率更低，并且与抑制有关脑区的活动更强。支持了抑制在数学子领域的概念推理中发挥作用的假设。研究还发现个体在推理符合直觉的不一致非科学陈述时，抑制区域的活动与 Go/Nogo 任务中反应抑制的活动相似；而在推理反直觉的不一致科学陈述时，抑制区域的活动与 Stroop 任务中语义抑制的活动相似。结果支持了数学概念推理涉及反应抑制与语义抑制的假设，且两种抑制均参与了对数学错误概念的抑制。

关键词 抑制，数学，错误概念，科学推理，fNIRS

Inhibitory Control and the Understanding of Mathematics: An fNIRS Study

Donglin Liu, Lijuan Wang

School of psychology, Northeast Normal University, Changchun, 130024

Abstract： Misconceptions are one of the common obstacles in students' learning and interfere with scientific concept learning. When students learn scientific concepts that conflict with misconceptions, the newer scientific concepts does not always replace the older misconceptions, and both may exist in the students' long-term memory. Using a new speeded reasoning task, researchers showed that misconceptions interfere with retrieving scientific concepts. Students need to suppress misconceptions in the process of reasoning in order to make correct judgments. Recent studies have shown that both response inhibition and semantic inhibition are involved in scientific reasoning. Mathematics learning is a central aim of schooling and a vital prerequisite for success in life. Many studies have shown that there are widespread misconceptions in mathematics domain. For example, students often

have the misconception that "when comparing two simple fractions, especially the size of the fractional unit, the fraction with the larger denominator is larger", that is, "1/9 is greater than 1/8". However, current research has failed to find the role of inhibition in mathematical subfields such as algebra, geometry, and unit transformation, and there is no neuroscience evidences to directly support the involvement of response inhibition and semantic inhibition in mathematical conceptual reasoning. Based on this, a total of 30 college students were recruited in this study to explore the above questions through near-infrared imaging technology combined with classical suppression task and speeded reasoning task. The study has two steps. In the first step, response inhibition and semantic inhibition were measured using Go/Nogo task and Stroop task respectively, and their brain activity was recorded using fNIRS during the task. In the second step, participants performed the speeded reasoning task while using fNIRS to record their brain activity during the task. The results showed that individuals reacted more slowly, were less correct, and had greater activity in brain regions associated with inhibition when judging conflicting questions. It supports the hypothesis that inhibition plays a role in conceptual reasoning in the mathematical subdomain. It is also found that the activity of inhibitory region is related to the activity of response inhibition in the Go/Nogo task when individuals are reasoning intuitionistic conflict problems. In reasoning counterintuitive conflict problems, the activity of the inhibitory region is related to the activity of semantic inhibition in the Stroop task. The results supported the hypothesis that the reasoning of mathematical concepts involves both response inhibition and semantic inhibition, both of which are involved in the suppression of mathematical misconceptions.
Keywords：Inhibition, Mathematics, Misconceptions, Scientific reasoning, fNIRS

建设性新闻对利他行为的影响及心理机制

邓洵　贺雯（通讯作者）
上海师范大学教育学院，上海 200234
hewen@shnu.edu.cn

摘 要　建设性新闻是新闻行业应对时代变化的一次自我革新。通过将积极心理学理论应用于新闻撰写过程，在保留新闻核心功能的同时，创造出更能被大众接纳和更有实践价值的报道，一般分为包含积极情绪或者包含解决方案两类。结合媒体效应差别易感性模型，建设性新闻可以通过共情或观点采择等间接地影响受众，并且受到个体因素如社会善念的调节。同时，建设性新闻的目的是引导读者思考社会问题，并积极参与社会治理，形成互帮互助的良好社会氛围。因此本研究通过三个实验揭示共情和观点采择在建设性新闻对利他行为的影响中地中介作用以及社会善念的调节作用。

实验 1A 选取 170 名在校大学生作为被试，采用单因素被试间实验设计，探究阅读三种不同类型的新闻(非建设性新闻/解决方案新闻/积极情绪新闻)对大学生利他行为的影响，以及共情和观点采择的中介作用。结果表明，阅读建设性新闻可以显著提升其利他行为水平，共情的中介作用显著，但观点采择的中介作用不显著。实验 1B 选取 150 名在校大学生作为被试，更换不同主题的建设性新闻，验证了以上共情中介模型的稳健性。实验 2 选取 177 名在校大学生作为被试，检验社会善念对共情中介路径的调节作用，结果表明与控制组相比，解决方案新闻通过共情影响利他行为的中介路径受到社会善念的调节，对于低社会善念的个体，阅读解决方案新闻可以显著提升其共情水平从而促进个体的利他行为；而高社会善念的个体的调节效应不显著。

因此，本研究通过三个系列实验研究揭示了建设性新闻对利他行为的作用机制。丰富了媒体效应差别易感性模型的理论内涵，同时为建设性新闻的推广提供了心理学层面的证据支持。未来研究可以从建设性新闻的长期影响等方面入手。

关键词　建设性新闻，利他行为，共情，观点采择，社会善念

The Influence and Mechanism of Constructive Journalism on the Altruistic Behavior

DENG Xun, HE Wen
College of Education, Shanghai Normal University, Shanghai 200234, China

Abstract： Constructive journalism is the product of self-innovation of the news industry in recent years. It means the application of positive psychological methods, such as containing positive emotions or including solutions to the news production process to create attractive reports, while persisting in the core functions of journalism. According to the Different Susceptibility to Media Effect Model (DSMM), the influences of constructive news on the audience is indirect and it could be moderated by some individual factors. At the same time, the purpose of constructive journalism is to encourage readers to actively participate in solving social problems and build a good social atmosphere of mutual assistance. Therefore, this study aimed to explore the influence of constructive journalism on altruistic behavior, and the mediating role of empathy and perspective taking as well as the moderating role of social mindfulness.

In experiment 1A, 170 college students were selected as participants, and a single factor between-subjects experiment was designed to explore the influence of reading three different types of news (control group news/solution news/positive emotional news) on altruistic behavior, as well as the role of empathy and perspective taking. Results showed that compared with the control group, positive emotion news could promote participants' altruistic behavior by improving their empathy. The mediating effect of empathy was significant, but the mediating effect of perspective taking is not significant.

In experiment 1B, 150 college students were selected as participants, using constructive news with different themes to test the robustness of the empathy mediation model. Results showed that, compared with the control group, solution news and positive emotional news could significantly affect altruistic behavior through empathy.

In experiment 2, 177 college students were selected as participants. On the basis of experiment 1B, the moderating effect of social mindfulness on empathy mediating path was further tested. Results showed that compared with the control group, the mediating path of solution news affecting altruistic behavior through empathy was moderated by social mindfulness. For individuals with low social mindfulness, reading solution news can significantly improve their empathy level and further promote altruistic behavior. However, this mediating effect was not significant for individuals with high social mindfulness. This finding was consisted with the protective-attenuating hypothesis.

This study carried out three experiments to test the mediation effect of empathy and the moderating effect of social mindfulness in the influence of constructive journalism on altruistic behavior, which enriched the theoretical connotation of DSMM model and provided psychological evidence for the promotion of constructive journalism. Future research can start from the long-term effect of constructive journalism.

Keywords： constructive journalism, altruistic behavior, empathy, perspective taking, social mindfulness

基于多维度奖赏加工模型识别抑郁症：来自机器学习算法的初步证据

黄雅婷[1,#] 何嘉瑜[1,#] 郑童萱[1] 朱能军[2] 吕钦瑜[3] 严超[1]（通讯作者）
1 华东师范大学心理与认知科学学院，上海，200062，cyan@psy.ecnu.edu.cn
2 上海大学计算机工程与科学学院，上海，200444
3 上海交通大学附属上海精神卫生中心，上海，200030

#: 共同第一作者

摘 要 本研究基于多维度奖赏加工理论，探索了机器学习分类抑郁症的可靠性，并探讨各奖赏加工维度对抑郁症分类识别的贡献程度和对模型性能的影响，尝试为抑郁症快感缺失的精确诊断提供可行的实证依据。本研究招募符合 DSM-5 标准的抑郁症患者 58 例（M=27.07，SD=7.69，女性 42 人，男性 16 人），健康对照组 249 例（M=22.16，SD=5.33，女性 161 人，男性 88 人）。所有被试都完成金钱奖励延迟任务、贝克抑郁问卷、愉悦体验预测问卷和愉悦体验回忆问卷。本研究从任务与问卷中提取了期待性愉悦体验的预测成分与感受成分、即时性愉悦体验、动机、回忆性愉悦体验，共五个维度的成分用于分类模型的建立。首先，我们使用投票分类器训练分类模型。其次，分别选择来自 5 个成分的维度组合为特征集，分别包含单成分特征集 5 个（如预测模型），两成分（如预测-感受模型）和三成分（如预测-感受-动机模型）特征集各 10 个，四成分特征集 5 个（如预测-感受-动机-即时性愉悦体验模型），在此基础上构建了 1 个完整的全预测模型和 30 个子模型。并使用配对 t 检验对比所有模型预测结果的差异显著性。最后，我们采用了特征选择和重要性系数两种方法分别在逻辑回归模型、极限梯度提升树模型中可视化了特征的重要性。经过 10×10 交叉验证训练和评估模型，全模型 AUC=77.9%±9.6%，敏感度为 76.8%±17.6%，特异性为 79.1%±7.3%，子模型的 AUC∈[0.658，0.788]。预测-感觉-动机模型的 AUC 最高，为 0.788±0.093，但仅与动机模型有显著差异（t = 2.326，p = 0.023）。与大多数子模型相比，基于预测-动机维度的预测模型敏感度最高，为 88.3%±12.2%，基于预测-感觉-动机维度的预测模型特异性最高，为 89.2%±5.9%。使用 t 检验对比发现包含动机成分的模型性能在不同维度上与其他模型有显著差异。在逻辑回归模型、极限梯度提升树模型中，三个权重最高的特征分别源于预测、感觉和动机维度。我们的结果揭示，基于多维度奖赏加工成分对抑郁症患者进行分类具有可行性，预期和动机维度对抑郁症精准分类具有重要作用。

关键词：抑郁症，奖赏加工，期待性愉悦体验，机器学习算法，诊断分类

Recognizing depression based on the multidimensional reward theoretical framework: Preliminary evidence from machine learning algorithms

Yating Huang[1,#], Jiayu He[1,#], Tongxuan Zheng[1], Nengjun Zhu[2], Qinyu Lv[3], Chao Yan[1](corresponding author)

1 School of Psychology and Cognitive Science, East China Normal University, Shanghai, China, 200062, cyan@psy.ecnu.edu.cn

2 School of Computer Engineering and Science, Shanghai University, Shanghai, 200444, China

3 Shanghai Mental Health Center, Shanghai Jiao Tong University, Shanghai, 200030, China

#: Co-first author

Abstract: In this study, we explored the reliability of machine learning to classify depression based on the multidimensional reward processing theory, and explored the contribution of each reward processing dimension to the recognition of depression and the impact on model performance. We attempted to provide viable empirical evidence for the precise diagnosis of anhedonia. Fifty-eight depressed patients (M = 27.07, SD = 7.69, 42 females and 16 males) with DSM-5 criteria were recruited for this study, compared to 249 healthy controls (M = 22.16, SD = 5.33, 161 females and 88 males). All subjects completed the Monetary Reward Delay Task, the Beck Depression Questionnaire, the Pleasure Experience Prediction Questionnaire, and the Pleasure Experience Recall

Questionnaire. The “prediction” and “feeling” components of anticipatory pleasure, “consummatory pleasure”, “motivation”, and “remembered pleasure”, totaling five dimensions, were extracted from the task and questionnaire for use in modeling. First, we train categorization models using the voting classifiers. Second, the dimensional combinations from each of the five components were selected as feature sets, containing five one-component feature sets (e.g., the prediction model), ten each of the two-component (e.g., the prediction-feeling model) and three-component (e.g., the prediction-feeling-motivation model) feature sets, and five four-component feature sets (e.g., the prediction-feeling-motivation-consummatory pleasure model). One complete full features model and 30 sub-models were constructed on these components. And paired t-test by the correctR package was used to compare the significance of the difference between the classification results of all models. Finally, we used feature selection and importance coefficients to visualize the importance of features in the logistic regression model and the eXtreme Gradient Boosting model respectively. After 10 × 10 cross-validation training and evaluation of models, the full model showed an AUC = 77.9% ± 9.6%, with a sensitivity of 76.8% ± 17.6%, a specificity of 79.1% ± 7.3%, and an AUC ∈ [0.658, 0.788] for sub-models. Furthermore, the prediction-feeling-motivation model had the highest AUC of 0.788 ± 0.093 but was only significantly different from the motivation model (t = 2.326, p = 0.023). Compared to most of the sub-models, the model based on the prediction-motivation dimension had the highest sensitivity of 88.3% ± 12.2%, and the model based on the prediction-feeling-motivation dimension had the highest specificity of 89.2% ± 5.9%. Comparisons using t-tests revealed that the performance of models that included a motivational component differed significantly from the other models. In addition, the three most highly weighted features originated from the prediction, feeling, and motivation dimensions. In conclusion, our results reveal that it is feasible to classify depression based on the multidimensional reward processing theory and that anticipatory pleasure and motivation dimensions played an essential part.

Keywords: depression, reward processing, anticipatory pleasure, machine learning, diagnostic classification

工作记忆与抑制控制对学前儿童自发性数量关注倾向的影响

洪伟　刘儒德(通讯作者)　丁子恩

北京师范大学心理学部，北京，100875，liurude@126.com

摘　要　儿童在非正式学习情境中的数学学习受到越来越多的重视。研究者们近年来开始关注非正式学习情境中的自发性数量关注倾向，具体是指个体在非特定于数学的情境中以自发的形式关注数量方面的特征或信息并加以使用的倾向，这种倾向在儿童数学能力发展中发挥着重要作用。基于自发性数量关注倾向的理论框架，本研究试图从认知视角出发，考察工作记忆与抑制控制对学前儿童自发性数量关注倾向的影响。研究 1 在现有测量工具的基础上进一步发展出基于视觉刺激和听觉刺激的复原任务，结果发现，两种刺激情境中的复原任务均具有良好的信效度。研究 2 和研究 3 为并列研究，分别聚焦于视觉刺激情境和听觉刺激情境。具体而言，研究 2a 和 3a 采用任务范式测量工作记忆容量和抑制控制能力。结果发现，在视觉刺激情境中，视觉空间工作记忆容量对学前儿童自发性数量关注倾向的预测作用显著，并且其与抑制控制交互项的预测作用也显著。在听觉刺激情境中，只有言语工作记忆容量的预测作用显著。研究 2b 和 3b 采用任务操纵工作记忆负荷和抑制控制需求，结果发现，无论在视觉刺激还是听觉刺激情境中，工作记忆负荷和抑制控制需求的主效应显著，即增加工作记忆负荷或抑制控制需求都能显著地降低学前儿童的自发性数量关注。并且，两者的交互效应也都显著，但方向存在不一致的情况。总之，本研究首次从多感觉通道探

讨学前儿童的自发性数量关注倾向，并从认知视角验证了工作记忆和抑制控制在不同刺激情境中自发性数量关注过程中的重要作用。

关键词　自发性数量关注倾向，工作记忆，抑制控制，学前儿童

The influence of working memory and inhibitory control on spontaneous focusing on numerosity among preschoolers

Hong Wei, Liu Ru-De, Ding Zien
Faculty of Psychology, Beijing Normal University, Beijing, China

Abstract：Mathematics learning in informal contexts has received increasing attention, particularly for children. In recent decades, researchers have begun to focus on spontaneous focusing on numerosity (SFON) in informal learning contexts, which refers to the tendency to spontaneously focus on the aspect of numerosity and utilize enumeration skills in non-mathematical situations. This tendency has been found to play an important role in children's mathematical knowledge and skill development. Based on the theoretical framework of SFON, the present study focuses on the cognitive perspective and aims to explore the influence of working memory and inhibitory control on children's SFON. Specifically, Study 1 based on the existing measurements developed a new visual-based and auditory measure for SFON. The results showed that the visual- and auditory-based recovery tasks had acceptable reliability and validity. Study 2 and Study 3 were designed as parallel studies but focused on a visual and auditory context, respectively. Study 2a and 3a used tasks to measure working memory span, inhibitory control capacity, and SFON. The results showed that visuospatial working memory significantly predicted preschoolers' SFON and the interaction effect between visuospatial working memory and inhibitory control also did in the visual-based situation, but only verbal working memory significantly predicted preschoolers' SFON in the auditory-based situation. Study 2b and 3b manipulated working memory loads and inhibitory control demands. The results showed that the main effects of working memory load and inhibitory control demand and their interaction effect were significant, but the direction of interaction effect varied. In conclusion, the present study is the first to explore preschoolers' SFON through multi-sensory perceptions (i.e., extending from vision to hearing) and to explore the important roles of working memory and inhibitory control in the process of SFON in different stimulus contexts from a cognitive perspective.

Keywords：spontaneous focusing on numerosity, working memory, inhibitory control, preschoolers

青少年自我控制与心理健康的非线性影响：学校适应的中介作用和身体活动的调节作用

江悦妍　颜军（通讯作者）
扬州大学体育学院，扬州，225000，yanjun@yzu.edu.cn

摘　要　目的 考察青少年自我控制对心理健康的非线性影响，探讨学校适应的中介作用和身体活动的调节作用。方法 采用自我控制量表、中学生心理健康量表、高中生学校适应量表、国际体力活动问卷对 2077 名高中生进行测量，借助 Medcurve 和 Process 等工具对问卷数据进行实证研究。结果 (1)青少年自我控制对心理健康有 U 型影响；青少年自我控制对学校适应有 U 型影响；(2)学校适应在青少年自我控制和心理健

康的 U 型关系中起中介传导作用。(3)身体活动调节了青少年自我控制和心理健康之间经由学校适应的间接效应。结论 青少年为实现学校适应，有时需要对内在自我优先或外在适应优先策略进行抉择，在这一过程中易因自我控制资源过度损耗，陷入“过剩适应”状态，从而影响其心理健康。学校适应同青少年自我控制资源损耗、恢复的动态变化有关，介导了青少年自我控制与心理健康 U 型关系的产生。身体活动能够通过调节青少年学校适应和心理健康间的关系，弱化自我控制过程中“过剩适应”对心理健康的影响。与低身体活动青少年相比，高身体活动青少年通过调动更少的自我控制资源，获得更好的学校适应，且更为弱化对过剩适应引发的心理健康问题的关注。研究为青少年心理健康的影响因素研究提供了新思路，倡导教育者通过合理开展身体活动的方式，动态平衡青少年自我控制和学校适应，以维护青少年心理健康。
关键词 自我控制，心理健康，学校适应，身体活动，非线性关系

The Nonlinear Effect of Adolescent Self-control and Mental Health：The Mediating Role of School Adjustment and the Moderating Role of Physical Activity

Yueyan Jiang Jun Yan*
College of Physical Education, Yangzhou University
Address: No.196 West Huayang Road, Hanjiang District, Yangzhou, China

Abstract：Objective: To investigate the nonlinear effect of self-control on mental health of adolescents, and to explore the mediating role of School Adjustment and the moderating role of physical activity. Methods: Used self-control scale, mental health scale for middle school students, School Adjustment scale, international physical activity questionnaire to measure 2077 senior high school students. Conducted empirical research on questionnaire data with tools such as Medcurve and Process. Results: (1)Adolescent self-control had a U-shaped effect on mental health. Adolescent self-control had a U-shaped effect on School Adjustment. (2)School Adjustment played a mediating role in the U-shaped relationship between self-control and mental health of adolescents. (3)Physical activity regulated the indirect effect between self-control and mental health of adolescents through School Adjustment. Conclusions: In order to realize school adjustment, adolescents sometimes need to make a choice between internal self and external adaptation. In this process, it is easy to fall into a state of "over-adaptation" due to excessive loss of self-control resources, thus affecting their mental health. School adjustment is related to the dynamic changes in the depletion and recovery of self-control resources in adolescents, mediating the U-shaped relationship between self-control and mental health in adolescents. Physical activity can weaken the influence of "over-adaptation" on mental health in the process of self-control by adjusting the relationship between School Adjustment and mental health of adolescents. Compared to adolescents with low physical activity, adolescents with high physical activity gain better school adjustment by mobilizing fewer self-control resources, and weaken their attention to mental health issues caused by over-adaptation. The study provides a new way of the study of the influencing factors of adolescent mental health. Advocate educators to dynamically balance adolescent self-control and School Adjustment through appropriate physical activities.
Keywords：self-control，mental health，school adjustment，physical activity，nonlinear relation

“近朱者赤”：孤独症儿童广义互惠特征及自我观点和他人观点的作用

摘 要　广义互惠指个体接受施惠方行为后，随即以同质行为对待他人的互惠形式。孤独症群体社会交往受限，那么现实生活中，该群体是倾向跟从施惠方行为，还是会对自我-他人加以区分？以往针对典型学龄前和成人的研究给出了“近朱者赤，近墨者黑”的答案，但却忽视了处于社交敏感期的学龄群体。本研究通过三项研究考察了互惠情境（自私条件、慷慨条件）对 6-16 岁孤独症儿童（$N = 30$）、典型发展儿童（$N = 34$）广义互惠的影响及自我观点和他人观点的作用。研究发现，儿童在广义互惠中表现出选择性，即近朱变赤，近墨不黑。自我-他人区分调节了孤独症儿童慷慨条件下的行为回应。此外，孤独症儿童在广义互惠中较少受自我、他人观点影响，而他人观点可削弱典型发展儿童自私条件下的消极回应。这对于解析现有互惠理论的争议，揭示自我-他人区分的调节规律，助推中国融合教育实施中的环境创设及临床干预等有参考意义。

关键词　广义互惠，孤独症儿童，自我-他人区分，自我观点，　他人观点

“Attention of the like”: Generalized Reciprocity Characteristics and the Role of Self and Other’s Perspectives in Children with Autism

Abstract：Generalized reciprocity refers to the form of reciprocity in which an individual after receiving the behavior of the benefactor, immediately treats others with homogeneous behavior. Individual with autism have limited social interaction, so in real life, do they tend to follow altruistic behavior, or do they distinguish between self and others? Previous studies on typical preschoolers and adults have provided the answer of “those who are close to red, those who are close to ink”, but have overlooked the socially sensitive school-age group.

In this study, we investigate the impact of absolute self benefit on generalized reciprocity in children with autism (N=30) and typical developmental(N=34), as well as the possible social cognitive mechanisms involved (study 1) and the moderating effect of self-other distinction (study 2-5). In study 1, we created a generalized reciprocity selfish situation (1/6) and a generosity situation (5/6) by manipulating the number of homogeneous tokens shared by the benefactor (6 in total). It was found that the reciprocity situation affected children's generalized reciprocity behavior. Under the generosity situation, children with autism had a lower level of generosity and were regulated by the ability to self-other distinction. In study 2-3, we separated the regulating effects of self-perspective and others-perspective on generalized reciprocal behavior by highlighting self-perspective and highlighting others-perspective respectively, and found that self-perspective had no significant influence on the two groups of children's behavior, while the influence of others-perspective was different, that is, it would promote the behavior of autistic children in the generous situation and the behavior of typically developing children in the selfish situation. In study 4-5, we conducted a task of sharing heterogeneous apples (2 good apples and 2 bad apples) to test the explanations of separated self-other perspective. It was also found that the moderating differences of others' viewpoints did not have a significant impact on children with autism, while under selfish conditions, it could promote the sharing of good apples by children with typical development.

This indicates that the self-other distinction can regulate the generalized reciprocal behavior of children with autism, promote the group's generous behavior by highlighting the views of others, and narrow the generalized reciprocal differences form children with typical development. The current research is of great significance in analyzing the controversy over the existing hypothesis of psychological blindness and extreme male brain, revealing the variable patterns of the "self-others" perspective distinction in the broad sense of reciprocity among children with autism, and promoting the "improvement of rehabilitation education system" and "strengthening the full service for autism" proposed by China's 2023 National People's Congress.

***Keywords*:** generalized reciprocity, children with autism, self-other distinction, self-perspective, others-perspective

强制性养育与青少年学校投入：检验共情关怀调节作用中的性别差异

吴柯慧，李德*

*吴柯慧，澳门大学犯罪学博士，中国澳门氹仔大学大马路社会科学学院(E21B)，17741568777，ellawu00@163.com。

李德，澳门大学社会科学学院社会学系教授，博士生导师，亚洲药物滥用研究协会会长。

摘 要　强制性养育被认为是青少年发展的重要预测因素之一。通过使用严厉的管教方式，强制性养育对青少年发展产生了负面影响。然而，由于不同的个人特征及性别差异，青少年对养育方式的脆弱性和敏感性均有所不同，并非所有来自强制性养育家庭的青少年都会在学校、学业方面出现问题。本研究通过分析1075 名中国青少年在 2015-2016 年两轮跟踪调查数据，发现共情关怀水平较高的青少年在低至中度的强制性教养下表现出更高的学校投入；然而，当父母的强制性养育过度时，具有较高共情关注的青少年却减少了学校投入。此外，多组分析结果指出共情关注的调节作用存在性别差异：共情关注并未调节强制性养育对女性青少年学校投入的影响；相反，具有较高共情关注的男性对强制性养育更为敏感，即使中等程度的强制性养育也将导致其学校投入明显降低。研究结论强调了在检验养育方式与青少年学校投入的关系时，应充分考虑青少年个人特征和性别差异的重要作用。

关键词　强制性养育，学校投入，共情关怀，青少年，性别差异

Coercive Parenting and Adolescent School Commitment: Exploring Gender Differences in the Moderating Effect of Empathic Concern

Kehui Wu, Spencer D. Li

Abstract: Coercive parenting is recognized as one of the key predictors of adolescent development. Using strict disciplinary methods, coercive parenting negatively affects adolescent developmental outcomes. However, due to individual characteristics and gender differences, adolescents exhibit varying levels of vulnerability and susceptibility to parenting styles. Based on the two-wave survey data from a sample of 1075 Chinese adolescents, the study found that compared to adolescents with lower levels of empathic concern, those with higher levels of empathic concern report higher levels of school commitment under low to moderate levels of coercive parenting. However, when coercive parenting becomes excessive, adolescents with higher empathic concern exhibit reduced school commitment. Additionally, multiple-group analyses indicated gender differences in the moderating effect of empathic concern: empathic concern did not moderate the impact of coercive parenting on school commitment for female adolescents. Conversely, male adolescents with higher levels of empathic concern were more sensitive to coercive parenting, as even moderate levels of coercive parenting significantly decreased their school commitment. The findings highlight the significance of considering individual characteristics and gender differences when examining the relationship between parenting styles and adolescent school commitment.

Keywords: Coercive parenting, school commitment, empathic concern, gender difference

教师专业活力的特点与影响因素

李喜　王雨　唐甜　陈宁（通讯作者）
上海师范大学教育学院，上海，200234，chenning323@163.com

摘 要　基于我国教育改革与教育发展现状，原创性提出教师专业活力这一概念，在系统梳理国内外有关活力理论与研究的基础上，建构了我国中小学教师专业活力的“三核心”(能量感、积极性、创新性)“三范畴”(教学、育人、服务)的结构模型，并以此为基础研制了《教师专业活力量表》。为探明我国基础教育阶段教师专业活力的现状特点与影响因素，运用自编问卷对 5458 名中小幼学校教师进行调查。研究表明：(1)编制的“三核心三范畴”的《教师专业活力问卷》具有良好的心理测量学信效度；(2)教师专业活力整体发展处于中等向好水平，下属因子中积极性发展最佳，创新性对教师专业活力具有最强预测作用；(3)教师专业活力既存在活力衰竭、活力一般、活力充沛的亚类型差异，也在职称、教龄、任教学段上表现出不同发展水平；(4)组织支持与同事支持显著正向预测教师专业活力，且基本心理需求满足可在其中发挥中介作用。鉴此，为促进教专业活力的有效生成和持续释放，既要把握整体结构、综合施策，又要抓住重点群体与关键因素予以精准施策、赋能应需。

关键词　教师专业活力，能量感，积极性，创新性，外部资源，基本心理需求满足

The Characteristics and Influencing Factors of Teachers' Professional Vitality

Li Xi, Wang Yu, Tang Tian & Chen Ning
College of Education, Shanghai Normal University, Shanghai, 200234

Abstract: Based on the current situation of education reform and development in China, the concept of teachers' professional vitality is originally proposed. Based on a systematic review of domestic and international theories and studies on vitality, a structural model of "three cores" (sense of energy, positivity, innovativeness) and "three spheres" (teaching, nurturing, service) of the professional vitality of primary and secondary school teachers in China was constructed, and based on which, the "Teacher Professional Vitality Questionnaire (TPVQ)" has been developed. In order to explore the current situation of teachers' professional vitality in China's basic education stage and the factors affecting it, a self-administered questionnaire was used to investigate 5458 teachers at the basic education. The study shows that: (1) The Teacher Professional Vitality Questionnaire (TPVQ) with three cores and three spheres has good psychometric reliability and validity; (2) The overall development of teachers' professional vitality is at a moderately good level, and among the subordinate factors, positivity is the best, and innovativeness has the strongest predictive effect on teachers' professional vitality; (3) Teachers' professional vitality not only exists sub-type differences of vitality exhaustion, general vitality and abundant vitality, but also shows different levels of development in professional titles, teaching years and teaching periods; (4) Organizational support and colleague support significantly and positively predicted teachers' professional vitality, and the satisfaction of basic psychological needs can play a mediating role in it. In view of this, in order to promote the effective generation and sustained release of teachers' professional vitality, it is necessary to grasp the overall structure and implement comprehensive policies, as well as to grasp the key groups and key factors to implement precise policies and empower them to respond to their needs.

Keywords: teachers' professional vitality; sense of energy; positivity; innovativeness; external resources; basic psychological needs satisfaction

社交焦虑和社会关系的往复式联系：基于纵向研究的元分析结构方程模型

陈必忠[1]　孙晓军[1]（通讯作者）
1 青少年网络心理与行为教育部重点实验室; 华中师范大学心理学院, 武汉，430079，
sunxiaojun@mail.ccnu.edu.cn

摘 要　不同发展阶段的理论均强调社交焦虑和社会关系可能存在往复式联系。然而，现有的实证证据并不一致，是社交焦虑导致社会关系受损？还是不良的社会关系催生社交焦虑？抑或是两者存在双向影响？为了回答这些问题并澄清以往研究的争议，本研究使用元分析技术对以往涉及社交焦虑和四种社会关系（家庭关系、学校关系、浪漫关系和一般性关系）的纵向研究进行定量整合，以明晰两者之间的往复式联系。文献检索和筛选后获取了来自 107 项纵向研究的 110 个独立样本，共计 115133 人，涵盖了从学步期至成年中期的样本。采用一阶段元分析结构方程模型的方法，分别构建 4 个交叉滞后面板模型进行分析，并检验了研究特征(发表年份和方法学质量)、样本特征(年龄、出生年代、男性比例和个体主义指数)和变量特征(时间间隔、社交焦虑成分和报告者)对交叉滞后系数的调节作用。基于 Begg 秩相关法和 Egger 线性回归法的

结果提示不存在显著的发表偏倚。交叉滞后分析表明，在控制了自回归效应后，T1 的社交焦虑依然能显著负向预测 T2 的所有社会关系(β = –0.107 ~ –0.048)。此外，T1 的家庭相关关系(β = –0.060)和一般性关系(β = –0.111)也能显著负向预测 T2 的社交焦虑，但 T1 的学校相关关系(β = –0.026)和浪漫关系(β = 0.019)则不能。调节效应分析表明，家庭相关关系和浪漫关系的模型中不存在显著的调节变量。对于学校相关关系，T1 的社会关系对 T2 的社交焦虑的路径受发表年份的调节。在一般关系中，男性比例调节了 T1 社会关系对 T2 社交焦虑的影响，时间间隔调节了 T1 社交焦虑对 T2 社会关系的影响，年龄则同时调节了社交焦虑和社会关系双向路径。上述发现表明社交焦虑是损害未来社会关系的关键因素，而不良的家庭关系和一般性关系则是滋生社交焦虑的土壤。本研究基于更先进的元分析方法，系统检验了社交焦虑和不同类型社会关系之间的往复式联系，为两变量间的因果关系提供了更有力的证据，也为未来干预社交焦虑和培养良好社会关系提供了实践启示。
关键词　社交焦虑，社会关系，往复式联系，纵向研究，元分析结构方程模型

Examining the reciprocal link between social anxiety and social relationships spanning from childhood to adulthood: A meta-analysis of longitudinal studies

CHEN Bizhong[1], SUN Xiaojun[1]
1 Key Laboratory of Adolescent Cyberpsychology and Behavior, Ministry of Education; School of Psychology, Central China Normal University, Wuhan 430079, China

Abstract：Theoretical frameworks regarding various developmental stages highlight the potential for reciprocal connections between social anxiety and social relationships. However, the existing empirical evidence is inconclusive, as it remains uncertain whether social anxiety causes impaired social relationships or if poor social relationships contribute to social anxiety. Alternatively, it is plausible that both factors exert a bidirectional influence. To address these unresolved questions and clarify previous research controversies, this study utilized meta-analysis techniques to quantitatively integrate longitudinal studies that investigate the association between social anxiety and four types of social relationships: family-related, school-related, romantic, and general relationships. The primary objective is to elucidate the bidirectional nature of these associations. A comprehensive dataset comprising 110 independent samples from 107 longitudinal studies, encompassing a total participant count of 115,133 individuals spanning childhood through adulthood, is utilized. Employing the one-stage meta-analytic structural equation modeling approach, four cross-lagged panel models are constructed for thorough analysis. Additionally, this study tests the moderating effects of various study characteristics (publication year and methodological quality), sample characteristics (age, birth cohort, male proportion, and individualism index), and variable characteristics (time lag, facet of social anxiety, and reporter) on the cross-lagged coefficients. The findings from the Begg's rank correlation test and Egger's linear regression test indicated no significant publication bias. Effect size analyses demonstrated that, even after controlling for autoregressive effects, social anxiety at T1 significantly negatively predicted all social relationships at T2 (β = –0.107 ~ –0.048). Moreover, family-related relationships (β = –0.060) and general relationships (β = –0.111) at T1 also significantly and negatively predicted social anxiety at T2, whereas school-related relationships (β = –0.026) and romantic relationships (β = 0.019) at T1 did not. Moderator analyses revealed that there were no significant moderators in the family-related and romantic relationships models. However, in the case of school-related relationships, the path from T1 social relationships to T2 social anxiety was moderated by publication year. For general relationships, the

male proportion moderated the effect of T1 social relationships on T2 social anxiety, and the time lags moderated the effect of T1 social anxiety on T2 social relationships. Additionally, the sample age moderated the bidirectional paths of social anxiety and general relationships. Overall, the study revealed that social anxiety is a key factor that impairs future social relationships, while poor family relationships are the soil that breeds social anxiety. Using advanced meta-analysis methods, this study systematically examined the reciprocal links between social anxiety and various types of social relationships. The findings provide robust evidence for the causal association between these variables and offering practical implications for future interventions aimed at addressing social anxiety and fostering positive social relationships.
Keywords：social anxiety, social relationships, reciprocal link, longitudinal studies, meta-analysis

3~6 岁学前儿童早期数量认知的发展：符号数字的习得

梁笑[1]　康静梅[1]　王丽娟[1]（通讯作者）
1 东北师范大学，长春，130000，wanglj699@nenu.edu.cn

摘 要　当前研究者从两个角度解释学前儿童如何学习符号数字的问题：一些研究者从非符号数量系统(Non-Symbolic Number System, NSNS)和 SNS(Symbolic Number System, SNS)之间关系的角度出发，提出了近似起源假说和符号关联假说；另一些研究者则从符号数字的表现形式出发(口头数字和书面数字)，提出了基数水平理论和口头映射假说。虽然这四种假说均在某种程度上弥补了缺陷和空白，但均忽略了符号数字学习阶段性和递进式发展的本质。为此，本研究旨在全面深入地考察学前儿童学习符号数字的发展规律和内在机制。本研究测量了 647 名学前儿童（205 名小班、222 名中班、220 名大班）的先天数感、理解符号数字所代表数值含义的能力（口头或书面映射能力）、理解符号数字之间数值关系的能力（数字比较、序数知识、非正式计算）。结果采用结构方程模型发现，在控制工作记忆、执行功能、智力、家庭数量活动后，小班儿童会在数感的基础上，通过学习口头数字和书面数字之间的联结、口头数字和非符号数量之间的映射，进一步学习书面数字和非符号数量之间的映射。中班儿童在数感的基础上，通过三种双向映射的学习，可以更好地学习和理解序数知识，即更好地理解数字之间的数值关系。大班儿童则通过映射和序数知识，可以更好地学习非正式计算的能力，即操纵数值关系的能力。就此，学前儿童的符号数量系统达到早期成熟。
关键词　早期数量认知，符号数量系统，数值含义，数值关系，学前儿童发展

The development of early numerical cognition in preschool children aged 3~6: the acquisition of symbolic numbers

Xiao Liang[1]　Jingmei Kang[1]　Lijuan Wang[1*]
1 Northeast Normal University, Changchun, 130000, wanglj699@nenu.edu.cn

Abstract：3-6-year-old preschool children are in a critical stage of early numerical cognitive development, which mainly refers to the ability to understand the numerical meaning represented by symbolic numbers (e.g., the oral number "five", the written number "5"), that is, the ability of mapping), and the ability to understand the numerical relationship between symbolic numbers (including comparison, ordinal numbers and calculation), that is, the early development and maturity process of the symbolic number system (SNS). The current researchers explain how preschoolers learn symbolic numbers from two different perspectives. Some researchers have proposed the

Approximate Origins Hypothesis and the Symbol-Symbol Association Account from the perspective of the relationship between the Non-Symbolic Number System (NSNS) and SNS. Other researchers have proposed the Knower-Lever Theory and the Verbal Mapping Account based on the representation of symbolic numbers (oral and written). Although these four hypotheses make up for the shortcomings and gaps to some extent, they all ignore the phased and developmental nature of symbolic number learning. Therefore, this study aims to comprehensively and deeply investigate the development trajectory and internal mechanism of preschool children's learning of symbolic numbers. This study measured the number sense, the ability to understand the meaning of the numerical values represented by symbolic numbers (six oral or written NSNS-SNS mapping tasks), and the ability to understand the numerical relationships between symbolic numbers (number comparison, informal calculation task, ordinal task) of 647 preschool children (205 children aged 3-4 years, 222 children aged 4-5 years, 220 children aged 5-6 years). Using the path analysis model and structural equation model, it is found that after controlling for the above additional variables, preschool children would first learn the meaning of the numerical values represented by oral numbers in the order of values from smallest to largest, from oral to written. Secondly, on the basis of learning the audio-visual connection between oral and written numbers, understand the numerical meaning represented by written numbers; Then, the comparison of symbolic numbers would be learned on the basis of the number sense and the understanding of numerical relationships. Finally, on this basis, preschool children can truly understand the numerical relationship between symbolic numbers (ordinal numbers) while learning informal calculations, and the early development of their SNS has also reached maturity.

Keywords **：** early numerical cognitive, symbolic number system (SNS), numerical meaning, numerical relationship, preschool child development

亲社会还是偏差？网络社会行为的情绪驱动机制

摘 要 信息化背景下的网络社会行为备受关注，但其内在的情绪驱动机制尚不明晰。本研究探讨不同效价情绪对网络社会行为(网络亲社会行为与网络偏差行为)的影响及动态变化关系，还进一步考察情绪在社会排斥与网络社会行为间的中介作用及心理控制源的调节效应。研究 1 和 2 分别采用实验法和经验取样法，结果发现：在个体间及个体内水平，正性情绪及变化能促进网络亲社会行为及发展，负性情绪及变化则引发网络偏差行为及发展。研究 3 采用三时点问卷法，结果发现：社会排斥通过正性情绪间接负向影响网络亲社会行为，亦通过负性情绪间接增强网络偏差行为；内控性负向调节正性情绪在社会排斥与网络亲社会行为间中介效应的前半段路径，即随着个体内控性水平的增加，社会排斥对正性情绪的负向影响逐渐减弱。

关键词 正性情绪，负性情绪，社会排斥，网络偏差行为，网络亲社会行为

Prosocial or Deviant? Emotion Enhancement Mechanism of Cybersocial Behavior

Abstract：Cybersocial behavior (cyber-prosocial behavior and cyber-deviant behavior) under the background of information technology has attracted increasing attention. It is unclear, however, if and how emotion affects cybersocial behavior. Furthermore, previous studies have focused on the influence of trait factors on cybersocial behavior yet overlooked the important role of state fluctuation factors. Moreover, investigating the influence of negative and positive emotional fluctuations on cybersocial behaviors is helpful to extend the study of cybersocial behaviors driven by emotionalism and break the traditional cognitive model of "high quality and good behavior" or "low quality and bad behavior". Drawing upon mood-congruent theory and stressor-emotion model, we theorize that negative and positive emotional fluctuations influence different cybersocial behaviors and examine the impact of social exclusion on cybersocial behaviors and its mechanism——the mediating effect of emotions and the moderating effect of locus of control. Study 1 (N=129) and 2 (N=258) conducted an experiment and an experience sampling method separately. Results showed that positive emotions positively predicted cyber-prosocial behavior and negative emotions positively predicted cyber-deviant behaviors. Study 3 conducted a moderated mediation model on three-wave longitudinal data obtained from 319 college students. Results showed that: (1) Social exclusion contributed to cyber-prosocial behavior through positive emotion, and similarly contributed to cyber-deviant behavior partially through negative emotion. (2) The mediating effects of positive emotions on social exclusion and cyber-prosocial behavior were negatively moderated by internal control. The indirect effect was weaker for students with high internal control than for those with low internal control. These findings expand the cognitive framework of the driving mechanism of cybersocial behavior, excavate the rich implications of the emotional motivation of cybersocial behavior, and reveal the social spillover effects of emotions in the cyber environment under social exclusion.

Keywords: positive emotion, negative emotion, social exclusion, cyber-deviant behavior, cyber-prosocial behavior

父母受教育程度与父母期望对青少年学业和心理健康的影响：一项以个体为中心的分析

张蕊[1]　张航[1]　梁芃伟[1]　边玉芳[1,2]（通讯作者）

1 北京师范大学中国基础教育质量监测协同创新中心，北京，100875

2 北京师范大学儿童家庭教育研究中心，北京，100875，bianyufang66@163.com

摘 要　家庭情境是影响青少年早期学业发展和心理健康发展的重要因素。教育期望指对未来教育成就的希望和期待。父母受教育程度是家庭的文化资本，也是父母教育期望的重要现实因素。根据情境期望价值理论，二者共同构成影响子女发展的家庭情境。然而，以往研究多从变量为中心的视角考察父母受教育程度及教育期望的影响，且往往仅考察母亲或将父亲和母亲视为一个整体，鲜有研究从家庭整体角度区分父母受教育程度及教育期望共同构成的家庭情境亚类型，以及考察其对青少年发展的影响差异。因此，本研究于 2021 年以 1104 名初一学生及其父母为被试进行初测，间隔 1 年进行追测（孩子年龄 $M_{wave.1age}$=13.23 岁），通过个体为中心的视角，同时将父亲和母亲的受教育程度及教育期望纳入分析，借助潜在剖面分析（Latent

Profile Analysis, LPA）探究家庭中父母受教育程度-父母期望的类别；使用潜在转变分析（Latent Transition Analysis, LTA）探究不同家庭类别的稳定性和变化特点；并探究不同类别对青少年儿童初一和初二时学业表现、主观幸福感和抑郁的影响。结果表明：（1）在两个时间点，父母受教育程度-父母教育期望均可以分成四种家庭类别：高受教育-高期望(T1=31.2%，T2=31.2%)、中受教育-中期望(T1=20.5%,T2=21.9%)、低受教育-高期望(T1=42.6%, T2=37.9%)、低受教育-低期望(T1=31.2%,T2=8.9%)；（2）从初一到初二,，高受教育-高期望、中受教育-中期望的家庭保持了较高的稳定性，而低受教育-低期望家庭向低受教育-高期望家庭转变的概率最高；（3）家庭类别对青少年子女的学业表现（语文、数学、英语）和心理健康（主观幸福感、抑郁）有显著影响，其中高受教育-高期望组最利于青少年的发展（学业表现最好，主观幸福感最高，抑郁最低）。与低受教育-低期望组相比，无论在初一还是初二，低受教育-高期望组青少年均具有更好的学业表现，更少的抑郁，在初二时，还具有更高的主观幸福感。研究结果从家庭角度揭示在低文化资本下，父母高教育期望能帮助青少年获得更好的发展，为帮助低文化资本家庭获得向上循环提供了一个实证研究基础。
关键词　父母受教育程度，父母教育期望，个体中心，青少年学业表现，青少年心理健康

The influence of parental educational level and parental expectations on adolescent academic performance and mental health: a person-centered analysis

Rui Zhang[1]　Hang Zhang[1]　Pengwei Liang[1]　Yufang Bian[1]（corresponding author）
1Collaborative Innovation Center of Assessment toward Basic Education Quality at Beijing Normal University, Beijing，100875
2 Child and Family Education Research Center at Beijing Normal University, Beijing

Abstract: Family situation is an important factor affecting the academic development and mental health development of early adolescents. Educational expectation refers to the expectation of future educational achievement. The parental educational level is not only the cultural capital of the family, but also an important realistic factor of parental educational expectation. According to the situated expectancy-value theory, the two together constitute the family situation that affects the development of adolescents. However, previous studies mostly examined the influence of parental education level and education expectation through the variable-centered approach, and often only examined the mother or regarded the father and mother as a whole. Few studies differentiated the subtypes of family situations jointly constituted by parental education level and education expectation from the perspective of the whole family, and examined the differences in their influence on adolescent development. Therefore, the current study adopted 1104 secondary school students and their parents as the subjects in 2021, and conduct follow-up tests one year later (children's age $M_{wave.1age}$=13.23 years). From a person-centered perspective, the educational level and educational expectation of fathers and mothers will be included in the analysis. Latent Profile Analysis (LPA) was used to explore different profiles of parental educational level-parental expectation; Latent Transition Analysis (LTA) was used to explore the stability and the changing characteristics of different profiles. It also explores the influence of different profiles on academic performance, subjective well-being and depression in the seventh and eighth grade. The results show that: (1) At both time points, parental education level-parental education expectation can be divided into four family profiles: High education-high expectation (T1 = 31.2%, T2 = 31.2%), middle education-middle expectation (T1 = 20.5%, T2 = 21.9%), low education-high expectation (T1 = 42.6%, T2 = 37.9%), low education-low expectation (T1 = 31.2%, T2 = 8.9%); (2) From seventh to eighth grade, high education-high expectation and middle

education-middle expectation profiles maintained high stability, while low education-low expectation profile had the highest probability of changing to low education-high expectation profile; (3) Family profiles have significant effects on adolescents' academic performance (Chinese, Math, English) and mental health (subjective well-being, depression), in which the high education-high expectation profile is the most beneficial to adolescent development (the best academic performance, the highest subjective well-being and the lowest depression). Compared with the low education-low expectation profile, adolescents in the low education-high expectation profile had better academic performance, less depression, and higher subjective well-being in eighth grade. The results of this study reveal that under the condition of low cultural capital, parental high educational expectation can help teenagers achieve better development, and provide an empirical research basis to help families with low cultural capital get an upward cycle.

Keywords: Parental educational level, parental educational expectation, person-centered, adolescent academic performance, adolescent mental health

童年不良经历对冒险行为发展的影响：自我控制纵向中介作用和多基因分数的调节作用

王林欣[12]　黎建斌[3]　刘子豪[4]　窦凯[2]（通讯作者）

1 北京师范大学发展心理研究院，北京，100875

2 广州大学教育学院青少年心理与行为研究中心，广州，510006，　通讯作者 psydk@gzhu.edu.cn

3 香港教育大学幼儿教育学系，香港，中国

4 中国科学院行为科学重点实验室(中国科学院心理研究所), 北京，100101

摘 要　过往横断研究表明，冒险行为随年龄（10~25 岁）的上升呈“倒 U 型”发展趋势。然而，尚不清楚在纵向研究中，中国青少年是否表现出相同冒险趋势。诚然，自我控制理论表明低自我控制是冒险行为的核心因素，但考察自我控制发展轨迹如何影响冒险行为的研究较为稀缺。此外，少有研究从“基因×环境”视角考察自我控制发展轨迹的影响因素，并采用多基因方法。基于人格社会生态遗传学框架和生活史理论，本研究探讨了多基因分数和童年不良经历交互作用，共同影响自我控制的发展轨迹，进而影响冒险行为的发展。本研究采用追踪设计(共 3 个时间点，间隔 6 个月)对广州市，对 1914 名青少年（男性 1008 名，M_{age}=14.51 岁，SD = 1.49）的童年不良经历(T1)、自我控制(T1/T2/T3)、冒险行为(T1/T2/T3)进行调查。

潜增长模型表明，(1) 早期青少年的自我控制发展呈下降趋势，冒险行为发展呈上升趋势，而中期青少年的自我控制发展呈上升趋势，冒险行为发展呈下降趋势。(2) 自我控制截距和斜率分别负向影响冒险行为截距和斜率。此外，自我控制截距正向预测中期青少年的冒险行为斜率。 (3) 纵向中介效应表明，童年不良经历通过削弱自我控制的截距，提高早、中期青少年冒险行为的截距。此外，童年不良经历能加剧早期青少年自我控制的下滑，间接影响冒险行为的斜率。(4) 本研究通过机器学习的留一法交叉验证确定了 5 个与自我控制有关的基因位点，即 *DRD1* 基因 rs686，*BDNF* 基因 rs2030324，*OXTR* 基因 rs2254295，*HTR2A* 基因 rs6311 和 *HTR2A* 基因 rs6313。这五个位点的多基因分数显著调节了自我控制截距在童年不良经历与冒险行为截距的纵向中介效应。相比于多基因分数较低的青少年，童年不良经历通过削弱自我控制初始水平，进而提高冒险行为初始水平的效应在多基因分数较高的早、中期青少年中更显著。该作用模式与差别易感模型相吻合，即携带特定易感基因型的青少年可能更容易受到外界环境因素的影响。该研究结果有助于临床工作人员识别和区分具有遗传易感性的青少年，从而通过行之有效的认知或行为干预来缓解童年不良经历对青少年的消极影响。

关键词　冒险行为，童年不良经历，自我控制，多基因分数，青少年

The Impact of Adverse Childhood Experiences on the Developmental Trajectory of Adolescents' Risk-Taking: Longitudinal Mediating Effect of Self-Control and Moderating Effect of Polygenic Scores

Lin-Xin Wang[12] Jian-Bin Li[3] Zi-Hao Liu[4] Kai Dou[2]

1 Institute of Developmental Psychology, Beijing Normal University, Beijing, 100875

2 Research Center of Adolescent Psychology and Behavior, School of Education, Guangzhou University, Guangzhou, 510006

3 Department of Early Childhood Education, The Education University of Hong Kong, Hong Kong, China

4 CAS Key Laboratory of Behavioral Science, Institute of Psychology, Beijing, 100101

Abstract: Previous cross-sectional studies have shown that risk-taking behaviors follow an "inverted U-shaped" developmental trend with age (10 to 25 years). It was unclear whether the same trend of risk-taking could be observed among Chinese adolescents in longitudinal studies. Despite self-control theory demonstrating that low self-control is the central factor for risk-taking, there is a paucity of research considering the impact of self-control developmental trajectory on risk-taking. Additionally, while researchers have gradually focused on the root of self-control from the perspective of "gene × environment", scant studies conducted a longitudinal design to consider its development trajectories and applied a polygenic approach. Drawing on the socioecological-genetic framework of personality and life history theory, this study investigated the interplay between polygenic score and adverse childhood experiences (ACEs) in relation to self-control developmental trajectory and further changes in risk-taking among early and middle adolescents. A longitudinal design with three time points (spaced 6 months apart) was employed to survey 1914 adolescents in Guangzhou (1008 males; M_{age}=14.51 years, SD = 1.49) regarding ACEs (T1), self-control (T1/T2/T3), and risk-taking behaviors (T1/T2/T3).

Latent growth modeling revealed the following findings: (1) self-control decreased and risk-taking increased over time among early adolescents, whereas self-control increased and risk-taking decreased over time among middle adolescents. (2) The initial level and slope of self-control were negatively associated with the initial level and slope of risk-taking in early adolescents, respectively, while the initial level of self-control was positively associated with the slope of risk-taking in middle adolescents. (3) The longitudinal mediating effect indicated that ACEs would increase early and middle adolescents' risk-taking intercept via dampening self-control intercept, and increase early adolescents' risk-taking slope via aggravating the decline in self-control. (4) Using a leave-one-out cross-validation approach, we identified five important SNPs: *DRD1* rs686, *BDNF* rs2030324, *OXTR* rs2254295, *HTR2A* rs6311, and *HTR2A* rs6313. The polygenic scores derived from these SNPs could interact with ACEs, co-shaping adolescents' self-control intercept and thus risk-taking intercept. Adolescents with higher polygenic scores exhibited a more pronounced effect of ACEs on reducing their initial self-control level and subsequently increasing their initial level of risk-taking behaviors compared to those with lower polygenic scores. This pattern aligns with the differential susceptibility model, suggesting that adolescents with plasticity genes may be more susceptible to external environmental factors. These findings could assist clinical practitioners in distinguishing adolescents who are genetically predisposed, enabling the mitigation of the negative impact of ACEs through effective cognitive or behavioral interventions.

Keywords: risk-taking; adverse childhood experiences; self-control; polygenic scores; adolescents

5 口头报告

5.1 教育心理学专业委员会

教学得法：实现特定学习目标的教学活动与教学策略

牛端

中山大学心理学系，广州，510006

E-mail：edsnd@mail.sysu.edu.cn

摘 要　学教评一致性是有效教学的基本原则。经典著作《布卢姆教育目标分类学：分类学视野下的学与教及其测评》对如何测评特定学习目标，从而实现测评与目标的一致性，做了系统清晰的阐述，但是该书作者明确指出教学策略与学习目标之间的联系尚不够明确，需要进一步的研究，因为多数教师想知道何种教学才能有效实现某种特定目标。在该书出版 22 年之后，上述问题仍未得到基于实证研究的可靠回答。本研究采取《本科课程教学评价问卷》（学生版）和《本科课程教学信息问卷》（教师版）对两所普通高校的 137 门课程的教师（137 人）、120 门课程的学生（2690 人）进行了调查，基于调查数据得到 76 门课程的任课教师与修读学生的匹配数据。结果发现：①高校教师认为重要的课程学习目标有 3 项：理解本科目知识（G1）、知识的应用（G2）、形成与本课程最相关的专业技能与观点（G3）；②能够显著促进 G1 目标实现的教学活动包括：讲授、案例研究和服务学习，能够显著促进 G2 目标实现的教学活动包括：案例研究和服务学习，能够显著促进 G3 目标实现的教学活动包括：服务学习、讲授和讨论；③能够显著促进 G1 目标实现的教学策略包括：“讲清楚章节如何与课程相符”（S1）、鼓励课外联系（S2）、介绍具有启发意义的观点（S3），能够显著促进 G2 目标实现的教学策略包括：S3、帮助学生解答他们的问题（S4）、S2，能够显著促进 G3 目标实现的教学策略包括：让学生参与实践项目、S1、鼓励自我反思（S5）。教学有法，但无定法，贵在得法，本研究为高校教学实现特定目标提供了教学活动与教学策略决策参考。

关键词　学教评一致性，学习目标，教学活动，教学策略

Teaching Rightly: Teaching Activities and Teaching Strategies for Achieving Specific Learning Objectives

NIU Duan

Department of Psychology, Sun Yat-sen University, Guangzhou 510006

Abstract： The alignment among learning/teaching objectives, teaching activities, and assessment tasks is a fundamental principle of effective teaching. The classic work "A Taxonomy for Learning, Teaching, and Assessing- A Revision of Bloom's Taxonomy of Educational Objectives" provides a systematic and clear explanation of how to assess specific teaching objectives to achieve alignment between assessment and objectives. However, the author of this book explicitly points out that the linkage between teaching strategies and learning

objectives is not yet clear and requires further research, as most teachers want to know which teaching methods can effectively achieve specific goals. Twenty-two years after the publication of the book, the above-mentioned question has still not received a reliable answer based on empirical research. This study conducted surveys using the "Student Evaluation of Teaching Questionnaire" (Student Version) and the "Teaching Information Questionnaire" (Teacher Version) to investigate 137 courses and their teachers (137 individuals) and 120 courses and their students (2690 individuals) from two universities. Based on the survey data, matching data for 76 courses between the course teachers and the enrolled students were obtained. The results revealed the following:

1.College teachers considered the following three learning objectives as important or essential: gaining a basic understanding of the subject (G1), learning to apply course material (G2), and developing relevant professional skills and perspectives related to the course (G3).

2.Teaching activities that significantly promote the achievement of G1 objectives include lectures, case studies, and service learning. Teaching activities that significantly promote the achievement of G2 objectives include case studies and service learning. Teaching activities that significantly promote the achievement of G3 objectives include service learning, lectures, and discussions.

3.Teaching strategies that significantly promote the achievement of G1 objectives include "clearly explaining how each topic fit into the course" (S1), encouraging student-faculty interaction outside of class (S2), and introducing stimulating ideas about the subject (S3). Teaching strategies that significantly promote the achievement of G2 objectives include S3, helping students answer their own questions (S4), and S2. Teaching strategies that significantly promote the achievement of G3 objectives include involving students in hands-on projects, S1, and encouraging students to reflect on what they have learned (S5).

Teaching has methods, but there is no fixed method. The value lies in finding the right method. This research provides decision-making references for selecting right teaching activities and teaching strategies that can achieve specific learning goals in higher education.

Keywords：alignment among learning, teaching, and assessing, learning objectives, teaching activities, teaching strategies

不同思维模式对高中生学习动机和学业成绩的影响机制

李岳[1]　姜怡[2]（通讯作者）

1 上海外国语大学附属外国语学校，上海，200434

2 华东师范大学教育心理学系，上海，200062，yjiang@dep.ecnu.edu.cn

摘 要　在我国现行教育体制下，学业成绩一直是评价学生学习发展的核心要素，也是学校和社会广泛关注的学习成果指标。良好的学习动机能够对学生的学业成绩产生持久而稳定的促进作用。近年来，思维模式理论一直是学习动机领域的研究热点之一。思维模式是指个体对智力是否可塑的内隐信念，成长型思维认为智力具有可塑性，而固定型思维则认为智力是不可塑的。以往研究对于思维模式与学业成绩之间的影响关系仍存在较大争议，且两种思维模式的维度界定也有一定模糊性。因此，本研究主要探析中国高中生群体对于两种思维模式的具体认知，以及其对于学生学习动机和学业成绩的独特影响机制。本研究基于 878 份问卷数据，通过验证性因子分析和结构方程模型，使用以变量为中心的方法探究思维模式的作用机制。基于 SPSS 以及 Mplus 软件数据分析所得的结果表明：（1）成长型思维与固定型思维是两个独立的维度，应在研究中同时关注。（2）成长型思维与固定型思维的影响机制不同。成长型思维能够正向预测自我效能感、兴趣价值和努力成本；固定型思维能够负向预测自我效能感和兴趣价值，正向预测努力成本。（3）思

维模式并不直接对高中生的学业成绩产生影响，而是通过某些动机因素间接对成绩产生影响。具体来说，努力成本在成长型思维和学业成绩之间起负向的中介作用；固定型思维通过降低自我效能感、增加努力成本从而对学业成绩产生负面影响。本研究探析了两种思维模式如何影响高中生的学习动机和学业成绩，研究结果是对思维模式与学习动机和学业成绩之间关系的相关文献的重要补充，为思维模式与学业成绩之间作用机制的争议提供了更多可供参考的证据。此外，研究结果还具有重要的应用价值，能够为如何针对性培养中学生的成长型思维提供新的思路，有助于在教育实践中对差异化学生群体采取更有针对性的和个性化的干预措施。
关键词　思维模式，学习动机，学业成绩，结构方程模型

Distinct Roles of Different Types of Mindset on High School Students' Academic Motivation and Achievement

Yue Li[1] , Yi Jiang[2] (Corresponding Author)

[1] Shanghai Foreign Language School Affiliated to Shanghai International Studies University, Shanghai, 200434

[2] Department of Educational Psychology, East China Normal University, Shanghai, 200062

Abstract：In China's current education system, academic performance has always been the core element for evaluating students' learning development, and it is also a widely concerned indicator of academic outcomes for both schools and society. Adaptive learning motivation can exert a lasting and stable promoting effect on students' academic performances. In recent years, the theory of mindset is one of the research hotspots in the field of motivation. Mindset is an implicit belief about whether intelligence is malleable or not, among which a growth mindset posits that intelligence is malleable, while a fixed mindset believes that intelligence is unchangeable. Significant controversy still exists in previous research on the relationship between mindsets and academic achievement, the dimensional definition of these two mindsets also has some ambiguities. Therefore, the present study mainly analyzed Chinese high school students' perceptions on these two mindsets and their unique impacts on students' learning motivation and academic achievement.This study based on a sample of 878 students, explored the mechanism of mindsets from the variable-centered approach through confirmatory factor analysis and structural equation modeling in SPSS and Mplus, The results indicated that: (1) Growth mindset and fixed mindset are two independent dimensions that should be simultaneously investigated in research. (2) Growth mindset and fixed mindset have different influence mechanisms. Growth mindset positively predicted self-efficacy, interest value, and effort cost. In contrast, fixed mindset negatively predicted self-efficacy and interest value, while positively predicted effort cost. (3) Mindset did not directly affect high school students' academic achievement, but indirectly influenced it through some motivational factors. Specifically, effort cost served as a negative mediator between growth mindset and academic achievement. Fixed mindset influenced academic achievement through declined self-efficacy and increased effort cost.This study explores the effects of two different types of thinking patterns on high school students' learning motivation and academic achievement. The results provide important supplementary evidence for the relationship between mindsets and learning motivation and academic achievement, and contribute to the debate on the influence mechanisms of the relationship between mindsets and academic achievement. Furthermore, the findings of this study have important practical implications, providing new insights into how to cultivate growth mindsets in middle school students in a targeted manner, and promoting more targeted and personalized interventions for diverse student groups in educational practice.

Keywords：mindset, learning motivation, academic achievement, structural equation modeling

中小学教师对学生违规行为评价语的类型：基于潜在类别分析

孙月仙[1],李天昶[1],甄瑞[1 2*]（通讯作者）
1 杭州师范大学经亨颐教育学院，杭州，311121，zhenrui1206@126.com
2.浙江省哲学社会科学培育实验室“杭州师范大学婴幼儿发展与托育实验室”

摘 要 当中小学生做出违规行为时，很多教师会采用批评方式对其行为进行评价和教育。随着社会对中小学生心理健康问题的关注，教师也开始注重遵循学生的心理发展规律并从积极心理学视角看待和处理其违规行为。不过，当前尚缺少关于中小学教师对学生违规行为评价语类型的大样本研究，同时探讨教师评价语对学生情绪和学习影响的研究较多，考察评价语对教师自身情绪和工作状态影响的研究较少。为此，本研究对浙江省 7642 名中小学教师进行问卷调查，通过潜在类别分析探究其对学生违规行为评价语的类型，并以类型为自变量，以教学愉悦感和工作倦怠为因变量，进行独立样本非参数检验。研究结果发现，中小学教师对学生违规行为评价语存在以下四种类型：质疑批评型（组 1，13.5%）、共情关注型（组 2，60.9%）、批评与关注兼顾型（组 3，12.2%）、进步关注型（组 4，13.4%）。在面对学生总是上课迟到的问题时，质疑批评型的教师倾向于用较为严厉的语气质问学生迟到原因并质疑学生在其他事情上的表现；共情关注型教师会理解学生处境，关注学生为不再迟到做出的进步和努力，并感谢学生能够坚持赶到学校；批评与关注兼顾型教师会批评学生的迟到行为也能关注到学生进步；进步关注型教师关注学生每一次的进步。此外，这四种类型教师在教学愉悦感[$\chi^2(df=3)= 642.47, p<0.001$]和工作倦怠[$\chi^2(df=3)= 740.53, p<0.001$]上的得分都存在显著差异；在教学愉悦感上，得分排序是“组 2=组 3>组 4>组 1”，在工作倦怠上，得分排序是“组 1=组 3>组 4>组 2”。这些结果说明了，在面对学生违规行为时，超过一半的浙江省中小学教师会尝试理解和关注学生消极行为中蕴含的积极因素，较少教师会只对行为进行批评与质疑。教师对学生违规行为的评价也会影响教师情绪和工作倦怠，共情关注型、批评与关注兼顾型教师所体验到的教学愉悦感最强，质疑批评型教师的教学愉悦感最低；质疑批评型、批评与关注兼顾型教师的工作倦怠水平最高，共情关注型教师的工作倦怠水平最低，说明教师对学生行为的反馈也反映或影响了教师的内在心理资源。
关键词: 中小学教师，违规行为，评价语，教学愉悦感，工作倦怠

Patterns of Evaluation Language for Students’ Violations by Primary and Secondary School Teachers: A Latent Class Analysis

Yuexian Sun[1], Tianchang Li[1], Rui Zhen[1 2*]（Corresponding Author）
1 Jing Hengyi School of Education, Hangzhou Normal University, Hangzhou, 311121, China
2 Zhejiang Philosophy and Social Science Laboratory for Research in Early Development and Childcare, Hangzhou Normal University

Abstract：When primary and secondary school students make violations, many teachers use criticism to evaluate and educate their behavior. With the increasing attention to the mental health issues of primary and secondary school students in society, teachers have also begun to pay attention to following the psychological development rules of students and viewing and handling their violations from a positive psychological perspective.

However, there is still a lack of large sample research on the evaluation language types used by primary and secondary school teachers to evaluate students' violations. Meanwhile, there are many studies on the influence of

teachers' evaluation languages on students' emotions and learning, and few studies on the influence of these evaluation languages on teachers' own emotions and working status. We conducted a questionnaire survey on 7642 primary and secondary school teachers in Zhejiang Province, and explored the types of their evaluation of student violations through latent category analysis. These four types were used as independent variables, and teachers' enjoyment and job burnout were used as dependent variables to conduct independent sample non-parametric tests We found four types of evaluations by primary and secondary school teachers on students' violations: skeptical and criticism (Group 1, 13.5%), sympathetic attention (Group 2, 60.9%), combination of criticism and attention (Group 3, 12.2%), and progressive attention (Group 4, 13.4%). When facing the problem of students always being late for class, skeptical and criticism teachers tended to use a more severe tone to question the reasons for students' lateness and their performance in other things; empathetic attention teacher would understand the situation of students, paid attention to their progress and efforts to avoid being late, and was grateful that students could persist in arriving at class; A teacher who combination of criticism and attention would criticize students' late behavior and also paid attention to their progress every time; Progressive attention teachers tended to focus on students' progress every time. In addition, there were significant differences in the scores of teachers' enjoyment [$\chi^2(df=3)=642.47$, $p<0.001$] and job burnout [$\chi^2(df=3)=740.53$, $p<0.001$] among these four types of teachers; In terms of teachers' enjoyment, the score ranking was "Group 2=Group 3>Group 4>Group 1", and in terms of job burnout, the score ranking was "Group 1=Group 3>Group 4>Group 2".These results showed that more than half of primary and secondary school teachers in Zhejiang Province would try to understand and paid attention to the positive factors contained in the students' negative behaviors, while a relatively small number of teachers only gave the skeptical and criticism of the behaviors. Teachers' evaluation of students' violations would also affect teachers' emotions and job burnout, sympathetic attention and combination of criticism and attention teachers had the strongest sense of enjoyment, while teachers of skeptical criticism had the lowest; Skeptical criticism, combination of criticism and attention teachers had the highest level of job burnout, and teachers of sympathetic attention had the lowest level of job burnout, indicating that teachers' feedback on students' behavior also reflected or affected teachers' internal psychological resources.

Keywords： primary and secondary school teachers, violations, evaluation language, teachers' enjoyment, job burnout

师生关系对教师职业承诺的影响—基于情感分析和结构方程模型

张慧琳[1]　游小央[2]　张先义[3]　吴亚锶[1]　李洪伊[1]　潘柯君[1]　郭丰园[1]　崔冠宇[1]（通讯作者）

1 温州大学教育学院，温州市，325035

2 平阳县教师发展中心，温州市 325035

3 无锡市教师发展学院，江苏无锡，214000，通讯作者 E-mail：xchcgy@126.com

摘 要　教师职业承诺是个体对其职业的认同和投入程度，它对于维护职业稳定性，提高工作效率，以及促进个体和组织的发展具有重要作用，然而如果教师职业承诺过低，往往会引发他们产生不同程度的离职倾向。目前的研究已经揭示了许多影响职业承诺的因素，如工作满意度、职业道德、工作环境等。然而，对于师生关系如何影响教师职业承诺的研究还相对缺乏。在这项研究中，我们基于社会认同理论、社会情感交换理论以及 P-O 适配理论做了两个研究，研究一初步对中小学教师的人际关系、情绪倾向和行为倾向进行探讨，研究二在研究一的基础上探讨了师生关系和中小学教师职业承诺的内在作用机制，即教师负性情绪的中介效应以及职业价值观的调节效应。本研究首先利用网络爬虫在抖音等平台获取了 10023 条评论信息，并对其进行了初步筛选，从中选出了 8345 条有效评论进行词频和情感分析，基于这些网络获取的数据分析结果，我们进一步对中国中南部地区的 2397 名中小学教师进行了在线匿名问卷调查。通过对近一年的

网络评论数据进行分析，我们发现中小学教师的师生关系对其职业承诺产生了最大的影响。根据这个结果，我们利用在线问卷调查的数据进行分析，结果显示，中小学教师的师生关系对其职业承诺产生了显著的正向影响。在此过程中，教师的负性情绪在师生关系和职业承诺之间起到了中介作用，而职业价值观在此过程中发挥了调节作用。这一发现为我们理解教师职业承诺的影响因素提供了新的视角，也为提高教师职业承诺，优化教育环境提供了理论依据。未来的研究可以进一步探讨其他可能的中介和调节变量，以便更全面地认识教师职业承诺的形成和发展过程。
关键词　中小学教师，师生关系，职业承诺，负性情绪，职业价值观

The Impact of Teacher-Student Relationships on Teachers' Professional Commitment: Based on Sentiment Analysis and Structural Equation Modeling

Huilin Zhang[1]　Xiaoyang You[2]　Xianyi Zhang[3]　Yasi Wu[1]　Hongyi Li[1]　Kejun Pan[1]
Fengyuan Guo[1]　Guanyu Cui[1]
1 Wenzhou University, Department of Psychology, School of Education, Wenzhou, China
2 Teacher Development Center of Pingyang, Wenzhou, China
3 Wuxi Teacher Development Institute, Wuxi, China

***Abstract*:** The concept of professional commitment in the teaching profession pertains to an individual's sense of identity and allegiance to their chosen field. This commitment is instrumental in fostering occupational longevity, enhancing work productivity, and facilitating both personal and institutional growth. Nevertheless, a deficiency in a teacher's professional commitment often precipitates varying intensities of turnover inclinations. Existing literature has identified numerous determinants of professional commitment, including job satisfaction, professional ethics, and the work milieu. However, the influence of teacher-student relationships on teachers' professional commitment remains relatively underexplored. In this research, we executed two investigations underpinned by social identity theory, social emotional exchange theory, and person-organization fit theory. The initial study embarked on a preliminary exploration of teachers' interpersonal relationships, emotional proclivities, and behavioral tendencies. The subsequent study, building upon the first, delved into the inherent mechanism linking teacher-student relationships and teachers' professional commitment, specifically the mediating role of teachers' negative emotions and the moderating role of professional values. Initially, we employed web crawlers to amass 10,023 comments from platforms such as TikTok, and following an initial screening, we selected 8,345 valid comments for word frequency and sentiment analysis. Based on the outcomes of this digital data analysis, we further implemented an anonymous online questionnaire survey involving 2,397 primary and secondary school educators in the central and southern regions of China. Through the analysis of nearly a year's worth of online commentary data, we discovered that the teacher-student relationship exerted the most substantial influence on their professional commitment. In light of these findings, we utilized the data from the online questionnaire survey for additional analysis, which demonstrated that the teacher-student relationship had a significant positive impact on their professional commitment. In this dynamic, teachers' negative emotions served as a mediating factor between teacher-student relationships and professional commitment, while professional values acted as a moderating factor. This discovery offers a novel viewpoint for comprehending the factors that shape teachers' professional commitment and provides a theoretical foundation for augmenting teachers' professional commitment

and refining the educational environment. Future research could delve into other potential mediating and moderating variables to gain a more holistic understanding of the genesis and evolution of teachers' professional commitment.

Keywords：Primary and secondary school teacher，teacher-student relationship, teacher professional commitment, negative emotions, professional values

绘本主题活动材料包干预对山村留守幼儿语言能力的促进作用

赵晓婷[1] Nguyen Thi Phuong[1]　张李斌[1]　吕丽莹[2]　张云运[1]（通讯作者）

1 北京师范大学中国基础教育质量监测协同创新中心，北京，100875，yyzhangff@126.com

2 童行学院，北京，100102

摘 要　语言能力是其他能力发展的前提和手段，关系着数学、执行功能、社会情绪能力等技能的发展，同时影响着后期学业表现。已有研究已经证明处于贫乏环境的幼儿语言发展明显落后于处于丰富环境的幼儿，当幼儿处于既是经济落后的山村同时也是留守儿童的多重叠加处境不利环境中时，语言的发展更需要干预提升。因此本研究尝试构建适合经济落后山村地区留守幼儿身心发展特点及发展需要的绘本主题教育活动材料包干预，帮助幼儿教师以绘本为媒介开展活动来促进经济落后地区农村留守幼儿的语言能力发展。本研究采用 2（组别：干预组/对照组）×2（年龄：4 岁/5 岁）×3（测试类型：前测/中测/后测）的实验设计探究干预的效果。该干预为幼儿园教师提供以绘本为主的主题活动材料包和远程培训的支持，对资金和时间的投入依赖较少。教师还可以根据自身特点使用绘本主题活动材料包，根据本班幼儿的特点灵活调整活动，灵活性高。选取“一村一园：山村幼儿园计划”的 6 所山村幼儿园中 4-5 岁留守幼儿共 69 名,39 名为干预组, 30 名为对照组，采用标准工具一对一测查幼儿语言能力的发展。研究结果表明，通过一学年的干预，不同年龄留守幼儿干预发挥作用时间和效果不同。（1）在词汇广度方面，4 岁幼儿在干预一学期后显著提升，5 岁幼儿在一学期和一学年后显著提升；（2）在词汇深度方面，5 岁幼儿在干预一学年后显著提升，4 岁幼儿无显著变化；（3）在口语表达能力方面，4 岁与 5 岁幼儿在干预一学年后显著提升。这说明该干预方法通过提供材料包和精简的培训，提升了山村留守幼儿的语言能力发展，该干预有望成为一种有效的、操作简单的、经济的、灵活的干预措施，来帮助提高山村学前留守幼儿的语言发展，为乡村振兴注入新的活力和希望。

关键词　山村留守幼儿，语言能力，干预，绘本主题活动材料包

Promoting effect of picture book themed activity material package intervention on language ability of left-behind Preschool children in mountain villages

Xiaoting Zhao[1], Thi Phuong Nguyen[1], Libin Zhang[1], Liying Lv[2], Yunyun Zhang[1]

1 Collaborative Innovation Center of Assessment for Basic Education Quality, Beijing Normal University, Beijing, 100875

2 Tongxing School, Beijing, 100102

Abstract：Language ability is the prerequisite and means for the development of other abilities, which is related

to the development of mathematics, executive function, social emotional ability and other skills, and also affects later academic performance. Existing studies have proved that the language development of children in poor environments obviously lags behind that of children in rich environments. When children are in both economically backward mountain villages and left-behind children, their language development needs more intervention and improvement. Therefore, this study attempts to construct picture-book themed educational activity material package intervention that is suitable for the physical and mental development characteristics and development needs of left-behind children in economically backward mountain villages, so as to help preschool teachers carry out activities through picture books to promote the language ability development of left-behind children in economically backward rural areas. In this study, the experimental design of 2 (group: intervention group/control group) ×2 (age: 4 /5 years old) ×3 (test type: pre-test/mid-test/post-test) was used to explore the effect of the intervention. This intervention provides kindergarten teachers with the support of themed activity material packages based on picture books and remote training, and relies less on the investment of funds and time. Teachers can also use the picture book themed activity materials package according to their own characteristics, and adjust the activities flexibly according to the characteristics of the children in the class, with high flexibility. A total of 69 children aged 4-5 were selected from 6 kindergartens in mountain villages under the "One Village, One preschool: Mountain Village Kindergarten Plan",39 were in the intervention group and 30 were in the control group. Standard tools were used to measure the development of children's language ability. The results show that: (1) In terms of vocabulary breadth, 4-year-olds significantly improved after one semester of intervention, and 5-year-olds significantly improved after one semester and one school year; (2) In terms of vocabulary depth, 5-year-old children significantly improved after one school year of intervention, while 4-year-old children had no significant change; (3) In terms of oral expression ability, 4 - and 5-year-olds significantly improved after one school year of intervention. This indicates that the intervention method has improved the language ability development of left-behind children in mountain villages by providing material packages and simplified training. The intervention is expected to become an effective, simple, economical and flexible intervention measure to help improve the language development of left-behind preschool children in mountain villages, and inject new vitality and hope for rural revitalization.

***Keywords*：** left-behind preschool Children in mountain villages, language ability, intervention, picture book themed activity material package

初中生师生关系与数学学习投入：不同学业情绪的中介作用

王敬格　贾绪计(通讯作者)
天津师范大学心理学部，天津，300387

摘 要　百年大计，教育为本。随着我国基础教育课程改革的层层推进，素质教育已经取得显著的成效，但距离“立德树人”的高质量发展还有一定的差距。因此全面打造核心素养体系，关键因素之一就是提高学生的学习投入度。数学作为基础教育的三大主科之一，学好数学不仅有利于培养认知、逻辑、空间想象等各种能力，还有利于更长远的发展。数学学习投入(Mathematic Learning Engagement)是学习投入在数学科目上的具体运用，它受到师生关系、学业情绪等各种因素的影响。本研究以数学学习投入为立足点，探讨师生关系、学业情绪两个重要因素的作用。

采用三个彼此递进的研究探讨师生关系、学业情绪与数学学习投入的关系。研究一，基于对 1023 名学生的调查，修订适合中学生数学课堂情境中的《数学学业情绪问卷》。研究二，对 420 名初中生进行《数学学业情绪量表》、《师生关系量表》和《学习投入量表》的测量，探讨不同学业情绪在师生关系和数学

学习投入关系中的中介作用。研究三，采用经验取样法，对 68 名初二学生连续两周（10 个工作日）在每天的每节数学课后进行连续追踪测查，探讨数学学习投入与师生关系、学业情绪的瞬时动态变化关系。

研究结果表明：（1）修订的《数学学业情绪问卷》具有良好的效度信度，可以作为调查工具使用；（2）积极学业情绪中的愉快、希望、自豪在师生关系和数学学习投入之间起部分中介作用；消极学业情绪中的无聊在师生关系和数学学习投入之间起部分中介作用；其他学业情绪（如愤怒、焦虑、羞愧、绝望）的中介作用不显著；（3）每节课师生关系对数学学习投入有正向影响。每节数学课师生关系对积极学业情绪（愉快、希望、自豪）有正向影响。每节数学课师生关系对消极学业情绪（焦虑、羞愧、无聊）有负向影响。数学课堂学业情绪在师生关系与数学学习投入间起中介作用。
关键词　学业情绪　师生关系　数学学习投入　经验取样法

Teacher-student relationship and academic engagement in mathematics among middle school students: the mediating effects of different Achievement emotions

Wang Jing-ge　JIa Xu-ji (corresponding author)
Tianjin Normal University Faculty of Psychology, Tianjin, 300287

***Abstract*：** Education is a cause of fundamental importance for the future of our nation. In recent years, education is in the strategic position of giving priority to development in our Country. With the development of basic education curriculum reform in China, the liberal education has achieved remarkable results, but there is still a long way to go. Therefore, one of the key factors to construct the core literacy system is to improve students' learning engagement. Mathematics is one of the three major subjects of basic education. Learning mathematics well not only helps to cultivate various abilities such as cognition, logic and spatial imagination, but also helps to develop in the long run. The research is called mathematical Learning Engagement, which is often influenced by teacher-student relationship and academic emotion. Therefore, this research takes the mathematics study as the foothold, discusses the teacher-student relations, the study emotion two important factors to its function.

Three progressive studies were conducted to explore the relationship among teacher-student relationship, academic emotion and mathematics learning engagement. The first study, based on the survey of 1023 students, revised the mathematics academic emotion questionnaire which is suitable for middle school students in the mathematics classroom situation. In the second study, 420 junior middle school students were measured with the mathematics academic emotion scale, the teacher-student relationship scale and the learning engagement scale, to explore the mediating role of different academic emotions in teacher-student relationship and mathematics learning engagement. In study 3, 68 students were followed for two consecutive weeks (10 working days) after each math class, to further explore the dynamic longitudinal relationship between junior high school students' Mathematics learning involvement, teacher-student relationship and academic emotion.

The results show that: (1) The revised mathematics academic emotion questionnaire has good validity and reliability, which can be used as a survey tool; (2) Positive academic emotions, Enjoyment, Hope and Pride play a part of mediating role between teacher-student relationship and mathematics learning engagement; Boredom in negative academic emotion played a part of mediating role between teacher-student relationship and mathematics learning engagement, while other academic emotions such as Anger, Anxiety, Shame and Hopelessness played no significant mediating role;(3) The teacher-student relationship in each math class has a positive effect on the learning engagement. The teacher-student relationship in every math class has positive influence on the positive

academic emotions (Enjoyment, Hope, Pride) . The teacher-student relationship has a negative effect on the negative academic emotions (Anxiety, Shame, Boredom) in every math class. Mathematics classroom learning emotion plays an mediating role between teacher-student relationship and mathematics learning engagement.
Keywords ： Achievement emotions, Teacher-student relationship, academic engagement in mathematics, Experience Sampling Method

自我控制策略使用促进自我控制能力提升

陈雪飞[1,2] 李盛楠[2] 陈沛[2] 周雅颂[2] 利振华[2] 聂衍刚[2]（通讯作者）
1 曲靖师范学院教师教育学院，曲靖，655011
2 广州大学教育学院（师范学院），广州，510006 通讯作者 nie-yangang@gzhu.edu.cn

摘 要 由于自我控制概念的核心是能够超越或改变自己的内心反应，以及能够打断不想要的行为倾向并避免对其采取行动，因此以往关于自我控制能力提升的研究主要是通过训练对主导反应的抑制，比如使用非惯用手，控制自己的行为来提高自我控制能力。但是，越来越多的研究表明，面对自我控制困境，人们不仅仅是努力抑制冲动或者行为，还会有许多方式来促进自我控制的成功，比如自我控制策略的使用。最近的研究认为，成功的自我控制依赖于努力抑制之外的多种策略，拥有更多的自我控制策略对促进自我控制成功是有益的，因为它让人们有能力应对各种各样的自我控制挑战。那么，自我控制策略的经常使用是否可以有效地促进自我控制能力的提升？本研究招募 59 名大学生参加实验，锻炼组和策略组需要持续进行 2 周体育锻炼来训练自我控制，其中策略组需要使用自我控制策略，对照组没有任何干预。假设 1：体育锻炼可以提升自我控制能力；假设 2：自我控制策略使用能够更加有效地促进自我控制能力提升。实验采用 3（组别：策略组，锻炼组，对照组）×2（前后测：前测，后测）× 2（刺激类型：一致，不一致）混合设计。结果发现：在 Stroop 任务中，前后测与组别交互效应显著，$F(2,56)=4.909$，$p=0.011$，$\eta_p^2=0.149$，策略组在后测中的 Stroop 效应量显著小于前测，$F(2, 56)=28.488$，$p=0.000$，$\eta_p^2=0.337$，锻炼组和对照组的 Stroop 效应量前后测差异不显著，说明体育锻炼后锻炼组和对照组的自我控制能力基线并没有提高，但是策略组的自我控制能力基线提高了。在 Stroop 任务后的 Go/NoGo 任务中，前后测与组别交互效应显著，$F(2, 56)=4.506$，$p=0.015$，$\eta_p^2=0.139$，策略组在后测中的正确率显著高于前测，$F(2, 56)=29.287$，$p=0.000$, $\eta_p^2=0.343$，锻炼组在后测中的正确率也显著高于前测，$F(2, 56)=4.457$，$p=0.014$，$\eta_p^2=0.103$，对照组的正确率在前后测中差异不显著，说明策略组和锻炼组的自我控制耐力都提高了。本研究再次证明了自我控制训练可以提升自我控制耐力，并且自我控制策略的使用可以提升自我控制能力基线，结果说明自我控制策略使用能够更加有效地促进自我控制能力的提升。
关键词 自我控制， 策略， 自我控制训练， 抑制

Self-Control Strategy Use to Promote Self-Control

CHEN Xuefei[1,2] LI Shengnan[2] CHEN Pei[2] ZHOU Yasong[2] LI Zhenhua[2] NIE Yangang[2]
1 School of Teacher Education, Qujing Normal University, Qujing 655011
2 School of Education (Teachers College), Guangzhou University, Guangzhou 510006

Abstract： Because the concept of self-control centers on the ability to outrun or change one's internal reactions, as well as the ability to interrupt unwanted behavioral tendencies and avoid acting on them, previous research on self-control enhancement has focused on improving self-control by training inhibition of dominant reactions, such as using the non-dominant hand, and controlling one's own behavior. However, a growing body of research suggests that, in the face of self-control dilemmas, people do not just strive to inhibit impulses or behaviors, but

that there are many ways to promote successful self-control, such as the use of self-control strategies. Recent research has argued that successful self-control relies on a variety of strategies beyond effortful inhibition and that having a wider range of self-control strategies is beneficial for promoting self-control success because it equips people to deal with a wide variety of self-control challenges. So, is the regular use of self-control strategies effective in promoting self-control? In this study, 59 college students were recruited to participate in an experiment in which the exercise group and the strategy group were required to consistently engage in physical activity for 2 weeks to train self-control, where the strategy group was required to use self-control strategies, and the control group did not have any intervention. Hypothesis 1: Physical exercise can enhance self-control; Hypothesis 2: Self-control strategy use can promote self-control more effectively. The experiment used a 3 (group: strategy group, exercise group, control group) × 2 (pre and post-test: pre-test, post-test) × 2 (stimulus type: consistent, inconsistent) mixed design. The results found that: in the Stroop task, there was a significant pre-posttest-group interaction effect, $F(2,56)=4.909$, $p=0.011$, $\eta_p^2=0.149$, and the amount of the Stroop effect in the posttest was significantly smaller in the strategy group than in the pre-test, $F(2, 56)=28.488$, $p=0.000$, $\eta_p^2=0.337$, the difference in the amount of Stroop effect between the exercise and control groups in the pre and post-tests was not significant, indicating that the baseline of self-control in the exercise and control groups did not improve after physical activity, but the baseline of self-control in the strategy group improved. In the Go/NoGo task following the Stroop task, there was a significant pre/post-test and group interaction effect, $F(2, 56)=4.506$, $p=0.015$, $\eta_p^2=0.139$, and the strategy group was significantly more likely to be correct in the post-test than in the pre-test, $F(2, 56)=29.287$, $p=0.000$, $\eta_p^2=0.343$, and the correct rate in the exercise group was also significantly higher in the posttest than in the pretest, $F(2, 56)=4.457$, $p=0.014$, $\eta_p^2=0.103$, and the correct rate of the control group did not differ significantly in the pre and posttests, which suggests that self-control endurance was improved in both the strategy and exercise groups. This study again demonstrated that self-control training can improve self-control endurance and that self-control strategy use can improve self-control baseline, and the results suggest that self-control strategy use can be more effective in promoting self-control.

Keywords： Self-control, Strategies, Self-control training, Inhibition

一拍就忘 vs 多拍益善：大学生手机拍照对学习效果的影响

陈延妍[1] 刘儒德[1]（通讯作者）林静敏[1] 陈楚怡[2] 刘佳彬[1]

1 北京师范大学心理学部，北京，100875，liurude@126.com

2 北京大学心理与认知科学学院，北京，100871

摘 要 手机拍照是大学课堂中常见的记录行为，这一行为对学习效果的影响尚待探索。以往研究探究了在参观博物馆和观看视频的情境中拍照对记忆的影响，发现了不一致的结果，既存在拍照减损效应（即手机拍照导致记忆效果变差的现象），也存在反拍照减损效应的证据（即拍照有助于集中注意、增强体验）。这一矛盾可能是由于拍照动机（包括纪念和认知卸载两种动机）的调节作用所致，出于认知卸载的拍照可能存在拍照减损效应，出于纪念的拍照可能存在反拍照减损效应。这两种动机是否也会调节大学生课堂拍照对学习效果的影响？

本研究通过三个研究探究大学生课堂手机拍照对学习效果影响以及拍照动机的调节作用。研究 1 采用 2（拍照与否）×2（拍照动机：纪念或卸载）被试间完全随机设计，结果发现显著的拍照减损效应，但交互作用不显著。这可能是因为拍照动机的作用需要在更长的学习材料中才能体现。研究 2 增加学习材料的长度，采用 2（拍照与否，被试内）×2（拍照动机：纪念或卸载，被试间）混合设计，结果发现交互作用显著，卸载动机拍照存在拍照减损效应，而纪念动机拍照不存在这一效应。为了提高生态效度，研究 3 采用调查大学生的课堂拍照行为，结果发现，拍照数量与拍照动机共同影响主观学习效果的，高卸载低纪念的

拍照动机下拍照数量显著负向预测学习效果，低卸载高纪念的拍照动机下，拍照数量不能显著预测学习效果，但有正向预测的趋势。这三个研究表明，大学生课堂手机拍照的动机影响拍照后的学习效果，卸载动机下的拍照行为减损学习效果，纪念动机下的拍照行为则无碍于学习效果。本研究及其结果为以往有关拍照研究的矛盾提出了一种可行的解释，具有一定的学术价值，并对大学生课堂学习策略以及教师教学具有一定的启示意义。
关键词　手机拍照，拍照减损效应，拍照动机，大学生

Memento vs Offloading: The Impact of College Students' Mobile Photo-Taking on Learning

Yanyan Chen [1], Ru-De Liu[1] (corresponding author), Jinming Lin[1], Chuyi Chen[2], Jiabin Liu[1]
1 Faculty of Psychology, Beijing Normal University, Beijing, 100875
2 School of Psychology and Cognitive Sciences, Peking University, Beijing, 100871

Abstract：Mobile photo-taking is a common recording behavior in college classes, but how this behavior will affect the learning effect is still uncertain. Previous research has mainly examined the effects of photo-taking on memory in contexts such as museum visits and video watching. Some studies found a negative effect of using smartphones to take photos on memory (referred to as the photo-taking impairment effect), while others suggested that photo-taking can enhance attention and overall experience, thus denying the photo-taking impairment effect. This contradiction may be attributed to different motivations for taking photos, such as Memento or offloading (cognitive load). In the context of college classrooms, both motivations are present. Therefore, does photo-taking have inconsistent effects on learning outcomes?

We investigate the influence of smartphone photo-taking during college classroom activities on learning outcomes and the moderating role of photo-taking motivation through three studies. Study 1 employed a 2 (photo-taking: yes/no) × 2 (motivation: memento/offloading) completely random design and found a significant main effect of photo-taking, indicating the presence of a photo-taking impairment effect. However, the interaction effect was not significant, possibly because the effect of photo-taking motivation requires longer learning materials to manifest. Study 2 utilized a 2 (photo-taking: yes/no, within-subjects) × 2 (motivation: memento/offloading, between-subjects) mixed design, revealed a significant interaction effect. Photo-taking under the offloading motivation led to the photo-taking impairment effect, while photo-taking under the memento motivation did not exhibit this effect. Study 3 employed a survey method to enhance ecological validity and found the influence of the number of photos taken and photo-taking motivation on college students' subjective learning outcomes. Under higher offloading motivation and lower memento motivation, a higher number of photos taken negatively predicted learning outcomes. However, under lower offloading motivation and higher memento motivation, the number of photos taken did not significantly predict learning outcomes and showed a positive trend.

In summary, these three studies demonstrate that the motivation behind mobile photo-taking in college classrooms influences the subsequent learning outcomes. Photo-taking behavior under the offloading motivation impairs learning outcomes, while photo-taking behavior under the memento motivation does not interfere with learning outcomes. Therefore, this study provides a feasible explanation for the conflicting results in previous photo-taking research and contributes to advancing theories in this field. These findings have positive implications for students' classroom learning strategies and instructors' teaching methods.

Keywords： mobile photo-taking, photo-taking impairment effect, photo-taking motivation, college student

青少年合作推理讨论中的互动行为特征及其影响因素

吴双[1] 陈森宇[2] 周洁林[1] 李璇[1] 马淑凤[3]（通讯作者）

1 华东师范大学教育心理学系，上海，200062

2 曼彻斯特大学健康科学学院，曼彻斯特，英国 M13 9PL

3 华东师范大学教育心理学系，上海，200062，sfma@dep.ecnu.edu.cn

摘 要 积极的同伴互动既能提升青少年的学校归属感（Sacco & Ismail, 2014），又有助于形成良好的课堂氛围（Shimizu et al., 2020），对青少年的社会性发展具有重要影响。为促进青少年之间积极的同伴互动，本研究在中学课堂实施了基于合作推理讨论（Anderson et al., 1998）的课堂干预，探究了青少年在合作学习过程中展现的同伴互动行为特征及其影响因素。合作推理讨论是一种开放式的、以学生为中心的合作学习模式。在合作推理讨论中，学生组成异质小组围绕一个有争议的话题进行互动与交流。本研究的参与者是河北省某县级中学的 29 名七年级学生（12 名男生，17 名女生），这些学生来自 4 个小组（每组 7-8 人），每个小组开展了 7 次合作推理讨论。本研究采取自下而上的视频分析方法对 28 个小组讨论（平均 27.3 分钟，共 765.9 分钟）中的同伴互动行为及行为的发生方向进行了编码。同伴互动行为共包含三类总计 6520 条编码：认知互动（如提供解释，4587 条）、情感互动（如安慰鼓励，963 条）及行为互动（如邀请发言，1170 条）。由于同伴互动行为的频数符合泊松分布且包含过量零，本研究构建了零膨胀泊松回归模型。研究结果显示：（1）同性之间，互动双方拥有较高的社会性水平，及发出者对接收者的喜爱度越高则**情感互动**越容易发生；（2）异性之间，互动双方拥有较高的认知水平，及发出者对接收者的喜爱度越高则**认知互动**越容易发生；（3）与前两种互动不同的是，接收者对发出者的喜爱度正向预测了二者之间发生**行为互动**的频率。以上结果表明，青少年在合作推理讨论中倾向于与自己相似的人进行情感互动，避免认知互动，而对与自己不同的人则更容易投入到认知互动中。互动双方对彼此的喜爱度能够预测二者之间的互动频率，认知和情感互动受发出者的喜爱度影响更大，行为互动则受接受者的喜爱度影响更大，表明不同类型互动的发生机制可能存在差异。总体而言，本研究通过视频分析揭示了合作推理讨论中青少年的同伴互动特征及其影响因素，为探究同伴互动的发生机制与促进方式提供了新的方法和思路。

关键词 合作推理讨论，青少年，同伴互动行为，视频分析

Patterns of Chinese Adolescents' Behavioral, Cognitive, and Emotional Interaction during Collaborative Reasoning Discussions

Shuang Wu[1] Senyu Chen[2] Jielin Zhou[1] Xuan Li[1]

Shufeng Ma[3] (corresponding author)

[1] Department of Educational Psychology, East China Normal University, Shanghai, 200062

[2] School of Health Sciences, Manchester University, Manchester M13 9PL, United Kingdom

[3]Department of Educational Psychology, East China Normal University, Shanghai, 200062

sfma@dep.ecnu.edu.cn

Abstract： Positive peer social interaction has important influences on adolescents' social development as it fosters a sense of school belonging (Sacco & Ismail, 2014) and an open and warm classroom climate (Shimizu et al., 2020). To promote positive social interactions in the classroom, we implemented an intervention featuring Collaborative Reasoning (CR; Anderson et al., 1998) discussions in a rural middle school in Hebei, China. Based on moment-by-moment video-coding of adolescents' social interactions during CR discussions, we investigated the patterns of adolescents' peer interaction and the factors that influenced different types of interactive behaviors. The participants of this study were 29 seventh-grade students (12 males and 17 females) from four collaborative groups (7-8 students per group) and each group had seven CR discussions. The corpus contained 28 collaborative discussions and the average length of each discussion was 27.3 minutes. The video data were coded from three aspects—cognitive interaction (e.g., providing explanations; n = 4,587), emotional interaction (e.g., providing encouragements; n = 963), and behavioral interactions (e.g., inviting others to speak; n = 1,170). As the frequency of three types of peer interaction contained excessive zeros and conformed to a Poisson distribution, zero-inflated Poisson models were created to examine what factors influenced the likelihood that two students interacted with each other. The results showed that (1) *emotional interactions* were more likely to occur when two students were of the *same* gender, had similar social characteristics, or when the responder were more liked by the initiator; (2) *cognitive interactions* were more likely to occur when two students were of the *different* gender, showed similar social and cognitive characteristics, or when the responder were more liked by the initiator; and (3) *behavioral interactions* were more likely to occur when the initiator was more liked by the responder. The above results showed that adolescents were inclined to maintain a good relationship with peers who were similar to them by engaging emotional interactions and avoiding cognitive interactions; however, they tended to cognitively engaged with peers who were different from them. Cognitive and emotional interactions were associated with the responder's peer acceptance, while behavioral interactions were more related to the initiator's peer acceptance, suggesting that explicit and implicit social interactions may have different interacting mechanisms. Overall, this study revealed the patterns of Chinese adolescents' behavioral, cognitive, and emotional interaction during collaborative discussions, which provides new perspectives for understanding peer interaction in collaborative contexts and how to promote positive social interactions among adolescents.

Keywords：Collaborative Reasoning, adolescents, peer interaction, video analysis

小学生创造性行为与幸福感的关系：一项日记法的研究

滕美辰[1]　白新阳[1]　薛文瑞[1]　衣新发[1,2]（通讯作者）

1 陕西师范大学现代教学技术教育部重点实验室，西安，710062

2 中国基础教育质量监测协同创新中心陕西师范大学分中心，西安，710062，yixinfa@snnu.edu.cn

摘 要　培养少年儿童的创新素养是建设创新型国家的重要基础，少年儿童的心理健康水平攸关亿万家庭的幸福，因此，深入开展小学生创新素养和心理健康素养的研究具有特别重要的意义。考夫曼提出的创造力 4C 理论将创造力划分为 Big-C、Pro-C、Little-C 和 Mini-C 四个水平。以往的研究者对于 Big-C 和 Pro-C 的关注较多，而对小学生表现出的日常创造性行为（Little-C）关注较少；在讨论创造力和心理健康的关系时，也大多将侧重点放在单向关系上，对于相互影响的探讨较少。因此，本研究首先要界定小学生的哪些行为算作其日常创造性行为，进而探究小学生的日常创造性行为与小学生的幸福感之间的双向关系。研究 1 在文献综述、专家审议以及对 20 余名小学教师的个体访谈和 50 余名小学生的集体访谈的基础上，编制出一个 30 题 5 点计分的李克特量表：《小学生日常创造性行为量表》。在对 863 名被试进行施测后，探索性因素分析(EFA)表明其共有 5 个维度(KMO=0.91, Bartlett 球形检查χ^2= 3760.990, p<0.0001,解释了 49.52%的总体方差)，内部一致性信度系数 Cronbach's α=0.93；验证性因素分析(CFA)表明其具有较好的结构效度

（χ^2/df = 2.107, GFI = 0.921, RFI=0.909, RMSEA =0.033，因素载荷 > 0.5)；量表总分及各维度与被试的创造性倾向得分呈显著的正相关 (r = 0.37~0.82, p <0.001)，表明本量表有较好的效标关联效度。基于研究一，研究二采用日重现法探究小学生创造性行为与幸福感的双向关系及作用机制，选取 270 名小学生开展为期两周的追踪调查，结果如下：小学生的创造性活动不仅可以预测其当天的幸福感，还可以预测其第二天的幸福感；从另一角度来看，小学生的幸福感还可以预测当天的创造性活动。也就是说，小学生的幸福感和创造性行为之间有一种特殊的上升螺旋关系: 小学生参与创造性行为会导致第二天幸福感的增加，而这种增加的幸福感会促进当天的创造性活动。因此，在创造力培养的过程中，应重视学生的幸福感知教育；在学校心理辅导中，应鼓励学生主动尝试日常创造性活动。真正在生活中实现幸福感和创造力的螺旋上升。
关键词　创造性行为，幸福感，创造力，日重现法

The Relationship between Primary School Students' Creative Behavior and Well-being: a Daily Dairy investigation

Teng Meichen[1]　Bai Xinyang[1]　Xue Wenrui[1]　Yi Xinfa[1,2]　(Corresponding Author)

1 Key Laboratory of Modern Teaching Technology, Ministry of Education, Shaanxi Normal University, Xi'an710062, China

2 Shaanxi Normal University Sub-center of China Basic Education Quality Monitoring Collaborative Innovation Center, Xi'an710062, China

Abstract：For the development of an innovative nation, it is essential to cultivate the innovative qualities of children and adolescents; at the same time, to ensure the well-being of hundreds of millions of families, it is important to address mental health issues among children and adolescents. Therefore, it is of particular importance to conduct in-depth research on the innovative quality of primary school students and their mental health. The 4C theory of creativity proposed by Kaufman divides creativity into four levels: Big-C, Pro-C, Little-C and Mini-C. Previous researchers have paid more attention to Big-C and Pro-C, but less attention to the daily creative behaviors exhibited by primary school students (Little-C); In addition, when discussing the relationship between creativity and mental health, researchers have also mostly focused on the unidirectional relationship, with less exploration of the interplay. Therefore, this study begins by defining which behaviors of primary school students count as their daily creative behaviors, and then explores the bidirectional relationship between primary school students' daily creative behaviors and their well-being. Study 1 developed a 30-question, 5-point Likert scale: Daily Creative Behaviors Scale for Primary School Students, based on the literature review, expert deliberations, and individual interviews with primary school teachers and group interviews with students. After administering the test，exploratory factor analysis (EFA) revealed a total of five dimensions (KMO=0.91, and the Bartlett's test of sphericity χ2= 3760.990, p<0.0001, accounted for 49.52% of the total variance explained)) with an excellent internal consistency reliability coefficient Cronbach's α=0.95 and confirmatory factor analysis (CFA) goodness of fit indices indicated a good fit of the model to data(χ2/df = 2.107, GFI = 0.921, RFI=0.909, RMSEA =0.033，standardized factor loadings were greater than 0.5). The total score and dimensions of the scale were significantly and positively correlated with the subjects' creative tendency scores (r = 0.37-0.82, p < 0.001), indicating that the scale has good criterion-related validity. Based on Study 1, Study 2 used the daily reconstruction method to investigate the bidirectional relationship between creative behavior and well-being of primary school students. 270 primary school students were selected to carry out a 14-day tracking survey, and the results were as follows: Primary school students' creative activities not only predicted their well-being on that day, but also predicted their well-being on the next day; from another perspective, primary schools students' well-being also

predicted their creative activity on the day. The results of the study show that there was a special upward spiral relationship between students' well-being and creative behavior: students' participation in creative behavior lead to an increase in well-being on the next day, and this increased well-being promoted creative activities on the same day. Hence, as part of the process of creativity cultivation, students' well-being perception should be valued and they should be encouraged to try daily creative behaviors through school counseling.
Keywords：Creativity behavior, well-being, creativity, daily reconstruction method

中学生智力思维模式与坚毅性的发展：一项交叉滞后分析

李承杰[1] 杜宜展[2]（通讯作者）

1 闽南师范大学教育与心理学院心理系，福建漳州，363000

2 韶关学院教育科学学院学前教育学系，广东韶关，512005，E-mail: tu.yc@hotmail.com

摘 要 智力思维模式是 Deck（2000）智力内隐理论的延 ，认为个体对能力持有两种思维模式，一是持有能力增长观的成长型思维，另一是持有能力实体观的固定型思维。抱持成长型思维的个体认为能力是可以通过不断努力和克服困难而有所发展，而固定型思维则认为个体能力在出生时就已经固定不变。过去研究表明，成长型思维可以帮助个体促进坚毅性，因 持有成长型思维的个体勇于面对挑战，从错误中学习，坚持朝向目标努力，从而表现出较高的坚毅性（刘玉敏，2022；赵亚飞等，2022）。也有研究表明，坚毅性会强化成长型思维，因为具有坚毅性的个体会通过不断练习提升自身能力，证明自己的努力与成长（Duckworth et al., 2011）。另有研究发现，成长型思维和坚毅性具有相互影响的关系（Park et al., 2020; Zhang et al., 2022）。然而，过去研究仅探究成长型思维与坚毅性的关系，忽略固定型思维对坚毅性的影响，所以本研究目的除了基于过去成长型思维和坚毅性的假设，并补足固定型思维与坚毅性的关系的缺口。本研究采用方便取样福建省福州市某一中学进行三波问卷调查，测量 Dweck 发展的智力内隐理论量表和 Duckworth 等人发展的坚毅量表，通过三波重复测量样本且剔除无效问卷后，有效问卷为 571 份，回收率达 63.4%。整体样本分布，男生有 312 人（54.6%），女生有 259 人；年级方面，由于初三生面临中考，所以没有对初三生进行施测，初一生有 290 人（50.8%），初二生有 281 人。研究结果发现，成长型思维和坚毅性的交叉滞后模型相当理想（Bollen-Stine χ^2 (N = 571, df = 4) = 6.635, CFI = 0.998, TLI = 0.994, RMSEA = 0.034, SRMR = 0.055）。其次，成长型思维和坚毅性都具有跨时间的稳定性。再次通过交叉滞后分析，第一波和第二波坚毅性显着正向影响第二波和第三波成长型思维，表明本研究支持坚毅性会强化成长型思维的假设。在固定型思维方面，固定型思维和坚毅性的交叉滞后模型也相当理想（Bollen-stine χ^2 (N = 571, df = 4) = 5.773, CFI = 0.999, TLI = 0.997, RMSEA = 0.028, SRMR = 0.039）。其次，固定型思维和坚毅性都具有跨时间的稳定性。再次，第一波坚毅性显着负向影响固定型思维，表明坚毅性会削弱固定型思维的形成。
关键词 成长型思维，固定型思维，坚毅性，交叉滞后分析

The development of intelligence mindset and grit among junior high school students: A cross-lagged analysis

Chengchieh Li[1] Yizhan Du[2]

1. School of Education and Psychology, Minnan Normal University, Zhangzhou, Fujian
2. School of Education Science, Shaoguan University, Shaoguan, Guangdong

Abstract： Intellectual mindset is based on Deck's (2000) implicit theory of intelligence. She thinks that individuals held two kinds of mindsets about abilities, one is growth mindset based on incremental theory or

beliefs, and the other is fixed mindset on the basis of entity theory or beliefs. Individuals with a growth mindset believe that abilities can be developed through effort and overcoming difficulties, while a fixed mindset believes that individual abilities are fixed at birth. Some studies have shown that growth mindset can help individuals promote grit, because individuals with a growth mindset are brave enough to face challenges, learn from mistakes, and persist in working toward goals, thus showing higher grit (Liu, 2022; Zhao et al., 2022). Some studies have also shown that grit will strengthen growth mindset, because gritty individuals will improve their abilities through hard practice and prove their efforts and growth (Duckworth et al., 2011). Other studies have found that growth mindset and grit have a reciprocal relationship (Park et al., 2020; Zhang et al., 2022). However, past studies only explored the relationship between growth mindset and grit, ignoring the impact of fixed mindset on grit. Therefore, the purpose of this study is based on the hypothesis of growth mindset and grit in the past, and complement the research gap of the relationship between fixed mindset and grit. The sample consisted of 571 seventh and eighth graders (54.6% male) recruited from a high school in Fuzhou city in Fujian and repeatedly measured both Duckworth's grit scale and Dweck's intelligence mindsets scale three times. The results of this study indicated that the model fit of the cross-lagged model on growth mindset and grit was great (Bollen-Stine χ^2 (N = 571, df = 4) = 6.635, CFI = 0.998, TLI = 0.994, RMSEA = 0.034, SRMR = 0.055). Second, all autoregressive paths were significant, suggested that grit and growth mindset reveal substantial rank-order stability. Third, the cross-lagged paths from grit to growth mindset were positive significant, while the reverse weren't. It indicated that grit will strengthen growth mindset. In terms of fixed mindset, the model fit of the cross-lagged model on fixed mindset and grit was great (Bollen-Stine χ^2 (N = 571, df = 4) = 5.773, CFI = 0.999, TLI = 0.997, RMSEA = 0.028, SRMR = 0.039). Second, all autoregressive paths were significant, suggested that grit and fixed mindset demonstrate substantial rank-order stability. Third, the cross-lagged paths from grit to fixed mindset were positive significant, while the reverse weren't. It revealed that grit will weaken fixed mindset.

Keywords：growth mindset, fixed mindset, grit, cross-lagged analysis

“双减”背景下父母教育卷入对初中生学业能力的影响：基于潜在剖面分析

魏诗洁[1] 赵红艳[1] 李欢欢[1]（通讯作者）

1 中国人民大学，北京，100872，psylihh@ruc.edu.cn

摘 要 2021年提出的“双减”政策旨在建设高质量教育体系，这一背景下，父母教育卷入与初中生学业能力的密切关系受到越来越多的关注与证实。然而，一方面，以往研究注重于强调学业辅导、家庭监控等单一维度对学业能力的作用，对父母教育卷入各维度的整合性作用探讨不足；另一方面，父母教育卷入与初中生学业能力的关系存在不一致结果，可能与父母教育卷入的结构和水平有关。本研究使用父母教育卷入问卷及中国积极青少年发展量表-学业能力分量表，对来自北京市和湖北省的575名初中生（Mage=13.02±0.50）进行调查，使用潜在剖面分析探索父亲及母亲教育卷入各维度构成的异质性剖面，并探查父母教育卷入潜在剖面与初中生学业能力之间的关系。结果显示：（1）根据父亲及母亲家庭监控、学业辅导、亲子沟通、共同活动和家校沟通，样本划分为3个剖面：高父母教育卷入组（n=118, 占21%）、中等父母教育卷入组（n=298, 占52%）和低父母教育卷入组（n=159, 占28%），父母教育卷入各维度在各组间差异显著；（2）高父母教育卷入组中，仅父亲家校沟通显著低于母亲家校沟通，其余对应维度无显著差异，低父母教育卷入组和中等父母教育卷入组中，父亲教育卷入各维度均显著低于母亲教育卷入相应维度；（3）初中生学业能力水平在父母教育卷入潜在剖面上差异显著：高父母教育卷入组＞中等父母教育

卷入组＞低父母教育卷入组。上述结果提示，“双减”政策下，父亲与母亲协同且积极参与孩子的教育，可能是促进孩子学业能力的重要举措。
关键词　父母教育卷入，学业能力，潜在剖面分析，初中生

Effects of Parental Educational Involvement on Academic Competence of Junior School Students under the “Dual Reduction” Policy: A Latent Profile Analysis

Wei Shijie[1], Zhao Hongyan[1], Li Huanhuan[1] (corresponding author)
1 Department of Psychology, Renmin University of China, Beijing, 100872, psylihh@ruc.edu.cn

Abstract： Within the context of the “Dual Reduction” policy, aimed at constructing a high-quality education system in China, there has been a growing attention and confirmation on the intimate relationship between parental educational involvement and academic competence in junior school students. However, on the one hand, previous research has primarily focused on emphasizing the effects of singular dimensions (such as student learning tutorial or family supervision) on academic competence, thus lacking a comprehensive exploration of the integrated impact of parental educational involvement across multiple dimensions. On the other hand, there have been inconsistent findings regarding the relationship between parental educational involvement and the academic abilities in adolescents, potentially attributable to variations in the structure and levels of parental involvement. In current study, a total of 575 junior school students (Mage=13.02±0.50) were surveyed in Beijing and Hubei provinces by using Parents' Educational Involvement Questionnaire (PEIQ) and Chinese Positive Youth Development Scale (CPYDS). Latent profile analysis was used to explore the heterogeneity of parental involvement of junior school students. The results showed that, (1) Based on 10 dimensions (paternal and maternal family supervision, student learning tutorial, parents-children interaction, parents-children coactivity, and family-school communication), the sample was divided into 3 profiles: high parental involvement group (*n*=118, 21%), moderate parental involvement group (*n*=298, 52%), and low parental involvement group (*n*=159, 28%). Significant differences were found among the groups in terms of parental educational involvement across various dimensions. (2) In the high parental involvement group, only paternal family-school communication was significantly lower than maternal family-school communication, while there were no significant differences between remaining dimensions of paternal educational involvement and corresponding dimension of maternal educational involvement. Both in the low parental involvement group and moderate parental involvement group, every dimension of paternal educational involvement was significantly lower than the corresponding dimension of maternal educational involvement. (3) The academic competence level of junior school students has significant difference among groups: high parental involvement group > moderate parental involvement group > low parental involvement group. The results suggested that under the “double reduction” policy, parents should be more actively involved in their children’s education; in addition, fathers should bear an equal workload compared to mothers. These may be important ways to promote children’s academic competence.

Keywords： parental educational involvement, academic competence, latent profile analysis, junior school students

论文题目——校园受欺凌对小学生越轨同伴交往的影响：有调节的中介模型

李鸿杰[1] 许磊[1] 陈继文[1] 黄秀涵[1] 陈雅琪[1] 彭顺[1](通讯作者）
1 江汉大学教育学院，武汉，430056，ps_spy@163.com

摘 要 根据生态系统理论，在儿童时期，小学生的交往范围逐渐从家庭中扩展到学校，因此，儿童时期的同伴交往对其身心发展极其重要。越轨同伴交往是指与违反学校纪律、社会规范，甚至是法律行为的友伴交往，它能有效正向预测青少年问题行为，如网络游戏成瘾等。以往研究表明，受欺凌的个体可能会主动与离经叛道的同龄人交往。本研究探讨校园受欺凌对小学生越轨同伴交往的影响，并考察归属需求和自尊在其中的中介和调节作用。采用特拉华欺凌受害量表（学生卷）、越轨同伴交往量表、基本心理需求量表、自尊量表对 547 名在校小学生进行追踪调查，共两个时间段，间隔为 6 个月。结果表明：（1）校园受欺凌不仅能显著正向预测越轨同伴交往，还能够通过归属需求的中介作用对越轨同伴交往产生影响；（2）归属需求在校园受欺凌对越轨同伴交往的影响中起部分中介作用，中介效应占总效应的 17.95%；（3）校园受欺凌-归属需求-越轨同伴交往前半段受到自尊的调节，当自尊水平升高，校园受欺凌对归属需求的影响越大。上述发现启示我们，校园受欺凌与越轨同伴交往密切相关，有必要严格制止校园欺凌与受欺凌行为，降低越轨同伴交往的可能性。

关键词 小学生,校园受欺凌,越轨同伴交往,归属需求,自尊

Article Title——The effect of school bullying on transgressive peer interactions among elementary school students: a mediated model with moderation

LI Hongjie[1], XU Lei[1], CHEN Jiwen[1], HUANG Xiuhan[1], CHEN Yaqi[1], PENG Shun[1]
1 School of Education, Jianghan University, Wuhan, China

Abstract **：** According to the ecosystem theory, during childhood, elementary school students' interactions gradually expand from the home to the school, so peer interactions during childhood are extremely important for their physical and mental development. Transgressive peer interactions refer to friendships with peers who violate school discipline, social norms, or even legal behaviors, and it is an effective positive predictor of adolescent problem behaviors, such as online game addiction. Previous research suggests that bullied individuals may actively socialize with deviant peers. The present study explored the effects of school bullying on elementary school students' deviant peer interactions and examined the mediating and moderating roles of belonging needs and self-esteem. The Delaware Bullying Victimization Scale (student volume), the Transgressive Peer Interaction Scale, the Basic Psychological Needs Scale, and the Self-Esteem Scale were used to follow up 547 school elementary school students for two time periods with a 6-month interval. The results showed that: (1) school bullying not only significantly positively predicted transgressive peer interactions, but also influenced transgressive peer interactions through the mediation of attributional needs; (2) the need to belong partially mediated the effect of school bullying on transgressive peer interactions, with the mediating effect accounting for 17.95% of the total effect; (3) the first half of the school bullying-need to belong-transgressive peer interactions segment was moderated by self-esteem, and as self-esteem levels increased, the greater the effect of school bullying on the need to belong. The above

findings reveal that school bullying is closely related to transgressive peer interactions, and it is necessary to strictly stop school bullying and bullying behaviors to reduce the possibility of transgressive peer interactions.
Keywords： Elementary school students, bullying in school, transgressive peer interactions, need to belong, self-esteem

亲子分离特征与留守青少年孤独感的异质性发展轨迹

赵景欣（通讯作者）李鲁杰 刘婷婷

山东师范大学心理学院，济南，250014，jingxinzhao@126.com

摘 要 孤独感是留守青少年最常见的不良情绪体验。根据依恋理论，亲子分离会影响青少年与父母建立起安全稳定的依恋关系，这可能会增加留守青少年经历孤独感等情绪适应问题的风险。大量研究表明，留守青少年的孤独感显著高于一般青少年。然而，大多研究采用横断设计，主要关注留守青少年孤独感水平的差异，相对忽视了留守青少年孤独感的发展轨迹，尤其是异质性发展轨迹。并且，已有研究对留守青少年孤独感发展变化影响因素的关注也不足。因此，本研究将探讨留守青少年孤独感的异质性发展轨迹及其亲子分离特征对孤独感发展轨迹的长期影响。

基于追踪研究设计，本研究对山东省 4093 名初一年级学生（750 名双亲外出，1027 名父亲外出，67 名母亲外出，2249 名非留守）进行了间隔 6 个月的 5 次追踪测量，在考察青少年孤独感的异质性发展轨迹基础上，探讨了亲子分离形式、分离年龄、分离时长以及亲子之间面对面沟通间隔、远程沟通间隔等亲子分离特征对其发展轨迹的预测作用。结果表明：(1)青少年的孤独感存在 3 条异质性轨迹：低-下降组(44.6%)、中-稳定组(40.5%)、恒高组(15.9%)，且女生比男生更容易被归为恒高组、中-稳定组而不是低下降组，县城公办学校的青少年比私立学校的青少年更容易被归为恒高组而不是低-下降组；(2)相比于非留守青少年，双亲外出青少年更容易被归为恒高组、中稳定组而不是低-下降组；相比于青少年期分离，在学龄期分离的青少年更容易被归为低-下降组而不是恒高组；不同亲子分离时长的留守青少年孤独感轨迹之间不存在显著差异；(3)亲子之间面对面沟通间隔、远程沟通间隔时间越长的留守青少年，越容易被归为恒高组、中-稳定组而不是低-下降组。这表明，留守青少年孤独感的发展轨迹存在个体差异，亲子分离形式、分离年龄以及亲子之间沟通间隔均会对留守青少年孤独感的发展轨迹产生影响。

关键词 亲子分离特征，留守青少年，孤独感，异质性发展轨迹

Parent-Child Separation Characteristics and Heterogeneous Developmental Trajectories of Loneliness among Left-Behind Adolescents

Jingxin Zhao, Lujie Li, Tingting Liu

School of Psychology, Shandong Normal University, Jinan 250014

Abstract：Loneliness is the most common adverse emotional experience of left-behind adolescents. According to attachment theory, parent-child separation affects adolescents to establish a safe and stable attachment relationship with their parents, which may increase the risk of left-behind adolescents experiencing emotional adjustment problems such as loneliness. A large number of studies have shown that the level of loneliness among left-behind adolescents is significantly higher than that of non-left-behind adolescents. However, most studies use cross-sectional design, mainly focusing on the differences in the level of loneliness of left-behind adolescents, and

relatively ignoring the development trajectories of loneliness of left-behind adolescents, especially the heterogeneous development trajectories. In addition, insufficient attention has been paid to the factors influencing the development trajectories of loneliness among left-behind adolescents. Thus, this study explored the heterogeneous development trajectories of left-behind adolescents' loneliness and the long-term impact of parent-child separation characteristics on the development trajectories of loneliness.

Based on the design of the longitudinal study, a total of 4093 adolescents were recruited from Shandong Province, including 750 adolescents from both-parent migrant families, 1027 adolescents from father-only migrant families, 67 adolescents from mother-only migrant families and 2249 adolescents from non-parent migrant families. The data were collected at five time points during the period of a year with six months apart. Based on the examination of heterogeneous developmental trajectories of loneliness among adolescents, the present study explored the predictive role of parent-child separation characteristics such as parent-child separation status, separation age, separation duration, the interval of long-distance and face-to-face communication between parents and adolescents. The results showed that: (1) There were three heterogeneous trajectories of adolescent loneliness: "low-decreasing group"(44.6%), "moderate-stable group" (40.5%), and "sustained-high group" (15.9%), and girls were more likely to be classified in the sustained-high group, the moderate-stable group rather than the low-decreasing group than the boys, and adolescents in county public schools were more likely to be classified in the sustained-high group than low-decreasing group than the adolescents in private schools; (2) Compared with non-left-behind adolescents, adolescents from both-parent migrant families were more likely to be classified in the sustained-high group, the moderate-stable group than the low-decreasing group; compared with adolescents separated during adolescence, adolescents separated at school age were more likely to be classified in the low-decreasing group than sustained-high group; there was no significant difference in the loneliness trajectories of left-behind adolescents with different parent-child separation duration; (3) The longer the interval of face-to-face communication and the long-distance communication between parents and adolescents, the left-behind adolescents were more likely to be classified in the sustained-high group, moderate-stable group rather than the low-decreasing group. The finding showed that there were individual differences in the development trajectories of loneliness among left-behind adolescents, and the parent-child separation status, the separation age and the communication interval between parents and adolescents all affect the development trajectories of loneliness among left-behind adolescents.

***Keywords*:** parent-child separation characteristics, left-behind adolescents, loneliness, heterogeneous development trajectories

教师与父母恐惧诉求对儿童学业自我设障、抑郁和自伤的影响——变量中心和个体中心的视角

李政儒　刘红瑞（通讯作者）

北京师范大学心理学部，北京，100875，hrliu@bnu.edu.cn

摘 要　在学校与家庭的日常教育中，教师和父母经常会采取恐惧诉求的策略，即通过向儿童强调学业失败的后果，让儿童在学业任务中投入更多努力，采取替代性行为来避免面临学业失败。作为一种常见的教育策略，恐惧诉求具有一定积极意义，但也会对儿童的学业动机和行为造成负面影响，增大儿童的适应障碍风险。因此，本研究构建了一个多重中介模型，以表现回避目标和外部调控动机为中介变量，探究教师和父母恐惧诉求对儿童学业自我设障、抑郁和自伤行为的影响。同时，为了解当前儿童接受到的恐惧诉求现状，本研究又以个体为中心，通过潜剖面分析儿童感知到的教师和父母恐惧诉求的组合模式，并通过 BCH

法进行方差分析和事后检验，比较各组儿童在中介变量和因变量上的差异。研究被试为 762 名四、五年级的儿童（436 名男生，326 名女生；年龄 $M = 10.26$, $SD = 0.73$），采用问卷调查的方式对其感知到的教师和父母恐惧诉求、表现回避目标、外部调控动机、学业自我设障、抑郁和自伤水平进行测量。结果发现：1）父母恐惧诉求正向预测表现回避目标和外部调控动机，教师恐惧诉求则对二者无显著预测作用；2）表现回避目标正向中介父母恐惧诉求与自我设障的关系，外部调控动机正向中介父母恐惧诉求与儿童抑郁的关系；3）存在 4 类教师和父母恐惧诉剖面，分别为：低恐惧诉求型（31.975%）、中等恐惧诉求型（37.554%）、高恐惧诉求型（14.065%）以及父母恐惧诉求型（16.406%）；4）儿童所属剖面的恐惧诉求水平越高，表现回避目标、外部调控动机、学业自我设障、抑郁和自伤行为倾向于越严重。研究结果提示，相较于教师恐惧诉求，父母恐惧诉求对儿童的影响更重，尤其体现在一些负面影响上，父母在教养策略的选择和使用上应更加谨慎。

关键词　教师恐惧诉求，父母恐惧诉求，自我设障，儿童抑郁，潜在剖面分析

The influence of Teachers' and Parents' Fear Appeal on Children's Academic Self-Handicapping, Depression and Self-Injury: Variable-Centered and Person-Centered Perspectives

LI Zhengru, LIU Hongrui
Faculty of Psychology, Beijing Normal University, Beijing, 100875

Abstract：In daily education of schools and families, teachers and parents often adopt a strategy of fear appeal, which emphasizes the consequences of academic failure to children, encourages them to invest more effort in academic tasks, and adopt alternative behaviors to avoid facing academic failure. As a common educational strategy, fear appeal has certain positive significance, but it can also have a negative impact on children's academic motivation and behavior, and increase the risk of adaptation disorders. Therefore, this study constructed a multiple mediation model, with performance-avoidance goal and external regulatory motivation as mediating variables, to explore the influence of teachers' and parents' fear appeals on children's academic self-handicapping, depression, and self-injury. At the same time, in order to understand the current situation of fear appeals received by children, this study also used a person-centered perspective to analyze the combination pattern of teachers' and parents' fear appeals perceived by children through latent profile analysis (LPA), and conducted variance analysis and post hoc test through BCH to compare the differences between each group in the mediator and dependent variables. The study involved 762 children in fourth and fifth grades (436 males and 326 females; $Mage = 10.26$, $SD = 0.73$). Questionnaire survey was used to measure their perceived levels of teachers' and parents' fear appeals, performance-avoidance goal, external regulatory motivation, academic self-handicapping, depression, and self-injury. The results showed that: 1) Parents' fear appeals positively predicted performance-avoidance goal and external regulatory motivation, while teachers' fear appeals had no significant predictive effect on both; 2) Performance-avoidance goal positively mediated the relationship between parents' fear appeals and self-handicapping, while external regulatory motivation positively mediated the relationship between parents' fear appeals and children's depression; 3) There are four types of teachers' and parents' fear appeals profiles: low fear demand type (31.975%), moderate fear demand type (37.554%), high fear demand type (14.065%), and parent fear demand type (16.406%); 4) The higher the level of fear appeals in the profile of children, the more severe the tendency to performance-avoidance goal, external regulatory motivation, academic self-handicapping, depression, and self-injury. The results suggest that compared to teacher's fear appeals, parents' fear appeals have a more

serious influence on children, especially in some negative influence. Parents should be more cautious in choosing and using parenting strategies.
Keywords： teachers' fear appeal, parents' fear appeal, self-handicapping, children's depression, latent profile analysis

不同管教类型母亲情绪表达与 2-3 岁幼儿情绪调节的关系

张娜[1]　张喜凤[1]　徐婧涵[1]　王异芳[1]（通讯作者）
1 首都师范大学学前教育学院，北京，100048，wangyifang6275@126.com

摘 要　随着《家庭教育促进法》的实施，家长如何对幼儿进行合理管教以促进其心理健康发展的问题得到重视，同时，传统观念下的严厉管教方式对幼儿心理发展的负面影响日益显现。2-3 岁是幼儿的第一个反抗期，家长管教较为频繁，也是幼儿情绪调节能力发展的重要时期。母亲对于幼儿起着重要的社会示范作用，其管教过程当中的情绪表达为幼儿情绪调节具有重要影响。本研究期望通过大样本调查和潜在类别分析方法，分类幼儿母亲的管教行为并分析各类别特征及差异；同时探讨不同管教样态下，母亲积极或消极情绪表达与幼儿情绪调节、情绪不稳定的关系。研究选取 1006 名 2-3 岁幼儿母亲进行问卷调查，考察母亲的管教行为、积极情绪表达、消极情绪表达，以及幼儿的情绪调节和情绪不稳定。研究结果表明：1.母亲管教方式可分为严厉管教型（占 14.1%），表现出高频率的管教行为，且体罚、心理攻击行为较多；理性管教型（占 44.4%），使用较多沟通说理等非暴力管教行为，但仍然会使用一定体罚与心理攻击行为；情绪指导型（占 41.5%），以非暴力管教行为为主，即注重与幼儿沟通交流、提供情感支持与更多的正面引导。2.不同管教方式的母亲在消极情绪表达和 2-3 岁幼儿情绪不稳定上存在显著差异，严厉管教型母亲消极情绪表达最高，其幼儿情绪最不稳定；理性管教型母亲消极情绪表达居中，其幼儿情绪不稳定性一般；情绪指导型消极情绪表达最低，幼儿情绪不稳定性也最低。3.除严管型母亲外，指导型和混合型母亲的积极情绪表达均对 2-3 岁幼儿情绪调节起促进作用，对 2-3 岁幼儿情绪不稳定性起缓解作用；严管型、指导型和混合型母亲消极情绪表达均正向显著预测幼儿的情绪不稳定。研究结果将为家庭情绪教养实践提供实证研究证据和科学指导，从而促进幼儿良好的情绪调节和适应。
关键词　严厉管教，母亲情绪表达，情绪调节，潜在类别分析

Relations between maternal emotion expressiveness of different discipline classes and toddlers' emotion regulation

Zhang Na[1], Zhang Xifeng[1], Xu Jinghan[1], Wang Yifang[1]
1 College of Preschool Education, Capital Normal University, Beijing, 100048

Abstract： With the implementation of the *Family Education Promotion Law of the People's Republic of China*, the issue of how parents can reasonably discipline their children to promote their healthy psychological development has been emphasized, while the negative impact of traditional harsh discipline on children's psychological development has become increasingly obvious. The age of 2-3 years is the first resistance period of toddlers, during which parental discipline is rather frequent, and is also an important period for toddlers' emotional development. Mothers play an important role in social modeling for toddlers, and their maternal emotional expression in the process of discipline has a significant impact on toddlers' emotional regulation. The present study expects to categorize the discipline behaviors of mothers and analyze the characteristics and differences of each class through a large-sample survey and a latent category analysis method. Under different discipline classes, the

study explores the relationship between mothers' positive or negative maternal emotional expressions and toddlers' emotional regulation, and emotional instability. The study investigated 1006 mothers of 2-3-year-old toddlers by questionnaire to access their discipline behaviors, positive emotion expressiveness, negative emotion expressiveness, and toddlers' emotion regulation and emotion instability. The results showed that: 1. The three classes of discipline were defined as *the harsh discipline class*(14.1%), which shows high frequency of discipline behaviors and involves more corporal punishment and psychological aggression; *the rational discipline class*(44.4%), which shows more nonviolent discipline behaviors such as communication and reasoning, but still uses corporal punishment and psychological aggression; *the emotional guidance class*(41.5%), which mainly shows nonviolent discipline behaviors, that is, focusing on communication and interaction with the children, providing emotional support and more positive guidance. 2. There were significant differences in maternal negative emotion expressiveness, and toddlers' emotion instability among three classes. Mothers of *the harsh discipline class* had the highest negative emotion expressiveness and their toddlers' emotion instability was also the highest; mothers and toddlers of *the rational discipline class* had medium negative emotion expressiveness and emotion instability; mothers in *the emotional guidance class* had the lowest negative emotion expressiveness and their toddlers also had the least emotion instability. 3. A regression mixture modeling was employed to assess the relationship between maternal positive emotion expressiveness, negative emotion expressiveness, toddlers' emotion regulation, and emotion instability of three latent classes, which showed that except of *the harsh discipline class, the rational discipline class* and *the emotional guidance class* maternal positive emotion expressiveness had positive significant relationship with toddlers' emotion regulation and negative significant relationship with toddlers' emotion instability. Meanwhile, maternal negative emotion expressiveness positively and significantly predicted toddlers' emotion instability of all three classes. The results of the study will provide empirical research evidence and scientific guidance for family emotional parenting practices, which will promote better emotional regulation and adjustment in toddlers.

Keywords：maternal emotion expressiveness, harsh discipline, emotion regulation, latent class analysis

适度是关键:感知课程难度与大学生网络摸鱼的 U 型关系

丁子恩 刘儒德（通讯作者） 杨一

北京师范大学心理学部，北京，100875

摘 要 大学生的网络摸鱼行为普遍存在于在课堂上。课程难度被研究者认为是网络摸鱼行为的原因，学生觉得困难的课程会降低他们的学习兴趣和注意力；学生觉得简单的课程会导致他们学习的激活程度降低，这些都能增加网络摸鱼。根据心流理论和以往研究，当学生感觉课程难度适中，课程难度和个人能力之间存在平衡，学生更有可能产生心流体验，增加对学习的投入，减少网络摸鱼行为。本研究旨在通过四项研究探讨学生感知课程难度与网络摸鱼之间可能存的在 u 型关系以及学习投入在其中的中介作用。

研究 1 通过问卷调查检验了感知课程难度对网络摸鱼的直接关系。研究 2 通过让被试描述所上过的一堂课（困难，中等，简单）来操纵感知课程难度，并测量在不同难度课程情境中的网络摸鱼行为，揭示了感知课程难度与网络摸鱼之间的 U 型关系。研究 3 通过设置不同难度课程情境来操纵感知课程难度，并使用问卷对学习投入进行测量，再一次验证了感知课程难度与网络摸鱼之间的 u 型关系时，并证明了学习投入的中介作用。研究 4 使用并发双随机化设计同时操纵感知课程难度与学习投入，试图更进一步验证学习投入在感知课程难度和网络摸鱼之间的中介作用，然而结果显示，学习投入仅中介了中等课程难度与网络摸鱼之间的关系。

这一研究及其结果对教师的课程设计具有启示意义。教育工作者应该努力通过教学策略在他们的课程中创造一个最佳的挑战水平，并根据学生的即时反馈修改课程难度，减少学生在课堂上的网络摸鱼行为。

关键词 感知课程难度，学习投入，网络摸鱼，大学生

Moderation is the Key: Taking Too Easy or Too Hard Courses Increases Academic Cyberloafing

Zien Ding, Ru-De Liu (Corresponding author) Yi Yang
Faculty of Psychology, Beijing Normal University, Beijing 100875

Abstract: As technology permeates every aspect of our lives, college students increasingly use technology for non-academic purposes during class time. Previous studies found that perceiving a course to be hard decreases students' competence, learning interest, and concentration, which leads to academic cyberloafing; perceiving a course as easy may lead to diminished learning outcomes, such as less activation on learning, which increase academic cyberloafing. Moreover, according to flow theory, academic cyberloafing may decrease until a point of optimal perceived course difficulty is reached, after which academic cyberloafing increases. More specifically, there may be a U-shaped relation between perceived course difficulty and academic cyberloafing. Further, Flow theory proposed that learning engagement can be improved by creating academic activities that allow individuals to experience flow (i.e., the optimal perceived course difficulty), which can lead to a positive attitude towards learning and decrease academic cyberloafing. Thus, learning engagement may mediate the relation between perceived course difficulty and academic cyberloafing. Taken together, the current study aimed to address two fundamental questions: (1) Is the relation between perceived course difficulty and academic cyberloafing U-shaped curvilinear? (2) Does learning engagement mediate the effects of the perceived course difficulty and academic cyberloafing?

Four studies revealed the relation between perceived course difficulty and academic cyberloafing among Chinese college students. Study 1 measured perceived course difficulty and academic cyberloafing and found the U-shaped curvilinear relation between perceived course difficulty and college students' academic cyberloafing. Study 2 manipulated the perceived course difficulty by asking participants to describe a course that they felt difficult to learn, neither hard nor easy to learn, or easy to learn. The results further demonstrated that there was a U-shape in the relation between perceived course difficulty and academic cyberloafing. Study 3 changed the manipulation of perceived course difficulty by providing a situation and demonstrated the mediating role of learning engagement in the association between perceived course difficulty and academic cyberloafing. Study 4 used concurrent double randomization designs to further demonstrated the mediating role of learning engagement in the association between perceived course difficulty and academic cyberloafing. However, learning engagement only mediated the relation between moderate-hard course difficulty and academic cyberloafing.

Taken together, the findings have implications for teachers' course design and contribute to a more comprehensive understanding of academic cyberloafing in classrooms. The implications of this research suggest that educators should strive to create an optimal level of challenge in their courses and modify the course difficulty based on students' immediate feedback to decrease students' academic cyberloafing in class.

Keywords: Perceived course difficulty; Learning engagement; Academic cyberloafing; College students

小学儿童数学能力的异质性发展轨迹：教师支持与数学焦虑的纵向预测作用

郭凯玥 朱红祥 徐艳丽 封洪敏 司继伟（通讯作者）
山东师范大学心理学院，济南，250358，通讯作者 E-mail：sijiwei1974@126.com

摘 要 儿童数学能力差异的来源是数学认知发展领域研究者持续关注的热点问题之一。已有研究多关注个体特定认知能力与数学能力的关系，而相对忽视了外部环境和个体成就情绪在儿童数学能力发展过程中的作用。控制-价值理论认为个体的学业成就通常受到远端环境和近端成就情绪因素的影响，且远端环境可以通过影响近端成就情绪进而影响学生的学业成就。本研究试图考察教师支持和数学焦虑如何影响儿童发展为不同数学能力水平亚组，首先建立潜类别增长模型（LCGM）考察儿童数学能力的异质性发展轨迹；其次，建立中介效应模型考察数学焦虑在教师支持和儿童数学能力发展轨迹之间的纵向中介作用。以 1198 名小学三年级儿童为被试，对其数学能力进行四次追踪，每次间隔一年，并在第一次测试时测量儿童感知到的数学教师支持、数学焦虑及协变量（包括性别、智力和家庭社会经济地位）。结果发现：（1）小学儿童的数学能力可区分为三条异质性发展轨迹组：低稳定组（9.7%）、中快速上升组（81.4%）、高稳定上升组（8.9%）；（2）数学教师支持对数学能力的异质性发展轨迹类别具有直接预测作用，表现为相较于高稳定上升组，儿童感知到的数学教师支持水平越高，后期发展为低稳定组的概率越低；（3）数学教师支持亦可通过数学焦虑间接影响儿童数学能力的异质性轨迹类别，表现为数学教师支持水平越高，数学焦虑水平越低，儿童后期越易发展为高稳定上升组，而非中快速上升组和低稳定组。上述发现初步揭示了环境因素与个体成就情绪因素在儿童数学能力发展中的独特作用，为从环境-个体多因素角度制定有效培养方案提供了证据支持。

关键词 小学儿童，数学能力，异质性发展轨迹，教师支持，数学焦虑

Heterogeneous Developmental Trajectories of Children's Mathematics Ability in Primary School: the Longitudinal Predictive Role of Teacher Support and Mathematics Anxiety

Kaiyue Guo, Hongxiang Zhu, Yanli Xu, Hongmin Feng, Jiwei Si(Corresponding author)
School of Psychology, Shandong Normal University, Jinan 250358

***Abstract*：** Sources of individual differences in children's mathematics ability are one of the hot issues of continuing interest to researchers in the field of mathematical cognitive development. Previous studies have focused more on the relationship between individual specific cognitive abilities and mathematics ability, while relatively neglecting the role of external environment and individual achievement emotions in the development of children's mathematics ability. The Control-Value Theory suggests that an individual's academic achievement is usually influenced by both distal environment and proximal achievement emotions, and that the distal environment can affect students' academic achievement by influencing proximal achievement emotions. This study attempts to examine how teacher support and mathematics anxiety affect children's development into different subgroups of mathematics ability. Firstly, a latent class growth model (LCGM) was established to examine the heterogeneous

developmental trajectories of children's mathematics ability. Secondly, a mediating effect model was established to investigate the longitudinal mediating effect of mathematics anxiety between teacher support and children's mathematics ability developmental trajectories. 1198 third grade primary school students were selected as participants. Their mathematics ability was measured four times over four years, and perceived mathematics teacher support, mathematics anxiety and covariates (including gender, intelligence and socioeconomic status) were measured at the first wave. The result showed that: (1) The development of primary school children's mathematics ability involved three heterogeneous trajectories: low stable group (9.7%), medium fast rising group (81.4%), high stable rising group (8.9%). (2) Teacher support directly affected the heterogeneous developmental trajectory classes of children's mathematics ability. Compared with the highly stable rising group, the higher the level of perceived teacher support, the lower the probability of individual development into the low stable group. (3) Teacher support could also indirectly affect the heterogeneous developmental trajectory classes of children's mathematics ability through mathematics anxiety. The higher the level of perceived teacher support, the lower the level of mathematics anxiety, and the more likely children were to develop into high stable rising group, rather than middle fast rising group and low stable group. The results of this study initially reveal the unique roles of external environment and individual achievement emotions in the development of children's mathematics ability, and provide evidence support for formulating effective programs to cultivate children's mathematics ability from an environmental-individual multifactorial perspective.

Keywords：primary school children, mathematics ability, heterogeneous development trajectory, teacher support, mathematics anxiety

反馈中的错误线索和呈现次数对学习的影响：个体对错误的适应性反应的调节作用

王静 姜甜甜 龚少英（通讯作者）

华中师范大学心理学院，武汉，430079，gongsy@ccnu.edu.cn

摘 要 以往研究已经发现基于计算机的反馈是一种有效的教学干预方式，但不同精细反馈对学习的作用仍然没有定论，这可能是因为精细反馈对学习的影响会受到反馈特征（如反馈内容）或学习者特征等因素的影响。反馈领域相关研究多是关注与任务解决相关的正确信息，在这种情况下，学习者会被动地接受反馈中的解题信息，难以进行深层加工，如果能够帮助学习者分析其错误原因并修正其原有认知，可能有助于充分发挥错误的价值。此外，以往研究多是呈现一次反馈信息，学习者没有机会将反馈信息即时应用到第二次或多次尝试中，无法检查学习者是否达到了掌握水平，并且对错误有不同反应的学习者在接收到反馈后可能会有不同的表现。基于此，本研究聚焦于从错误中学习的视角设计了两个实验，探究反馈中的错误线索和呈现次数如何影响学习，以及个体对错误的适应性反应是否会调节错误线索对学习的影响。实验 1 采用 2（错误线索：有 vs 无）× 2（反馈呈现次数：1 次 vs 2 次）的两因素被试间设计，以 113 名初中生为对象，探究有无错误线索和反馈的呈现次数对其数学学习的影响，结果发现：（1）与无错误线索相比，反馈中的错误线索能提高学习者的相关认知负荷和迁移成绩；（2）与呈现 1 次反馈信息相比，呈现 2 次反馈信息能提高学习者的积极情绪和相关认知负荷；（3）错误线索和呈现次数交互影响迁移成绩。当呈现 2 次反馈信息时，接受了错误线索的学习者有更好的迁移成绩。基于实验 1 的结果，实验 2 以 220 名初中生为对象，在呈现 2 次反馈信息的基础上探究了个体对错误的适应性反应在错误线索影响学习中的调节作用并发现：（1）错误线索提高了学习者的相关认知负荷和迁移成绩，验证了实验 1 的结果；（2）个体对错误的情感-动机适应性反应调节了错误线索对内部认知负荷和动机的影响；（3）个体对错误的行为适应性反应调节了错误线索对内部认知负荷、动机和迁移成绩的影响。本研究启发教学设计者要考虑学习者的特

征和其错误来设计和提供反馈信息。

关键词 反馈，错误线索，反馈呈现次数，个体对错误的适应性反应

The Effect of Error Clue and Feedback Frequency on Learning: The Moderating Role of Individual Adaptive Reactions to Errors

Jing Wang, Tiantian Jiang, Shaoying Gong
School of Psychology, Central China Normal University, Wuhan

Abstract：Previous studies have found that computer-based feedback to be an effective instructional intervention, but the role of different types of elaborated feedback on learning is still uncertain, probably because of the effect of elaborated feedback can be affected by feedback characteristics (e.g., feedback content) or learners' characteristics. Most studies in the field of feedback focused on correct information related to task solving, in which learners passively accept it and found it difficult to process feedback deeply, and it might help to fully utilize the value of errors if learners could be assisted to analyze the reasons for their errors and revised their original cognition. In addition, previous studies mostly present feedback information once, and learners cannot have the opportunity to apply the feedback information instantly to a second or multiple attempts to check whether they have reached the mastery level, and learners who respond differently to errors may perform differently after receiving the feedback. Based on this, this study focused on the learning-from-errors perspective by designing two experiments to investigate how error clue and frequency in feedback affect learning, and whether individuals' adaptive responses to errors could moderate the effect of error clue on learning. Experiment 1 used a 2 (error clue: yes vs. no) × 2 (feedback frequency: 1 time vs. twice) two-factor between subjects design with 113 junior high school students to explore the effects of the error clue and feedback frequency on their learning in mathematics, and the results found that (1) compared to no error clue, error clue increased learners' germane cognitive load and transfer performance; (2) learners of the group with twice feedback reported more positive emotion and higher germane cognitive load than those with 1 time feedback; (3) error clue and feedback frequency interacted to affect transfer performance. Learners who received the error clue had better transfer performance when presented twice feedback. Based on the results of experiment 1, experiment 2 investigated the moderating role of individual adaptive responses to errors in the influence of error clue on learning based on presenting twice feedback, and revealed that: (1) error clue improved learners' germane cognitive load and transfer performance, which verified the results of experiment 1; (2) individual affective-motivational adaptive responses to errors moderated the effects of error clue on intrinsic cognitive load and motivation; (3) individual action adaptive responses to errors moderated the effects of error clue on intrinsic cognitive load, motivation, and transfer performance. This study can inspire instructional designers to pay attention to learners' characteristics and their errors when they design and provide feedback.

Keywords: feedback, error clue, feedback frequency, adaptive reactions to errors

生涯社会支持对高中生职业生涯规划能力的影响及生涯活动课程的干预研究

黄加慧[1]　赵钦瑞[1]　戴艳[2]（通讯作者）

1 四川师范大学，成都，610066

2 四川师范大学心理学院，成都，610066，daiyanch@163.com

摘 要　四川省新高考的改革给了高中生在选科时更多的“自主性”和“选择性”，选择并不是盲目的，这也表明职业生涯规划任务将提前，教师应该提供完备的职业生涯辅导。依据社会认知生涯理论，已有研究表明家庭、社会、学校和个体会不同程度影响学生的职业生涯规划发展。本文共有两项研究：①研究一采用《生涯社会支持量表》、《生涯探索和决策学习经验量表》、《生涯自我效能感量表》、《高中生职业生涯规划能力问卷》对四川省成都市某高一年级的 830 名普通高中生进行问卷调查，探讨生涯社会支持、生涯学习经验、生涯自我效能感和高中生职业生涯规划能力的关系以及作用机制，为研究二提供理论基础。②研究二基于职业生涯规划能力的影响机制研究，以生涯学习经验和生涯自我效能感为切入点，筛选同质性的两个班级，分为实验组和对照组。对实验组的班级进行共计 8 次的生涯课程干预，对照组不涉及生涯相关内容，以分析和探讨生涯辅导活动课程对高中生职业生涯规划能力的干预效果，为高中生的生涯教育提供较为完善的生涯课程体系。得出如下研究结论：

（1）本研究的高一年级学生职业生涯规划能力处于中等水平；在性别、是否独生的人口学变量上差异显著；

（2）生涯社会支持、生涯学习经验、生涯自我效能感和职业生涯规划能力之间皆两两相关；

（3）生涯社会支持正向预测高中生职业生涯规划能力；

（4）生涯学习经验和生涯自我效能感分别在生涯社会支持与高中生职业生涯规划能力之间起部分中介作用；

（5）生涯学习经验和生涯自我效能感在生涯社会支持与高中生职业生涯规划能力之间起部分链式中介作用；

（6）生涯辅导活动课能够增加高中生的生涯学习经验，增强生涯自我效能感水平，进而提升其职业生涯规划能力，干预效果显著。

关键词　高中生职业生涯规划能力，生涯社会支持，生涯学习经验，生涯自我效能感，生涯课程干预

The Influence of Career Social Support on Career Planning Ability of High School Students and the Intervention of Career Activity Curriculum

Huang Jiahui[1] Zhao Qinrui[1] Qai Yan[2]（corresponding author）
Sichuan Normal University , No.5 Jing'an Road, Jinjiang District, Chengdu, Sichuan, China

Abstract: Sichuan Province implemented new college entrance examination reform., students have more"autonomy" and "selectivity" in choosing subjects. The selection is not blind, which also means that the task of career planning will be advanced. Teachers should provide complete career guidance. Career planning tasks are brought forward. Therefore, students' career planning education becomes particularly important. Existing studies have shown that family, society, school and individuals have different degrees of influence on students' career planning and development. According to the Social Cognitive Career Theory, the external environment system interacts with individuals and has an impact on their career development.

There are two studies in this paper: (1) In the first study, 830 grade one high school students from Chengdu, Sichuan Province were surveyed by the Career Social Support Scale, the Career Exploration and Decision Learning Experience Scale, the Career Self-efficacy Scale and the Career Planning Ability Questionnaire. To explore the relationship between career social support, career learning experience, career self-efficacy and career planning ability of high school students, and further enrich the theoretical research on the influencing mechanism of career planning ability: (2) In the second Study, two homogenous classes were selected and divided into the experimental group and the control group based on study one. A total of eight career course interventions were carried out on the classes of the experimental group, while the control group didn’t involve career-related content. It mainly analyzes and discusses the intervention effect of career curriculumon the career planning ability of high school students,and provides a more mature career curriculum scheme system for the career education of high school students. The results are as follows:

(1) In this study, the career planning ability of senior one students is at an average level. There areobvious differences in gender and single child.

(2) There is a positive collection between Career social support, career learning experience, career self-efficacy and career planning ability.

(3) Career social support plays a significant positive role in predicting the career planning ability of high school students;

(4) Career learning experience and Career self-efficacy play partial agents between career social support and career planning ability;

(5) Career learning experience and career self-efficacy play a partial chain agent role between career social support and career planning ability;

(6) Career counseling activities can not only increase the learning experience of senior high school students, but also enhance their sense of self-efficacy. And ultimately improve their career planning skills.The effect of intervention is good and remarkable.

Keywords: Senior High School Students, Career planning ability, Career social support, Career learning experience, Career self-efficacy, Career course intervention

大学-职场转变阶段的生涯适应力发展及其与主动性人格、离职倾向的关系

李学涵[1]　张春雨[1]（通讯作者）
1 陕西师范大学心理学院，西安，710062，chunyu.zhang@snnu.edu.cn

摘 要　对许多毕业生来说，从大学到职场的转变是生涯发展转折的关键期，同时也是人生发展的重要阶段之一。在这一阶段，即将迈入工作岗位的“新职场人”们会面临一系列与职业和工作相关的挑战，而能否顺利地通过这些挑战会极大地影响他们未来职业生涯的成功与否。生涯适应力，作为有助于个体应对生涯发展性任务的资源，可能在这一阶段发挥着重要的作用。以往研究已经对生涯适应力在大学-职场转变阶段的发展特征、生涯适应力与主动性人格、离职倾向的关系进行过一定的探索，但其多为横断研究且所得结论并不统一，仍存在一定局限，有待进一步研究。基于此，本研究采用问卷法对 340 名大学生（男 89 人，女 251 人，平均年龄为 23.04 ± 0.95 岁）在横跨毕业前后的 9 个月间进行三次纵向追踪研究，使用 Mplus 构建潜变量增长模型、时间变化协变量模型等，对生涯适应力在此过程中的变化趋势及其与主动性人格、离职倾向的关系进一步进行探究。结果发现：（1）个体的生涯适应力在这一转变中具有显著的线性增长趋势，起始水平及发展速度均存在显著个体差异且两者之间呈现出显著的负向相关关系；（2）较高的主动性人格水平对当时个体生涯适应力水平的增长有显著促进作用；（3）初始生涯适应力水平及发展速度均对个体工作后的离职倾向具有负性作用。该研究在促进大学毕业生生涯适应力的发展、提高其转变阶段后的适应性结果等方面提供了理论及实践启示，以期完善生涯教育体系，促进全面心理健康服务的进一步发展。
关键词　职业生涯适应力，主动性人格，离职倾向，大学-职场转变，潜在增长模型

The Relationship between the Development of Career adaptability and Proactive personality and Turnover intention in the Transition from university to work

Xuehan Li [1], Chunyu Zhang [1]
[1] School of Psychology, Shaanxi Normal University, Xi’ an, China

Abstract **：** For many graduates, the transition from university to work is a critical period in their career development and also one of the most important stages in their whole life. During this transition, “new workers” who are about to enter the workplace will face with a number of career and job-related challenges, and their ability to effectively deal with these challenges will significantly impact their future career success or not. Career adaptability, as a valuable resource for individuals to navigate career development tasks effectively, can play an important role in this transition.Previous research has explored the developmental characteristics of career adaptability during the transition from university to work, as well as the relationship between career adaptability and proactive personality, and turnover intentions. However, most of these studies are cross-sectional, and the conclusions are not consistent, indicating certain limitations, further exploration is needed. Therefore, A three-waves longitudinal study over nine months was conducted among 340 university students (89 males and 251 females, with an average age of 23.04 ± 0.95 years old) to examine how career adaptability develops during the transition from university to work, how proactive personality relates to this development in this process, and how this development predicts turnover intention when transiting to workplace. Using the latent growth model with

Mplus, our study found that there was a significant increase in career adaptability during the transition. Meanwhile, proactive personality as a time-variant variable at given testing point positively predicted career adaptability at the respective time point. Lastly, both the initial level and development speed of career adaptability have a negative effect on individuals' turnover intention after graduation. This study provides theoretical and practical insights in the promotion of the development of career adaptability among university graduates and the improvement of their adaptive outcomes in the transition from university to work. It aims to contribute to the improvement of career education system and to the further development of comprehensive mental health services.

Keywords： career adaptability, proactive personality, turnover intention, the transition from university to work, latent growth modeling

形状知觉对小学生数学学业成绩的纵向预测作用

崔佳歆[1]　左钰涵[1]　王赛赛[1]　崔占玲[1]（通讯作者）周新林[2]（通讯作者）

1 河北师范大学教育学院，石家庄，050024，myselfczl@163.com

2 北京师范大学心理学部认知神经科学与学习国家重点实验室，北京，100875，zhou_xinlin@bnu.edu.cn

摘 要　以往大量研究从领域特殊性角度解释近似数量系统与数学学业能力的关系，认为近似数量系统与所有数学学业能力均显著相关，是因为二者共享数量加工这一内在认知机制。近年提出的形状知觉假设从领域一般性角度，有效地解释了近似数量系统与数学学业能力关系的认知机制。并通过系列研究证实，形状知觉是近似数量系统与数学学业能力的共有认知基础，即控制了形状知觉后，近似数量系统不再对数学学业能力有显著性作用。目前已有研究结果主要来自横断研究，唯一的纵向研究发现了形状知觉对数学认知能力的预测作用。那么，形状知觉对具有高生态效度的数学学业成绩是否也有显著的预测作用？本文将通过检验小学生的形状知觉能力对其在校数学考试成绩的纵向预测效果来回答这一问题。同时也将检验形状知觉能力对与数学学业成绩高度相关的数学学业情绪的纵向预测效果。

随机招募石家庄某校 176 名小学生（其中男生 86 名，平均年龄 10.75 岁，SD = 0.29 岁）参与研究，分别在小学五年级秋季学期测量形状知觉能力（箭头形状判断任务）与智力（瑞文推理任务）和反应速度（选择反应时任务）两种基础认知能力，同时收集其数学期中考试得分。在小学六年级秋季学期收集数学期中考试得分，同时测量其数学学业情绪（数学焦虑、数学学习投入和数学认识信念）。

结果发现，形状知觉能力与小学生五年级和六年级的数学成绩均显著相关（$r_{五年级} = 0.23$，$r_{六年级} = 0.27$，$p < 0.01$），但与其六年级的三种数学学业情绪均不相关（$r_{数学焦虑} = 0.01$，$r_{数学学习投入} = 0.05$，$r_{数学认识信念} = 0.13$，$p > 0.05$）。控制年龄性别和基础认知能力后，学生五年级的形状知觉能力仍能显著预测其六年级数学考试成绩（$\Delta R^2 = 0.054$，$p = 0.002$）。

可见，形状知觉是有效预测儿童未来数学学业成绩的认知行为指标，从纵向视角证实了形状知觉与数学学业能力的关系，体现了认知能力和学业能力的交会与融合，进一步支持了形状知觉假设。同时也发现形状知觉与小学生的数学学业情绪无关，体现了认知和情绪的分离性。

关键词　形状知觉，数学学业成绩，数学学业情绪，小学生，纵向预测

The longitudinal prediction of visual form perception on mathematics academic achievement of primary school students

Jiaxin Cui[1], Yuhan Zuo[1], Saisai Wang[1], Zhanling Cui[1], Xinlin Zhou[2]

[1] College of Education, Hebei Normal University, Shijiazhuang, 050024

[2] State Key Laboratory of Cognitive Neuroscience and Learning, Beijing

Normal University, Beijing, 100875

Abstract：Previous studies have extensively explained the relationship between approximate number system and mathematical abilities from the domain-specific perspective, suggesting that approximate number system are significantly correlated with nearly all types of mathematical abilities, because both share quantity processing as their common cognitive mechanism. The visual form perception hypothesis proposed in recent years effectively explains the cognitive mechanism of the relationship between approximate number system and mathematical abilities from a domain-general perspective. Through a series of studies, it was proved that visual form perception is a common cognitive basis for both approximate number system and mathematical abilities, that is, after controlling for visual form perception, the approximate number system no longer has a significant effect on mathematical abilities. The existing findings mainly come from cross-sectional studies, and the only longitudinal study has found a significant predictive effect of visual form perception on mathematical cognition. Therefore, does visual form perception also has a significant predictive effect on mathematical academic performance with high ecological validity? This study would focus on this problem by examining the longitudinal predictive effect of elementary school students' visual form perception ability on their school mathematics exam scores. At the same time, the longitudinal predictive effect of visual form perception on mathematical academic emotions highly correlated with mathematical academic performance will also be examined.

One hundred and seventy-six primary school students (86 boys, average age = 10.75, SD = 0.29) from a school in Shijiazhuang were randomly recruited to participate in this study. Visual form perception ability (measured by an arrow form judgment test) and two types of general cognitive abilities, intelligence (measured by Raven's matrix test) and processing speed (measured by choice reaction time test), were examined in the autumn semester of the fifth grade of primary school. At the same time, their mathematics midterm exam scores were collected. In the autumn semester of the sixth grade, their mathematics midterm exam scores and mathematics academic emotions (mathematics anxiety, mathematics learning engagement and mathematics epistemic belief) were collected.

The results showed that visual form perception was significantly related to the mathematics midterm exam scores in both grade 5 and grade 6 ($r_{grade5} = 0.23$, $r_{grade6} = 0.27$, $p < 0.01$), but was not significantly related to the three types of mathematical academic emotions in grade 6 ($r_{math_anxiety} = 0.01$, $r_{math_learning_involvement} = 0.05$, $r_{math_cognitive_beliefs} = 0.13$, $p > 0.05$). After controlling for age, gender, and general cognitive abilities, visual form perception in fifth grade can still significantly predict the sixth-grade mathematics exam scores ($\Delta R^2 = 0.054$, $p = 0.002$).

The results indicate that visual form perception is an effective cognitive behavioral indicator for predicting children's future mathematical academic achievement. From a longitudinal perspective, it confirms the relationship between visual form perception and mathematical ability, and further supports the visual form perception hypothesis. It was also found that visual form perception is not related to elementary school students' mathematical academic emotions, reflecting the separation of cognition and emotion.

Keywords：visual form perception, mathematics academic achievement, mathematics academic emotion, primary school students, longitudinal prediction

“量”与“质”对成绩的作用：

“双减”背景下作业减负增效的路径研究

秦可心[1]　王烨晖[1]（通讯作者）

1 北京师范大学中国基础教育质量监测协同创新中心，北京，100875，yehuiwang@bnu.edu.cn

摘 要　作业在为学生提供课后练习机会，提高教育效能的同时，也带来一定的学业负担。如何实现作业的减负增效是研究关注的重点。以往研究多关注作业时间这一“量”的因素，提出作业时间与成绩的复杂关系。然而，作业时间并非学业成功的保证，只有当学生有效参与作业，作业时间的投入才能高效转换为成绩。基于作业的理论基础，以学习兴趣和学习机会为代表的“质”的因素是构成作业有效性的关键。本研究以 2440 名八年级学生为研究样本，以数学学科为例，使用广义倾向值分析，在更精确地估计数学作业时间对数学成绩效应的基础上，进一步以下四分位数和上四分位数为界限，分别将学生在数学学习兴趣和学习机会上的得分划分为“低”、“中”、“高”三组，探究数学学习兴趣和学习机会对学生成绩及作业时间效率的影响。结果显示：（1）在控制学校、家庭和学生层面协变量后，数学作业时间与数学成绩呈倒 U 型的关系，其中，45 分钟是达到最佳数学成绩的作业时间阈值。（2）持有不同数学学习兴趣（$F_{(2,1409)} = 12.97, p < 0.001, \eta_p^2 = 0.019$）和不同学习机会（$F_{(2,1409)} = 28.61, p < 0.001, \eta_p^2 = 0.039$）的学生在数学成绩上表现出显著差异，随着学生数学学习兴趣的提升和数学学习机会的增加，成绩显著提升。（3）提升学生的数学学习兴趣，增加数学学习机会能够通过缩短达到最佳成绩所需的作业时间，提高作业效率。具体而言，“低数学学习兴趣”和“中等数学学习兴趣”组达到最佳数学成绩的作业时间位于第 60 个百分位数；而“高数学学习兴趣组”达到最佳数学成绩的作业时间提前至第 40 个百分位数；“低学习机会”和“中等学习机会”组达到最佳数学成绩的作业时间位于第 60 个百分位数；而“高学习机会”组达到最佳数学成绩的作业时间提前至第 50 个百分位数。本研究揭示了“量”与“质”的因素与成绩的复杂关系，对作业减负增效的实践具有一定启示：从量而言，建议统筹管理作业，合理设计作业结构，控制作业总量；从质而言，建议提升兴趣，增加学生获取知识的学习机会，实现增效减负。

关键词　数学作业时间，数学学习兴趣，数学学习机会，数学成绩，广义倾向值分析

The Effect of "Quantity" and "Quality" on Achievement: Research on Burden Reduction and Efficiency Increasement of Homework under the Background of “Double Reduction” Policy

Kexin Qin[1], Yehui Wang[1]

1 Collaborative Innovation Center of Assessment toward Basic Education Quality, Beijing Normal University, Beijing, 100875

Abstract **：** Homework provides students with opportunities to practice learning content and improves educational efficiency, while at the cost of increasing academic burden. How to alleviate the burden and increase the efficiency of homework is the focus of research. Previous studies paid much attention to homework time, the “quantity” factor, and suggested the complex relationhip between homework time and achievement. However, homework time is not a guarantee of academic success. Only when students actively participate in homework can the investment of homework time be used effectively. According to the theoretical basis of homework research, the "quality" factors including learning interest and opportunity to learn (OTL) are key to the effectiveness of homework. The study recruited 2440 students in Grade 8. Taking mathematics as an example, generalized propensity score (GPS) analysis was used to accurately estimate the effect of mathematics homework time on mathematics achievement. Furthermore, students were

divided into different groups according to the first four quartile and the last quartile of the scores of the two “quality” factors respectively to explore the influence of mathematics interest and OTL on students' achievement and homework time efficiency. The results showed that (1) There was an inverted U-shaped relationship between mathematics homework time and mathematics achievement. The threshold of homework time that reached the best mathematics achievement was 45 minutes. (2) The increasing of mathematics interest ($F_{(2,1409)} = 12.97, p < 0.001, \eta_p^2 = 0.019$) and the OTL ($F_{(2,1409)} = 28.61, p < 0.001, \eta_p^2 = 0.039$) significantly improved mathematics achievement. (3) The increasing of mathematics interest and the OTL increased the efficiency of mathematics homework by shortening the homework time required for the highest achievement. Specifically, for students with below medium levels of mathematics interest and OTL, the threshold of homework time that reached the best mathematics achievement was in the 60th percentile; for students with high level of mathematics interest and OTL, the threshold of homework time was advanced to 40th percentile and 50th percentile respectively. The study reveals the complex relationship between "quantity" and "quality" factors and achievement. It is advised to adjust the structure of homework to control the total amount of homework, and improve classroom teaching to increase students' interest and OTL in mathematics.
Keywords：Mathematics homework time, Mathematics interest, Mathematics opportunity to learn, Mathematics achievement, Generalized propensity score

低成本脑机接口技术的数学教学模式及其对提高学习效果的影响

许施扬[1] （通讯作者）杨佳闻[1] 范靖朝[1]

1 山西师范大学教育科学学院心理系，太原，030031，xushiyang@sxnu.edu.cn

摘 要　在21世纪，数学学习成为科学、技术、工程和数学（STEM）领域的关键，但学生常面临缺乏动机、焦虑和成绩不佳等挑战。因此，本研究探索了一种结合低成本脑机接口技术的教学模式，旨在通过提供基于α节律的神经反馈来提高学生的数学表现和自我效能。研究假设，增强α功率可以提升注意力、降低焦虑，并增强工作记忆，从而改善数学学习效果。

本研究招募了40名无代数先验知识的大学生（包括20名男性和20名女性，平均年龄为19.5岁，智商平均为110）参与，他们被随机分为实验组和对照组。实验中使用了由无线脑电图耳机、笔记本电脑及定制的采集软件组成的单通道低成本脑机接口设备进行神经反馈，脑电图耳机在国际10-20系统的Fp1位置放置一个干电极。利用在线平台提供代数主题的互动课程和练习，同时使用两份问卷来评估参与者的数学表现和自我效能。

实验结果表明，虽然所有参与者的数学表现和自我效能均有所提升，但实验组的提升幅度更大。实验组的数学表现正确率从前测的65%提升到后测的80%，而对照组从前测的58%提升到后测的62%，差异具有统计学显著性（$t(38) = 3.21, p < 0.01$）。同样，实验组的自我效能得分从前测的60提升到后测的72，而对照组则从58提升到62，差异同样具有统计显著性（$t(38) = 2.87, p < 0.01$）。此外，实验组在与数学认知相关的额叶区域（Fp1）表现出显著增强的α功率，而对照组并无此类变化（$t(38) = 3.67, p < 0.01$）。

综上，融合低成本脑机接口技术的教学模式能通过提供基于α节律的神经反馈来提升数学学习效果。这一发现支持了假设，即增强α功率能通过提升注意力、降低焦虑和增强工作记忆来提升数学学习效果。此外，研究揭示了脑机接口系统对数学认知相关脑区活动的调节作用，为教育神经科学领域提供了新视角，并为提升数学教育质量和培养数学素养提供了新的思路和途径。

关键词　低成本脑机接口，神经反馈，数学教学效果

The Impact of a Neurofeedback-Augmented Mathematics Teaching Model Using Low-Cost Brain-Computer Interface Technology

Xu Shiyang[1] (Corresponding Author), Yang Jiawen[1], Fan JingZhao[1],
[1] Department of Psychology, Faculty of Education Sciences, Shanxi Normal University, Taiyuan, 030031

***Abstract*：** In the 21st century, mathematics learning has become a cornerstone in Science, Technology, Engineering, and Mathematics (STEM) fields, yet many students grapple with obstacles such as lack of motivation, anxiety, and underperformance. Consequently, this study explored a pedagogical model integrating low-cost brain-computer interface technology, aiming to enhance students' mathematical performance and self-efficacy by providing neurofeedback based on alpha rhythms. The study hypothesizes that enhancing alpha power can improve attention, reduce anxiety, and augment working memory, thereby improving mathematics learning outcomes.

The study enlisted 40 college students (including 20 males and 20 females, averaging 19.5 years in age, with an average IQ of 110) with no prior knowledge of algebra. They were randomly assigned into an experimental group and a control group. The experiment used a single-channel, low-cost brain-computer interface device for neurofeedback, comprising a wireless EEG headset, a laptop, and customized acquisition software. The EEG headset placed a dry electrode at the Fp1 location of the International 10-20 system. An online platform was employed to offer interactive courses and exercises on algebraic themes, while two questionnaires were utilized to gauge participants' mathematical performance and self-efficacy.

The results demonstrated that while all participants improved in mathematical performance and self-efficacy, the experimental group saw a greater improvement. The correct rate of mathematical performance in the experimental group increased from 65% in the pre-test to 80% in the post-test, while the control group increased from 58% to 62%, with a statistically significant difference ($t(38) = 3.21$, $p < 0.01$). Similarly, the self-efficacy score of the experimental group rose from 60 in the pre-test to 72 in the post-test, with the control group rising from 58 to 62, a difference also statistically significant ($t(38) = 2.87$, $p < 0.01$). Additionally, the experimental group showed a significant enhancement in alpha power in the frontal lobe area (Fp1) related to mathematical cognition, a change not observed in the control group ($t(38) = 3.67$, $p < 0.01$).

In summary, the pedagogical model integrating low-cost brain-computer interface technology can improve mathematical learning outcomes by providing neurofeedback based on alpha rhythms. These findings support the hypothesis that enhancing alpha power can improve mathematical learning outcomes by promoting attention, reducing anxiety, and augmenting working memory. Moreover, the study reveals the modulatory role of the brain-computer interface system on brain activity related to mathematical cognition, offering a new perspective in the field of educational neuroscience, and paving new ways to enhance the quality of mathematics education and cultivate mathematical literacy.

***Keywords*：** Low-Cost Brain-Computer Interface, Neurofeedback, Mathematics Learning Outcomes

多媒体学习中积极情绪设计视觉显著性的影响:呈现步调的调节

赵文静　沈姝含　关荐（通讯作者）

宁夏大学教师教育学院，银川，750021，guanjian@nxu.edu.cn

摘 要　在多媒体学习中,不同的视觉情绪设计会影响学习者情绪、提高内部动机并增进学习效果，是学习者获取信息的重要方式。以往研究较多关注视觉情绪设计的情绪效价特性和整体信息传递,忽视了具体视觉

元素在整个学习过程中对学习者注意力的引导和眼动层面的视觉认知加工影响。此外,学习材料的呈现步调是学习者与学习材料互动的新兴媒体学习模式,能够对学习者的情绪、主观体验及学习效果等产生不同的影响。因此，本文借助眼动追踪技术，首先验证视觉情绪设计在多媒体学习中的有效性,并进一步探讨视觉元素显著性对学习效果和视觉认知加工过程的影响及学习材料呈现步调在其中的调节作用。实验一采用单因素(视觉情绪设计:积极、中性)被试间实验设计,验证视觉情绪设计是否会影响多媒体学习中学习者的情绪状态,促进学习效果及视觉认知加工。实验二采用单因素(视觉元素显著性:高显著性、低显著性)被试间实验设计,考察在积极视觉情绪设计条件下,视觉元素显著性对多媒体学习的影响。实验三采用 2(视觉元素显著性:高显著性、低显著性)×2(呈现步调:系统步调、自定步调)两因素被试间实验设计，进一步探讨学习材料的呈现步调对学习者学习效果和视觉认知加工的影响。结果表明：（1）积极的视觉情绪设计能够在学习过程中稳定地维持学习者的积极情绪状态,促进更深入的视觉认知加工,进而提高多媒体学习中迁移测验成绩。（2）显著性能够提高教学材料的吸引力:在积极情绪设计条件下,高显著性的学习材料能够提升迁移测验成绩,并促进学习者的视觉认知加工。（3）呈现步调在视觉元素显著性对多媒体学习的影响中起调节作用,即在系统步调条件下,高显著性视觉元素学习材料可以促进视觉认知加工,提高迁移测验成绩；而在自定步调条件下,低显著性视觉元素教学材料也可以得到更充分的加工。
关键词　视觉情绪设计,呈现步调,视觉元素显著性,多媒体学习

The Influence of Visual Saliency of Positive Emotion Design in Multimedia Learning: the Modulation of Presentation Pace

Zhao Wenjing　Shen Shuhan　Guan Jian
College of Teacher Education, Ningxia University,Yinchuan,750021,guanjian@nxu.edu.cn

Abstract： In multimedia learning, different visual emotion designs affect learners' emotions, improve internal motivation and enhance learning effects, which is an important way for learners to obtain information. Previous studies have paid more attention to the emotional potency characteristics and overall information transmission of visual emotion design, and ignored the influence of specific visual elements on the guidance of learners' attention and visual cognition processing at the eye movement level in the whole learning process. In addition, the pace of presentation of learning materials is an emerging media learning mode for learners to interact with learning materials, which can have different impacts on learners' emotions, subjective experiences and learning effects. Therefore, with the help of eye tracking technology, this paper first verifies the effectiveness of visual emotion design in multimedia learning, and further discusses the influence of visual element saliency on learning effect and visual cognitive processing process, and the regulating role of learning material presentation pace. Experiment 1 uses a single-factor (visual emotion design: positive and neutral) experimental design between participants to verify whether visual emotion design affects the emotional state of learners in multimedia learning, and promotes learning effect and visual cognitive processing. In the second experiment, a single-factor (visual element salience: high significance, low significance) experimental design was used to investigate the influence of visual element saliency on multimedia learning under positive visual emotion design conditions. Experiment 3 uses 2 (visual element salience: high salience, low salience) × 2 (presentation pace: system pacing, self-paced) to further explore the impact of the presentation pace of learning materials on learners' learning effect and visual cognitive processing. The results show that: (1) Positive visual emotion design can stably maintain the positive emotional state of learners in the learning process, promote deeper visual cognitive processing, and improve the transfer test score in multimedia learning. (2) Saliency can improve the attractiveness of teaching materials: Under the condition of positive emotion design, learning materials with high significance can improve transfer test scores and

promote learners' visual cognitive processing. (3) Presentation pace plays a regulating role in the influence of visual element saliency on multimedia learning, that is, under the condition of systematic pace, high significance visual element learning materials can promote visual cognitive processing and improve transfer test scores; Under self-paced conditions, teaching materials with low visual elements can also be processed more fully.
Keywords：visual emotional design, presentation pace, visual element saliency, multimedia learning

反应性效应对记忆可提取性和精确度的影响

唐华峰　杨春亮（通讯作者）
北京师范大学发展心理研究院，北京，100875，chunliang.yang@bnu.edu.cn

摘 要　学习判断（Judgments of Learning, JOLs）是指个体对当前学习内容在未来回忆测验中成绩的预测性评估，作为重要的元认知监测形式，常用于研究个体如何监控自己的学习。以往此类研究中会默认这种元认知判断并不影响学习过程本身，但近年来研究者们发现，在学习过程中做 JOL 会反应性地影响记忆本身，这种现象被称为反应性效应（the Reactivity Effect）。根据学习材料、测试类型的不同，反应性效应对记忆的影响没有一致定论，其内在机制尚不明晰。但这些研究往往采用离散的文字或图片刺激，全或无的评价方式也使得无法对记忆的保真度进行明确的测量，因此需要引入一种可能更有助于理解反应性效应对记忆质量影响的方法，允许被试沿着连续的反应空间从记忆中提取信息。本研究旨在使用一种可以估计记忆提取概率和提取表征质量的分析方法，检验反应性效应对连续性记忆的影响。研究一比较了在 JOL 和 no-JOL 条件下，被试在连续的色环上对图片颜色的回忆，结果显示反应性效应对记忆的可提取性有显著的提高，但显著降低了记忆的精确度。同时在研究一中发现，自由回忆的反应明显偏离颜色类别边界，并偏向类别中心，如果所有色调引起相似且无偏差的反应分布，则对所有颜色的选择应为相同的频率，即总体呈现出近均匀分布。 为了进一步探究反应性效应导致记忆不同成分分离性变化的原因，研究二重点关注视觉记忆的编码机制。视觉记忆的双轨迹理论认为个体将有两个信息来源：连续的视觉表征和口头标签，来自两种轨迹的信息在回忆过程中结合，以输出最终的反应。但研究者们也发现，标签记会阻碍视觉长时记忆，这与词语遮蔽效应相似，用语言描述视觉信息往往有助于回忆起的可能性，但会导致其在记忆中的失真，即与细节相关的精确度会降低。因此，研究二对被试的标签编码过程进行了抑制，结果发现在 JOL 和 no-JOL 条件下，记忆的可提取性和精确度均没有显著差异。综上，反应性效应对视觉连续记忆的影响体现在两方面，对从记忆中提取信息概率的积极促进，但代价是损失一定的精确度。这种影响的重要原因是，做 JOL 会导致个体更倾向于用口头标签的方式编码存储信息，从而在储存更精确信息的视觉表征通道上分配了更少的认知资源。
关键词　学习判断，反应性效应，连续性记忆，精确度

The Reactivity Effect Enhances the Accessibility of Memory but at the Cost of Precision

Huafeng Tang, Chunliang Yang (corresponding author)
Institute of Developmental Psychology, Faculty of Psychology, Beijing Normal University, Beijing, 100875, chunliang.yang@bnu.edu.cn

Abstract：Judgments of Learning (JOLs) refer to learners' predictive evaluations of their future performance on memory tests for current learning materials. As a significant form of metacognitive monitoring, JOLs are commonly used to investigate how individuals regulate their own learning. Previous research had assumed that

such metacognitive judgments do not influence the learning process itself. However, in recent years, researchers have discovered that JOLs during learning can reactively impact memory itself, a phenomenon known as *the reactivity effect*. The impact of *the reactivity effect* on memory remains inconclusive, depending on the nature of the learning materials and testing conditions, and its underlying mechanisms are not yet well understood. Past studies often employed discrete textual or pictorial stimuli, and the all-or-none evaluation method made it difficult to precisely measure memory. Therefore, a new approach, allowing participants to extract information from memory along a continuous response space, may better aid in understanding the impact of *the reactivity effect* on visual memory. The present study aims to employ an analysis method capable of estimating memory retrieval probability and representation quality to examine the impact of *the reactivity effect* on continuous memory. Study 1 compared participants' recall of picture colors on a continuous color wheel under JOL and no-JOL conditions, with results showing that *the reactivity effect* significantly enhanced memory accessibility while significantly reducing its precision. Additionally, in Study 1, free recall responses noticeably deviated from color category boundaries and tended to cluster around category centers. If all hues elicited similar and unbiased response distributions, the choices for all colors should follow a uniform distribution, resulting in an overall near-uniform pattern. To further explore the reasons behind the changes in memory component separability due to *the reactivity effect*, Study 2 focused on the encoding mechanism of visual memory. *The dual trace theory* of visual memory posits that individuals have two sources of information: continuous visual representations and verbal labels. Information from both pathways combines during the recall process to produce the final response. However, researchers also found that labeling impairs visual long-term memory, similar to *the verbal overshadowing effect*. While describing visual information in language often aids in retrieval likelihood, it leads to distortions in memory, decreasing precision related to details. Thus, in Study 2, the labeling encoding process was inhibited, and the results showed no significant difference in accessibility and precision of memory under both JOL and no-JOL conditions. In summary, the impact of *the reactivity effect* on visual continuous memory manifests in two aspects: a positive promotion of information retrieval probability and a trade-off in precision. The crucial reason behind this influence is that JOLs prompts individuals to preferentially encode and store information using verbal labels, thereby allocating fewer cognitive resources to store more precise information in the visual representation channel.

Keywords：Judgments of learning, Reactivity effect, Continuous memory, Mnemonic precision

职业价值观与研究生专业承诺的纵向联系：社会支持的中介作用

王笑　耿绯　袁熙庆 程新宇　邢秋连 明玉 王鹏（通讯作者）
山东师范大学心理学院，济南，250000，pengsdnu@163.com

摘 要　目的：基于男性和女性的职业与成就动机模型，考察领悟社会支持和职业价值观对研究生专业承诺的影响及其中介机制。方法：采用领悟社会支持量表、职业价值观量表、专业承诺量表，在 2022 年 11 月、2023 年 3 月对山东省一大学 1535 名一年级研究生进行两次追踪调查。在 SPSS25.0 中采用 Pearson 相关分析法分析领悟社会支持、职业价值观、专业承诺之间的相关性。在 Mplus8.3 中首先使用交叉滞后模型分析检验领悟社会支持和职业价值观的双向关系，之后采用结构方程模型探索了领悟社会支持、职业价值观和研究生专业承诺之间的中介作用。结果：（1）T1 领悟社会支持、T2 领悟社会支持、T1 职业价值观、T2 职业价值观、T2 专业承诺间两两显著正相关（p<0.01）。（2）交叉滞后分析显示，T1 领悟社会支持不能预测 T2 职业价值观（β= -0.025，p=0.417），但是 T1 职业价值观正向预测 T2 领悟社会支持（β=0.093，p=0.001）。（3）纵向中介的分析表明：T1 职业价值观通过 T2 领悟社会支持的影响 T2 专业承诺（效应值为 0.280，95%CI[0.071,0.674]）。T1 领悟社会支持可以通过 T2 领悟社会支持的影响 T2 专业承诺（效应值为 0.489，95%CI[0.313,0.702]），同样，T1 职业价值观也可以通过 T2 职业价值观的影响 T2 专业承诺（效应值为 0.407，

95%CI[0.122,0.613]）。此外，多组比较分析发现，三条中介路径在男生和女生群体中均不存在差异（p>0.05），即领悟社会支持和职业价值观对男生和女生的专业承诺的影响一致。结论：领悟社会支持在职业价值观和研究生的专业承诺之间起到了纵向中介的作用。
关键词 专业承诺，领悟社会支持，职业价值观，研究生

Longitudinal associations between career values and graduate student professional commitment: the mediating role of perceived social support

Xiao Wang Fei Geng Xiqing Yuan Xinyu Cheng Qiulian Xing Yu Ming Peng Wang
School of Psychology, Shandong Normal University, Jinan

Abstract： Purpose: Based on the model of career and achievement motivation for women and men, this study examined the effects of perceived social support and vocational values on postgraduate students' professional commitment and their mediating mechanisms. Methods: This study used the perceived social support scale, the vocational values scale, and the professional commitment scale to conduct two follow-up surveys in November 2022 and March 2023 on 1535 first-year postgraduate students at a university in Shandong Province. Pearson correlation analysis was used in SPSS25.0 to analyze the correlation among perceived social support, vocational values, and professional commitment. In Mplus 8.3, the bidirectional relationship between perceived social support and career values was first analyzed using cross-lagged modeling, followed by structural equation modeling to explore the mediating effect between perceived social support, career values, and postgraduate student professional commitment. Results: (1) A two-by-two significant positive correlation was found between T1 perceived social support, T2 perceived social support, T1 vocational values, T2 vocational values, and T2 professional commitment (p< 0.01). (2) Cross-lagged analysis showed that T1 perceived social support failed to predict T2 vocational values (β=-0.025, p=0.417), but T1 vocational values positively predicted T2 perceived social support (β=0.093, p=0.001). (3) Analyses of longitudinal mediation showed that T1 vocational values influenced T2 professional commitment through T2 perceived social support (effect size = 0.280, 95% CI [0.071,0.674]).T1 perceived social support could influence T2 professional commitment through T2 perceived social support (effect size = 0.489, 95% CI [0.313,0.702]), and similarly, T1 vocational values could influence T2 professional commitment through T2 vocational values (effect size = 0.407, 95% CI [0.122,0.613]). In addition, a multi-group comparative analysis revealed that three mediating paths did not differ between the women and men(p>0.05), i.e., the effects of perceived social support and vocational values on women’s and men’s professional commitment were consistent. Conclusion: Perceived social support acted as a longitudinal mediator between vocational values and graduate students' professional commitment.

Keywords： professional commitment, perceived social support, vocational values, postgraduate students

不公平感对恶意创造力的影响

张文宇　梁秋雨　乔熙诺　郝宁（通讯作者）
华东师范大学心理与认知科学学院，上海市心理健康与危机干预重点实验室，上海，200062，
nhao@psy.ecnu.edu.cn

摘 要　恶意创造力作为一种蓄意做出伤害行为的创造力表现形式，其会受到各种环境因素与个人因素的影响，例如社会互动过程中给个体带来的不公平感。已有研究发现不公平感会增加个体的欺骗，攻击等行为，这类行为本身也正符合恶意创造力的概念内涵。因此本研究通过两个实验分别从特质水平和状态水平探究了不公平感会对个体恶意创造力表现产生怎样的影响，以及这种影响作用背后存在怎样的路径机制。研究一采用问卷法，405 名大学生被试(男性 222 名)参与实验，完成了恶意创造性行为量表，公民道德推脱量表，不公平感量表(由组织不公平量表，对不公平事件的情绪反应量表等组成)。结果显示(1)不公平感与恶意创造力倾向显著正相关($r = 0.37$, $p < 0.001$)，道德推脱也分别与不公平感和恶意创造性力显著正相关($r_1 = 0.52$, $p_1 < 0.001$; $r_2 = 0.60$, $p_2 < 0.001$)；(2)不公平感对恶意创造力的直接效应显著($b = 0.14$, $p = 0.041$, CI = [0.01, 0.28])，通过道德推脱对恶意创造力的间接效应显著($b = 0.28$, CI = [0.18, 0.39])，即道德推脱是不公平感对恶意创造力作用路径上的一个中介变量。研究二采用实验法，共招募 101 名大学生被试(男性 44 名)参与研究。被试被随机分配至控制组与实验组，通过最后通牒博弈任务诱发其不公平感，并分别在前后进行操纵检验并测量其情绪状态与内隐攻击性状态，然后通过恶意创造力问题解决任务测量其恶意创造力表现。结果显示(1)通过最后通牒博弈任务的不公平感诱发显著提升了被试的愤怒情绪与内隐攻击性($t_1 = -7.14$, $p_1 < 0.001$; $t_2 = -5.98$, $p_2 < 0.001$)；(2)不公平感对恶意创造力新颖性和伤害性的主效应显著($F_1 = 29.69$, $p_1 < 0.001$; $F_2 = 30.42$, $p_2 < 0.001$)，不公平感启动组的被试生成了更加新颖且恶意的创造性观点；(3)愤怒情绪和内隐攻击性在不公平感与恶意创造力之间起链式中介作用($b = -0.03$, CI = [-0.08, -0.01])；(4)语义分析和性别差异检验表明经历了不公平情境后女性会生成更多包含社会性攻击(例如造谣，诽谤)的恶意创造力观点，而男性会生成更多包含物理性攻击(例如故意使他人受伤)的恶意创造力观点。综上所述，本研究通过两个实验分别从特质和状态两个层面证明了不公平感会促进个体的恶意创造力，且道德推脱，愤怒情绪与内隐攻击性是其作用路径上可能的中介变量。

关键词　恶意创造力，不公平，道德推脱，愤怒，内隐攻击性

The Effect of Unfairness on Malevolent Creativity

Wenyu Zhang　Qiuyu Liang　Xinuo Qiao　Ning Hao (Corresponding author)
Shanghai Key Laboratory of Mental Health and Psychological Crisis Intervention, The School of Psychology and Cognitive Science, East China Normal University, Shanghai, 200062,
nhao@psy.ecnu.edu.cn

Abstract: Malevolent creativity (MC) is a form of creativity which deliberately causes harm. It is influenced by carious environmental and personal factors, such as unfair situations that are common in social interaction. It has been previously demonstrated that the sense of unfairness could increase individual's deception, aggression and other such kinds of behaviors which are also in line with the concept of MC. The present study aims to explore how the sense of unfairness affects individual's MC performance and what pathway mechanisms exist behind this effect through two experiments from the level of trait and state respectively. Study 1 measured the relationship among unfairness, MC and moral disengagement. Malevolent Creativity Behavior Scale, Moral Disengagement Scale and several questionnaires about unfairness were collected from 405 participants (222 males). This study found that: (1) Unfairness was positively correlated with MC ($r = 0.37$, $p < 0.001$) and moral disengagement was

also positively correlated with unfairness and MC respectively (r_1 = 0.52, p_1 < 0.001; r_2 = 0.60, p_2 < 0.001). (2) The direct effect of unfairness on MC (b = 0.14, p = 0.041, CI = [0.01, 0.28]) and the indirect effect via moral disengagement (b = 0.28, CI = [0.18, 0.39]) were significant. Moral disengagement played a mediating role between unfairness and MC. In study 2, 101 participants were recruited and randomly divided into control group and experimental group. The ultimatum game task was used to induce their sense of unfairness and manipulation tests were performed before and after the task to measure participants' emotional state and implicit aggression state. Malevolent Creativity Task was used to measure their MC performance. The results showed that: (1) The unfairness induced by the ultimatum game task significantly increased anger and implicit aggression of the participants (t_1 = -7.14, p_1 < 0.001; t_2 = -5.98, p_2 < 0.001). (2) The main effect of unfairness on the novelty and harmfulness of MC was significant. Participants in the experimental group generated more novel and harmful creative ideas (F_1 = 29.69, p_1 < 0.001; F_2 = 30.42, p_2 < 0.001). (3) Anger and implicit aggression played a chain mediating role between unfairness and MC (b = -0.03, CI = [-0.08, -0.01]). (4) Semantic analysis and gender difference test showed that after experiencing unfair situations, women generated more MC ideas that included social aggression (damage to relationships, negative social media posts, etc) while men generated more MC ideas that included physical aggression (making someone hurt, assault, etc). In summary, the present study proved that unfairness would promote individual's malevolent creativity through tow experiments from the aspects of trait and state. And moral disengagement, anger and implicit aggression are possible mediating variables in the pathway.
Keywords：malevolent creativity, unfairness, moral disengagement, anger, implicit aggression

教师支持与小学生数学焦虑之间的动态联系及作用机制：四年追踪研究

李红霞[1]　张明亮[2] 侯舒洋[1] 禚新峰[1] 刘畅[1] 司继伟[1]（通讯作者）

1 山东师范大学心理学院，济南，250358，sijiwei1974@126.com

2 中共山东省委党校（山东行政学院），济南，250103

摘 要　数学焦虑已经成为一种全球普遍现象，它对个体的学业乃至职业发展有长远影响。近几十年，越来越多的学者关注数学焦虑的影响因素。现有理论与实证研究指出，个体因素与环境因素均为数学焦虑的重要影响因素。本研究基于成就情绪控制-价值理论与数学焦虑动态发展生物-心理-社会模型，对 1796 名三年级小学生进行了为期四年（3~6 年级）的追踪研究，在每一时间点均测查被试的教师支持、数学学习投入和数学焦虑（包括数学学习焦虑与数学评估焦虑）。首先考察了教师支持与数学焦虑两维度的双向关系，然后进一步探讨了学生数学学习投入在两者关系间的作用机制。研究发现，3~6 年级小学生教师支持与数学学习焦虑之间存在双向预测关系，学生获得的教师支持越多，随后的数学学习焦虑越低，反之亦然；教师支持与数学评估焦虑之间存在单向预测关系，数学评估焦虑水平越高，随后的学生教师支持越低，而教师支持对数学评估焦虑的纵向预测作用不显著。纵向中介结果表明，学生数学学习投入在教师支持与数学学习焦虑两维度间的中介作用均成立，学生 3 年级时的数学焦虑水平通过 4 年级时的数学学习投入，进而预测 5 年级时的教师支持；4 年级时的数学焦虑水平通过 5 年级时的数学学习投入，进而预测 6 年级时的教师支持，但是教师支持通过数学学习投入对数学焦虑的预测作用不显著。该研究发现部分支持了成就情绪控制-价值理论与数学焦虑动态发展生物心理社会模型，强调了从发展的角度理解教师支持、数学学习投入与数学焦虑关系之间动态相互作用的重要性，对数学教育实践具有重要的指导意义。

关键词　教师支持，数学学习投入，数学评估焦虑，数学学习焦虑，小学生

Examining the Dynamic Links among Perceived Teacher Support, Mathematics Learning Engagement, and Dimensions of Mathematics Anxiety in Elementary School Students: A Four-wave Longitudinal Study

Hongxia Li[1], Mingliang Zhang[2], Shuyang Hou, Xinfeng Zhuo[1], Chang Liu[1], Jiwei Si[1]
1 School of Psychology, Shandong Normal University
2 Shandong Administrative Institute

***Abstract*:** There has been growing interest in the relation among students' perceived teacher support, mathematics learning engagement, and mathematics anxiety in the last decade. Longitudinal models are needed to provide new insights into the role of engagement in mathematics learning. Based on the control-value theory and developmental dynamic bio-psycho-social model of mathematics anxiety, the present study followed 1796 students from Grades 3 to 6 to investigate the longitudinal associations among perceived teacher support and two conceptually distinct dimensions of mathematics anxiety (i.e., mathematics evaluation anxiety and learning mathematics anxiety). We further explored the potential mediator effects of mathematics learning engagement between perceived teacher support and mathematics anxiety. We found bidirectional longitudinal associations between teacher support and learning mathematics anxiety from Grade 3 to grade 6, as well as unidirectional longitudinal associations between teacher support and mathematics evaluation anxiety (from mathematics evaluation anxiety to teacher support). Furthermore, mathematics learning engagement mediated the relation between perceived teacher support and mathematics anxiety (including learning mathematics anxiety and mathematics evaluation anxiety). These findings highlight the importance of understanding the dynamic interplay among perceived teacher support, mathematics learning engagement, and mathematics anxiety from a developmental perspective.

***Keywords*:** perceived teacher support, mathematics learning engagement, mathematics evaluation anxiety, learning mathematics anxiety, elementary school students

中国大学生在新冠疫情前后的失眠轨迹与抑郁和自我伤害行为之间的关系： 一个五波的纵向追踪调查

乔小飞 石绪亮（通讯作者）
河北大学教育学院，保定，071002，shixl163@163.com

摘 要 背景：在新冠疫情期间，睡眠问题是非常普遍的。然而，只有少部分的研究考察了新冠疫情前以及新冠疫情时期的失眠症状的变化轨迹，而且这些研究大多局限于两波的纵向设计和以变量为中心的方法。因此，本研究旨在运用以个体为中心的方法，考察中国大学生在疫情前后的失眠症状的变化模式以及与心理健康问题的关系，为高校心理健康工作者提供科学的干预建议。方法：数据来源于中国广东省某高校的一项大规模队列调查。该队列为五波的纵向追踪设计，其中 3834 名参与者完成了至少两波纵向调查并被纳入本研究。采用增长混合模型（GMM）来构建失眠症状的变化轨迹，然后用二元逻辑回归来探讨轨迹类别与随后的心理健康问题之间的关系。结果：本研究发现了 4 种不同的失眠症状轨迹：低而稳定组（n = 2897，75.6%），上升组（n = 405，10.6%），下降组（n = 182，4.7%），和高而稳定组（n = 350，9.1%）。此外，即使在调整了基线时的重要协变量后，处于高而稳定组和上升组的个体相较于低而稳定组的个体更有可能出现抑郁症状（OR = 3.13, 95% CI = 1.99-4.93; OR = 6.12, 95% CI = 4.1-9.11）、非自杀性自伤（OR = 1.67, 95% CI = 1.07-2.61; OR = 2.84, 95% CI = 1.96-4.11）和自杀风险（OR = 1.77, 95% CI = 1.16-2.70; OR = 3.70, 95% CI = 2.58-5.30）。结论：在新冠疫情前后，大学生的失眠症状表现出了明显的异质性，大约 20%的大学生被归类为失眠症状的高风险类别，并且这类别的个体出现心理健康问题的可能性更高。高校心理健康工作者应应针对性地干预这些风险群体，以减少心理健康问题的发生。

关键词 失眠症状，轨迹，心理健康问题，大学生，新冠疫情

Associations between insomnia symptom trajectories with depression and self-harm behaviors in Chinese college students before and during the COVID-19 pandemic: A five-wave longitudinal investigation

Xiaofei Qiao, Xuliang Shi
School of Education, Hebei University Hebei, Baoding 071002

Abstract: Background*:* Sleep problems are highly prevalent during the COVID-19 pandemic. However, only very limited studies have examined the changing patterns of insomnia symptoms before and during the COVID-19 pandemic, and most of these studies were limited to two-wave designs and the variable-centered approach. Therefore, this study aimed to examine the changing patterns of insomnia symptoms and the relationship with mental health problems among Chinese college students before and during the COVID-19 pandemic using an individual-centered approach, and to provide scientific intervention recommendations for college mental health practitioners. Methods*:* The data was taken from a large-scale health-related cohort at a university in Guangdong Province, China. This cohort was a five-wave design and 3834 participants who completed at least two waves were included in the present study. Growth mixture modeling (GMM) was used to estimate trajectory classes for insomnia symptoms, followed by binary logistic regression to explore the association between trajectory classes

and subsequent mental health problems. Results: GMM analyses extracted four distinct trajectories of insomnia symptoms: stable-low pattern (n = 2897, 75.6%), increasing pattern (n = 405, 10.6%), decreasing pattern (n = 182, 4.7%), and stable-high pattern (n = 350, 9.1%). Additionally, we found that individuals in stable-high and increasing patterns were more likely to experience depression (OR = 3.13, 95% CI = 1.99-4.93 and OR = 6.12, 95% CI = 4.11-9.11, respectively), non-suicidal self-injury (OR = 1.67, 95% CI = 1.07-2.61 and OR = 2.84, 95% CI = 1.96-4.11, respectively) and suicidal risk (OR = 1.77, 95% CI = 1.16-2.70 and OR = 3.70, 95% CI = 2.58-5.30, respectively) after the COVID-19 pandemic even after adjusting significant covariates and outcomes at baseline. Conclusions: Appreciable heterogeneity in insomnia symptoms among college students was revealed before and during the COVID-19 pandemic. About 20% of college students were classified as high-risk patterns of insomnia symptoms, and individuals in this category have a higher likelihood of developing mental health problems. Mental health workers in universities should target interventions to these risk groups to reduce the occurrence of mental health problems.

Keywords：insomnia symptoms, trajectories, mental health problems, college students, COVID-19 pandemic

反态度任务中努力与对最喜爱游戏的态度改变之间的倒 U 型关系

林静敏[1] 刘儒德[1]（通讯作者） 陈延妍[1]

1 北京师范大学心理学部，北京，100875，liurude@126.com

摘 要 改变个体对游戏的态度可以预防过度游戏。以往研究基于认知失调理论设计了反态度任务以诱发个体对游戏的态度变化，并关注了努力在其中的影响，发现付出努力越多态度改变越多。但前人研究仅针对实验中青少年体验的游戏或者一般游戏行为进行态度测量，努力效应在个体最喜爱的游戏上是否也同样奏效呢？同时，在不同努力程度的任务中减少失调对认知加工和自我调节的要求也不同。对于认知加工能力成熟的大学生和自我调节系统较弱的小学生来说，努力在反态度任务的效应是否依然适用呢？

为了解决上述问题，本研究通过五项子研究探讨了大学生和小学生在反态度任务中的努力程度与其对最喜爱游戏的态度变化之间的关系。研究 1a 招募了两组大学生进行反态度排序任务（N = 106），发现高努力组被试的态度变化更大。但研究 1b 小学生进行类似的排序任务时（N = 89）却发现了相反的结果，低努力组的被试态度变化更大。这表明以往研究中努力和态度改变之间的正相关关系或许只揭示了二者潜在关系中的一部分。当努力超过个体的认知负荷承受范围时，可能会出现负面影响，使得努力和态度变化之间呈现一种倒 U 型关系模式。为了验证这种可能性，研究 1c 招募了大学生的更高努力组（N = 54）和小学生的更低努力组（N = 42），结合研究 1a 和 1b 进行比较，确定了努力和态度改变之间的倒 U 型关系。这可能是因为高努力任务导致了高水平认知负荷，被试更容易分心而削弱了态度改变。研究 2a 更换范式（反态度填空任务）对大学生进行实验（N = 143），验证了倒 U 型结果的稳健性。虽然研究 2b 小学生（N = 195）进行填空任务时没有发现倒 U 型结果，但其态度变化随着努力增加而增加的结果也反映了倒 U 型关系的一部分。

本研究扩展了对努力在认知失调研究中的作用的理解，并为预防过度游戏的干预计划提供了指导。只有在反态度任务中付出适度努力时，玩家才会最大程度地降低对最喜爱游戏的积极态度，干预效果才能发挥到最佳水平。

关键词 认知失调，努力，态度变化，电子游戏，倒 U 型

An inverted U-shaped relationship between attitude change towards the favorite game and effort exerted in the counter-attitudinal task

Jingmin Lin[1], Ru-De Liu[1] (Corresponding author), Yanyan Chen
Faculty of Psychology, Beijing Normal University, Beijing 100875

Abstract **:** Changing individuals' attitudes towards video games can effectively prevent excessive gaming. Previous studies have utilized counter-attitudinal tasks based on cognitive dissonance theory to induce attitude changes towards games and one study focused on the impact of effort. It supports the traditional view that the more effort exerted in the task leads to greater attitudinal changes. However, previous studies only measured attitudes towards games experienced in the experiment or general gaming behavior, so it remains unclear whether the effort effect applies to individuals' favorite games as well. Additionally, the requirements for cognitive processing and self-regulation in reducing dissonance may vary in tasks with different levels of effort. It is unknown whether the effect of effort in counter-attitudinal tasks still applies to college students with mature cognitive processing abilities and primary students with weaker self-regulation systems.

To address the aforementioned issues, this research conducted five studies to examine the relationship between effort in counter-attitudinal tasks and attitude changes towards participants' favorite games among college students and primary students. Study 1a recruited two groups of college students for a counter-attitudinal order-ranking task (N = 106) and found that participants in the high-effort group exhibited larger attitude changes. However, Study 1b, which involved a similar order-ranking task with primary students (N = 89), yielded opposite results, with greater attitude changes observed in the low-effort group. This suggests that the positive correlation observed in previous studies between effort and attitude change may only reveal a partial picture of their underlying relationship. When effort exceeds individuals' cognitive load capacity, negative consequences may arise, leading to an inverted U-shaped relationship between effort and attitude change. To verify this possibility, Study 1c recruited a higher-effort group of college students (N = 54) and a lower-effort group of primary students (N = 42), and compared with the other two groups of Studies 1a and 1b, confirming the inverted U-shaped relationship between effort and attitude change. This may be due to the high cognitive load generated by high-effort tasks, which makes participants more prone to distraction and weakens attitude change. Study 2a employed a different paradigm (counter-attitudinal blank-filling task) with college students (N = 143) to validate the robustness of the inverted U-shaped finding. Although Study 2b did not find the inverted U-shaped pattern among primary students (N = 195) during the blank-filling task, the results still indicated a partial picture of the inverted U-shaped relationship as attitude change increased with effort.

This research expands our understanding of the role of effort in cognitive dissonance research and provides guidance for intervention programs aimed at preventing excessive gaming. It is only when game-players exert moderate effort in the counter-attitudinal task that they can minimize their positive attitude towards their favorite games, allowing the intervention effects to be maximized.

Keywords: cognitive dissonance, effort, attitude change, video game, inverted U-shaped relationship

学业与休闲成本价值在初中生学业-休闲冲突决策中的作用：多项式回归与响应面分析

张艺凡[1] 郭筱琳[2]（通讯作者）

1 北京师范大学中国基础教育质量监测协同创新中心，北京，100875

2 北京师范大学中国基础教育质量监测协同创新中心，北京，100875，xlguo129@163.com

摘 要 努力学习是每名学生的重要发展任务。然而，专注于学业并非易事，学生们通常很难在学业和休闲活动之间做出选择，频繁的经历学业-休闲冲突。特别是初中生，他们面临着较大的学业压力，但抵抗诱惑的能力还不成熟。因此，探讨如何帮助他们抵制休闲的诱惑，在学业-休闲冲突中坚定地选择学业是很有必要的。初中生的价值观是影响他们学业-休闲冲突决策的重要因素。基于期望-价值理论，价值观分为积极成分和消极成分，分别衡量某任务的可能带来的益处和损害。然而，以往的研究只探讨初中生价值观的积极成分和他们的学业-休闲冲突决策的关系，忽略了价值观的消极成分，即成本价值的作用。不仅如此，成本价值分为三个维度，即努力成本、情感成本和机会成本，不同维度可能对初中生学业-休闲冲突决策有不同的影响。除此以外，基于动机行为冲突理论，学业和休闲价值观的相对强度，也就是学业价值相对于休闲价值的水平，而非是两种价值观单独的绝对强度和初中生在学业-休闲冲突中的决策有关。因此，本研究选用适切的多项式回归和响应面法，基于河北省某区县 5 所公立初中的 2564 名 7 年级初中生，探究初中生学业与休闲成本价值相对强度和学业-休闲冲突决策的关系，即：（1）针对每个成本价值维度，初中生学业成本价值相对休闲成本价值更低时，他们的学业-休闲冲突决策如何改变；（2）针对每个成本价值维度，初中生学业和休闲成本价值一致更低时，他们的学业-休闲冲突决策如何改变。结果发现：学生的学业努力成本（$a_3 = -0.13, p < 0.001$）、情感成本（$a_3 = -0.20, p < 0.001$）或机会成本（$a_3 = -0.07, p < 0.001$）相对休闲越低，他们在学业-休闲冲突中越倾向于选择学业。此外，学生的学业和休闲努力成本（$a_1 = -0.10, p < 0.001$）、情感成本（$a_1 = -0.17, p < 0.001$）或机会成本（$a_1 = -0.09, p < 0.001$）一致越低，他们在学业-休闲冲突中越倾向于选择学业。研究结果为探讨学生价值观与学习-休闲冲突决策的关系提供了新的视角和证据。

关键词 学业-休闲冲突，响应面分析，多项式回归分析，决策

The role of study and leisure costs in students' decision in study-leisure conflict: A polynomial regression and response surface analysis

Yifan Zhang[1], Xiaolin Guo[1]

[1] Collaborative Innovation Center of Assessment Toward Basic Education Quality, Beijing Normal University, Beijing, China

Abstract：Studying hard is an important developmental task for every student. However, students usually have trouble in making a decision between academic and leisure activities. Especially for teenagers who have just entered in middle school, they face increasing academic pressure but their ability to resist temptation is not mature. Consequently, it is essential to explore how to help students resist the temptation of leisure and firmly choose to study in study-leisure conflict. Students' study and leisure values are important factors that affects their decision in study-leisure conflict. Based on the expectation-value theory, values could be divided into positive and negative components, which measure the possible benefits and harms of a task respectively. However, previous studies only

focused on the positive components, and did not explore the relationship between the negative components of values, which is also called cost, and students' decision in study-leisure conflict. Moreover, cost has three dimensions: effort cost, emotional cost and opportunity cost, and these dimensions may have different impacts on students' decision in study-leisure conflict. In addition, according to the motivation-action-conflict theory, the relative strength of study value and leisure value, that is, the level of study value relative to leisure value, rather than the absolute strength of the two values separately, is related to students' decision in study-leisure conflict. Therefore, this study used appropriate polynomial regression and response surface method to explore the relationship between the relative strength of students' study and leisure costs and decision in study-leisure conflict based on 2,564 junior high school students in 5 public middle schools in Hebei Province, namely: (1) For each cost dimension, when students' study cost is lower than the leisure one, how does their decision in study-leisure conflict change? (2) For each cost dimension, when students' study and leisure costs are congruently lower, how does students' decision in study-leisure conflict change? Results indicated that students with lower study effort cost ($a^3 = –0.13$, $p < 0.001$), emotional cost ($a^3 = –0.20$, $p < 0.001$) or opportunity cost ($a^3 = –0.07$, $p < 0.001$) relative to leisure one decided more often for academic alternative. More interesting, students with both lower congruent study and leisure effort costs ($a^1 = –0.10$, $p < 0.001$), emotional costs ($a^1 = –0.17$, $p < 0.001$) or opportunity costs ($a^1 = –0.09$, $p < 0.001$) decided more often for academic alternative. These findings provide a new perspective and new evidence for the relationship between students' values and decision in study-leisure conflict.

Keywords：Study-leisure conflict, polynomial regression analysis, response surface analysis, decision

教育未来取向的性别差异：来自元分析的证据

宋瑞君[1]（通讯作者）

（1 长沙师范学院，长沙 410100）

Email: rjsong@sina.cn

摘 要 教育未来取向(educational future orientation)是个体对未来教育有目的的思考以及由此产生的情感及行为，是复杂的、多维度的动机-认知-行为的心理结构。在教育未来取向的众多结果中，教育未来取向的性别差异一直受到研究者们的广泛关注。然而，现有研究对于教育未来取向是否存在性别差异并未达成共识，对于是否有其他变量影响教育未来取向的性别差异尚不清楚。因此，本研究运用元分析技术考察教育未来取向与性别之间的关系及影响该关系的调节变量。通过文献检索与筛查，共有 34 项研究 42 个独立效应量纳入到元分析中($N = 73134$)。异质性检验表明应该选取随机效应模型($Q(38) = 223.10, p < 0.001$)，发表偏差检验说明元分析的结果不受发表偏差的影响 ($t = 0.73, p > 0.05$)。主效应结果显示，教育未来取向与性别呈相关关系，女性的教育未来取向高于男性($r = 0.11, p < 0.001$)。调节效应分析结果表明，出版年份的调节作用不显著($Q_b = 1.21, p > 0.05$),而测量工具($Q_b = 11.19, p < 0.001$)、被试发展阶段($Q_b = 10.14, p < 0.001$)、文化特征($Q_b = 9.82, p < 0.001$)会影响教育未来取向与性别的关系。具体而言，从测量工具来看，联合采用期望和愿望指标测量教育未来取向更容易出现性别差异，而采用开放式问卷测量教育未来取向的频次与性别间的关联较弱；从被试发展阶段来看，青春期个体的教育未来取向与性别之间的关系最强，成人初显期次之，童年期最低；从文化特征来看，教育未来取向的性别差异在美国、以色列等国家更为明显。 元分析结果澄清了教育未来取向是否存在性别差异的争论，对教育未来取向的理论研究及实践干预提供了一定的借鉴意义。

关键词 教育未来取向，性别差异，元分析，调节效应

Gender Difference in Educational Future Orientation: The Evidence from Meta-Analysis

Song Ruijun[1]

1 Department of Applied Psychology, Changsha Normal University, Changsha, 410100, rjsong@sina.cn

Abstract: Educational future orientation is a complex, multidimensional, multistage construct, defined broadly as the extent to which an individual thinks about, anticipates, and plans for the future education. In recent years, gender difference in educational future orientation has garnered considerable attention. However, studies on the relationship between educational future orientation and gender have been mixed and inconclusive, and the factors affecting this relationship remain unclear. This study aims to synthesize the gender difference in educational future orientation and moderating variables affecting the relationship using meta-analytic techniques. Through literature retrieval, 34 cases and 42 independent effect sizes together with 73134 participants which met the inclusion criteria of meta-analysis were selected. Heterogeneity test indicated that the random effects model was appropriate for the meta-analysis ($Q(38) = 223.10, p < 0.001$). The result of Egger regression demonstrated that there was no publication bias ($t = 0.73, p > 0.05$). Main effect test findings showed that educational future orientation was significantly with gender ($r = 0.11, p < 0.001$). The moderator analysis revealed that publication time didn't moderate the correlation between educational future orientation and gender ($Q_b = 1.21, p > 0.05$), yet,

measurement tools (Q_b = 11.19, p < 0.001), development stage (Q_b = 10.14, p < 0.001), and culture (Q_b = 9.82, p < 0.001) moderated the relationship between educational future orientation and gender. Specifically, the questionnaire which currently measures expectation and aspiration would be easier to show gender difference, adolescence would be the most salient period in the relationship between educational future orientation and gender, and the gender differences in educational future orientation is more obvious in countries such as United State and Israel. The results provide an accurate estimate gender difference in educational future orientation, enriching our understanding of educational future orientation.
Keywords: educational future orientation, gender difference, meta-analysis, moderate effect

交错学习和阅读任务对冲突多文本阅读理解的影响

谭启瑶[1]　廖峻毅[1]　唐云[1, 2]（通讯作者）

1 华中师范大学心理学院，武汉，430079

2 青少年网络心理与行为教育部重点实验室，武汉，430079，tangyun@ccnu.edu.cn

摘 要　当今信息爆炸的时代，总是需要学习者对多来源、多视角的文本信息进行整合，这种复杂的认知活动不仅要求学习者单独理解每个文本，而且要求比较、综合不同文本的信息，形成整合的心理模型。而冲突的多文本（例如，对同一话题持有相反的立场）要求学习者不断识别和对比冲突的信息，进而在阅读中需要不断进行批判和重建整合心理模型，这带来了额外的认知负担。交错是一种有效的帮助学习者进行区别对比的学习方式，能够提高学习效果。另外，阅读是一项目标导向的学习活动，不同的阅读任务会影响学习者阅读和加工文本的方式。本研究基于文档模型，探讨不同学习方式和不同阅读任务对冲突多文本阅读理解的影响。研究采用 2（学习方式：交错 vs.集中）×2（阅读任务：立论 vs.总结）的被试间设计（N = 128）。对于阅读理解，具体考察被试的来源记忆、来源-内容链接、来源引用、观点描述，和互文整合的表现。结果表明，（1）在来源记忆、来源-内容链接、来源引用上，学习方式、阅读任务的主效应，及两者的交互效应均不显著；（2）在观点描述上，总结任务组得分显著高于立论任务组；（3）在互文整合上，立论任务组得分显著高于总结任务组。对于阅读行为，滞后序列分析的结果发现，（1）集中学习条件中，立论和总结任务下的被试均呈现整体式的阅读模式，被试在阅读某一立场的一篇文本后，都倾向阅读同样立场的另一篇文本，之后再转移至另一立场进行阅读；（2）交错学习条件下，立论任务下的被试呈现出对比式的阅读模式，被试在阅读某一立场的一篇文本后，倾向阅读另一立场的文本；（3）交错-总结条件下的被试既不呈现整体式，也不呈现对比式的阅读模式。综上，冲突的多文本阅读理解表现主要受阅读任务的影响，而学习者的阅读行为主要受到学习方式的影响。本研究提示教师可根据教学目标设置不同的阅读任务，以达到不同程度的理解；并结合学习方式的引导，达到合适的学习行为。
关键词　交错学习 阅读任务 多文本阅读理解 滞后序列分析

Comprehend in Interleaved Conflicting Multiple Documents under Different Reading Tasks

Qiyao Tan[1]　Junyi Liao[1]　Yun Tang[1, 2]

1 School of Psychology, Central China Normal University, Wuhan, 430079

2 Key Laboratory of Adolescent Cyberpsychology and Behavior, Ministry of Education, Wuhan, 430079

***Abstract*：** In today's era of information explosion, learners are in constant need to integrating textual information from multiple sources and perspectives. This complex cognitive activity not only requires learners to comprehend each document, but also to compare and synthesize the information of multiple documents to form an integrated mental model. Whereas conflicting multiple documents (e.g., holding opposing stances on the same topic) require learners to constantly identify and compare conflicting information, thereby requiring constant critique and reconstruction of the integrated mental model during reading. Resulting in additional cognitive loads. Interleaving is an effective way of helping learners to discriminate and contrast, which can improve learning. In addition, as reading is a goal-oriented learning activity, different reading tasks would affect the way learners read and process documents. This study aims to explore the effects of different learning styles and reading tasks on reading comprehension about conflicting multiple documents. The present study employed a 2 (learning styles: interleaved vs. blocked) × 2 (reading tasks: argumentation vs. summarization), between-subjects design (N = 128). For reading comprehension, this study specifically examined participants' performance on source memory, source-content links, source citation, viewpoint description, and intertextual integration. The results showed that (1) On source memory, source-content links, and source citation, the main effect of learning style and reading task, as well as the interaction, were not significant; (2) Participants under summarization condition performed better on viewpoint descriptions than those in argumentation condition; (3) Participants under argumentation condition performed better on intertextual integration than those in summarization condition. For reading behaviors, results by Lag Sequential Analysis (LSA) revealed that (1) For blocked learning, participants with both argumentation and summarization tasks presented a holistic reading pattern. Participants tended to read the other documents of the same stance, after reading a document of one stance; (2) For interleaved learning, participants with argumentation task presented a contrastive reading pattern. Participants tended to read a document of the opposite stance, after reading a document of one stance; (3) Participants under interleaved- summarization condition presented neither holistic nor contrastive reading pattern. In sum, the reading comprehension about conflicting multiple documents is mainly impacted by the reading task, while the learning style would affect learners' reading behaviors. This study suggests that teachers can set different reading tasks to achieve different levels of understanding according to the teaching objectives. And teachers should incorporate the guidance of learning styles to achieve appropriate learning behaviors.

***Keywords*：** Interleaved learning, Reading tasks, Multiple documents reading, Lag Sequential Analysis

学龄儿童执行功能与数学能力的关系：一项交叉滞后研究

祝孝亮[1,2]　赵鑫[1,2]（通讯作者）
1 甘肃省行为与心理健康重点实验室，兰州，730070
2 西北师范大学心理学院，兰州，730070，psyzhaoxin@nwnu.edu.cn

摘 要　执行功能作为支持数学学习与加工的核心认知成分，在儿童数学能力的发展中发挥着重要作用。尽管已有研究从横向与纵向的视角探究了学龄儿童执行功能与数学能力的关系，但很少有研究系统考察各执行功能子成分(干扰抑制、反应抑制、工作记忆广度、工作记忆刷新、认知灵活性)和不同数学能力(数学运算、逻辑思维、空间想象)间的关系及其二者间联系的动态发展。基于此，本研究采用 Stroop 任务、Flanker 任务、Go/No-go 任务、数字正背与倒背任务、数字刷新任务(1750ms、750ms)、数字转换任务及小学生数学基本能力测试量表中的五个分测验(加法、减法、续写数字、目测长度、方块计数)作为衡量儿童各执行功能成分和不同的数学能力的工具，对甘肃省四所小学的 542 名 3~5 年级儿童(Mage = 9.93 岁, SD = 0.91)进行了为期约 1.5 年的追踪测查，并通过构建交叉滞后模型(CLPM)来考察各执行功能成分与不同数学能力之间的关系。在控制了性别、年龄和家庭社会经济地位后，结果显示:(1)相关分析发现，除干扰抑制和反应抑制外，工作记忆广度、工作记忆刷新和认知灵活性均与数学能力存在显著的相关关系；(2)CLPM 的分析发现，执行功能、数学能力的自回归路径均呈现显著正向，T1 时的数学逻辑思维可以预测 T2 时的工作记忆广度、工作记忆刷新和干扰抑制，T1 时的认知灵活性可以显著正向预测 T2 时的数学运算、逻辑思维和空间想象；(3)多群组分析显示，执行功能子成分与不同数学能力的关系存在性别差异，具体为 T1 时的逻辑思维对 T2 时间点工作记忆广度的预测在女性中更强。结论：各执行功能子成分与不同数学能力间的纵向联系存在差异，其二者之间不存在显著的双向预测关系。

关键词　执行功能，数学能力，学龄儿童，交叉滞后模型

The Relationship Between Executive Function and Mathematical Ability in School-Age Children: A Cross-Lagged Study

Xiaoliang Zhu[1,2],　Xin Zhao[1,2](corresponding author)
1 Key Laboratory of Behavioral and Mental Health of Gansu province, Lanzhou
2 School of Psychology, Northwest Normal University, Lanzhou

Abstract：Executive function, as a core cognitive component supporting mathematical learning and processing, plays a substantial role in the development of children's mathematical ability. While prior research has explored the relationship between executive function and mathematical ability in school-age children from both cross-sectional and longitudinal perspectives, few studies have systematically examined the associations between various subcomponents of executive function (interference inhibition, response inhibition, working memory span, working memory updating, and cognitive flexibility) and distinct mathematical abilities (mathematical operation, logical thinking, and spatial imagination) and their dynamic development. In this study, various measures, including Stroop tasks, Flanker tasks, Go/No-go tasks, forward and backward digit span tasks, digital updating tasks (1750ms, 750ms), digit shifting tasks, and five subtests (addition, subtraction, digit writing, visual length estimation, and block counting) from the Elementary School Student Mathematical Basic Ability Test Scale, were employed to assess different executive function components and mathematical abilities in children. A longitudinal investigation was conducted over approximately 1.5 years on 542 children in grades 3 to 5 (Mage = 9.93 years, SD = 0.91) from four primary schools in Gansu Province. A Cross-Lagged Panel Model (CLPM) was constructed to

examine the relationships between various executive function components and different mathematical abilities. Controlling for gender, age, and family socioeconomic status, the results revealed the following: (1) Correlation analysis showed that, except for interference inhibition and response inhibition, working memory span, working memory updating, and cognitive flexibility were significantly correlated with mathematical abilities. (2) The CLPM analysis indicated notable positive autoregressive paths for executive function and mathematical ability. Meanwhile, mathematical logical reasoning at T1 was found to have predictive capabilities for working memory span, working memory updating, and interference inhibition at T2. Furthermore, cognitive flexibility at T1 showed significant predictive value for mathematical operations, logical thinking, and spatial imagination at T2. (3) Multiple group analysis indicated gender differences in the relationships between executive function subcomponents and different mathematical abilities. Specifically, logical reasoning at T1 had a stronger predictive effect on working memory span at T2 for females. Conclusions: the longitudinal connections between different executive function subcomponents and various mathematical abilities showed variations, and no significant bidirectional predictive relationship was observed between them.

Keywords：executive function, mathematical abilities, school-age children, cross-lagged panel model

对执行功能结构的再思考：基于领域一般性和领域特殊性的探究

高阳[1] 李添[2] 郑晓龙[1] 王腾飞[1]（通讯作者）周新林[2]（通讯作者）

1 浙江大学心理与行为科学系，杭州，310058，tfwang@zju.edu.cn

2 北京师范大学认知神经科学与学习国家重点实验室，北京，100875，zhou_xinlin@bnu.edu.cn

摘 要　执行功能（Executive Function）是个体对注意和思维等认知活动进行有意控制的心理过程，在学习和推理等高级认知活动中发挥着关键作用。通常，研究者认为执行功能具有领域一般性（domain-general），即执行控制过程不会受到信息类型（如言语、数字或视空间）的影响。执行功能领域中最为主流的理论，Miyake 提出的抑制（inhibition）-刷新（updating）-转换（shifting）三成分论，在模型建构时主要基于领域一般性假设，并没有考虑执行功能的领域特殊性。近年来，一些个体差异研究、执行功能干预研究和元分析均发现：信息类型可能会影响执行功能对不同领域高级认知能力的预测作用。例如，基于数字（numerical）的执行功能任务表现对算术等数学能力的预测作用更大；而基于视空间（visuospatial）的执行功能任务对流体智力等非言语推理的预测作用更大。这些证据表明：执行功能可能具有领域特殊性（domain-specific）。目前，尚未有研究直接考察执行功能的领域一般性和领域特殊性，本研究首次尝试对该理论问题进行探究，以期建构更为完善的执行功能模型。

本研究以 246 名大学生为研究对象，选取 Stroop 任务、N-back 任务和 Task Switching 任务分别测量抑制、刷新和转换；同时系统操控不同任务中的刺激类型，即测查每个执行功能成分的任务均包含言语、数字和视空间三个版本，共 9 个任务。此外，我们还测量了被试的流体智力和数学能力。采用结构方程模型等统计方法分析数据，我们发现：首先，基于领域一般性的模型表明执行功能包含转换/抑制和刷新两个因子；其次，在最优的领域一般性模型中，加入视空间因子和数字因子，可以显著提升模型拟合度，表明执行功能具有领域特殊性。再次，刷新和视空间因子能够显著预测流体智力，但转换/抑制因子和数字因子与流体智力之间不存在显著相关。

本研究表明执行功能既具有领域一般性，也具有领域特殊性。这一发现挑战了 Miyake 的三成分模型，不仅有助于加深对执行功能内在结构的理解，而且对执行功能的干预训练具有重要的指导意义，提示未来的执行功能训练应考虑迁移效应的领域特殊性。

关键词　刷新，抑制，转换，领域一般性，领域特殊性

基金资助：本研究受到国家自然科学基金项目(32000761)的资助。

Rethinking the structure of executive functions: an inquiry based on domain generalization and domain specificity

Yang Gao[a], Tian Li[b], Xiaolong Zheng[a], Tengfei Wang[a], Xinlin Zhou[b]

[a] Department of Psychology and Behavioral Sciences, Zhejiang University, Hangzhou, China, tfwang@zju.edu.cn

[b] State Key Laboratory of Cognitive Neuroscience and Learning, Beijing Normal University, Beijing, 100875, zhou_xinlin@bnu.edu.cn

Abstract ： Executive Function (EF) refers to the mental process through which individuals exert intentional control over cognitive activities such as attention and thought, playing a crucial role in higher cognitive functions such as learning and reasoning. Traditionally, researchers have argued that executive function is domain-general, implying that the processes of executive control remain unaffected by the type of information involved (e.g., verbal, numerical, or visuospatial information). However, recent individual difference studies, executive function intervention research, and meta-analyses have yielded evidence suggesting that the type of information may influence the role of executive function in predicting high-level cognitive abilities in different domains. For example, performance on numerical-based executive function tasks seems more predictive of mathematical abilities such as arithmetic, while visuospatial-based executive function tasks appear to be more predictive of nonverbal reasoning, such as fluid intelligence. This emerging evidence implies that executive functions might exhibit domain-specific characteristics.

The current study endeavors to shed light on this theoretical issue and construct a more comprehensive model of executive functioning. For this purpose, the researchers selected 246 college students and assessed inhibition, updating, and switching using the Stroop task, the N-back task, and the Task Switching task, respectively. The present study systematically manipulated the stimulus types in the tasks, including verbal, numerical, and visuospatial versions of each task, resulting in nine tasks in total. Additionally, fluid intelligence and math ability were measured for every participants.

The data were analyzed using statistical methods, including structural equation modeling. The results indicated that the domain-generality-based model suggested executive function encompassed both switching/inhibition and updating factors. However, the inclusion of visuospatial and numerical factors in the optimal domain-generality model significantly improved model fit, supporting the notion that executive function has domain-specific aspects. Notably, both the updating and visuospatial factors significantly predicted fluid intelligence, whereas there was no significant correlation between the switching/inhibition factor and the numerical factor with fluid intelligence.

This study provides compelling evidence suggesting that executive functioning comprises both domain-general and domain-specific component. These findings challenge Miyake's three-component model and not only contribute to a deeper understanding of the intrinsic structure of executive functions but also offer valuable guidance for executive function intervention training. The results imply that future executive function training should consider the domain-specificity of the transfer effect.

Keywords: shifting, updating, inhibition, domain-general, domain-specific

汉字构形对中外大学生生僻汉字学习的影响

李思馨[1]（通讯作者） 张莹莹[1,2] 连榕[1]
1 福建师范大学心理学院，福州，350117，lisixin5@163.com
2 福建师范大学海外教育学院，福州，350117

摘 要 “六书”是古代文字学家总结而成的汉字构形理论，汉字系统在渐进演变的发展中具有以形表意的基本属性，其中象形、指事、会意、形声这“四书”认为是最基本的造字法，也是理解汉字构形的主要方式。本研究以中国学生为参照对象，和具有一定汉语水平的外国大学生进行比较探索，旨在探讨汉字构形对中外大学生生僻汉字学习的影响。采用学习-再认范式结合信号检测论研究汉字的再认问题，通过教予构字方式和字形想象为学习条件，要求中国大学生和达到汉语高级水平（HSK level 5 以上）的外国留学生学习生僻字，并根据汉字构形分为会意字和形声字，并通过事件相关电位记录学习-再认过程的 ERP 数据。结果表明：（1）在生僻字条件下，中国大学生的再认正确率、反应时、辨别力均显著高于外国大学生；（2）汉字构形中，形声字新字再认反应时显著快于会意字，会意字辨别力显著高于形声字；（3）学习方式主效应均不显著；（4）学习阶段 P2 成分：形声字诱发的 P2 波幅显著高于会意字，结合交互作用发现<1>字形想象组的中国大学生，会意字诱发的 P2 波幅显著小于形声字；<2>在会意字条件下，字形想象组中国大学生诱发的 P2 波幅显著高于构字方式组中国大学生；（5）学习阶段 N400 成分：结合交互作用发现，构字方式组中国大学生诱发的 N400 波幅显著比字形想象组中国大学生、构字方式组外国大学生和字形想象组外国大学生更负；（6）测验阶段 N400 成分：新字诱发的 N400 波幅显著比旧字更负，结合交互作用发现，中国大学生 N400 新旧效应量显著大于外国大学生；（7）测验阶段 LPC 成分：旧字诱发的 LPC 波幅显著比新字更正，形声字诱发的 LPC 波幅边缘显著大于会意字，中国大学生诱发的 LPC 波幅显著大于外国大学生，结合交互作用发现，中国大学生的新旧效应量显著大于外国大学生。
关键词 汉字构形，中外学生，汉字认知，ERP

The influence of Chinese character formation on the learning of rare Chinese characters among Chinese and foreign college students

Li Sixin[1] Zhang Yingying[1,2] Lian Rong[1]
1 College of Psychology, Fujian Normal University, Fuzhou 350117, China
2 International College of Chinese Studies, Fujian Normal University, Fuzhou 350117, China

Abstract： The "Six Books" are a compilation of ancient philologists' theories on how Chinese characters are formed. The Chinese character system has the fundamental attribute of ideograms in its gradual evolution. The "Four Books," which are hieroglyphs, self-explanatory characters, associate characters, and phonograms, are thought to be the most basic methods of character formation and the main way to understand the most fundamental methodologies of character formation of Chinese characters. In order to examine the impact of Chinese character formation on Chinese character learning of rare Chinese characters, this study contrasts Chinese students with foreign university students of a particular level of Chinese language ability. The issue of Chinese character recognition is looked at using the learning-recognition paradigm in conjunction with the technique of signal detection theory. Chinese university students and foreign students with advanced Chinese language skills (HSK

level 5 or above) were asked to learn the rare characters by using character imagery and word formation as learning conditions. They were then divided into associate characters and phonograms in accordance with Chinese character formation, adding ERP data to record the learning-recognition process. The results of Study revealed that: (1) Under the circumstance of the rare characters, Chinese university students considerably outperformed foreign university students in terms of correct re-recognition rates, response times, and discriminative power. (2) Among the Chinese character formations, the phonograms' reaction times for new character re-recognition were much quicker, but the discriminative power of the associate characters was significantly higher than that of the phonograms. (3) There were no significant main impacts of learning method. (4) The P2 component of the learning phase: Phonograms significantly increased P2 amplitude compared to association characters. Moreover, the interaction showed that: <1> In the word imagery group of Chinese university students, the P2 wave amplitude evoked by association characters was much lower than that of phonograms. <2> In the associate characters condition, the Chinese university students in the word-form imagery group evoked significantly higher P2 amplitudes than those in the word formation group. (5) N400 component of the learning phase: Combining the interactions showed that Chinese university students in the characters formation group significantly increased the negative N400 wave amplitudes compared to the other three groups. (6) The N400 component of the quiz phase: New words evoked significantly larger negative N400 amplitudes than old words, and the interaction results showed that the N400 old/new effect were significantly larger for Chinese than for foreign university students. (7) LPC components at the quiz stage: Old words evoked significantly more positive LPC amplitudes than new words. Phonograms significantly increased the marginal LPC amplitudes compared to association characters. Chinese university students evoked significantly greater LPC amplitude than foreign university students. Combined with the interaction, the LPC old/new effect was found to be significantly larger for Chinese university students than for foreign university students.

Keywords：Chinese Character Formation, Chinese and Foreign College Students, Chinese Character Cognition, ERP

工作记忆刷新对社交淡漠青少年情绪调节的影响

任苗苗[1] 何晓丽[1]（通讯作者）锁倩倩[1] 朱钰[1]

宁夏大学心理系，银川市，750021，通讯作者 E-mail:h1016632877@qq.com

摘 要　社会退缩是指儿童在跨时间情景下，更偏爱独自活动，是儿童社会发展研究领域的重要内容。社交淡漠作为社会退缩的重要亚型，常表现为情绪调节困难。以往包括社交淡漠在内的社会退缩行为研究中，多从外在因素入手，干预方式也着重于社会技能训练和行为纠正等外在方法。对于个体自身的认知功能，尤其是工作记忆刷新能力对情绪的重要作用鲜少被人重视。本研究认为，针对社交淡漠等情绪障碍的研究最终落脚点是为了预防和干预。也就是说，深入探究社交淡漠可能存在的影响因素，并有针对的制定符合的介入计划进行干预非常必要。社交淡漠作为典型的内化性行为问题，关注个体可能存在的内在诱因对全面认识社交淡漠的特征不可或缺。基于此，本研究通过两个实验考察工作记忆刷新能力对社交淡漠青少年情绪调节的影响及工作记忆刷新训练对社交淡漠青少年的刷新能力、情绪调节能力和社交淡漠程度的训练迁移效果。结果发现：（1）对于社交淡漠青少年来说，工作记忆刷新能力高的个体相较于刷新能力低的个体情绪调节能力更好；（2）与对照组相比，工作记忆刷新训练不仅能够提高社交淡漠青少年的工作记忆刷新能力和情绪调节能力，而且显著降低了其社交淡漠水平。这些结果表明工作记忆刷新能力对于社交淡漠青少年的情绪调节具有重要作用，研究结论为社交淡漠青少年的识别和干预提供参考。

关键词　社交淡漠，工作记忆刷新，情绪调节，青少年

The effect of working memory updating on emotion regulation of unsociability adolescents

Ren MiaoMiao[1] He XiaoLi[1] (corresponding author) Suo QianQian[1] Zhu Yu[1]
Department of Psychology, Ningxia University, Yinchuan

Abstract：Social withdrawal means that children prefer to move around alone in the cross-time situation, which is an important part of the research field of children's social development. As an important subtype of social withdrawal, social indifference is often manifested as difficulty in emotional regulation.In the previous studies on social withdrawal behavior, including social indifference, we mostly started from external factors, and the intervention methods also focused on external methods such as social skills training and behavior correction.Individuals pay little attention to the cognitive function, especially working memory refresh ability, on emotion.This study believes that the ultimate goal of research on mood disorders such as social apathy is for prevention and intervention. That is to say, it is necessary to deeply explore the possible influencing factors of social indifference, and to develop a targeted intervention plan.This study believes that the ultimate goal of research on mood disorders such as social apathy is for prevention and intervention. That is to say, it is necessary to deeply explore the possible influencing factors of social indifference, and to develop a targeted intervention plan.Based on this, this study examined the influence of working memory refresh ability on emotional regulation of social indifference adolescents and the transfer effect of working memory refresh ability, emotional regulation ability and social indifference youth. The results found that: (1) for teenagers with social indifference, individuals with high working memory refresh ability have better emotional regulation ability compared with individuals with low refresh ability; (2) compared with the control group, working memory refresh training can not only improve the working memory refresh ability and emotional regulation ability of social indifference teenagers, but also significantly reduce their social indifference level. These results indicate that working memory refresh ability plays an important role in emotion regulation in social indifference adolescents, and the research conclusions provide a reference for the identification and intervention of social indifference adolescents.

Keywords：Unsociability, Working Memory Updating, Emotion Regulation, Adolescents

5.2 发展心理学专业委员会

幼儿对自主获取的网络信息的信任偏好：主动决策的作用

童钰[1, 2] 王福兴[1, 2]（通讯作者） 王伟军[1, 2]（通讯作者）
1 华中师范大学心理学院，武汉，湖北，430079，fxwang@mail.ccnu.edu.cn，wangwj@ccnu.edu.cn
2 网络心理与行为教育部重点实验室，武汉，湖北，430079

摘 要 得益于网络和以触屏为代表的交互式可联网设备的广泛应用，幼儿可以前所未有地独立获取到多种网络信息(中国移动研究院, 2021)。Tong 等(2023)借鉴认识性信任领域中经典的冲突信息源范式，通过三个行为实验一致发现相对于通过成人转述得到的网络信息，4-8 岁的幼儿更多地信任自己直接与触屏交互而得

到的网络信息。但其中的机制尚不明确。首先，幼儿可能倾向于认为自己主动做出的行动背后的动机是清晰的，会产生更可靠的结果(Kushnir & Gopnik, 2005)；其次，当幼儿借助于触屏设备获得网络信息时，动作本身能提供触觉反馈，网页也会因幼儿操作而进行跳转，这种感知觉的反馈和关联性的响应都可能会唤起幼儿的具身认知，增加其对相关内容的认知加工(Christakis, 2014)。基于此，本研究拟检验面对多样化网络信息的主动决策和触屏交互是否是导致幼儿偏好自己直接交互获取而非成人转述的网络信息的机制。实验 1 纳入 4-8 岁的幼儿 80 名，以包含幼儿陌生动物知识的图片网页为实验材料。在直接交互且主动决策的条件下，幼儿点击图片网页中的索引图片后，屏幕中会首先呈现出包含了不同缩略图的多个答案，要求幼儿在其中选择一个自己认为合适的点开，随后幼儿会在跳转后的网页中浏览答案图片，并判断这个答案是否正确；在成人转述的条件下，则由一名研究助手点击网页后再在多个答案中选出一个并转述给幼儿对应的答案；对于幼儿触屏但代替选择的条件下，由成人在网页选择界面直接告诉幼儿应当选哪个并要求幼儿自己点开，随后幼儿自己看到答案并判断该答案是否正确。实验 1 结果发现，4-8 岁幼儿对自己决策和选择出的网络信息的赞同程度高于通过成人转述和成人代替选择出的网络信息，而后两者没有差异。进一步地，为控制选择阶段的材料凸显性以及个人偏向等无关因素的干扰，实验 2 (N = 78)模糊了网页选择界面，又进一步分离选择界面的缩略图使其无法反映后续任一答案的任何关键信息，结果重复了实验 1 的主要发现。综合而言，研究结论认为，主动决策在幼儿偏好自己直接交互获取的网络信息中具有重要作用，而触屏交互不是关键的影响因素。
关键词　认识性信任，网络，主动决策，触屏交互，幼儿

What I chose is the best: Children's epistemic trust in image-based online information obtained on their own or relayed by an adult

Yu Tong[1, 2], Fuxing Wang[1, 2]*, Weijun Wang[1, 2]*

1 School of Psychology, Central China Normal University, Wuhan, Hubei 430079, China

2 Key Laboratory of Adolescent Cyberpsychology and Behavior, Ministry of Education, Wuhan, Hubei 430079, China

***Abstract*:** With the widespread use of the internet and internet-connected devices such as smartphones and tablets, young children now have unprecedented access to online information independently (China Mobile Research Institute, 2021). In a study conducted by Tong et al. (2023) using the classic conflicting sources paradigm in the field of epistemic trust, it was found that children between the ages of 4 and 8 were more likely to trust image-based online information that they obtained themselves, compared to information relayed to them by an adult. However, the underlying mechanisms behind this phenomenon remain unclear. On one hand, children tend to believe that their own actions are motivated by clear intentions and thus produce more reliable results (Kushnir & Gopnik, 2005). On the other hand, the use of touchscreens can provide sensory feedback and prompt responsive actions, potentially triggering children's embodied cognition and enhancing their cognitive processing (Christakis, 2014). Thus, the aim of this study is to investigate whether decision-making and touchscreen interactions serve as mechanisms to influence young children in valuing their firsthand experience when evaluating internet-based image information. In Experiment 1, a sample of 80 Chinese children aged 4 to 8 years was recruited, and picture web pages featuring unfamiliar animal facts were employed as experimental materials. In the children-decision condition, children were presented with multiple answer options, each containing different thumbnails. Then children were required to select and point the answer they deemed appropriate. They would then proceed to browse the answer image on the subsequent web page and judge whether the answer was correct or not. In the adult-relayed condition, a research assistant took on the responsibility of selecting and clicking on the web

page. In the adult-decision condition, the same research assistant selected one of the multiple answers but children took the responsibility to click the image. The findings of Experiment 1 indicated that children aged 4 to 8 were more likely to trust online information that they have personally selected and decided upon, compared to information selected for them by an adult or relayed to them by an adult. However, no significant difference was found between the latter two conditions. In order to eliminate the influence of material salience during the selection phase and minimize the interference of extraneous factors such as personal bias, Experiment 2 (N = 78) implemented a blurred web selection interface. Additionally, the thumbnails in the selection interface were separated to ensure that they did not provide any crucial information about the subsequent answers. Experiment 2 successfully replicated the main findings of Experiment 1. Taken together, the study suggest that active decision-making plays an important role in young children's preference for online information obtained on their own.

Keywords： epistemic trust, internet, decision making, touchscreen, children

父母心理攻击与青少年焦虑的双向关系及其异质性：基于日记法的研究

权思翔[1]　付聪[2]（共同一作）　邢晓沛[1]　王美芳[3]（通讯作者）

1 首都师范大学心理学院，北京，100048

2 高等教育出版社教师教育出版事业部，北京，100029

3 首都师范大学初等教育学院，北京，100037，meifangw@hotmail.com

摘 要　父母教养行为与儿童青少年内化问题间的关系一直是研究者关注的热点问题之一。近年来，父母心理攻击与青少年焦虑间的关系也得到了广泛关注。根据双向亲子关系理论，日常生活中父母与儿童间存在相互影响，且亲子互动每天都会发生，父母每天的教养行为随着时间的推移也会有一定波动。以往关于父母心理攻击与青少年焦虑的研究主要在宏观时间尺度上（如：年）考察了父母驱动效应，较少在微观时间尺度上（如：天）考察这两个变量间的关系。基于此，本研究对 326 名青少年进行连续 15 天的日记法调查，通过构建动态结构方程模型考察微观时间尺度上父母心理攻击和青少年焦虑的双向关系及其异质性。结果显示，在家庭间水平上，与经历较少父母心理攻击的青少年相比，经历较多父母心理攻击的青少年有更高的焦虑水平。在家庭内水平上，就同日效应而言，父母心理攻击与青少年焦虑在同一日内共同波动；就隔日效应而言，父亲驱动效应及儿童驱动效应均显著。具体地，父亲心理攻击的变化可以正向预测次日青少年焦虑状态的波动，而母亲心理攻击的变化对次日青少年焦虑状态波动的预测作用不显著。青少年焦虑状态的波动可以正向预测次日父亲和母亲心理攻击的变化。以上被试内关系在不同青少年间具有异质性，这表明亲子动态过程在不同家庭间具有一定差异性。对被试内效应存在异质性的原因进行探索性分析发现，青少年的平均焦虑水平及性别可以部分解释被试内效应的异质性。本研究采用密集追踪的研究设计及动态结构方程模型的分析方法真正为双向亲子关系理论提供了实证支持，并进一步阐明了家庭内过程的异质性。这些研究结果为干预者制定更有效、更有针对性的干预策略提供了可参考信息。

关键词　父母心理攻击，青少年焦虑，双向关系，异质性，日记法

The Reciprocal Relation Between Parental Psychological Aggression and Adolescent Anxiety and the Effect Heterogeneity: A Daily Diary Study

Sixiang Quan[1] Cong Fu[2] Xiaopei Xing[1] Meifang Wang[3] (corresponding author)
1 School of Psychology, Capital Normal University, Beijing
2 Teacher Education Publiancation Section, Higher Education Press, Beijing
3 College of Elementary Education, Capital Normal University, Beijing

***Abstract*:** The relation between parenting behaviors and children and adolescents' internalizing problems has long been a focus of researchers. In recent years, the relation between parental psychological aggression and adolescent anxiety has received extensive attention. According to the bidirectional theory of parent-child relationships, there are reciprocal relations between parents and children. Moreover, parent-child interactions unfold on a daily basis, and the daily parenting behaviors within a family dynamically fluctuate over time. Regarding the relations between parental psychological aggression and adolescent anxiety, current studies mainly focused on exploring unidirectional parent-driven effects at the macro timescale (i.e., years), while few studies explore the reciprocal relation between these two variables at the micro timescale (i.e., days). To fill this gap, this study adopted the daily diary method to examine the reciprocal relation between parental psychological aggression and adolescent anxiety and the effects heterogeneity. Total 326 adolescents were recruited to fill out the questionnaires for 15 consecutive days. The results of dynamic structural equation models suggested that at the between-person level, adolescents who experienced more parental psychological aggression reported higher anxiety during the 15 days compared to those who experienced less parental psychological aggression. At the within-person level, parental psychological aggression co-fluctuated with adolescent anxiety within a day. As for the lagged associations, father-driven effects and child-driven effects for both parents were significant. Specifically, only changes in paternal psychological aggression predicted fluctuations in adolescent anxiety state the next day, whereas fluctuations in adolescent anxiety state predicted both changes in paternal and maternal psychological aggression the next day. These within-person associations were heterogeneous among adolescents, suggesting that the parent-adolescent dynamic may be different across families. An exploratory analysis of the potential explanations of the heterogeneity in the above within-person associations found that adolescent general levels of anxiety and gender could partially explain the heterogeneity. This study caught up with the longstanding theories of parent-child reciprocal processes and further elucidated the heterogeneity in within-family processes through intensive longitudinal design and dynamic structural equation modeling, which could provide information for more effective and tailored intervention strategies.

***Keywords*:** parental psychological aggression, adolescent anxiety, reciprocal relation, heterogeneity, daily diary method

学龄前儿童对类平行折线的直观认识及平行分类的核心特征：基于网络分析的方法

高劭婧 胡清芬 （通讯作者）
北京师范大学心理学部，北京，100875，Email: qingfenhu@bnu.edu.cn

摘 要 对几何概念发展的研究是人类概念起源研究的重要组成部分，而平行概念则是几何概念中最为重要和基础的概念之一。实证研究发现，学龄前儿童对由欧氏几何定义的平行直线和由微分几何定义的平行曲线均具有直观认识，儿童可以从多个具有不同知觉特征的平行直线或平行曲线中抽取共同的“等距”特征，并将其与其他类别的图形(相交线)区分开，表明儿童在正式学习几何知识前，可以自发形成符合不同理论

数学体系定义的平行类别知识。然而，人类对理论数学体系未定义的几何图形是否具有相似的直观认识同样值得探索。例如，无论是欧氏几何还是微分几何，都无法描述不光滑的折线之间的平行关系，但在日常生活中，人们会经常遇到门框等 “类平行”的折线。本研究借鉴平行曲线“在各个方向上都等距”的定义，构造出理论数学体系中没有定义的“类平行折线”，考察儿童对这种未被数学家定义的类平行概念的直观认识。同时，本研究考察了儿童对不同类型平行线的直观认识的相似性与差异，并通过网络分析的方法考察处于核心地位的平行类别，进而推测人类直觉平行分类的核心特征。

本研究采用偏离觉察范式，102 名 3-5 岁儿童完成了一系列找不同题目。题目包括七类：类平行折线、平行直线、平行曲线、直线特征平行(直线;折线)、曲线特征平行(曲线;折线)、光滑特征平行(直线;曲线)、以及等距特征平行(直线;曲线;折线)，分别考察儿童对不同类型平行线进行分类并与相交线区分的能力。正确率分析结果表明：在类平行折线问题中，3-5 岁儿童均可成功区分相交折线，并且类平行折线问题与平行曲线问题的正确率不存在显著差异。基于不同题目间偏相关系数的网络分析结果表明：等距特征平行在平行概念网络中拥有最高的接近中心性和居间中心性，可能是处于核心地位的平行类别。据此可以推断，儿童对理论数学体系未定义的类平行折线同样具有直观认识，并且平行直线、平行曲线和类平行折线共有的等距特征可能是平行分类的核心特征。
关键词　数学认知，几何认知，偏离觉察范式，网络分析

Preschooler’s intuitive understanding of quasi-parallel polylines and the core feature of parallel category: a method based on network analysis

Gao Shaojing, Hu Qingfen
Faculty of Psychology, Beijing Normal University, Beijing, 100875

Abstract： The research on the development of geometric concepts is an important part of the research on the origin of human concepts, and the parallel concept is one of the most important and basic concepts in geometry. The empirical study found that preschoolers have an intuitive understanding of parallel lines defined by Euclidean geometry and parallel curves defined by differential geometry. Children could extract invariant “equidistant” feature from multiple parallel lines or parallel curves with various perceptual features and distinguish them from other category (intersecting lines). Researchers believed that children spontaneously formed intuition of the parallel category which conforms to the definitions of theoretical mathematical systems before formally geometry education. However, it is also worth exploring whether human beings have a similar intuitive understanding of geometric shapes which are not defined by theoretical mathematical system. For example, neither Euclidean geometry nor differential geometry can describe the parallel relationship between the non-smooth polylines, but in daily life, people often encounter “quasi-parallel” polylines such as door frames. The present study drew on the definition of parallel curves as “equidistant in all directions”, constructed the “quasi-parallel polylines” which is not defined in the theoretical mathematical system, and examined the children’s intuitive understanding of this quasi-parallel shape. Meanwhile, the present study examined the similarities and differences of children’s intuition of different types of parallel shapes. Through the network analysis, we investigated the parallel category which is in the core position, and then speculated the core feature of children’s parallel intuition.

In the present study, 102 children aged 3-5 years completed a series of items based on the deviant-detection task. The items included seven types: quasi-parallel polylines, parallel lines, parallel curves, straight feature parallel (straight lines, polylines), curve feature parallel (curves, polylines), smooth feature parallel (straight lines, curves), and equidistant feature parallel (straight lines, curves, polylines). Children’s ability to categorize different types of parallel shapes and distinguish them from intersecting shapes was examined separately. The results of

accuracy analyses showed that children aged 3-5 could distinguish intersecting polylines successfully in parallel polylines items. And there was no significant difference between the accuracies of parallel polylines items and parallel curves items. The results of network analysis based on the partial correlation coefficients between different items showed that equidistant feature parallel items had the highest closeness centrality and betweenness centrality in parallel conceptual networks. It might be the parallel category in the core position. Therefore, we inferred that children also have an intuitive understanding of the quasi-parallel polylines which are not defined by the theoretical mathematical system. And the invariant equidistant feature shared by parallel lines, parallel curves and quasi-parallel polylines might be the core feature of the parallel category.
Keywords：mathematical cognition, geometric cognition, deviant-detection task, network analysis

校外日常活动的类型和组织特征对幼儿执行功能的影响

卜晓妹[1]　盖笑松[1]（通讯作者）　王元[1]
1 东北师范大学心理学院，长春，130024，gaixs669@nenu.edu.cn

摘 要　先前关于执行功能的训练研究多数是由陌生主试在陌生情境中用陌生任务范式完成的，然而幼儿执行功能是在日常活动中发展起来的。有研究已经考察了日常活动的类型和组织特征对幼儿执行功能的影响，但主要集中在单一类型的日常活动上，且对组织特征的划分存在疑义。本研究首次借鉴经验采样法进行幼儿校外日常活动的采集。根据以往研究综述和 Aelterman 等人提出的特征环状模型分别获得 15 种校外日常活动类型和 8 种校外日常活动的组织特征。在控制了幼儿年龄和基线执行功能水后，分析幼儿校外日常活动的类型和组织特征对其执行功能的预测作用。研究共招募到 78 组幼儿家庭，按照“基线信息采集和基线执行功能测量→校外日常活动采集→后测执行功能测量”的顺序实施研究。其中，幼儿执行功能采用自定义顺序指出任务、头-脚-膝-肩任务、灵活项目选择任务和包礼物任务测量。校外日常活动的类型和组织特征的采集通过连续 7 周、每周 1 次的父母电话访谈获得。研究发现：（1）在校外日常活动的类型方面，控制了幼儿年龄和基线执行功能水平后，“学业准备活动”的参与总时长可以正向预测幼儿后测时执行功能表现。（2）在校外日常活动的组织特征方面，成人的“解释说明”行为越多，幼儿后测时执行功能的表现越好。但在控制了幼儿年龄和基线执行功能水平后，成人的“解释说明”行为就不再继续预测幼儿后测时执行功能表现。上述结果表明，只有“学业准备活动”有利于幼儿执行功能的发展，而校外日常活动的组织特征不能预测幼儿执行功能的发展。
关键词　执行功能，校外日常活动，幼儿

The influence of types and organizational characteristics of off-campus daily activities on young children’s executive function

Bu XiaoMei[1]　Gai Xiaosong[1]　Wang Yuan[1]
1 Department of Psychology, Northeast Normal University, Changchun, 130024

Abstract：Most of the previous training studies on executive function were completed by unfamiliar subjects in unfamiliar situations with unfamiliar task paradigms. However, children’s executive function is developed in daily activities. Some studies have examined the impact of the types and organizational characteristics of daily activities on children’s executive function, but they mainly focus on a single type of daily activities, and there are doubts

about the division of organizational characteristics. This study is the first to use the Experience Sampling Method to collect children's off-campus daily activities. According to the previous research review and the characteristic circumplex model proposed by Aelterman et al., the organizational characteristics of 15 types of off-campus daily activities and 8 types of off-campus daily activities were obtained respectively. After controlling for children's age and baseline executive function, the predictive effect of the types and organizational characteristics of children's off-campus daily activities on executive function was analyzed. A total of 78 groups of children's families were recruited in the study, and the research was carried out in the order of 'baseline information collection and baseline executive function measurement → off-campus daily activity collection → post-test executive function measurement'. Among them, children's executive function is measured by the Self-ordered Pointing Task, the Head-Toe-Knee-Shoulder, the Flexible Item Selection Task, and Gift Wrap/Delay task. The types and organizational characteristics of out-of-school daily activities were collected through telephone interviews with parents once a week for 7 consecutive weeks. The study found that: (1) In terms of the types of daily activities outside school, after controlling for children's age and baseline executive function level, the total duration of participation in 'academic preparation activity' can positively predict children's executive function performance in post-test. (2) In terms of the organizational characteristics of daily activities outside school, the more 'explanatory' behaviors of adults, the better the performance of executive function in children's post-test. However, after controlling children's age and baseline executive function level, adult's 'explanation' behavior no longer continued to predict children's executive function performance in the post-test. The above results show that only 'academic preparation activity' are conducive to the development of children's executive function, while the organizational characteristics of off-campus daily activities cannot predict children's executive function.
Keywords：executive function, off-campus daily activities, young children

青少年诚实-谦逊性的发展特点及对合作的影响

马昕玥[1] 崔丽莹[1]（通讯作者）

1 上海师范大学教育学院心理学系，上海，200234，E-mail: cui720926@163.com

摘 要 诚实-谦逊性指在与他人交往时维护公平和真诚的倾向。作为一种亲社会人格特质，虽然有研究发现它可以促进合作，但内在机制不甚清晰。因此，基于道德基础理论和社会交换理论，本文通过两个研究系统探讨青少年的诚实-谦逊性及其与合作倾向、合作行为的关系。研究一采用追踪研究，分析了 743 名（50.7%女生，平均年龄 11.64 岁）青少年诚实-谦逊性的发展特点、对青少年合作倾向的预测作用及公正敏感性的中介作用。结果发现：（1）青少年诚实-谦逊性整体得分及其避免贪婪、真诚和公平维度随时间呈下降趋势，未发现性别差异；但是相较于小学生，中学生下降得更多。（2）青少年 T1 诚实-谦逊性不能直接预测 T2 合作倾向；但是半纵向中介检验表明，诚实-谦逊性可以通过增加犯过者公正敏感性间接降低青少年未来的合群意愿。研究二采用行为实验法，利用双人囚徒困境和四人公共物品困境来测量合作行为，考察了高、低诚实-谦逊性青少年在不同剥削诱惑水平（研究二 a：88 名被试，平均年龄 11.61 岁，54.55%女生，53.41%高诚实-谦逊性青少年）和不同剥削威胁水平（研究二 b：81 名被试，平均年龄 11.67 岁，49.38%女生，45.48%高诚实-谦逊性青少年）下的合作表现。结果发现：青少年诚实-谦逊性水平与情境的剥削威胁水平交互影响其合作行为。高诚实-谦逊性青少年在中、高剥削威胁情境的合作率均低于低剥削威胁情境；而低诚实-谦逊性青少年在中、低剥削威胁情境的合作率均高于高剥削威胁情境。综上结果表明，我国青少年的整体诚实-谦逊性水平随时间呈下降趋势，表现出人格发展的暂时性下降；同时该阶段诚实-谦逊性人格与合作的关系不似成年人那般稳健，且更为复杂。这些结果说明了在青春期早期和中期培养和发展青少年诚实-谦逊性的重要性。

关键词 诚实-谦逊性，合作，犯过者公正敏感性，剥削诱惑，剥削威胁

The developmental characteristics and effect on cooperation of Honesty-Humility among adolescents

Ma Xinyue[1] Cui Liying[1] (Corresponding Author)
1 Department of Psychology, College of Education, Shanghai Normal University, Shanghai 200234

***Abstract*：** As a prosocial personality trait, Honesty-Humility dimension from the HEXACO model of personality refers to the tendency to be fair and genuine in dealing with others. Although some studies have found that it promotes cooperation, the intrinsic mechanisms are less clear. Therefore, based on the Moral Foundations Theory and Social Exchanges Theory, this paper systematically explores adolescents' Honesty-Humility and its relationship with cooperativeness and cooperative behaviours. A longitudinal design was applied in Study 1 to detect the developmental characteristics of Honesty-Humility and examine the effect of this trait on cooperativeness as well as the mediating role of justice sensitivity in 743 adolescents (50.7% girls; initial Mage = 11.64 years). Results: (1) A decreased tendency in Honesty-Humility dimension and the greed-avoidance, sincerity and fairness facets from T1 to T2 were observed. (2) Honesty-Humility was not a direct predictor of cooperativeness; but, the half-longitudinal mediation analysis indicated that Honesty-Humility positively predicted perpetrator sensitivity which then influence cooperativeness negatively. Study 2 applied a behavioural experimental approach to measure cooperative behaviours in different situational levels of temptation to exploit others (Study 2a: 88 subjects, mean age 11.61 years, 54.55% girls, 53.41% adolescents with high honesty-humility) and different levels of fear being exploited by others (Study 2b: 81 subjects. mean age 11.67 years, 49.38% girls, 45.48% high honesty-humility adolescents) by using a two-person prisoner's dilemma and a four-person public goods dilemma among adolescents with higher and lower Honesty-Humility. A significant effect of personality and situation interaction was found in Study 2b, which demonstrated that adolescents with higher Honesty-Humility cooperated less in the medium and higher fear being exploited situations than in the lower situation; while lower Honesty-Humility adolescents cooperated less in the high situation than in the medium and low. To sum up, Honesty-Humility dimension among Chinese adolescents tends to decrease over time, showing a temporary dip in personality development; and, the link between the Honesty-Humility and cooperation at this stage of life is not as robust as in adults and is more complex. These findings highlight the value of fostering the Honesty-Humility dimension throughout early and middle adolescence.

***Keywords*：** Honesty-Humility, cooperation, perpetrator sensitivity, temptation to exploit others, fear of being exploited

童年期父母婚姻质量的发展轨迹与青少年抑郁的纵向关系：亲子依恋的中介作用

杨舒雅　于嘉霖　田文秀　王美芳(通讯作者)
首都师范大学初等教育学院，北京，100037，meifangw@hotmail.com

摘 要　情绪安全理论和认知-情境理论提出，较低的父母婚姻质量会使青少年更容易出现抑郁问题。然而，已有研究大多是用某一个时间点的父母婚姻质量来预测青少年抑郁，关于婚姻质量一般性和异质性发展轨迹对青少年抑郁的了解极少，因此有必要考察父母婚姻质量的发展轨迹对青少年抑郁的长期影响。此外，基于个体-情境交互作用理论，父母婚姻质量这一相对较远端的因素可能通过亲子依恋这一近段因素的作用，进而导致青少年抑郁。基于此，本研究以 378 名小学二年级学生及其父母为被试，进行连续八年的追踪测查，使用变量为中心和个体为中心相结合的方法，较为全面地考察童年期父亲和母亲婚姻质量发展轨迹对青少年抑郁的影响以及亲子依恋在童年期父亲和母亲婚姻质量发展轨迹与青少年抑郁关系间的中介作用。以变量为中心的结果发现童年期父亲和母亲的婚姻质量随着时间的推移而升高；童年期父母婚姻质量的初始水平和发展速度对青少年抑郁的直接预测作用均不显著；亲子依恋在童年期父母婚姻质量初始水平与青少年抑郁关系间的中介作用显著，但在父母婚姻质量的发展速度与青少年抑郁关系间的中介作用不显著。以个体为中心的结果发现，童年期父母婚姻质量异质性发展轨迹均分为三个亚组，即低-稳定组、中等-稳定组和高-上升组；青少年抑郁水平在童年期父母婚姻质量轨迹亚组间无显著差异；相比于父亲婚姻质量高-上升组，父子依恋在父亲婚姻质量低-稳定组和中等-稳定组与青少年抑郁的关系间的中介作用不显著；相比于母亲婚姻质量高-上升组，母子依恋在母亲婚姻质量低-稳定组和中等-稳定组与青少年抑郁的关系间的中介作用显著。研究结果强调了从变量水平和个体水平上探究父母婚姻质量对青少年抑郁的影响以及探究其机制的重要性，也提示同时提高父亲和母亲的婚姻质量以及通过增加亲子依恋的安全水平是降低青少年的抑郁水平的有效途径。
关键词　婚姻质量，发展轨迹，青少年抑郁，亲子依恋

Longitudinal Relation Between The Developmental Trajectories of Childhood Parental Marital Quality and Adolescent Depression: The Mediating Role of Parent-child Attachment

Shuya Yang, Jialin Yu, Wenxiu Tian, Meifang Wang(corresponding author)
College of Elementary Education, Capital Normal University, Beijing, 100037,
E-mail: meifangw@hotmail.com

Abstract： According to the emotional security theory and cognitive-contextual theory, lower parental marital quality is associated with adolescent depression. Notably, previous research has primarily examined the influence of parental marital quality at a certain point in time on adolescent depression, and there is a lack of literature exploring the effects of the general and heterogeneous developmental trajectories of parental marital quality in childhood on adolescent depression. Therefore, it is essential to investigate the long-term impact of developmental trajectories of parental marital quality on adolescent depression. In addition, person-context interaction theory suggests that the relatively distal factor of parental marital quality may contribute to adolescent depression through the more proximal factor of parent-child attachment. Based on this, the present study conducted a continuous eight years longitudinal investigation with a sample of 378 second-grade elementary school students and their parents. Utilizing a combined variable-centered and person-centered method, the study comprehensively examined the impact of developmental trajectories of fathers' and mothers' marital quality in childhood on adolescent depression, as well as the mediating role of parent-child attachment in the relation between these trajectories and adolescent depression. The results of the variable-centered analysis indicated that both fathers' and mothers' marital quality improved over time. Neither the initial level nor the rate of development in parental marital quality during childhood significantly predicted adolescent depression. Parent-child attachment mediated the effect of initial level

of parental marital quality on adolescent depression but did not mediate the effect of development rate of parental marital quality on adolescent depression. The person-centered analysis revealed that the heterogeneous developmental trajectories of parental marital quality in childhood could be divided into three subgroups: low-stable, moderate-stable, and high-rising groups. There was no significant difference between childhood parental marital quality subgroups on the level of adolescent. The mediating effect of father-child attachment in the relation between fathers' low-stable and moderate-stable marital quality groups and adolescent depression was not significant compared to the fathers' high-increasing marital quality group. However, the mediating effect of mother-child attachment in the relation between mothers' low-stable and moderate-stable marital quality groups and adolescent depression was significant compared to the mothers' high-increasing marital quality group. These findings emphasize the importance of exploring the effects of parental marital quality on adolescent depression and its mechanisms at variable-centered and person-centered analyses, and also suggest that improving the fathers' and mothers' marital quality and increasing the safety level of parent-child attachment are effective ways to relieve adolescent depression.

Keywords：marital quality, developmental trajectory, adolescent depression, parent-child attachment

小学生学业作弊行为及其关键预测因子：基于机器学习方法的分析

郑怡[1] 赵立[2*]

1 杭州师范大学经亨颐教育学院，浙江杭州，311121

2 杭州师范大学心理学系，浙江杭州，311121，*通讯作者 zhaoli@hznu.edu.cn

摘 要　学业作弊在不同年龄段学生群体中均十分常见，它严重影响个人诚信，危害教育公平。纵观现有关于学业作弊行为的实证研究，绝大多数以大学生或中学生为研究对象，鲜有研究从学业作弊行为习惯形成的起源着手，考察这一行为在小学阶段的发展及机制。机器学习（Machine Learning）是数智时代新兴的数据分析方法，也是人工智能的核心方法，它依赖于计算机算法，旨在通过数据分析和建模实现对人类行为的模拟。本研究对 2,098 名来自三类学校（普通公办、含外来务工人员子女较多的普通公办，以及民办小学）的 2 至 6 年级小学生进行问卷调查，采用机器学习法，分别考察了个体认知、道德判断、同伴行为，及性别、年级、成绩等因素对小学生学业作弊行为的影响。结果表明，小学生自我报告的作弊率为 33%。其中，集成机器学习模型对小学生作弊行为的预测准确率(AUC 均值)达 80.46%，对小学生学业作弊行为预测效应最强的四个因素依次为个体对作业作弊的接受程度、观察到同伴作弊的普遍性和频率，及其自身成绩。上述结果不仅为在教育实践中有针对性地对小学生学业作弊进行教育和干预提供了重要的实证支持，也为机器学习算法在发展性数据分析方面的可行性和有效性提供了有力证据。

关键词　小学生，学业作弊，机器学习，预测，态度

Academic cheating among elementary school children and its key predictors: A machine learning approach

Yi Zheng[1], Li Zhao[2*]
1 Jing Hengyi School of Education, Hangzhou Normal University, Yuhang Pond Road 2318, Yuhang District, Hangzhou, 311121
2 Department of Psychology, Hangzhou Normal University, Yuhang Pond Road 2318, Yuhang District, Hangzhou, 311121

Abstract：Academic cheating is pervasive among students of different ages. It hinders personal moral development and undermines fairness in education. Whereas a great deal is known about academic cheating and its correlates among college students and high school, little research has investigated its developmental origins. Machine Learning (ML) is an emerging method of data analysis in the age of digital intelligence. It is also a core method of artificial intelligence, which relies on computer algorithms and aims to achieve simulation of human behavior through data analysis and modelling. We conducting questionnaire surveys with 2,098 second- to sixth-grade students from three kinds of elementary schools (i.e., public school, public school with a large proportion of students whose parents are migrant workers, and private school). We used ensemble machine learning to capture the complex relations between academic cheating among elementary school children and various predictor variables (e.g., cognition, moral judgements, peer behaviors, and factors such as gender, grade, and grades). Overall, 33% of elementary school children reported having cheated. The best models with the ensemble machine learning accurately predicted the students' homework cheating with a mean Area Under the Curve (AUC) value of 80.46%. Children's cheating was most strongly predicted by their own beliefs about the acceptability of cheatings, how commonly and frequently they had observed their peers engaging in academic cheating, and their achievement level. These findings not only provide important empirical support for how to promote academic integrity and to prevent cheating during elementary school years' education, but they also illustrate machine learning as a viable and effective approach to analyze developmental data.

Keywords：elementary school children, academic cheating, machine learning, prediction, attitude

小学儿童教师支持、同伴支持、数学态度与数学焦虑的纵向联系：一项四年纵向考察

王阳阳[1]　禚新峰[1]　雒瑞帆[1]　刘畅[1]　司继伟[1]（通讯作者）
1 山东师范大学心理学院，济南，250358，sijiwei1974@126.com

摘 要　数学焦虑是一种普遍存在于学生群体中的消极学业情绪，会导致学生回避数学相关的教育情境和职业选择。数学态度是个体对于数学的控制价值评估。控制-价值理论认为数学态度是影响数学焦虑的核心个体要素，二者之间具有双向的联系，且环境因素（如，教师支持、同伴支持）会通过控制价值评估作用于学业情绪。然而，尚无研究探究教师支持和同伴支持对数学焦虑的协同作用形式及其作用机制。为揭示上述变量间的纵向联系，本研究对 1064 名小学三、四年级儿童（643 名男生，M_{age} = 9.25±0.63 岁）进行四次纵向测查，每次间隔为一年。基于传统交叉滞后模型的分析结果显示：（1）教师支持和同伴支持对数学焦虑不存在显著预测作用，但数学焦虑对教师支持存在显著单向预测作用；（2）数学态度与数学焦虑之间具有双向预测关系；（3）教师支持和同伴支持通过数学态度间接预测数学焦虑。即 T2 的教师支持负向预测

T3 的数学态度，进而增加了 T4 的数学焦；T2 的同伴支持正向预测的数学态度，进而降低了 T4 的数学焦虑；数学焦虑可通过数学态度间接负向预测教师支持和同伴支持。本研究从纵向角度为学业情绪的控制价值理论提供了进一步证据支持，强调了教师支持、同伴支持、数学态度在儿童数学焦虑发展中发挥的重要作用，并凸显出儿童的主导效应。所得发现为今后对数学焦虑的早期预防和干预提供了基础，有助于形成相应的干预措施。
关键词　数学焦虑，教师支持，同伴支持，数学态度，小学儿童

Longitudinal Associations between Teacher Support, Peer Support, Math Attitudes and Children's Mathematics Anxiety in Primary School: A Four-year Longitudinal Study

Wang Yangyang[1] Zhuo Xinfeng[1] Luo Ruifan[1] Liu Chang[1] Si Jiwei[1]
1 School of Psychology, Shandong Normal University, Jinan, 250358

Abstract: Mathematics anxiety, a commonly experienced negative emotion among students, is a significant factor leading to their avoidance of math-related educational situations and career paths. Math attitudes reflect, in part, an individual's control and value assessment of math. According to the control-value theory, math attitudes may be a core individual element influencing mathematics anxiety, with a bidirectional link between the two; and environmental factors (e.g., teacher support, peer support) act on academic emotions through controlled value evaluations. However, the form of synergistic effect of these two key environmental factors on mathematics anxiety and the related mechanisms of action are still unknown. In order to reveal the longitudinal associations between the above variables, the present study was conducted on 1064 children (643 boys, M_{age} = 9.25 ± 0.63 years) in the third and fourth grades of elementary school on four longitudinal occasions, each with a one-year interval. Based on the cross-lagged model, results showed that: (1) Teacher support and peer support were not significant predictors of math anxiety, while conversely, math anxiety was a significant unidirectional predictor of teacher support; (2) There was a bidirectional predictive relationship between math attitudes and math anxiety; (3) Environmental factors (teacher support and peer support) indirectly predicted math anxiety through math attitudes. More specially, T2's teachers supported negatively predicted math attitudes for T3, which in turn increased math anxiety for T4, and T2's peers supported positively predicted math attitudes, which in turn decreased math anxiety for T4; mathematics anxiety negatively predicted teacher support and peer support indirectly through math attitude. These results provide further evidences for the control-value theory of academic emotions from longitudinal perspective, emphasizing that teacher support, peer support, and attitudes toward mathematics play a key role in the development of children's mathematics anxiety, and that the child-dominant effect is highlighted. The findings obtained provide a solid basis for future early prevention and help shape appropriate interventions for math anxiety.
Keywords: mathematics anxiety, teacher support, peer support, math attitudes, primary school children

错怪及其弥补对 5-6 岁幼儿道德判断与人际喜爱及信任的影响

莫秀锋（通讯作者）
广西师范大学教育学部，桂林，541004，E-mail:moxiufeng76@126.com

摘 要　友善是社会主义核心价值观的重要组成部分，也是中华民族的传统美德。如何避免错怪他人，以及错怪他人之后该如何弥补，是儿童期道德教育的重要内容，因其在一定程度上折射出个体是否友善。友善等积极的人格特质与道德判断、人际喜爱及信任之间关系密切。不过，错怪及其弥补行为与幼儿的道德判断、人际喜爱及信任之间是否存在类似关系，尚未可知。实验一考察错怪对 5-6 岁幼儿道德判断与人际喜爱及信任的影响。采用单因素两水平被试间设计，包括错怪程度轻和错怪程度重两个水平，因变量为幼儿的道德判断、人际喜爱及信任，共 72 位幼儿参与研究，每组各 36 人。先给幼儿叙述错怪程度轻或者错怪程度重的故事，然后测查幼儿对故事中人物角色的道德判断、人际喜爱及信任。结果表明：错怪对 5-6 岁幼儿的道德判断、人际喜爱及信任具有显著影响。无论是听错怪程度轻还是错怪程度重的故事，绝大多数幼儿不喜欢和不信任错怪者，并且对其做出否定性的道德判断。实验二考察错怪后弥补对 5-6 岁幼儿道德判断与人际喜爱及信任的影响。采用单因素四水平被试间设计，包括错怪之后沉默无为、仅道歉、默默补偿和道歉并补偿这四个水平，共 122 位幼儿参与研究。先随机四选一地叙述错怪后弥补情况的一种故事，然后测查因变量。结果表明，错怪后弥补对 5-6 岁幼儿的道德判断与人际喜爱及信任具有显著影响。听沉默无为故事之后，绝大多数幼儿不喜爱、不信任沉默无为的错怪者，并且对其做出否定性的道德判断，而听仅道歉故事、默默补偿故事或者道歉并补偿故事的绝大多数幼儿，均喜爱和信任知错就改的错怪者，并且对其做出积极的道德判断。两个实验综合揭示：错怪及其弥补对 5-6 岁幼儿道德判断、人际喜爱及信任具有显著影响，幼儿会对错怪行为予以否定性的道德判断，不喜爱和不信任错怪者，但是幼儿高度认可错怪之后的弥补行为，并且喜爱和信任“知错就改”的错怪者。

关键词　错怪，弥补，道德判断，人际喜爱，人际信任

The effects of misunderstanding as well as reparation on the moral judgment, interpersonal preference and trust of 5-6 years old children

Mo Xiufeng
Faculty of Education, Guangxi Normal University, Guilin 541004, China

Abstract：Friendliness is an essential component of the core socialist values, as well as traditional virtue of the Chinese nation. Avoiding misunderstanding and making amends after misunderstanding is an important part of moral education in childhood, as it reflects to a certain extent whether a person is friendly or not. Positive personality traits such as friendliness are closely related to moral judgement, interpersonal preference and trust. However, it is not yet known whether there is a similar relationship between misunderstanding and its compensation and young children's moral judgement, interpersonal preference and trust. Experiment 1 examined the effects of misunderstanding on the moral judgement, interpersonal preference and trust of 5-6 year olds. A one-way two-level between-subjects design was used, including two levels of mild and severe misunderstanding. The dependent variables were 5-6 years old children's moral judgement, interpersonal preference and trust, with a total of 72 children participating in the study, 36 in each group. Children listened to stories with a low or high degree of misunderstanding and then were measured moral judgement, interpersonal preference and trust about the

characters in the stories. The results showed that misunderstanding had a significant effect on the moral judgement, interpersonal preference and trust of 5-6 year olds. Whether listening to stories of mild or severe misunderstanding, most children dislike and distrust the wrongdoers and make negative moral judgements about them. Experiment 2 examined the effects of making amends after misunderstanding on the moral judgement, interpersonal preference and trust of 5-6 year olds. A univariate four-level between-subjects design was used, including four levels of silence with inaction, apology only, silent compensation, as well as apology with compensation after misunderstanding, with a total of 122 young children participating in the study. The results showed that making amends after misunderstanding had a significant effect on the moral judgement and interpersonal preference and trust of 5-6 year olds. Most children disliked and distrusted wrongdoers with inaction and made negative moral judgments about them. In contrast, most children who listened to apology-only stories, silent reparation stories, or apology-and-reparation stories liked and trusted the wrongdoers who knew and corrected their faults and made positive moral judgments about them. These two experiments revealed that misunderstanding and compensation after misunderstanding had a significant effect on the moral judgment, interpersonal preference, and trust of 5-6 year-olds. Children make negative moral judgments about wrongdoing and dislike and distrust the wrongdoers. However, children highly approved of making amends after misunderstanding, and liked and trusted the wrongdoers who knew and corrected their faults.

Keywords：misunderstanding, reparation, moral judgments, interpersonal preference, interpersonal trust

父母失败反馈与教师指导方式对儿童数学学习坚持性和失败消极反应的预测：一项追踪研究

周同[1#] 陈曦[1#] 范红瑜[2] 白婧瑶[1] 刘俊升[1]（通讯作者）

[1] 华东师范大学心理与认知科学学院，上海市心理健康与危机干预重点实验室，上海，200062

jsliu@psy.ecnu.edu.cn

[2] 甘肃省酒泉市玉门市教育局，基础教育股，甘肃，735200

摘 要 数学是一个重要的学习领域，儿童在学习数学的过程中往往会遇到困难，并感到沮丧。以往研究发现，在面临学业挑战和挫折时，表现出更多坚持，更少消极反应的儿童更有可能获得学业成功与进步。因此，了解哪些因素会影响儿童的坚持性和对失败的消极反应非常重要。以往研究往往只关注父母或者教师一方的作用，发现当父母或教师采用掌握导向（而非表现导向）的做法时，儿童更有可能获得成长型思维，并表现出更好的学业成就和发展结果。然而，考虑到学校和家庭是儿童社会化过程中两个共同起作用的主要环境，有必要同时考察父母和教师的做法，并分析其独特效应和交互作用。因此，本研究同时考察父母和教师的做法对儿童坚持性和对失败的消极反应的影响。本研究采用为期 6 个月的追踪研究设计，被试为 2272 名 7-9 年级学生（M_{age} = 14.01，SD_{age}= 0.71，48.5% 女生），学生父母（M_{age} = 40.71，SD_{age}= 5.36，60.4%母亲），及其所在班级的数学老师（N = 29，M_{age} = 39.62，SD_{age}= 9.21，41.4% 女性）。学生在秋季学期末（T1，2022 年 12 月）和春季学期末（T2，2023 年 6 月）报告了在数学学习中的坚持性和对失败的消极反应水平。在 T1 时间点，家长报告了他们对孩子数学学习失败的反馈方式，数学老师报告了他们的指导方式。采用纵向多水平模型（longitudinal multilevel models）对数据进行分析，结果表明：1）相比于老师的做法，父母失败反馈方式对儿童的坚持性水平具有独特预测作用，个人导向的反馈负向预测儿童在 T2 的坚持性，过程导向的反馈正向预测儿童的坚持性。2）儿童的失败消极反应，则受到了父母和教师做法的交互影响。具体而言，在采用高水平掌握导向指导方式的数学教师班级中，父母个人导向的反馈正向预测了儿童在 T2 对失败的消极反应。然而，在教师掌握导向水平较低的班级中，这种关系不显著。本研究揭示了父母和教师的做法对儿童学业发展的独特效应和共同作用，为帮助儿童积极应对学业挑战和挫折提供了

实证依据。

关键词　坚持，消极反应，父母失败反馈，教师指导方式，纵向多水平模型

Parents' Failure Response and Teachers' Teaching Approach Predicting Children's Persistence and Negative Reactions to Failure Among Chinese Rural Students

Tong Zhou[1#], Xi Chen[1#], Hongyu Fan[2], Jingyao Bai[1], Junsheng Liu[1*]

[1] Shanghai Key Laboratory of Mental Health and Psychological Crisis Intervention, School of Psychology and Cognitive Science, East China Normal University, Shanghai, China

[2] Department of Basic Education, Education Bureau of Yumen, Gansu Province, China

Abstract: Mathematics is a crucial domain of learning wherein children frequently encounter difficulties and experience frustration. Children who demonstrate higher persistence and less negative reactions when confronted with challenging tasks or academic setbacks may be more likely to achieve better learning outcomes in mathematics. Thus, it is important to understand the antecedents of children's persistence and negative reactions to failure. Previous research has focused on influences of either parents or teachers and indicated that when parents or teachers use mastery-oriented approaches over performance-oriented approaches, children are more likely to adopt a growth mindset and exhibit better academic achievements. However, given that children are socialized in the familial and school contexts at the same time, researchers need to examine implications of both parents' and teachers' practices and their interactions simultaneously. Thus, the present study explored the unique and interactive predicting effects of parents' and teachers' practices on children's persistence and negative reactions to failure. A six-month longitudinal study was conducted to investigate the research question. The participants consisted of 2272 middle school students (M_{age} = 14.01, SD_{age} = 0.71, 48.5% female), their parents (M_{age} = 40.71, SD_{age} = 5.36, 60.4% mothers), and their mathematics teachers (N = 29, M_{age} = 39.62, SD_{age} = 9.21, 41.4% female). The students reported their levels of persistence and negative reactions to failure in mathematic learning during both the fall semester (i.e., T1, December 2022) and the spring semester (i.e., T2, June 2023). Parents reported their responses to their children's failure in mathematic learning, and math teachers reported their teaching approaches during the fall semester. The data were analyzed using longitudinal multilevel models, revealing distinct patterns linking parents' and teachers' practices to students' persistence and negative reactions to failure. Specifically, when considering both parents' and teachers' practices, the way parents responded to failure uniquely predicted children's persistence. Parents' person responses to failure negatively predicted children's persistence at T2, whereas parents' process responses to failure positively predicted children's persistence at T2 (see Figure 1). As to children's negative reactions to failure, an interactive effect of both parents' and teachers' practices emerged (see Figure 2). Specifically, for children in classrooms where teachers exhibited high levels of mastery-oriented approaches, parents' person responses to failure significantly and positively predicted their children's negative reactions to failure at T2. However, this relation was non-signficant for children in classrooms with low levels of teachers' mastery-oriented approaches.

These findings shed light on both the unique and joint effects of parents' and teachers' practices on children' persistence and negative responses when confronted with academic challenges and setbacks, underscoring the importance of considering factors in both familial and school context to foster children's social-emotional competencies in learning. Future research and interventions can further explore the complex interactions between

parents' and teachers' practices to develop effective strategies for nurturing resilience and promoting students' positive learning outcomes.

Keywords: Persistence, Negative Reactions to Failure, Parental Response to Failure, Teaching Approach, Longitudinal Multilevel Model

道德提醒对诚信考场中大学生考试作弊行为的影响：一项现场实验研究

杨鑫晨[1]　彭俊杰[1]　严巍浩[1]　柯诗琪[1]　赵立[1]

1 杭州师范大学心理学系，杭州，311121，zhaoli@hznu.edu.cn

摘 要　考试作弊是一个全世界普遍存在的问题，它对个人、国家和社会都具有严重的负面影响。目前越来越多的高校采用诚信考场（即无人监考）这一方式来促进大学生的考试诚信行为。一些高校会在诚信考场中设置不同形式的道德提醒，如提醒学生严格遵守考场纪律（*纪律提醒*）、考试作弊被处分的实际案例（*案例提醒*，如某学生作弊受到学校的处分），以及作弊被抓可能导致的后果（*后果提醒*，如一旦发现作弊则会记入学生的诚信档案并取消学位证书）等。然而，到目前为止，尚未有实证研究比较这些不同形式的道德提醒在减少作弊、促进诚信上的有效性。为此，本研究以我国东部某城市的在校大学生为研究对象（N = 770），采用随机双盲对照实验设计，通过两项现场实验研究，在真实情境中考察了诚信考场中不同形式的道德提醒对大学生考试作弊行为的影响。实验一设置了纪律提醒和案例提醒两个实验条件，以及无提醒（在无人监考的考试中最为常见的方式）这一控制条件。结果表明，纪律提醒和案例提醒两种条件下学生的作弊率均显著低于无提醒条件；且纪律提醒和案例提醒在减少作弊的效果上并无显著差异。实验二重复了实验一的结果并在其基础上增加后果提醒这一实验条件。结果发现，后果提醒在降低学生的作弊方面也有与纪律提醒和案例提醒相似的效果。本研究结果首次证明在诚信考场中设置不同形式的道德提醒能够有效减少学生的作弊行为。上述结果不仅说明在教育领域开展严格控制的行为实验的重要性，也为广大教师和教育工作者在实践中采用正确的道德提醒方式从而助推大学生的考试诚信提供了科学指导。

关键词　道德提醒，诚信考场，学术诚信，考试作弊，大学生

Effects of moral reminders on university students' cheating in trust exams: A field study

YANG Xinchen[1]; PENG Junjie[1]; YAN Weihao[1]; KE Shiqi[1]; ZHAO Li[1]

1 Department of Psychology, Hangzhou Normal University, Hangzhou, 311121, China, zhaoli@hznu.edu.cn

Abstract：Cheating in exams is a common problem all over the world, and it has serious negative effects on individuals, countries and societies. More and more universities are adopting trust exams (unproctored exams) to promote the academic integrity of university students. Some universities use different forms of moral reminders in trust exams, such as reminding students about academic integrity policies (*policy reminder)*, actual cases of academic cheating (*exemplar reminder*, such as a student being punished for cheating), and the negative consequences of cheating (*consequence reminder*, such as it will be recorded in the integrity file and the degree certificate will be cancelled if cheating is found). However, no empirical studies have directly compared the effectiveness of these different forms of moral reminders in reducing cheating and promoting academic integrity.

Therefore, we took college students (N = 770) in eastern China as subjects and conducted two double-blind randomized controlled field studies to examine the effects of moral reminders on university students' cheating in trust exams. Study 1 included policy reminder condition and exemplar reminder condition, as well as the control condition of no reminder (the most common way in trust exams). The results showed that policy reminder and exemplar reminder both significantly reduced students' cheating compared to no reminder. And there was no significant difference in the effect of reducing cheating between policy reminder and exemplar reminder. Study 2 repeated the results of study 1 and added consequence reminder condition. The results found that consequence reminder also had a similar effect as policy reminder and exemplar reminder in reducing students' cheating. Our study for the first time proves that using different forms of moral reminders in trust exams can effectively reduce students' cheating behavior. Our findings not only illustrate the importance of conducting well-controlled behavioral experiments in the field of education, but also provide scientific guidance for educators to use correct moral reminders in practice to promote university students' honest behavior.
Keywords：moral reminder, trust exams, academic integrity, academic cheating, university students

3~5 岁幼儿时间概念“前后”、“上下”、“左右”隐喻的认知发展

贺晓玲（通讯作者） 那琳娜

南昌大学公共政策与管理学院心理学系，江西南昌，330031

E-mail:hxling1110@126.com

摘 要 利用揭示事件时间发展的图片材料来探讨 3~5 岁幼儿时间概念的前后、上下及左右方向的多重空间隐喻认知发展规律。实验 1 是让 3 岁、4 岁和 5 岁幼儿将表征时间早/晚的图片成对的放在目标人物的前/后、上/下、左/右方向；实验 2 是让 3 岁和 4 岁幼儿对由 3 幅图片组成表征事件时间发展的有序和无序组合进行选择。实验结果表明：3 岁幼儿尚未形成时间隐喻能力，但其将时间概念映射空间的能力在萌芽，较之无序图片组合，其更青睐有序图片；4 岁幼儿开始形成时间概念的隐喻认知能力，并初步形成“早为上/左，晚为下/右”的时间隐喻，即形成从上-下和左-右的心理时间线；5 岁幼儿时间概念多重隐喻能力进一步加强，并形成了三个方向的心理时间线。3~5 岁幼儿时间概念的隐喻认知能力的发展不同步，时间概念的上下及左右方向隐喻的认知发展优于前后方向隐喻。
关键词 3~5 岁幼儿，时间，空间，多重重隐喻，认知发展

Cognitive development of the metaphors of "front and back"、"up and down" and "left and right" in the concept of time in children aged 3 to 5

He Xiaoling, Na Linna

School of Public Policy and Administration,Nanchang University,Nanchang 330031

Abstract: This paper aims to explore the multi-spatial metaphor cognitive development of 3~5-year-old children's

concept of time in the direction of front and back, up and down, and left and right. In experiment 1, children aged 3, 4, and 5 were asked to place the early/late pictures in pairs in the front/back, up/down, and left/right direction of the target person; In experiment 2, 3 - and 4-year-olds were asked to choose between ordered and disordered combinations of three images representing the temporal development of events. The experimental results show that the 3-year-old children have not yet formed the ability of temporal metaphor, but their ability to map the concept of time into space is budding, and they prefer ordered pictures to disordered picture combinations. At the age of 4, children began to form the metaphorical cognitive ability of time concept, and initially formed the time metaphor of "early is up/left, late is down/right", that is, formed the mental timeline from top to bottom, front to back and left to right. Five-year-old children's ability of multiple metaphors in time concept was further strengthened. The cognitive ability of children aged 3 to 5 years old is not synchronized, and the cognitive development of the up and down and the left and right direction of the time concept is better than that of the forward and backward direction.
***Keywords**:* 3~5 years old children, Time, Space, Multiple metaphors, Cognitive development

社交焦虑青少年的错误监测发展模式：来自 ERP 的证据

李佳慧[1,2] 蒲子钰[1,2] 刘建邑[1,2] 牛燕彬[3] 赵晶晶[1,2]（通讯作者）

[1] 陕西师范大学心理学院，西安，710062

[2] 陕西省行为与认知神经科学重点实验室，西安，710062，通讯作者 E-mail（jingjing.zhao@snnu.edu.cn）

[3] Department of Psychology, Vanderbilt University

摘 要 社交焦虑症状最有可能出现在青春期，这一时期主要特点是对同伴评价的担忧加剧。最新的研究表明，错误相关负波（ERN）是社交焦虑中夸大自我/错误监测的潜在神经标志，尤其是在同龄人面前犯下的错误。然而，很少有研究考察社交焦虑个体差异如何与情境因素相互作用来影响 ERN，以及青少年时期社交焦虑个体差异与情境因素是否会影响 ERN 的发展模式。本研究采用青少年社交焦虑量表对 555 名初中生和 575 名高中生进行施测，分别筛选出社交焦虑高分组（初中：$n = 28$; 高中：$n = 24$）和低分组（初中：$n = 30$; 高中：$n = 29$），运用社交操纵范式，让被试在单独（非社交条件）和同伴评价（社交条件）两种情境下完成侧翼（Flanker）任务，同时记录被试完成 Flanker 任务期间的脑电数据。结果表明:（1）在初中组中，高社交焦虑个体比低社交焦虑个体犯错时诱发的 ERN 波幅更大（F（1,56）= 3.98，$p = 0.051$），而个体反应正确时诱发的正确相关负波（correct-related negativity，CRN）波幅在高低社交焦虑组间没有显著差异（F（1,56）= 0.24，$p = 0.627$）;（2）在高中组中，社交情境比非社交情境诱发了更大的 ERN 波幅（F（1,51）= 3.14，$p = 0.082$），而 CRN 在这两种情境下没有显著差异（F（1,51）= 0.26，$p = 0.611$）;（3）综合初中和高中年龄段来看，我们发现相较于低社交焦虑组，高社交焦虑青少年犯错时诱发的 ERN 波幅随年龄发展越来越小（F（1,50）= 5.08，$p = 0.029$），而 CRN 随年龄发展较稳定（F（1,50）= 0.05，$p = 0.820$）。研究表明，年龄较小的青少年的 ERN 更容易受到社交焦虑的影响，而年龄较大的青少年的 ERN 更容易受到社交情境的影响，且不同社交焦虑个体的 ERN 随年龄发展模式不同。研究促进了对青春期社交焦虑相关神经认知过程的理解。

关键词 社交焦虑，错误相关负波，青少年，发展，社交情境

Developmental patterns of error monitoring in socially anxious adolescents: evidence from ERPs

Jiahui Li[1,2], Ziyu Pu[1,2], Jianyi Liu[1,2], Yanbin Niu[3] and Jingjing Zhao[1,2]

1 School of Psychology, Shaanxi Normal University,710062
2 Shaanxi Provincial Key Laboratory of Behavior and Cognitive Neuroscience, Xi'an, China, 710062, corresponding author E-mail (jingjing.zhao@snnu.edu.cn)
3 Department of Psychology, Vanderbilt University

***Abstract*:** Social anxiety symptoms are most likely to emerge during adolescence, a period characterized primarily by heightened concerns over peer evaluation. Emerging work points to the error-related negativity (ERN) as a potential neural marker of exaggerated self/error monitoring in social anxiety, especially for errors committed in front of peers. However, few studies have examined how individual differences in social anxiety interact with contextual factors to influence ERN, and whether individual differences in social anxiety and contextual factors during adolescence influence patterns of ERN development. In this study, the Social Anxiety Scale for Adolescents was administered to 555 middle school students and 575 high school students, screened for high (middle school: n = 30; high school: n = 29) and low (middle school: n = 30; high school: n = 30) subgroups of social anxiety respectively, and utilizing a social manipulation paradigm, participants were asked to complete a flanker task, and EEG data were recorded during the participant's completion of the flanker task. The results showed that: (1) In the middle school group, highly socially anxiety individuals exhibited a larger ERN than low socially anxiety individuals (F(1,56) = 3.98, p = 0.051), whereas no differences in the CRN between the high and low socially anxiety groups (F(1,56) = 0.24, p = 0.627); (2) In the high school group, there was an enhanced ERN in the social condition relative to the nonsocial condition (F(1,51) = 3.14, p = 0.082), whereas no differences in the CRN were observed between the two conditions (F(1,51) = 0.26, p = 0.611); (3) combining the middle school and high school age groups, we found that highly socially anxious adolescents demonstrated smaller ERN with age compared to the low socially anxious group (F(1,50) = 5.08, p = 0.029) while CRN was stable with age (F(1,50) = 0.05, p = 0.820). The study suggests that social anxiety influences more on the ERN in younger adolescents, whereas ERN in older adolescents is more susceptible to social contexts, and that ERN develops in different patterns with age in different socially anxious individuals. The study contributes to the understanding of neurocognitive processes associated with social anxiety in adolescence.

***Keywords*:** social anxiety, error-related negativity, adolescents, development, social context

孤独感的重新联结动机(RAM)：青少年早期孤独感、友谊质量与关系攻击的纵向关联及内在机制

邹虹　李彩娜（通讯作者）

陕西师范大学心理学院，陕西（高校）哲学社会科学重点研究基地-儿童青少年心理与行为健康研究中心，北京师范大学基础教育质量评估协同创新中心陕西师范大学分中心，西安，710062，chinali7371@163.com

摘 要　作为一种与社会互动过程密切相关的消极情绪体验，青少年的孤独感与其同伴交往经历及社会行为间存在密切关联。早期青少年(11-13 岁)会面临青春期转变与小升初的学校转变，必然经历原有同伴关系的疏离与维护，新的同伴关系建立与维护等诸多社会性发展任务，由此出现情绪困扰与行为问题的高发。以往研究多聚焦于孤独感对青少年友谊及社会行为的负面影响，近期孤独感的进化理论指出，孤独感体验在本质上是短暂的，其引发的孤独相关厌恶情绪会激励个体产生与其他人重新建立联系的需求，这一现象被

称为重新联结动机(reaffiliation motive, RAM)。即青少年早期的孤独感也可能会促使个体产生较多的同伴交往行为，并进一步为维护良好社会互动减少关系攻击等不良的同伴交往行为。为探讨青少年早期个体的孤独感、友谊质量及关系攻击间的纵向关联与内在机制，本研究以初中生为被试，通过为期两年的三次追踪测试，考察青少年早期孤独感、关系攻击与友谊质量间的双向关系模式及其内在机制。

本研究以陕西省西安市的 904 名初中生(M_{age} = 12.73±0.43)为对象，采用孤独感问卷、友谊质量问卷和关系攻击问卷进行了两年追踪研究。交叉滞后面板模型的中介分析结果表明：（1）在纵向发展上，青少年早期的孤独感持续正向预测一年后的友谊质量；相反，友谊质量则会持续负向预测一年后的孤独感；（2）青少年早期友谊质量能显著负向预测一年后的关系攻击，关系攻击则无法预测一年后的友谊质量；（3）T2 时间点的友谊质量在 T1 时间点的孤独感与 T3 时间点的关系攻击间起纵向中介作用，即 T1 时间点的孤独感能够显著正向预测 T2 时间点的友谊质量，进而降低 T3 时间点的关系攻击；（4）T2 时间点的友谊质量在 T1 时间点的关系攻击与 T3 时间点的孤独感间则无纵向中介。本研究结果揭示了青少年早期孤独感、友谊质量和关系攻击间的纵向关联及孤独感通过友谊质量对关系攻击的预测作用，支持了孤独感进化理论有关重新联结动机的观点，能够为基于重新联结动机视角的同伴交往干预策略提供实证研究的证据支持。
关键词　青少年早期，重新联结动机，孤独感，友谊质量，关系攻击

The Reaffiliation Motive (RAM) of Loneliness: The Longitudinal Association and Internal Mechanism among Loneliness, Friendship Quality, and Relational Aggression in Early Adolescence

ZOU Hong　LI Caina*
School of Psychology, Shaanxi Normal University,
Shaanxi Provincial Key Research Center of Child Mental and Behavioral Health，
Shaanxi Normal University Branch of Collaborative Innovation Center of Assessment toward Basic Education Quality at Beijing Normal University, Xi'an, China, 710062,
chinali7371@163.com

Abstract：As a negative emotional experience closely related to the process of social interaction, adolescents' loneliness is closely related to their peer interaction experience and social behavior. Early adolescents (11-13 years old) will face the transition of adolescence and school transition from primary school to junior high school, and will inevitably experience many social development tasks such as the alienation and maintenance of the original peer relationship and the establishment and maintenance of the new peer relationship, resulting in a high incidence of emotional distress and behavior problems. Previous studies mostly focused on the negative impact of loneliness on adolescents' friendship and social behavior. Recent evolutionary theory of loneliness pointed out that the experience of loneliness is transient in nature, and the aversive feelings associated with loneliness induced by it will motivate individuals to have a need to reconnect with others, a phenomenon known as the reaffiliation motive (RAM). In other words, early adolescent loneliness may also promote individuals to have more peer interaction behaviors, and further reduce delinquent peer interaction behaviors such as relational aggression in order to maintain positive social interaction. In order to explore the longitudinal relationship and internal mechanism among loneliness experience, friendship quality and relational aggression in early adolescents, this study recruited junior high school students as subjects, and investigated the bidirectional relationship pattern and internal

mechanism among loneliness, relational aggression and friendship quality in early adolescents through three follow-up studies for two years.

This study targeted 904 junior high school students (M_{age} = 12.73±0.43) in Xi'an, Shaanxi Province and surveyed loneliness questionnaire, friendship quality scale and relational aggression scale for two years. The cross-lagged panel and mediation analysis showed that: (1) In term of the longitudinal development, loneliness in early adolescence consistently and positively predicted friendship quality one year later. In contrast, friendship quality consistently negatively predicted loneliness one year later; (2) Early adolescent friendship quality significantly negatively predicted relational aggression one year later, but relational aggression did not predict friendship quality one year later; (3) Friendship quality at time T2 played a longitudinal mediating role between loneliness at time T1 and relational aggression at time T3, that is, loneliness at time T1 positively predicted friendship quality at time T2, and then reduced relational aggression at time T3; (4) Friendship quality at time T2 did not play a longitudinal mediating role between relational aggression at time T1 and loneliness at time T3. These findings suggest that the longitudinal relationship among loneliness, friendship quality and relational aggression in early adolescents and the predictive effect of loneliness on relational aggression through friendship quality. The research supports the view of reaffiliation motivation in the evolutionary theory of loneliness and provides empirical evidence for peer interaction intervention strategies based on reaffiliation motivation.

Keywords: early adolescence, reaffiliation motivation, loneliness, friendship quality, relational aggression

家庭社会经济地位、父母教育期望与青少年的未来目标：一项 15 年的时间滞后研究

张文杰[1] 于凤杰[2] 陈亮[1]（通讯作者） 张玲玲[3] 张文新[1]

1 山东师范大学心理学院，济南，250014，chen_liang1010@126.com

2 山东青年政治学院政治与公共管理学院，济南，250103

3 中国儿童中心，北京，100032

摘 要 未来目标是个体对希望实现或避免发生的未来状态或结果的内在表征，其确立对青少年的发展和适应具有指引作用。个体未来目标的建构根植于特定的社会历史环境，在不同社会文化背景、不同历史时期中，个体的目标内容会存在差异。然而，迄今为止尚没有研究对中国青少年未来目标的变化及其影响因素进行系统考察。本研究基于两个出生队列的高中生样本，队列 1 数据收集于 2007 年，共 1055 人（男生 490 人），队列 2 数据收集于 2021 年，共 897 人（男生 377 人）。采用时间滞后设计，考察了近 15 年青少年未来目标（希望和担忧）的差异，并探讨了不同队列下，性别、城乡、家庭社会经济地位和父母教育期望对青少年目标的影响。研究结果如下：（1）与队列 1 相比，队列 2 的青少年提及的未来教育、职业、婚姻/家庭领域的目标数量更少，提及的自我、人际关系、休闲娱乐领域的希望数量更多；（2）性别对青少年目标的影响不存在显著的队列差异；（3）在队列 1 中，与城市青少年相比，农村青少年报告了更多的职业、当前学业、人际关系和自我领域的目标数量，在队列 2 中，农村青少年报告了更少的当前学业和人际关系领域的目标数量，其他领域的目标数量无显著城乡差异；（4）在队列 1 中，家庭社会经济地位与更多的职业目标数量显著关联，在队列 2 中，家庭社会经济地位与更少的职业目标数量显著关联；（5）父母教育期望能预测青少年更多的未来受教育目标，并且这种关联不存在出生队列差异；（6）在队列 1 中，父母教育期望越高，农村青少年提及的父母安康领域的担忧越少，而在队列 2 中，父母教育期望越高，农村青少年提及的父母安康领域的担忧越多；在两个出生队列中，城市青少年报告的父母安康担忧与父母教育期望并无显著关联。结果表明，随着时间推移，青少年的未来目标更多元，城乡差异减小；家庭社会经济地位、父母教育期望对青少年未来目标的影响发生变化。

关键词　未来目标，时间滞后研究，队列，家庭社会经济地位，父母教育期望

Family Socioeconomic Status, Parental Educational Expectation and Adolescent Future Goals : A 15-year Time-Lagged Study

Zhang Wenjie[1], Yu Fengjie[2], Chen Liang[1], Zhang Lingling[3], Zhang Wenxin[1]
1 School of Psychology, Shandong Normal University, Jinan, 250014, chen_liang1010@126.com
2 Shandong Youth University of Political Science, Jinan, 250103
3 China National Children's Center, Beijing, 100032

Abstract： Future goals are the internal representation of the future state that an individual want to achieve or avoid, which affects the development and adaptation of adolescents. The construction of individual future goals is rooted in specific social and historical environment, and the content of individual future goals will be different across different social and cultural backgrounds and different historical periods. However, no studies have systematically examined the changes in the future goals of Chinese adolescents and their influencing factors. In this study, the data were collected in 2007 and 2021. There were 1055 (490 boys) and 897 (377 boys) in the two cohorts, respectively. Using a time-lagged design, we examined the differences in future goals (hopes and fears) of adolescents in the past 15 years, and explored the effects of gender, residence, family socioeconomic status and parental educational expectations on adolescents' future goals in two cohorts. The results show that: (1) Compared to adolescents in 2007 (cohort 1), those in 2021 (cohort 2) were more likely to report both hopes and fears for self-related issues, interpersonal relationships and leisure activities, and were less likely to report both hopes and fears for future education, occupation and marriage and family; (2) There is no significant cohort difference regarding the i gender differences in adolescents' future goals; (3) For the 2007 cohort, rural adolescents were more likely to report both hopes and fears for occupation, academics, interpersonal relationships, and self-related issues than urban adolescents, whereas in the 2021 cohort, except that urban adolescents were more likely to report both hopes and fears for interpersonal relationships and academics than rural adolescents, there were no residence differences; (4) In cohort 1, with high family socioeconomic status were more likely to report both hopes and fears about occupation, whereas in cohort 2, high family socioeconomic status were less likely to report both hopes and fears for occupation; (5) Parental educational expectations predicted adolescents' goals of future education positively, and this association did not differ by cohort; (6) In cohort 1, rural participants with high parental educational expectation were less likely to report fears for parental well-being, but in cohort 2, rural participants with high parental educational expectation were more likely to report fears for parental well-being. In both cohorts, parental well-being fears reported by urban adolescents were not significantly associated with parental educational expectations. The results show that with time, the future goals of adolescents become more diversified, and the difference between urban and rural areas is reduced; The influence of family socioeconomic status and parental educational expectations on adolescents' future goals has changed over time.

Keywords: future goals, time lag study, cohort, family socioeconomic status, parental educational expectations

竞争情境对行为抑制控制的影响及其神经心理机制

狄思雨[1]　麻超[1,2]（通讯作者）

1 石河子大学 师范学院/兵团教育学院，新疆 石河子， 832003
2 石河子大学 心理应用研究中心，新疆 石河子 832003，machao131517@126.com

摘 要 行为抑制控制是抑制控制功能的重要组成部分，良好的行为抑制控制能力被认为是做出正确行为决策的前提，是人类在不断进化过程中学习到的一项重要的生存技能。同时行为抑制控制对个体来说也起这一种重要的监控作用，能让个体实现对当前或即将发生的不恰当行为进行监控和抑制，有效引导人们根据环境的变化采取对应的行为模式，最终做出正确的行为决策。竞争是人类社会常见的人际互动方式，也是人类社会发展与进步的动力之一，对人类社会的发展起到了重要的促进作用，竞争指个体为了超过他人获得肯定而表现出的行为，尤其是在渴望获得资源或者争取有限的机会条件下，力争超越他人的行为表现。因此，本研究从社会情境的视角出发，结合当今大学生行为抑制控制发展特点，探讨竞争情境对大学生行为抑制控制的影响及其神经心理机制。**方法：**研究选取 29 名大学生（男 14，女 15），在中性情境及竞争情境后让其完成亚型双选择 oddball 任务，连续采集其实验过程中的脑电信号，探究竞争情境影响大学生行为抑制控制的行为表现，并从认知神经层面了解竞争情境对大学生行为抑制控制影响。**结果：**行为结果发现，竞争情境下被试的反应时显著小于中性情境，但错误率显著高于中性情境。ERP 结果显示，与中性情境相比，竞争情境被试的 N2d 波幅无显著变化，而被试的 P3d 波幅显著变大。**结论：**研究结论表明，竞争情境对个体行为抑制控制的影响在行为上存在不一致，这一结果主要与个体在竞争情境下的速度—准确率权衡有关，在反应时上体现出竞争情境对大学生行为抑制能力的提升作用。在脑机制中发现，竞争情境对行为抑制控制的早期阶段没有促进作用，但竞争情境促进大学生行为抑制控制的晚期加工，即竞争情境可以激活行为抑制控制的反应决策积极性。

关键词 竞争，行为抑制控制，事件相关电位，oddball

Effects of competitive situations on behavioral inhibitory control and its neural psychological mechanisms

DI siyu[1] MA chao[1,2]
[1]Normal College, Shihezi University, Shihezi 832003, Xinjiang Uygur Autonomous Region, China
[2]Psychological Application Research Center, Shihezi University, Shihezi 832003, Xinjiang Uygur Autonomous Region, China
Corresponding author: MA Chao, machaol31517@126.com

***Abstract*：** Behavioral inhibitory control is an important part of the inhibitory control function, and the ability of good behavioral inhibitory control is considered to be a prerequisite for making correct behavioral decisions, which is an important survival skill that human beings have learned in the process of continuous evolution. At the same time, behavioral inhibitory control also plays an important monitoring role for individuals, enabling them to monitor and inhibit current or upcoming inappropriate behaviors, effectively guiding them to adopt corresponding behavioral patterns according to changes in the environment, and ultimately making correct behavioral decisions. Competition is a common form of interpersonal interaction in human society, and is also one of the driving forces for the development and progress of human society, which plays an important role in promoting the development of human society. Competition refers to the behaviors that individuals show in order to surpass others to gain affirmation, especially in the desire to obtain resources or to strive for a limited opportunity to surpass the behaviors of others. Therefore, from the perspective of social situation, this study combines the developmental characteristics of behavioral inhibitory control in today's college students to explore the effects of competitive

situation on college students' behavioral inhibitory control and its neuropsychological mechanisms. **Methods:** 29 college students (14 males and 15 females) were selected to complete the sub-type two-choice oddball task after neutral and competitive situations, and their EEG signals were continuously collected during the experimental process to investigate the behavioral performance of college students' behavioral inhibitory control affected by the competitive situation and to understand the effect of the competitive situation on the college students' behavioral inhibitory control from the cognitive-neural level. **Results:** Behavioral results revealed that the response time of subjects in the competitive situation was significantly shorter than that in the neutral situation, but the error rate was significantly higher than that in the neutral situation.ERP results showed that the N2d amplitude of the subjects in the competitive situation did not change significantly compared with that in the neutral situation, whereas the P3d amplitude of the subjects became significantly larger. **Conclusion:** The findings indicate that the effects of competitive situations on individual behavioral inhibitory control are behaviorally inconsistent, and this result is mainly related to the speed-accuracy trade-off of individuals in competitive situations, which is reflected in the enhancement of college students' behavioral inhibitory ability in response time. In brain mechanisms, it was found that competitive situations did not promote the early stage of behavioral inhibitory control, but competitive situations promoted the late processing of college students' behavioral inhibitory control, that is, competitive situations could activate the response decision-making activation of behavioral inhibitory control.
Keywords：competition, behavioral inhibitory control, event-related potentials, oddball

父母手机依赖对学龄前儿童亲社会行为的影响：专制教养方式的中介作用和儿童 BDNF 基因 rs6265 多态性的调节作用

贾翰琳　方心雨　杨晓辉（通讯作者）　王振宏

陕西师范大学心理学院，西安, 710062, yangxiaohui@snnu.edu.cn、

摘 要　家庭的媒介环境（如父母手机依赖）会对儿童的发展产生重要影响。个体与环境的交互视角以及媒介效果差别易感性模型都认为儿童的特点会影响媒介因素对儿童发展的影响效果，但是以往研究很少考察儿童的生物特点（如基因）对媒介环境的调节作用。基于此，本研究考察父母手机依赖是否通过父母专制教养影响学前儿童的亲社会行为，以及这个路径是否因学前儿童的生物特点（即 BDNF 基因 rs6265 多态性）而有所不同。499 名 3 ~ 6 岁儿童（$M_{年龄}$ = 5.20 岁，SD = 0.90 岁，女生 231 名）及其父母参与了本研究。分别采用父母报告的手机依赖量表、家庭教养方式量表中的专制教养分量表、长处与困难问卷中的亲社会行为分问卷测量了父母手机依赖水平、专制教养及儿童亲社会行为。同时采集儿童唾液样本进行基因位点的分型。研究结果发现，在控制了儿童的性别和年龄后，专制教养完全中介了父母手机依赖与幼儿的亲社会行为的负向关联。此外，儿童 BDNF 基因 rs6265 多态性能够调节父母手机依赖及专制教养对其亲社会行为的关系。具体来讲，携带 CC 基因型的儿童其父母手机依赖水平与其亲社会水平显著负相关，而携带 TT/CT 基因型的儿童其父母手机依赖水平与亲社会行为的关系不显著。而父母手机依赖通过专制教养方式对儿童的亲社会行为的消极作用主要体现在携带 TT/CT 基因型儿童中而非携带 CC 基因型的儿童中。本研究为深入了解个体的生物敏感性因素与家庭媒体环境交互影响儿童发展提供了证据。
关键词　父母手机依赖，专制教养，亲社会行为，BDNF 基因 rs6265，学前儿童

Parental problematic smartphone use and preschooler' pro-social behavior: BDNF rs6265 polymorphism moderated the mediating

effect of authoritarian parenting

Hanlin Jia, Xinyu Fang, Xiaohui Yang (Corresponding author), Zhenhong Wang
School of Psychology, Shaanxi Normal University, Xi'an, China, yangxiaohui@snnu.edu.cn

***Abstract*:** Family media environment (e.g., parental problematic smartphone use) have important impacts on children's development. The person×environment perspective and the differential susceptibility to media effects model all assume that children's characteristics influence the effects of media environments on children's development. Yet few researches examined the role of biological characteristics (e.g., genes) of children in moderating the effects of media environment. Thus, this study tested whether and how BDNF rs6265 polymorphism moderated the path ways that parental problematic smartphone uses through authoritarian parenting link with preschool children's pro-social behaviors. Parents of 499 children aged 3 ~ 6 years (M_{age} = 5.20 years, *SD* = 0.90 years, 231 girls) participated. Parents reported their level of parental problematic smartphone use, authoritarian parenting and children's pro-social behavior. Children's saliva samples were also collected for DNA extraction. The results found that authoritarian parenting fully mediated the negative effect of parental problematic smartphone use on children's pro-social behavior after controlling for children's age and sex. In addition, the BDNF rs6265 polymorphism moderated the relationships between parental problematic smartphone use/authoritarian parenting and children's pro-social behavior. Specifically, parental problematic smartphone use was significantly negatively associated with pro-social behavior among children with CC genotype, while parental problematic smartphone use was not significantly associated with pro-social behavior in children with TT/CT genotype. In addition, the negative effects of parental problematic smartphone use on children's pro-social behavior through authoritarian parenting were only found among children with the TT/CT genotypes rather than children with the CC genotype. The present study provides evidence of children's biological susceptibility factors interact with the family media environment to impact on their development.

***Keywords*:** parental problematic smartphone use, authoritarian parenting, pro-social behavior, rs6265 polymorphism, preschool children

HPA 轴系统基因、关系侵害与青少年早期抑郁：基于动态发展视角

方惠慈[1]　曹衍淼[1]（通讯作者）　崔嘉仪[1]　丁晓凡[1]　张文新[1]
1 山东师范大学心理学院，山东省学生心理健康发展中心，济南，250014，cym8023@126.com

摘　要　近 20 年来, 抑郁的分子遗传研究取得了系列突破性进展，揭示了抑郁的风险基因、基因—环境的交互作用及其内表型机制。然而，多数分子遗传研究仍然采用静态视角，对抑郁遗传效应的动态发展问题关注不足。特别是对于抑郁遗传效应随年龄的变化、风险基因对抑郁发展轨迹的影响等问题无法给出确切的答案。此外，已有研究显示环境风险对青少年抑郁的作用模式具有多样性，可能呈现出线性或非线性模式，并因个体携带的遗传基因而存在差异。因此，本研究采用动态发展视角，以 1088 名初一学生为被试进行为期 3 年的追踪研究，考察 HPA 轴系统基因与关系侵害交互作用的年龄差异及其对青少年抑郁发展轨迹的影响。研究采用 *FKBP5* 基因 rs1360780 多态性、*CRHR1* 基因 rs110402 多态性、*BDNF* 基因 rs6265 和 *OXTR* 基因 rs53576 多态性等四个基因位点作为多基因指标，采用自我报告测评同伴侵害和青少年抑郁症状。结果发现：（1）控制性别后，关系侵害显著正向预测青少年的抑郁症状，但关系侵害与青少年抑郁的关系呈现非线性模式。具体表现为，关系侵害的严重程度越高，抑郁的风险不会随之继续增高；而多基因累加得分对抑郁的直接影响不显著。（2）在三个时间点上，HPA 轴多基因累加得分与关系侵害二次项的交互作

用显著同时性预测青少年抑郁，但交互作用模式存在年龄差异。相比多基因累加得分较高的青少年，多基因累加得分较低的个体在遭受更严重的侵害时，其抑郁风险不会随之继续增高。（3）青少年早期抑郁呈线性增长趋势，但是抑郁初始水平与增长速度无关。HPA 轴多基因累加得分与关系侵害的二次交互项显著预测抑郁的斜率。多群组比较显示，相比多基因累加得分较低的青少年，多基因累加得分较高的个体在经历较多关系侵害后抑郁的增长速度更慢。上述发现基于动态视角，采用多基因研究范式，拓展了对青少年抑郁的发生发展机制及差异的认识，为该领域的理论发展和干预研究提供了支持。
关键词　HPA 轴多基因累加得分，关系侵害，年龄差异，青少年抑郁

Genes, Relational Victimization, and Depression Across Early Adolescence: Dynamic Genetic Effects

FANG Huici, CAO Yanmiao, CUI Jiayi, DING Xiaofan, ZHANG Wenxin
School of Psychology, Research Institute of Child and Adolescent Development, Shandong Normal University, Jinan 250014, cym8023@126.com

Abstract: There has been a dramatic rise in gene–environment interaction (G × E) studies of depression over the last two decades. However, most of studies focus on static genetic effects, and few studies take into consideration how the genotype by environment interactions change over development and how the interactions work on the developmental trajectories of depression. Besides, existing evidence has shown that the relationship between environmental factors and adolescent depression is various, which may be linear or nonlinear patterns and may differ depending on the genes carried by individuals. Taken together, the present study aimed to examine age differences in the interaction between MGPS and relational victimization on adolescent depression and the G × E effect on the developmental trajectories of depression.

One thousand and eighty-six adolescents were followed up for three years. Adolescents' saliva samples, self-reported depressive symptoms and relational victimization were collected. All of the measures showed good reliability. The MGPS was compiled by *FKBP5* gene rs1360780 polymorphism, *CRHR1* gene rs110402 polymorphism, *BDNF* gene rs6265 polymorphism and *OXTR* gene rs53576 polymorphism.

The results showed that after controlling for gender, relational victimization positively predicted depression in a nonlinear pattern. Specifically, the risk of depression would not continuously elevated anymore as the severity of relational victimization increased. There was no main effect of the MGPS on depression. Second, at these three points, HPA-axis multilocus genetic profile score significantly interacted with the quadratic term of relational victimization in predicting adolescent depression concurrently, but this interaction had age differences. Particularly, the risk of depression in adolescents with lower multilocus genetic profile score would not continuously increase longer when exposed to more victimization, compared to those with higher multilocus genetic profile score. Third, early adolescent depression increased in a linear trajectory, but there was no significant association between the initial depression and growth rate. There were statistically significant quadratic effects of HPA-axis multilocus genetic profile score on relational victimization, predicting the slope of depression. From Multiple Group Analysis, adolescents with higher multilocus genetic profile score showed slower rate of depression when exposed to more victimization, compared to those with lower multilocus genetic profile score.

Based on the dynamic development perspective, these findings extended knowledge of the development mechanisms and differences of adolescent depression, also providing evidence in support of theoretical development and intervention research in the field.

Keywords: HPA-axis multilocus genetic profile score, relational victimization, age differences, adolescent

depression

青少年心理韧性的发展轨迹：感恩和压力知觉的作用

罗芮[1] 陈福美[2] 罗玉晗[3] 李昭仪[2] 祁梦迪[1] 杨政乾[1] 王耘[1]（通讯作者）

1 北京师范大学认知神经科学与学习国家重点实验室，北京，100875，wangyun@bnu.edu.cn

2 北京师范大学中国基础教育质量监测协同创新中心，北京，100875

3 中央民族大学教育学院，北京，100081

摘 要 当前，世界发展遭遇“百年未有之大变革”，人类社会面临着越来越多的重大挑战，如大流行病、经济危机等。这些挑战给青少年发展带来了诸多压力，致使青少年心理健康问题日益严重(Hawes et al., 2022)。世界卫生组织的数据显示全球约有 14%的青少年罹患心理障碍(World Health Organization, 2021)，我国 6-16 岁在校学生心理障碍总体患病率则为 17.5%(Li et al., 2022)。在此背景下，了解青少年如何保持心理韧性，即面对重大风险或压力时仍能实现积极发展(Masten et al., 2021)，变得日益迫切。其中，揭示青少年心理韧性的发展轨迹及其影响因素对于制定更具针对性的心理韧性干预方案尤为重要。本研究从多维视角出发，探究了青少年心理韧性的发展轨迹以及感恩和压力知觉在其中的作用。研究采用青少年生活事件量表（ASLEC）、生活满意度量表（SWLS）、抑郁症状筛查量表（PHQ-9）、感恩问卷（GQ-6）、压力知觉量表（PSS-10）对 563 名青少年（男生 292 名，51.87%）进行了四次追踪调查，追踪间隔半年。首次测查时被试平均年龄为 12.83 岁（SD = 0.54）。首先，采用残差法分别计算青少年四次测量时的幸福感韧性（即压力情境下仍能保持幸福感）和抑郁韧性（即压力情境下未出现或较少出现抑郁症状）(Amstadter et al., 2014)；然后，对幸福感韧性和抑郁韧性建立平行过程的潜类别增长模型，考察二者的联合发展轨迹；最后，采用多元 Logistic 回归分析考察感恩和压力感知对二者联合发展轨迹的影响。结果发现：（1）青少年的心理韧性发展轨迹可分为“低幸福感韧性增长-低抑郁韧性增长”（26.47%）、“低幸福感韧性增长-高抑郁韧性降低”（21.31%）、“高幸福感韧性降低-高抑郁韧性降低”（28.06%）和“高幸福感韧性降低-低抑郁韧性增长”（24.16%）四类；（2）感恩和压力知觉分别是其发展的保护性因素和风险因素：相较于其他三组，高感恩的青少年更可能属于“低幸福感韧性增长-低抑郁韧性增长”组；相较于“低幸福感韧性增长-低抑郁韧性增长”组和“高幸福感韧性降低-低抑郁韧性增长”组，高压力知觉的青少年更可能属于“高幸福感韧性降低-高抑郁韧性降低”组。说明青少年心理韧性是动态变化的多维结构，其发展轨迹具有高度异质性，而感恩和压力知觉则可能是提高青少年心理韧性的潜在干预目标。

关键词 心理韧性，发展轨迹，感恩，压力知觉

Trajectories of Resilience among Chinese Adolescents: Effects of Gratitude and Perceived Stress

Rui Luo[1], Fumei Chen [2], Yuhan Luo[3], Zhaoyi Li [2] ,Mengdi Qi[1], Zhengqian Yang[1], Yun Wang [1](corresponding author)

1 State Key Laboratory of Cognitive Neuroscience and Learning, Beijing Normal University, China, wangyun@bnu.edu.cn

2 Collaborative Innovation Center of Assessment toward Basic Education Quality, Beijing Normal University, China

3 School of Education, Minzu University of China, Beijing, China

Abstract： Living in a time of fundamental changes (e.g., climate change), our human society is facing more and more major disruptions, such as pandemics, war, and global economic crises. These disruptions have profoundly affected our mental health (e.g., the COVID-19 pandemic, ref. Hawes et al., 2022). According to World Health Organization, one in seven (14%) adolescents experiences a mental disorder (World Health Organization, 2021). And in China, the prevalence of any mental disorders in 6-16-year-old school children and adolescents was 17.5% (Li et al., 2022). Under this background, understanding how individuals can be resilient, that is, attain positive adaptation despite exposure to significant risk or stressors (Masten et al., 2021), during such times is becoming more and more urgent. Particularly, needed is understanding how resilience develops over time and what drives it. Thus, the present study aimed to investigate developmental trajectories of resilience based on a multidimensional construct and the impact of gratitude and perceived stress on adolescents' resilience development. The samples included 563 Chinese adolescents (mean age at Time 1 = 12.83 years; 51.87% boys) from a four-wave longitudinal study with data spanning 0.5 years. All participants were asked to complete the adopted Adolescent Self-Rating Life Events Checklist (ASLEC), Satisfaction with Life Scale (SWLS), Patient Health Questionnaire-9 (PHQ-9), Gratitude Questionnaire–6 (GQ-6), and Perceived Stress Scale-10 (PSS-10). Firstly, a residualized approach to resilience was used to calculate well-being resilience (i.e., the ability to demonstrate well-being adversities or stress) and depressive resilience (i.e., a lack of depressive symptoms in response to adversities or stress), respectively (Amstadter et al., 2014); then, parallel process latent class growth models (PP-LCGM) were used to explore the heterogeneity of wellbeing and depressive resilience trajectories; and finally, multinomial logistic regression analysis was deployed to examine associations between trajectory membership and gratitude, and perceived stress. The results were as follows: (1) Four distinct developmental trajectories of resilience were identified: low-increasing wellbeing and depressive resilience (26.47%); low-increasing wellbeing resilience and high-decreasing depressive resilience (21.31%); high-decreasing wellbeing and depressive resilience (28.06%); and high-decreasing wellbeing resilience and low-increasing depressive resilience (24.16%). (2) Gratitude was associated with greater odds of membership in the low-increasing well-being and depressive resilience group compared to the other three groups. Additionally, perceived stress was related to greater odds of membership in the high-decreasing well-being and depressive resilience group compared to both low-increasing well-being and depressive resilience group and high-decreasing well-being and low-increasing depressive resilience group. The findings reveal that resilience is a dynamic and multidimensional construct with highly heterogeneous developmental trajectories. Furthermore, both gratitude and perceived stress are significant predictors of resilience developmental trajectories, indicating that they may be potentially effective targets of interventions to enhance youth resilience.

Keywords： resilience, developmental trajectory, gratitude, perceived stress

跨诊断视角下青少年焦虑和抑郁潜在共发结构的发展轨迹及发展特点

祁梦迪[1] 杨政乾[1] 罗芮[1] 张彩[2] 王侠[3] 王耘[1]（通讯作者）

1 北京师范大学认知神经科学与学习国家重点实验室，北京，100875，wangyun@bnu.edu.cn

2 北京师范大学中国基础教育质量监测协同创新中心，北京，100875

3 北京市海淀区教育科学研究院，北京，100097

摘 要 焦虑和抑郁是青少年群体中最常见的心理健康问题，经常共同发生 (Cai et al., 2022)，二者的共发也预示着更严重的症状、更多的心理社会功能损害以及更高的自杀风险 (Coplan et al., 2015; Cummings et al.,

2014; van Loo et al., 2016)。在传统诊断框架下，不同心理健康问题被认为是相互独立的，并被划分为不同的诊断类别 (Kendler, 2009)。然而，不同心理健康问题之间共发的普遍性导致了跨诊断模型的出现 (Caspi et al., 2014)，该模型认为心理健康问题是连续的维度，不同心理健康问题间存在潜在共同结构，表征着它们的共发 (Dalgleish et al., 2020; Kotov et al., 2017)。目前，跨诊断视角下对焦虑和抑郁潜在共发结构的探究还处于初步探索阶段，更没有研究揭示焦虑和抑郁潜在共发结构的发展轨迹及发展特点。因此，本研究基于跨诊断模型，采用群组序列的追踪设计构建 10-18 岁青少年焦虑和抑郁潜在共发结构的潜增长模型，并探究其发展特点。60853 名青少年（初始年龄在 10-16 岁；51.2%男生）于 2020、2021 和 2022 年完成一系列人口学变量、焦虑和抑郁的测量，其中焦虑采用儿童焦虑性情绪障碍筛查量表（SCARED）中的广泛性焦虑分量表进行测量，抑郁采用患者健康抑郁量表（PHQ-9）进行测量。结果发现：（1）青少年的焦虑和抑郁在三年中均符合双因子模型，二者间存在潜在共发结构；（2）10-18 岁青少年焦虑和抑郁的潜在共发结构呈现负加速曲线增长模式（如图 1，$M_{截距}$=-0.048，$M_{线性斜率}$=0.403，$M_{曲线斜率}$=-0.229；*p*s＜0.001），预计在 18.80 岁达到峰值，其截距和斜率均存在个体差异；（3）相比于男生，女生潜在共发结构的初始水平更高（$\beta_{性别→截距}$=0.109，*p*＜0.001），发展速率更快（$\beta_{性别→线性斜率}$=0.796，*p*＜0.001），形状更陡峭（$\beta_{性别→曲线斜率}$=-1.159，*p*＜0.001），峰值的到来也要更早；（4）青少年每一年龄段的主观 SES 均能够显著负向预测同一年龄段的焦虑和抑郁潜在共发结构（$\beta_{主观SES→潜在共发结构}$：-0.131~-0.178；*p*s＜0.001）。研究结果从跨诊断的视角揭示了焦虑和抑郁存在潜在共发结构，其负增长的发展轨迹提示需要重点关注青春期中后期的青少年。此外，女生和主观 SES 低的青少年是焦虑和抑郁共发的风险群体。

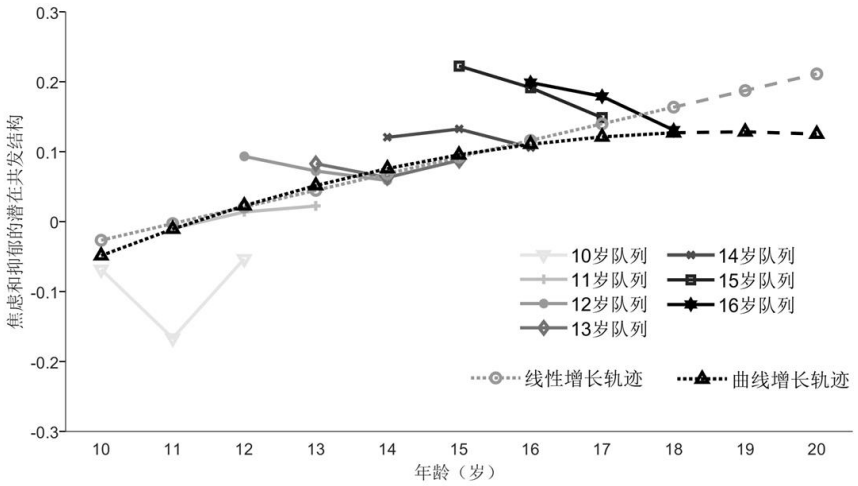


图 1 10-18 岁青少年焦虑和抑郁潜在共发结构的发展轨迹

关键词　青少年，焦虑抑郁共发，潜在共发结构，跨诊断，发展轨迹

Trajectories and Characteristics of the Latent Comorbidity Construct of Anxiety and Depression in Adolescents from a Transdiagnostic Perspective

Mengdi Qi[1]　Zhengqian Yang[1]　Rui Luo[1]　Cai Zhang[2]　Xia Wang[3]　Yun Wang[1] (corresponding author)

1 State Key Laboratory of Cognitive Neuroscience and Learning, Beijing Normal University, Beijing, China, 100875, Email: wangyun@bnu.edu.cn

2 Collaborative Innovation Center of Assessment for Basic Education Quality, Beijing Normal University, Beijing, China, 100875
3 Haidian Institute of Education Sciences, Beijing, China, 100097

Abstract：Anxiety and depression are the most common mental health problems in adolescents and commonly co-occur (Cai et al., 2022). Their comorbidity also predicts more severe symptoms, more impairment of psychosocial functioning, and higher risks of suicide (Coplan et al., 2015; Cummings et al., 2014; van Loo et al., 2016). Under the traditional diagnostic framework, different mental health problems are considered to be independent and classified into different diagnostic categories (Kendler, 2009). However, the prevalence of comorbidity between different mental health problems has led to the emergence of the transdiagnostic model (Caspi et al., 2014). The model considers mental health problems to be continuous dimensions, with shared latent construct between different mental health problems, representing their comorbidity (Dalgleish et al., 2020; Kotov et al., 2017). At present, the exploration of the latent comorbidity construct of anxiety and depression from the transdiagnosis perspective is still in the preliminary exploring stage. No research has revealed the developmental trajectories and developmental characteristics of the latent comorbidity construct of anxiety and depression. Therefore, this study used a cohort sequential design for the investigation and multiple group multiple cohort growth models to fit the developmental trajectories of latent comorbidity construct of anxiety and depression among adolescents aged 10–18 years. 60,853 adolescents (initial age from 10 to 16 years; 51.2% male) completed a series of questionnaires assessing demographic variables, anxiety and depression in 2020, 2021 and 2022. The Generalized Anxiety Disorder subscale of Screen for Child Anxiety Related Disorders (SCARED) was used to measure anxiety and the Patient Health Questionnaire (PHQ-9) was used to measure depression. The results revealed that: (1) Anxiety and depression in adolescents fit the bifactor model in three years, and there is a latent comorbidity construct accounted for the comorbidity of anxiety and depression. (2) The latent comorbidity construct of anxiety and depression in adolescents aged 10-18 showed a negative acceleration curvilinearly manner ($M_{intercept}$=-0.048, $M_{linear\ slope}$=0.403, $M_{quadratic\ slope}$=-0.229; ps $<$ 0.001), with substantial levels of interindividual variations in intercept, linear slope and quadratic slope. It could be estimated that the latent comorbidity construct of anxiety and depression might peak at the age of 18.80. (3) Compared with boys, girls have a higher initial level of latent comorbidity construct of anxiety and depression ($\beta_{gender\rightarrow intercept}$=0.109，$p<$ 0.001), a faster rate of its trajectories ($\beta_{gender\rightarrow linear\ slope}$=0.796，$p<$0.001), a steeper shape ($\beta_{gender\rightarrow intercept}$=0.109，$p$ ＜0.001), and an earlier peak. (4) For adolescents of each age, the subjective SES can significantly negatively predict the latent comorbidity construct of anxiety and depression. The results of this study reveal the latent comorbidity construct of anxiety and depression from a transdiagnostic perspective, and its negative acceleration curvilinearly trajectories suggests the need to focus on the middle and late adolescence. In addition, girls and adolescents with low subjective SES are the risk groups for the comorbidity of anxiety and depression.

Keywords：Adolescents, Anxiety and depression comorbidity, Latent comorbidity construct, Transdiagnostic, Developmental trajectories

父亲、母亲拒绝与青少年违纪行为的双向关系：一项交叉滞后研究

段国萍　张丽锦（通讯作者）　吴秀娟
陕西师范大学心理学院，西安，710062，zhanglijin2013@snnu.edu.cn

摘　要　违纪行为指违背社会道德和准则的不良行为。根据父母接纳-拒绝理论，父母拒绝是违纪行为的重要预测因素。以往研究往往将父母拒绝视为整体，并发现其与青少年违纪行为间存在双向预测关系。但实际生活中，母亲作为子女的主要照料者，可能比父亲更容易觉察到孩子的情绪和行为变化；而父亲则更多参与到对子女的纪律和行为约束中。因此，本研究将分别探讨父亲、母亲拒绝与青少年违纪行为的关系。

以《简式父母教养方式问卷》拒绝分量表、《青少年自评量表》违纪行为分量表对 1477 名初中生(女生 728 名，T1 M_{age} = 13.02 ± 0.80 岁)进行为期半年的两次追踪调查，探讨父亲、母亲拒绝与青少年违纪行为的双向关系。结果发现：(1)控制年龄和家庭社会经济地位，T1 父亲、母亲拒绝均能显著正向预测 T2 违纪行为(β = 0.42, p < 0.001; β = 0.17, p < 0.001)，且父亲拒绝的预测作用显著高于母亲($Wald$ = 154.66, p < 0.001)；反过来，T1 违纪行为也能显著正向预测 T2 父亲、母亲拒绝(β = 0.14, p < 0.001; β = 0.31, p < 0.001)，且对母亲拒绝的预测作用显著高于父亲($Wald$ = 25.89, p < 0.001); (2)对比“父母效应”和“儿童效应”后发现，T1 父亲拒绝对 T2 违纪行为的预测作用显著高于 T1 违纪行为对 T2 父亲拒绝的预测作用($Wald$ = 39.22, p < 0.001)；而 T1 母亲拒绝对 T2 违纪行为的预测作用显著低于 T1 违纪行为对 T2 母亲拒绝的预测作用($Wald$ = 166.47, p < 0.001)；(3)多组比较发现，模型性别差异显著($\Delta\chi^2$ = 12.95, p = 0.012)，女生的违纪行为(β = 0.18, p < 0.001)对半年后父亲拒绝的预测作用显著大于男生(β = 0.11, p = 0.004)。

本研究验证了个体发展的交互模型和角色理论，在证实父亲、母亲拒绝与青少年违纪行为存在双向预测关系的同时；发现了父、母与子女相互影响的差异性表现：父亲拒绝对青少年违纪行为的预测作用更大、青少年违纪行为对母亲拒绝的预测作用更大；研究还发现了父亲拒绝对女生违纪行为影响更大的性别差异性。这些结果证实分别探讨父亲、母亲在不同性别青少年问题行为中的不同作用是有必要的。

关键词　青少年，违纪行为，父、母拒绝，交叉滞后设计

The Bidirectional Associations Between Paternal and Maternal Rejection with Adolescent Delinquent Behaviors: A Cross-Lagged Study

Guoping Duan Lijin Zhang Xiujuan Wu
School of Psychology, Shaanxi Normal University, Xi'an, 710062, China

Abstract: Delinquency refers to bad behavior that is contrary to social morality and norms. According to the parental acceptance-rejection theory, parental rejection are important predictors of delinquent behavior. Previous studies have tended to consider parental rejection as a whole and have found a bidirectional predictive relationship between parental rejection and adolescent delinquent behavior. However, in real life, as primary caregivers of their children, mothers may be more likely to perceive changes in their children's mood and behaviors than fathers. Fathers, on the other hand, are more involved in the discipline and behavioral restraint of their children. Therefore, it is necessary to further explore the relationship between paternal and maternal rejection with adolescent delinquent behavior separately.

In this study, 1477 adolescents (728 girls, T1 M_{age} = 13.02 ± 0.80) were followed twice for half a year through the Refusal Subscale of the Short-Egna Minnen av Barndoms Uppfostran and the Delinquent Behavior Subscale of the Youth Self-Report. The results found that: (1) After controlling age and family socioeconomic status, T1 paternal rejection and maternal rejection positively predicted T2 delinquent behavior (β = 0.42, p < 0.001; β = 0.17, p < 0.001), and the predictive effect of paternal rejection was significantly higher than that of maternal rejection (*Wald* = 154.66, p < 0.001); Conversely, T1 delinquent behaviors positively predicted T2 paternal and maternal rejection (β = 0.14, p < 0.001; β = 0.31, p < 0.001), and the predictive effect on maternal rejection was significantly higher than that on paternal rejection (*Wald* = 25.89, p < 0.001); (2) After comparing the "parental effect" and the "child effect", it was found that the predictive effect of T1 paternal rejection on T2 delinquent behaviors was significantly higher than that of T2 delinquent behaviors on T1 paternal rejection (*Wald* = 39.22, p < 0.001). The predictive effect of T1 maternal rejection on T2 delinquent behaviors was significantly lower than that of T2 delinquent behaviors on T1 maternal rejection (*Wald* = 166.47, p < 0.001); (3) The multi-group comparison showed that the model sex difference was significant ($\Delta\chi^2$ = 12.95, p = 0.012), and the girls' delinquent behavior (β = 0.18, p < 0.001) had a significantly greater predictive effect on the paternal rejection than boys (β = 0.11, p = 0.004).

This study validated the transactional model and role theory of individual development, and confirmed that there is a two-way predictive relationship between paternal and maternal rejection with adolescent delinquent behavior. The differences in the interaction between fathers, mothers and children were found: paternal rejection had a greater predictive effect on adolescent delinquent behavior, and adolescent delinquent behavior had a greater predictive effect on maternal rejection. The study also found a greater gender disparity in the impact of paternal rejection on girls' delinquent behavior. These results confirmed the necessity to explore separately the different roles of fathers and mothers in the problem behavior of adolescents of different genders.

Keywords: delinquent behaviors, parental and maternal rejection, adolescents, cross-lagging analysis

母亲工作-家庭冲突和养育倦怠的关系：一个有调节的中介模型

王婧怡　万琨　邓林园（通讯作者）
北京师范大学教育学部，北京，100875

摘 要：目的：本研究关注影响有职母亲养育倦怠的风险因素和保护因素，根据风险-资源平衡理论，具体探讨母亲工作-家庭冲突与其养育倦怠的关系以及教育焦虑、情绪调节策略在其中的作用。方法：使用工作-家庭冲突量表、养育倦怠量表、教育焦虑量表、情绪调节策略量表对贵州省 1269 名中小学生的母亲进行电子问卷调查，采用 SPSS 26.0 以及 PROCESS 插件对收到的答卷进行数据分析。结果：（1）有职母亲的工作-家庭冲突、养育倦怠、教育焦虑和表达抑制策略之间呈显著正相关。认知重评策略和有职母亲的养育倦怠之间呈显著负相关，和工作-家庭冲突之间相关性不显著。（2）有调节的中介模型检验结果显示，在控制了人口学变量信息之后，教育焦虑部分中介工作-家庭冲突对母亲养育倦怠的影响；表达抑制和认知重评都在中介效应的后半路径起调节作用，表达抑制会增强教育焦虑对养育倦怠的影响、认知重评会缓冲教育焦虑对养育倦怠的影响。结论：工作-家庭冲突、教育焦虑、表达抑制是有职母亲养育倦怠的风险因素，认知重评是其养育倦怠的保护因素，因此缓解工作-家庭冲突和教育焦虑、多运用认知重评策略、少运用表达抑制策略可减轻中小学生母亲的养育倦怠。本研究为预防有职母亲养育倦怠的路径提供了实证支持。

关键词：养育倦怠；工作-家庭冲突；教育焦虑；情绪调节策略；母亲

The Relationship Between Work-Family Conflict and

Parenting Burnout in Mothers: A Moderated Mediation Model

WANG Jingyi WAN Kun DENG Linyuan
Faculty of Education, Beijing Normal University, Beijing, 100875

Abstract: Objective: This study focuses on the risky factors and protective factors that affect the parenting burnout of working mothers. According to the risk-resource balance theory, it specifically discusses the relationship between work-family conflict and parenting burnout of mothers, and the role of educational anxiety and emotion regulation strategies in it. Method: An electronic questionnaire survey was conducted on 1269 mothers of primary and secondary school students in Guizhou Province with the Work-Family Conflict Scale, Parenting Burnout Scale, Education Anxiety Scale, and Emotional Regulation Strategy Scale. The received responses were analyzed by using SPSS 26.0 and the PROCESS plugin. Result: (1) There is a significant positive correlation between work-family conflict, parenting burnout, educational anxiety, and expression inhibition strategies among working mothers. There is a significant negative correlation between cognitive reappraisal strategies and parenting burnout among working mothers, but there is no significant correlation between cognitive reappraisal strategies and work-family conflict. (2) The results of the moderated mediation model test show that education anxiety partially mediates the impact of work-family conflict on mothers' parenting burnout, and expression inhibition and cognitive reappraisal play a moderating role in the second half of the mediating effect after controlling the information of demography variables. Expression inhibition will enhance the impact of education anxiety on parenting burnout, and cognitive reappraisal will buffer the impact of education anxiety on parenting burnout. Conclusion: Work-family conflict, educational anxiety, and expression inhibition are risky factors for parenting burnout among working mothers, and cognitive reappraisal is a protective factor for parenting burnout. Therefore, alleviating work-family conflict and educational anxiety, using cognitive reappraisal strategies more, and using expression inhibition strategies less, can alleviate parenting burnout among mothers of primary and secondary school students. This study provides empirical support for the prevention of parenting burnout among working mothers.

Keywords: Parenting Burnout; Work-Family Conflict; Educational Anxiety; Emotional Regulation Strategies; Mother

中学生有好成绩就一定会感到幸福吗？

——来自 PISA 2018（B-S-J-Z）的证据

刘雨婷[1] 林彤[1] 邓林园[1] 李蓓蕾[1]（通讯作者）
1 北京师范大学 教育学部，北京，100875，通讯作者 beileili@bnu.edu.cn

摘 要 目的：学生的学业成绩和主观幸福感都是教育的重要目标，两者之间存在显著正向联系。但是有些高学业成绩学生并不感到幸福，低学业成绩学生也并不必然不幸福。哪些因素会影响不同学业成绩学生的幸福感？在学业压力较重的中学生群体中探讨这一问题，有助于我们找出影响学生幸福感的关键因素。方法：本研究按照标准分从 PISA 2018 的中国数据库中筛选出高成绩高幸福感组（HH）、高成绩低幸福感组（HL）、低成绩高幸福感组（LH）和低成绩低幸福感组（LL）四组学生，试图考察学校氛围（合作氛围和竞争氛围）、社会支持（父母支持和教师支持）、成就目标（表现目标和掌握目标）和成就动机（失败恐惧和追求成功）等环境和个人因素与不同学业成绩学生的主观幸福感的关系。结果：多项逻辑回归模型的结果显示，（1）合作氛围、父母支持、追求成功显著正向预测 HH 组，竞争氛围、失败恐惧显著正向预测 HL 组；（2）合作氛围、父母支持、教师支持、掌握目标显著正向预测 LH 组，失败恐惧显著正向预

测 LL 组。根据结果，本研究将这些因素对学生主观幸福感的作用机制分为四类。第一，充分作用（合作氛围、父母支持和失败恐惧），即无论学生成绩高低均对其主观幸福感具有显著影响；第二，条件作用（竞争氛围），即在不同学业成绩学生群体中对其主观幸福感有不同效用；第三，同向作用（父母支持和教师支持，表现目标和掌握目标），即属于某个变量下的不同维度的因素对所有学生的主观幸福感有相同方向的影响；第四，异向作用（失败恐惧和追求成功），即属于某个变量下的不同维度的因素对所有学生的主观幸福感有相反方向的影响。结论：教育者应尽力为学生营造合作氛围、提高父母支持水平并避免过度强调失败后果，在低成绩群体中提供更多教师支持及鼓励学生尽量掌握所学内容，在高成绩群体中避免过度强调竞争以及激励学生突破自己追求成功，以提升所有中学生的主观幸福感。
关键词　学业成绩，主观幸福感，中学生，PISA 2018

Do Good Grades Necessarily Lead to Good Well-being Among Middle School Students?

—Evidence from PISA 2018 (B-S-J-Z)

LIU Yuting[1]　LIN Tong[1]　DENG Linyuan[1]　LI Beilei[1]
1 Faculty of Education, Beijing Normal University, Beijing 100875

Abstract：Academic achievement and subjective well-being were both central indicators of school education and they were generally positively associated. But low-achieving students do not necessarily report low well-being, and high-achieving students do not undoubtedly experience a high level of well-being. Exploring these issues, particularly among middle school students who face enormous academic pressure, will enable us to identify key factors that influence the subjective well-being of students across different levels of academic achievement. In order to examine the relationship between academic climate, social support, achievement goals, achievement motivation and well-being, four groups of students were selected from PISA 2018 (B-S-J-Z) based on their standardized scores of achievements and well-being, which were HH (high achievement and well-being), HL (high achievement with low well-being), LH (low achievement with high well-being) and LL (low achievement and well-being). The results of multinomial logistic regression analysis models respectively showed that: (1) cooperative climate, parental support, and hope of success positively predicted HH, and competitive climate and fear of failure positively predicted HL; (2) cooperative climate, parental support, teacher support, and mastery goals positively predicted LH, and fear of failure positively predicted LL. Based on the effects of these factors on well-being, they could be classified into four types: sufficient factors (cooperative climate, parental support, and fear of failure), which referring to those factors that have a decisive effect on students' subjective well-being regardless of their achievement; conditional factors (competitive climate) which denoting factors that elicit varying effects on the subjective well-being of different student groups based on their academic achievement; congruent factors (parental support and teacher support, performance goals and mastery goals) are defined as factors that fall under different dimensions within a single variable and exhibit a consistent directional effect on the subjective well-being of all students; and incongruent factors (fear of failure and hope of success) are defined as factors that belong to different dimensions of a variable and exhibit opposing effects on the subjective well-being. The results implicated the educators that a cooperative climate, supportive parent-child relationships, and avoidance focusing on failure were always needed to enhance students' subjective well-being despite their achievement, as well as provide more teacher support and encourage mastering the current contents in low-achieving students, and advocate the pursuit of success rather than overemphasizing competition in high-achieving students.

Keywords： academic achievement, subjective well-being, middle school students, PISA 2018

父母童年期创伤与父母养育行为的主客体互倚模型：对儿童问题行为的影响

井迪 [1,2] 程南华 [1,2] 王争艳 [1,2*]

[1] 北京市“学习与认知”重点实验室，首都师范大学心理学院，北京，100048

[2] 首都师范大学儿童发展研究中心，北京，100048

*Email：wangzhengyan@cnu.edu.cn

摘 要 父母童年期创伤是指父母在 18 岁以前经历过任何形式的身体虐待、性虐待、情感虐待以及身体忽视和情感忽视，这些经历以不同方式不同程度地影响着个体的身心健康水平发展，甚至可能存在着代际效应，增大子代患得精神健康疾病的风险。然而以往研究大多仅考察母亲的创伤经历及其影响，而未有研究从家庭视角更加全面地探讨父母双方童年期创伤经历对儿童问题行为的作用及行为机制。本研究基于暴力循环假说和社会学习理论，采用一项纵向的追踪研究设计，在 T1（儿童 9 岁）时收集儿童父亲和母亲的童年期创伤与养育行为数据，T2（儿童 11 岁）时测量儿童的内外化问题，构建主客体互倚模型阐释家庭内父亲与母亲的创伤经历对其自身和对方养育行为的作用，并通过设立中介模型进一步探究父母养育行为在父母童年期创伤与儿童问题行为间的中介作用。结果发现，（1）无论父亲还是母亲，童年期经历创伤越多，越有可能对孩子实施更加消极的养育方式；（2）母亲的积极养育行为可以被父亲童年期经历的创伤所影响，即父亲创伤经历越严重，母亲积极养育行为越少；父亲童年期创伤则可能在更大程度上预测着其自身消极养育行为的增加；（3）父亲的消极养育行为可以在父亲童年期创伤经历与儿童外化问题之间起到一定的中介作用。本研究的深入开展进一步表明了影响儿童发育的父母和家庭因素，也为对儿童问题行为进行有效地早期干预和预防提供了信息和支持。

关键词 父母童年期创伤，代际效应，养育，儿童问题行为

Actor-partner interdependence model of parental childhood trauma and parenting: the impact on children's problem behavior

Jing Di[1,2], Cheng Nanhua[1,2], Wang Zhengyan[1,2]

[1] Beijing Key Laboratory of Learning and Cognition, School of Psychology, Capital Normal University, Beijing, 100048

[2] Child Development Research Center, Capital Normal University, Beijing, 100048

Abstract: Childhood trauma refers to any form of physical abuse, sexual abuse, emotional abuse, physical neglect and emotional neglect experienced by parents before the age of 18. These experiences affect the development of an individual's physical and mental health in different ways, and may even have intergenerational effects, increasing the risk of mental health disorders in the children. However, most of the previous studies only examined the traumatic experiences of mothers and their effects, but no studies have explored the effects and behavioral mechanisms of both parents' childhood traumatic experiences on children's problem behaviors from a family perspective. Based on the violence cycle hypothesis and social learning theory, this study adopted a longitudinal follow-up design to collect data on childhood trauma and parenting behaviors of fathers and mothers at T1 (children aged 9 years), and to measure children's externalization problems at T2 (children aged 11 years). A

actor-partner interdependence model is constructed to explain the effects of traumatic experiences of fathers and mothers on their own and each other's parenting behaviors, and the mediating role of parenting behaviors between parents' childhood trauma and children's problematic behaviors is further explored through the establishment of a mediating model. The results showed that: (1) The more childhood trauma experienced by both mothers and fathers, the more likely they were to adopt more negative parenting styles; (2) The mother's positive parenting behavior can be affected by the father's childhood trauma, that is, the more severe the father's traumatic experience, the less the mother's positive parenting behavior; Fathers' childhood trauma may predict their own negative parenting behavior to a greater extent. (3) Fathers' negative parenting behaviors may play a certain mediating role between fathers' childhood traumatic experiences and children's externalization problems. The in-depth development of this study further indicates the parental and family factors that affect children's development, and also provides information and support for effective early intervention and prevention of children's problem behaviors.

Keywords：parental childhood trauma, intergenerational effects, parenting, problem behavior in children

越富有越大方？相对财富在儿童公平分配决策中的作用

彭清蜂[1] 李红[1]（通讯作者）

1 华南师范大学心理学院，广州，510630, lihong_psych@m.scnu.edu.cn

摘 要 资源的分配公平性是儿童在幼儿时期遇到的一个重要的道德问题。在公平分配的依据当中，按需求（Need）分配原则是常见的公平原则之一，指的是在资源不平等情境中，将资源分配给更有需要的个体。尽管许多研究表明，儿童在进行资源分配时能关注到资源贫乏的个体，但较少研究探究了当儿童自己也处于预先存在的资源不平等情境中，儿童会如何做出分配决策。本研究旨在探讨资源不平等背景下个人相对资源的优劣势对儿童分配决策的影响。具体而言，本研究探究被试在操纵的经济不平等的背景下，个体财富相对优势或者劣势如何影响儿童的公平分配决策。181 名 6-8 儿童(50.8%为女性)通过实验操纵下变成资源优势个体（富人）或资源劣势个体（穷人），然后作为分配者对不同的分配对象（富人，穷人）进行第一方（涉及自我利益）或是第三方（不涉及自我利益）资源分配任务。研究结果表明：（1）分配者与分配对象间的相对财富会影响儿童的资源分配策略选择，富人身份时，面对穷人接受者时，儿童会更多选择按需分配，将更多的资源分配给穷人接受者，在穷人身份面对富人接受者时，则更多的采用多分给自己或者平均分配的策略；（2）当遇到相同身份的接受者时（富人-富人，穷人-穷人），在涉及自我利益的情况下，大部分儿童富人身份下选择平均分配，穷人身份下选择自利分配；（3）即使不涉及自我利益的第三方分配，相对优势的资源背景下的儿童，仍然更倾向于按需分配；（4）6-8 岁儿童之间的分配决策存在显著差异，无论是涉及到自我利益，8 岁在富人时相较于 6-7 岁儿童更倾向于按需求进行分配，而 6 岁和 7 岁的儿童则倾向于平均分配或是自利分配。研究提示在实验操纵下，处于富有身份下的儿童更加愿意按需分配，将更多的资源分配给资源相较少于自己的接受者，并且这种趋势随着年龄的发展而增长。这些发现对于理解儿童在不同情境下分配决策的影响具有重要的理论意义。

关键词 分配公平性，平等，需求，经济不平等，社会比较

Wealth promotes generosity? The role of relative wealth in children's fairness allocation decisions

Qingfeng Peng[1], Hong Li[1]

School of psychology, South China Normal University, Guangzhou

***Abstract*:** The fair distribution of resources is a crucial moral issue faced by children during their early childhood. Among various fairness principles, the principle of need-based allocation is commonly observed, which entails distributing resources to individuals with greater needs in situations of resource inequality. Although existing research indicates that children show concern for individuals experiencing resource scarcity during resource allocation, limited research has investigated how children make allocation decisions when they themselves are placed in pre-existing contexts of resource inequality. Thus, this study aims to investigate the influence of relative resource advantages or disadvantages on children's allocation decisions within the context of resource inequality. Specifically, the study examines how individual wealth relative to others, manipulated through economic inequality, affects children's allocation decisions. A total of 181 children aged 6-8 (50.8% female) were assigned either the role of resource-advantaged individuals (rich) or resource-disadvantaged individuals (poor) through experimental manipulation. They were then tasked as allocators to distribute resources to different recipients (rich or poor) in both first-party (involving self-interest) and third-party (not involving self-interest) allocation tasks. The findings reveal the following: (1) The relative wealth between allocators and recipients significantly impacts children's resource allocation strategies. When assuming an advantage status, children tend to prioritize need-based allocation, allocating more resources to poor recipients. Conversely, when assuming a disadvantage status and facing wealthy recipients, children tend to adopt strategies such as allocating more resources to themselves or making equal distributions. (2) In situations involving self-interest and encounters with recipients of the same identity (rich-to-rich, poor-to-poor), most children exhibit a preference for equal distribution in the rich condition and self-interested allocation in the poor condition. (3) Even in third-party allocations where self-interest is not involved, children from relatively wealthy economic backgrounds still demonstrate a tendency to favor need-based allocation. (4) Notable differences exist in allocation decisions among children aged 6-8. Regarding self-interest, 8-year-olds, compared to 6-7-year-olds, exhibit a stronger inclination towards need-based allocation when assuming a rich identity, while 6-7-year-olds tend to prefer equal distribution or self-interested allocation. This study's findings provide valuable insights into the influence of resource inequality on children's allocation decisions across various contexts.

***Keywords*:** Distributive justice, equality, need, economic inequality, social comparison

孤独症谱系障碍儿童感知运动同步的影响因素

张琳琳[1,2]，赵文璐[1,2]，李晶[1,2]（通讯作者）

1. 中国科学院心理研究所，中国科学院行为科学重点实验室，北京 100101

2. 中国科学院大学心理学系，北京 100049

通讯作：李晶，lij@psych.ac.cn

摘 要 孤独症谱系障碍(Autism Spectrum Disorder, ASD)是一种发展性神经发育障碍，核心特征为社交沟通障碍、重复刻板行为和限制性兴趣。同步是社会互动协调中的一种重要机制，对人们的社交沟通和人际关系产生重要影响。孤独症儿童感知运动同步的变异性较大，且在人际运动同步过程中自发同步的水平较低，可能对他们社会认知的发展产生不利影响。但目前孤独症儿童感知运动同步的相关研究较少，其同步表现的影响因素和背后的认知过程还不清楚。因此，本研究以孤独症儿童的感知运动同步为主题，探究影响孤独症儿童同步表现的三大因素。

实验 1 以手指按键敲击为实验范式，探究声音刺激时间间隔的长短对孤独症儿童感知运动同步的影响。选取了 21 名 5-8 岁的孤独症儿童和 21 名匹配的正常儿童，探讨时间间隔的长短对孤独症儿童同步运动的影响。实验 2 在实验 1 的基础上增加了视觉刺激，探究多感觉整合对孤独症儿童运动同步的影响，比较了

单通道和视听双通道条件下孤独症儿童的同步表现。实验 3 增加了社会性刺激线索，探究了社会性和非社会性刺激对孤独症儿童运动同步的影响。

结果表明：（1）孤独症儿童的同步稳定性显著低于正常儿童，时间间隔会进一步放大这种差异。这说明节奏刺激的时间间隔会影响孤独症儿童的感知运动同步，时间间隔越长，孤独症儿童的同步越困难。（2）多感觉整合对孤独症和正常儿童的运动同步都有促进作用。（3）相较于社会性刺激，非社会性刺激对两组儿童同步表现的促进作用更大。这可能给是因为实验操作条件中拟人化的机器人 NAO 更能激发两组儿童的内在动机。

本研究发现时间间隔、多感觉整合、（非）社会性刺激三种因素都会影响孤独症儿童的同步表现。时间间隔越长，孤独症儿童的同步越困难；多感觉整合对孤独症儿童的同步有促进作用；相较于社会性刺激，非社会性刺激对孤独症儿童的同步表现促进作用更大。该结果对我们更好的理解孤独症儿童感知运动同步的认知过程有重要帮助，对未来的干预训练也有重要意义。
关键词　孤独症谱系障碍，感知运动同步，时间加工，多感觉整合，社会刺激

Influencing Factors of Sensorimotor Synchronization in Children with Autism Spectrum Disorder

Linlin Zhang[1.2], Wenlu Zhao[1.2], Jing Li[1.2]

1. CAS Key Laboratory of Behavioral Science, Institute of Psychology, Chinese Academy of Sciences, Beijing 100101

2. Department of Psychology, University of Chinese Academy of Sciences, Beijing 100049

Abstract：Autism Spectrum Disorder (ASD) is a developmental disability, characterized by social impairments, repetitive behaviors，and restricted interests. Synchronization is an important mechanism in the coordination of social interaction, which has an important impact on social communication and interpersonal relationships. Many studies have shown that children with autism have greater variability in sensorimotor synchronization, and the level of spontaneous synchronization in the process of interpersonal motor synchronization is low. Above symptoms may adversely affect the development of their social cognition abilities. However, there are relatively few studies on sensorimotor synchronization in children with autism, and the influencing factors behind their synchronization performance are still unclear. Therefore, this study focused on the sensorimotor synchronization of children with autism, and explored three potential factors that affect the synchronization performance among children with autism.

Experiment 1 used tapping as the experimental paradigm to explore the effect of the length of the sound stimulation time interval on the sensorimotor synchronization in children with autism. We selected 21 autistic children ages between 5-8 years and 21 typically developing children to explore the influence of the inter-stimulus interval on autistic children's performances. Experiment 2 added visual stimuli on the basis of Experiment 1, to explore the influence of multi-sensory integration on sensorimotor synchronization of children with autism, and compared the performance of children with autism under two conditions of single channel and audio-visual double channels. Experiment 3 added social stimulus cues to explore the influence of social stimulus and non-social stimulus on the synchronization performance of children with autism.

The main results of this paper: (1) The stability of synchronization in autistic children is significantly lower than typically developing children, and the time interval will further amplify this difference. (2) Multi-sensory integration can promote the performance of two groups. (3) Compared with social stimulation, non-social

stimulation has a greater effect on the performance of the two groups of children. This may be because the anthropomorphic robot NAO can stimulate the intrinsic motivation of the two groups.

These results indicate that three factors: inter-stimuli interval, multi-sensory integration, and (non-)social stimulation, affect the synchronization performance of children with autism. The longer the inter-stimuli interval, the more difficult the synchronization of children with ASD; multi-sensory integration can promote the synchronization of children with ASD; compared with social stimulation, non-social stimulation has a greater role in promoting the synchronization performance of autistic children. The result are of great help for us to understand the cognitive factors of sensorimotor synchronization in children with autism, and provide significance contribution toward future intervention training.

Keywords： Autism Spectrum Disorder (ASD), Sensorimotor Synchronization, Time Processing, Multi-sensory Integration, Social Stimulation

贫困、执行功能和学业成就的关系：来自微观系统和宏观系统的证据

胡琼[1] 张琼[1]（通讯作者）

1 浙江大学心理与行为科学系，杭州，310058，zhangqiongzgh@zju.edu.cn

摘 要 发展缺陷理论认为，家庭社会经济地位较低的儿童学业成就更低。研究者进一步探讨内部的认知机制，发现执行功能作为经济水平的产物，可以成为其影响学业成就的中介机制；但另一方面，根据个体-环境交互框架，个体因素和环境因素会相互作用来影响儿童的发展。因此，执行功能作为一种基本的认知能力，也可能作为一种缓冲机制来调节环境与学业成就的关系。然而，目前并未见实证研究支持执行功能的双重作用。因此，本文从微观系统和宏观系统的角度进行了两项研究和分析，探讨执行功能在贫困与学业成就关系中的中介和调节作用。在第一项研究中，我们从中国大陆招募了 84 名五年级学生，并在实验背景下操纵了他们的经济水平。结果表明，“贫困”组的孩子比“富有”组的孩子表现出更低的执行功能和学业成就。此外，执行功能在实验操纵的贫困状态和学业成就之间起到了中介和调节作用。具体来说，贫困通过损害儿童的执行功能来进一步影响其学业成就；同时儿童自身的执行功能缓冲了贫困对学业成就造成的消极影响，即在执行功能水平较高的儿童中，贫困与学业成就之间的相关不显著。在第二项分析中，我们采用国际学生评估项目（PISA）中 15,542 名学生的数据，发现生活在较低经济水平地区（泰国）的儿童的执行功能和学业成就均低于较高经济水平地区的儿童。与研究一结果一致的是，执行功能也中介了经济水平和学生学业成就之间的联系，即经济水平越低的地区，其儿童执行功能也越低，从而学业表现也更差；同时，执行功能还调节了经济水平与学业成就的关系，即对于执行功能较高的儿童来说，经济水平对其学业成就的预测作用更弱。综上所述，该研究提供了微观和宏观的证据，在理论上进一步丰富了经济水平与儿童发展关系的内在机制研究，并强调了执行功能的双重作用；同时也为提高贫困儿童的学业成就提供了实践指导，即可以通过认知层面的干预增强执行功能，从而最终缩小学业成就的差距。

关键词 贫困，执行功能，学业成就，双重作用，儿童

A Complex Interplay among the Poverty, Executive Function, and Children's Academic Achievement: Evidence from Microsystem and Macrosystem

Qiong Hu[1] Qiong Zhang[1]

1 Zhejiang University, Hangzhou, 310058, China

***Abstract*:** Developmental deficit theory suggests that poor children usually perform worse academically. Researchers have further explored the internal cognitive mechanisms, and they found that executive function (EF), as a product of economic level, might be a mediating role in its impact on academic achievement. On the other hand, the person-environmental interaction pattern framework posited that environmental factors interact with personal factors to affect children's development. Thus, as a basic cognitive ability, EF could also act as a buffering role to moderate the relation between environment and academic achievement. However, no empirical research has been investigating the dual roles of EF. Thus, to further examine the association among poverty, EF, and academic achievement, this article comprises two studies from the perspectives of both microsystem and macrosystem. In the first study, we recruited 84 fifth graders from mainland China and manipulated their poverty status in the experiment's context. The results indicated that children in the "poorer" group showed lower EF performance and academic achievement than their "richer" peers. Besides, EF mediated and moderated the relationship between experimental poverty and academic achievement. Specifically, manipulated economic level was positively associated with posttest EF, and posttest EF significantly predicted posttest academic achievement, after controlling for pretest EF and academic achievement. Moreover, the interaction between manipulated economic level and pretest EF was significant for posttest academic achievement, that is the relation between economic level and posttest academic achievement was significant for children with lower levels of pretest EF, but not for children with higher levels of pretest EF. In the second study, we analyzed the Programme in International Student Assessment (PISA) data with 15,542 students, and found that children living in Thailand performed worse in EF and academic achievement than children living in China (Taiwan). Moreover, the results supported the finding in study 1 by suggesting that EF also meditated and moderated the association between economic levels and academic achievement. To be specific, countries' economic levels were positively associated with EF, and EF significantly predicted academic achievement. Besides, the interaction between countries' economic levels and EF was significant for children's academic achievement, that is the economic level was a weaker predictor of academic achievement for children with lower levels of EF Taken together, these results provided micro- and macro-evidence that EF has dual effects in the link between economic levels and academic achievement. This has significant implications for supporting the optimal development of children in poverty and further highlights the importance of improving children's EF to reduce the negative effect of poverty on academic achievement.

***Keywords*:** Poverty, Executive function, Academic achievement, Dual roles, Children

专制教养亲子感知差异与儿童抑郁的关系：亲子沟通的中介作用

郑天鹏[1]　蒋柳青[1]　边玉芳[1,2]（通讯作者）

1 北京师范大学中国基础教育质量监测协同创新中心，北京，100875

2 北京师范大学儿童家庭教育研究中心，北京，100875

摘 要　以往研究发现父母和子女在父母教养行为上的感知往往存在差异，这种亲子感知差异对于预测儿童的发展有着重要意义。受到中国传统文化和教养观念的影响，中国父母的专制教养表现出不同于西方的特点和作用，中国父母专制教养的亲子感知差异的特点和作用也可能表现出一定的文化特异性，因此探究中国背景下专制教养的亲子感知差异的特点及作用具有重要意义。然而以往对于中国父母专制教养的亲子感知差异的研究有限，且仅以母亲为研究对象，缺乏对于父亲探讨，忽视了家庭的整体性和不同性别亲子组合之间的差异。此外，以往研究多探讨亲子感知差异对儿童抑郁的影响，但对其内部的作用机制关注较少。因此，本研究以北京和海口的 2443 个家庭的儿童及其父母为研究对象(儿童年龄为 12.64 ± 0.23 岁，其

中男生 1236 名)，以专制教养问卷、儿童抑郁量表和亲子沟通量表为研究工具，基于潜在差异分数建模和结构方程模型探究专制教养亲子感知差异与儿童抑郁的关系，以及亲子沟通在其中的中介作用，并进一步考察儿童性别在其中的作用。结果表明：(1) 父亲和母亲感知到的自身专制教养水平均高于儿童感知；(2) 父亲与子女在专制教养上的感知差异分数能够直接预测儿童抑郁 ($\beta = 0.11$, $p < .001$, 95% CI [0.053, 0.162])，而母亲与子女在专制教养上的感知差异分数无法显著预测儿童抑郁；(3) 父亲与子女在专制教养上的感知差异分数既能够通过父子沟通影响儿童抑郁 ($\beta = 0.08$, $p < .001$, 95% CI [0.049, 0.119])，也能够通过母子沟通影响儿童抑郁 ($\beta = 0.02$, $p < .001$, 95% CI [0.003, 0.033])；(4) 母亲与子女在专制教养上的感知差异分数既能够通过母子沟通影响儿童抑郁 ($\beta = 0.07$, $p < .001$, 95% CI [0.034, 0.107])，也能够通过父子沟通影响儿童抑郁 ($\beta = 0.03$, $p < .01$, 95% CI [0.006, 0.043])；(5) 在专制教养亲子感知差异通过亲子沟通影响儿童抑郁的路径中不存在显著的儿童性别差异。研究丰富了中国文化背景下对于专制教养亲子感知差异的认识，并探讨了其与儿童抑郁的影响机制，更能够为促进我国儿童青少年积极健康成长提供独特的干预视角。

关键词　亲子感知差异，专制教养，儿童抑郁，亲子沟通

Associations among Parent-Child Discrepancies in Perceived Authoritarian Parenting, and Children' Depressive Symptoms: Mediating Role of Parent-Child Communication

Tianpeng Zheng[1], Liuqing Jiang[1], Yufang BIAN[1,2](corresponding author)

1 Collaborative Innovation Center of Assessment toward Basic Education Quality, Beijing Normal University, Beijing

2 Child and Family Education Research Center, Beijing Normal University, Beijing

Abstract：Previous studies have found discrepancies in the perception of parenting between parents and children. Exploring the characteristics and effects of the parent-child discrepancies in perceived authoritarian parenting within the Chinese cultural context is of great significance. However, previous researches have been limited and focused only on mothers, neglecting the holistic nature of the family and the differences between different gender combinations of parent-child relationships. Furthermore, previous studies have mainly examined the impact of parent-child discrepancies in perceived parenting on children's depressive symptoms, with less focus on the underlying mechanisms. In this study, 2,443 children and their parents were recruited from Beijing and Haikou. Based on latent difference score modeling method, this study examined the relationship between parent-child discrepancies in perceived authoritarian parenting and children's depressive symptoms, and analyzed the mediating effect of parent-child and also examine the gender differences. Additionally, the study examined the role of child gender in these relationships. Results indicated that: (1) both fathers and mothers perceived their own levels of authoritarian parenting to be higher than the children's perceptions; (2) only father-child latent discrepancy scores of authoritarian parenting ($\beta = 0.11$, $p < .001$, 95% CI [0.053, 0.162]), not mother-child latent discrepancy scores, significantly positively predicted children's depressive symptoms; (3) father-child latent discrepancy scores of authoritarian parenting not only affect children's depressive symptoms through father-child communication ($\beta = 0.08$, $p < .001$, 95% CI [0.049, 0.119]), but also influence children's depressive symptoms through mother-child communication ($\beta = 0.02$, $p < .001$, 95% CI [0.003, 0.033]); (4) mother-child latent discrepancy scores of authoritarian parenting not only affect children's depressive symptoms through mother-child communication ($\beta = 0.07$, $p < .001$, 95% CI [0.034, 0.107]), but also influence children's

depressive symptoms through father-child communication (β = 0.03, p < .01, 95% CI [0.006, 0.043]); (5) children gender was not a moderator that altered the relationships between parent-child discrepancies in perceived authoritarian parenting, and children's depressive symptom via parent-child communication. This study enriches our understanding of the parent-child discrepancies in perceived authoritarian parenting within the Chinese cultural context and explores the mechanisms through which these discrepancies affect child depression. It provides a unique perspective for promoting the positive and healthy development of Chinese children.

Keywords ： parent-child discrepancies, authoritarian parenting, depressive symptoms, parental-child communication

童年期社会经济地位对心理贫穷感的影响：未来取向的干预作用

曹邵琪 刘爱书（通讯作者）

哈尔滨师范大学教育科学学院，哈尔滨，150025，liuaishu@163.com

摘 要 目的：考察低童年期社会经济地位个体的心理贫穷感，以及未来取向在其中的作用。方法：本研究采用问卷与实验相结合的方法，第一部分采用童年期社会经济地位问卷、心理贫穷感问卷以及未来取向问卷考察个体童年期社会经济地位对心理贫穷感的影响及未来取向的调节作用。第二部分通过词汇决策任务考察童年期社会经济地位对心理贫穷感的影响，并通过书写任务唤起被试的未来取向，进而考察未来取向在低童年期社会经济地位对心理贫穷感产生影响的机制中所起的干预作用。结果：通过问卷研究发现童年期社会经济地位对心理贫穷感有负向预测作用，未来取向在童年期社会经济地位和心理贫穷感间起调节作用。通过实验发现，在唤起未来取向前，低社会经济地位组对贫困相关词的反应时快于中性词，高社会经济地位组对贫困相关词和中性词的反应时没有显著差异，在唤起未来取向后，低社会经济地位组在贫困相关词和中性词直接的反应时没有显著差异，高社会经济地位组对贫困词的反应时间快于中性词。即低童年期社会经济地位组对贫困词的反应时间更短，且唤起未来取向有助于缓解该差异。结论：相较于高童年期社会经济地位个体，低童年期社会经济地位个体的心理贫穷感水平较高，唤起未来取向有助于缓解其心理贫穷感。

关键词 童年期社会经济地位，心理贫穷感，未来取向

The impact of childhood socioeconomic status on the sense of psychological poverty: the intervention role of future orientation

Cao Shaoqi, Liu Aishu

Harbin Normal University, Harbin

Abstract: Purpose: To investigate the psychological poverty of individuals with low childhood socioeconomic status and the role of future orientation. Method: This study used a combination of questionnaire and experiment methods. In the first part, a childhood socioeconomic status questionnaire, a psychological poverty questionnaire, and a future orientation questionnaire were used to examine the impact of childhood socioeconomic status on psychological poverty and the moderating effect of future orientation. In the second part, a vocabulary decision task was used to examine the effect of childhood socioeconomic status on psychological poverty, and a writing task was used to evoke the participants' future orientation to explore the intervention effect of future orientation on the mechanism of the impact of childhood socioeconomic status on psychological poverty. Results: The questionnaire study found that childhood socioeconomic status had a negative predictive effect on psychological poverty, and future orientation played a moderating role between childhood socioeconomic status and

psychological poverty. The experimental study found that before evoking future orientation, the low socioeconomic status group responded faster to poverty-related words than neutral words, while the high socioeconomic status group showed no significant difference in response time. After evoking future orientation, there was no significant difference in response time between the low socioeconomic status group and the high socioeconomic status group in response to poverty-related and neutral words, and the high socioeconomic status group responded faster to poverty-related words than neutral words. In conclusion, individuals with low childhood socioeconomic status have a higher level of psychological poverty than those with high childhood socioeconomic status, and evoking future orientation can help alleviate their psychological poverty.
Keywords: childhood socioeconomic status, psychological poverty, future orientation

智能手机成瘾的代际传递机制：基本心理需要和心理僵化的链式中介作用

鲍玲玲[①] 张若瑶[①] 朱从书[①△]

①长江大学教育与体育学院（湖北荆州） E-mail:2381257093@ qq.com

△通讯作者 E-mail:421192230@qq.com

摘 要 **目的：**探讨父母智能手机成瘾对初中生智能手机成瘾的影响，以及基本心理需要和心理僵化在其中的链式中介作用。**方法：**采用父母智能手机成瘾量表、初中生智能手机成瘾量表、基本心理需要量表和心理僵化量表对 500 名初中生进行调查，回收有效问卷 461 份。**结果：**①父母智能手机成瘾（r=0.173，p<0.01）、基本心理需要（r=-0.251，p<0.01）、心理僵化（r=0.360，p<0.01）与初中生智能手机成瘾呈显著相关。②链式中介效应分析显示，父母智能手机成瘾不仅能直接影响初中生智能手机成瘾，还可以通过两条路径间接影响：基本心理需要的中介作用以及基本心理需要和心理僵化的链式中介作用，中介效应分别占总效应的 9.78%、8.97%。**结论：**本研究揭示了父母智能手机成瘾与初中生智能手机成瘾的代际传递关系，父母智能手机成瘾不仅可以直接预测初中生智能手机成瘾，也通过基本心理需要的单独中介作用以及基本心理需要和心理僵化的链式中介作用产生影响。
关键词 智能手机成瘾，基本心理需要，心理僵化，代际传递

Intergenerational Transmission Mechanism of Smartphone Addiction :Chain Mediation of Basic Psychological Needs and Psychological Inflexibility

Bao Lingling, Zhang Ruoyao, Zhu Congshu

College of Education and Physical Education, Yangtze University，Jingzhou 434022，China

Abstract : **Objective:** To explore the impact of parental smartphone addiction on middle school students' smartphone addiction, as well as the chain mediating role of basic psychological needs and psychological inflexibility. **Methods:** A survey was conducted on 500 middle school students using the Smartphone Addiction Scale, Basic Psychological Needs Scale, and Psychological Inflexibility Scale. 461 valid questionnaires were collected. **Results:** ①Parents' smartphone addiction (r=0.173, p<0.01), basic psychological needs (r=-0.251, p<0.01), and psychological inflexibility (r=0.360, p<0.01) are significantly correlated with smartphone addiction

in middle school students. ② The chain mediating effect analysis shows that parents' smartphone addiction can not only directly affect middle school students' smartphone addiction, but also indirectly affect it through two paths: the mediation of basic psychological needs and the chain mediation of basic psychological needs and psychological inflexibility. The mediating effect accounts for 9.78% and 8.97% of the total effect respectively. **Conclusion:** This study reveals the Intergenerational Transitive Mechanism between parents' smartphone addiction and middle school students' smartphone addiction. Parental smartphone addiction can not only directly predict middle school students' smartphone addiction, but also have an impact through the independent mediating effect of basic psychological needs and the chain mediating effect of basic psychological needs and psychological inflexibility.

Keywords : Smartphone addiction, Basic psychological needs, Psychological inflexibility, Intergenerational transmission

青少年成就目标和学业表现的关系类型对其学业投入的纵向影响：父母学业压力的调节作用

张云运[1]（通讯作者） 高淇[2] 周雨锴[1] 杨洋[1] 张李斌[1]

1 北京师范大学，中国基础教育质量监测协同创新中心，北京，yyzhangff@126.com

2 海军军医大学心理系精神医学教研室，上海，200433

摘 要 大量研究证实成就目标取向与学业表现显著相关，但以往基于多重目标模型的研究大多聚焦于成就目标取向的亚组分析，忽略了成就目标与学业表现的紧密关系。同时，多数研究支持父母学业压力对学生学业投入存在消极影响，但也有研究认为适度的父母学业压力可以促进个体的学业投入。为进一步澄清青少年中成就目标取向和学业表现的关系类型，探讨外源性的父母压力对青少年学业投入的影响，本研究选取 2378 名初中生（平均年龄为 13.41±0.62 岁，男生占比 49%），采用潜类别分析技术探究青少年成就目标取向和学业表现的特征模式，通过为期 6 个月的追踪调查（T1 为 7 年级下学期末，T2 为 8 年级上学期末），探讨不同亚组类型与青少年学业行为投入和情感投入的纵向关联，以及父母学业压力的调节作用。结果发现：（1）初中生成就目标取向和学业表现可分为 3 个亚群组：高掌握目标-低表现取向-高学业表现组（20.1%）、高掌握目标-高表现取向-中学业表现组（64.4%）、低掌握目标-低表现取向-低学业表现组（15.5%）；（2）在控制了年龄和性别之后，与低掌握目标-低表现取向-低学业表现组相比，T1 的高掌握目标-低表现取向-高学业表现组和高掌握目标-高表现取向-中学业表现组能显著正向预测 T2 的学业行为投入和情感投入；（3）父母学业压力越大，T1 的高掌握目标-低表现取向-高学业表现组和高掌握目标-高表现取向-中学业表现组在 T2 的学业行为投入越低，T1 的高掌握目标-高表现取向-中学业表现组在 T2 的情绪投入越低，而 T1 的高掌握目标-低表现取向-高学业表现组在 T2 的情绪投入水平不受父母学业压力的调节。本研究从群体异质性视角出发，证实父母学业压力对不同类型学生学业投入的影响存在差异，为从家庭层面减少青少年学业投入的消极影响因素提供了参考。

关键词：成就目标取向，学业表现，父母学业压力，学业行为投入，学业情感投入

Longitudinal effects of the relationship subgroups of adolescents' achievement goal orientation and academic performance on their

academic engagement: The moderating role of parental academic pressure

ZHANG Yun-yun[1](Corresponding author), GAO Qi[2], ZHOU Yu-kai[1], YANG Yang[1], ZHANG Li-bin[1]

1 Collaborative Innovation Center of Assessment toward Basic Education Quality, Beijing Normal University, Beijing, 100875

2 Department of Psychiatry, Faculty of Psychology, Naval Medical University, Shanghai, 200433

Abstract: Previous studies have confirmed that achievement goal orientation is significantly related to academic performance, while most of which based on multiple goal modeling only focused on the subgroups of achievement goal orientation, ignoring the tight association between achievement goals and academic performance. Meanwhile, most studies supported that parental academic pressure had a negative effect on students' academic engagement, whereas some other studies reported that moderate parental academic pressure promoted adolescents' academic engagement. To further clarify the relationship groups of achievement goal orientation and academic performance among adolescents, and to explore the effects of exogenous parental pressure on adolescents' academic engagement, this study selected 2378 junior high school students (mean age=13.41 ± 0.62 years, 49% boys) and used latent profile analysis to explore the patterns of adolescents' achievement goal orientation and academic performance based on a 6-month follow-up survey (T1 was the end of the second semester of grade 7 and T2 was the end of the first semester of grade 8), to explore the longitudinal associations between different subgroup types and adolescents' academic behavioral and emotional engagement, as well as the moderating role of parental academic pressure. The results showed that (1) junior high school students' achievement goal and academic performance could be categorized into three subgroups: high mastery -low performance -high academic performance group (20.1%), high mastery -high performance -moderate academic performance group (64.4%), and low mastery -low performance -low academic performance group (15.5%); (2) compared to the low mastery -low performance -low academic performance students, the high mastery -low performance -high academic performance students and the high mastery -high performance orientation-moderate academic performance students in T1 were more likely to report high levels of academic behavioral and emotional engagement in T2, controlling for age and gender; (3) the greater the parental academic pressure, the lower the academic behavioral engagement in T2 of the high mastery -low performance -high academic performance group and the high mastery -high performance -medium academic performance group in T1, and the lower emotional engagement in T2 of the high mastery -high performance -medium academic performance group in T1, whereas high mastery -low performance -high academic performance group's level of emotional engagement in T2 was not moderated by parental academic pressure. From the perspective of heterogeneity, this study confirmed that there were differences in the effects of parental academic pressure on the academic engagement of different type students, which provided a reference for reducing the negative influences on adolescents' academic engagement at the family level.

Keywords: Achievement goal orientation, academic performance, parental academic pressure, academic behavioral engagement, academic emotional engagement

2.5-6.5 岁幼儿工作记忆刷新能力的发展

刘格格[1]　李富洪[2]（通讯作者）
1 江西师范大学心理学院，南昌，330022
2 江西师范大学心理学院，南昌，330022，lifuhong@jxnu.edu.cn

摘 要　人类生活在动态而复杂的环境中，人们必须不断记住新的环境信息来替代旧的信息以适应不断变化的生存环境，这对成人来说是相对简单的，但对于年幼的儿童来说却是具有挑战性的。他们需要依靠工作记忆存储来自环境的信息，并随着环境的变化不断刷新这些存储的表征。那么，幼儿工作记忆刷新能力有怎样的发展特点呢？本研究以测量成人刷新能力的 n-back 任务为背景，设计了适合测量学龄前儿童刷新能力的玩具交换任务，测量了 386 名 2 岁半-6 岁半幼儿(女孩 179 名)的工作记忆刷新能力。研究分为两个实验，实验一选取了 177 名 2 岁半-5 岁半幼儿，被试在玩具交换游戏中会看到不同玩具依次放入玩具交换屋后被遮挡，幼儿需要不断刷新玩具的信息并依次回忆每轮交换后可以得到的玩具(即曾经放进玩具交换屋的玩具)，游戏有两个难度，若当前为第 n 个试次，难度一为被试需要回忆第 n-1 个试次放入的玩具，难度二为回忆 n-2 个试次放入的玩具。结果发现，随着年龄的增长，幼儿在玩具交换任务中的正确率不断提高，且在每半岁间有显著差异；2 岁半-3 岁和 4 岁半-5 岁儿童在难度一中的正确率显著低于其在难度二中的正确率，但其他年龄段儿童在两难度中的正确率并无显著差异(即未表现出负荷效应)。分析其原因可能是难度二中考虑到被试年龄较小，所以在 n-1 个试次时设置了半透明窗口提示其上一个试次(即 n-2 试次)的玩具信息，因此，儿童在第 n 个试次回忆时难度有所降低。故实验二将该提示窗口关闭，选取 209 名 3 岁半-6 岁半幼儿，测量其在不同难度下的刷新表现。结果发现，随年龄增长，儿童的正确率不断提高，且除 5 岁-6 岁外其余年龄儿童均在半岁间有显著差异；3 岁半-6 岁半儿童在难度二中的正确率均显著低于其在难度一中的正确率，即表现出负荷效应。研究表明，儿童工作记忆刷新的能力在各个年龄段都有显著发展。刷新会对工作记忆存储造成影响，但提示线索会大大降低这种影响。本研究结果为儿童早期工作记忆的刷新和储存的发展轨迹提供了新的证据。
关键词　幼儿，工作记忆刷新，工作记忆存储，玩具交换任务，发展

The development of working memory updating in 2.5-6.5 years old preschoolers

Liu Gege[1] Li Fuhong[2](Corresponding author)
1 college of psychology, jiangxi normal university, nanchang, China, 330022
2 college of psychology, jiangxi normal university, nanchang, China, lifuhong@jxnu.edu.cn

Abstract：　Humans live in a dynamic and complex environment, and people must constantly remember new environmental information to replace old information to adapt to the changing living environment, which is relatively simple for adults, but challenging for young children. They need to rely on working memory to store information from the environment and constantly update these stored representations as the environment changes. Based on the n-back task, which measures the updating ability of adults, this study designed a toy exchange task suitable for measuring the updating ability of preschool children. A total of 386 children aged 2 and a half years old to 6 and a half years old preschoolers(179 girls) were selected to measure their working memory updating ability. The study was divided into two experiments. In experiment 1, 177 children aged from 2.5 to 5.5 years old were selected. In the toy exchange game, the subjects would see that different toys were shielded after being put into the toy exchange house successively. Children need to constantly updating the toys information and successively recall the toys available after each round of exchange (that is, the toys that have been placed in the toy exchange house). The game has two difficulties, if the current is the n trial, difficulty 1 is that the participant needs

to recall the toy put in the n-1 trial, difficulty 2 is that the toy put in the n-2 trial. The results showed that with the increase of age, children's accuracy in the toy exchange task increased continuously, and there was a significant difference between every half year. The accuracy of children aged 2.5-3 years old and 4.5-5 years old in difficulty 1 is significantly lower than that of children in difficulty 2. However, there was no significant difference in the accuracy of children of other ages in the two difficulties (that is, no load effect was shown). The reason may be that in difficulty 2, considering the younger age of the subject, a semi-transparent window was set at n-1 trail to remind the toy information of the previous try (that is, n-2 trail). So the difficulty of the children's recall at the n trail was reduced. Therefore, in experiment 2, the prompt window was closed. And 209 children aged 3.5 to 6.5 were selected to measure their updating performance under different difficulties. The results showed that with the increase of age, the accuracy of children increased continuously, and except for 5-6 years old, there were significant differences between the ages of half a year. The accuracy of children aged 3.5-6.5 years in difficulty 2 is significantly lower than that in difficulty 1, that is, it shows the load effect. We found that children's working memory updating develops significantly at all ages. Updating have an impact on working memory storage, but referential cues greatly reduce this impact. The results of this study provide new evidence for the developmental trajectory of updating and storage of working memory in early childhood.

Keywords：preschoolers, working memory updating, working memory storage, toy exchange task, development

青少年早期内外化问题 p 因素和独特因素的发展稳定性及内在机制

马玉鑫[1] 张良[1] 纪林芹[1] 张文新[1]（通讯作者）

1 山东师范大学心理学院，济南，250014，zhangwenxin@sdnu.edu.cn

摘 要　近十年来，p 因素理论被广泛应用于研究儿童青少年内外化问题的共发现象。p 因素代表个体产生心理病理问题的一般倾向性，内化和外化独特因素代表两类问题在共同因素之外的独特成分。当下对 p 因素以及内外化问题独特因素发展特点的关注相对较少。根据已有模型，p 因素及外化和外化独特因素可能存在发展变化性：据“动态相互作用（dynamic mutualism）”模型，内外化问题在发展过程中相互影响、彼此增强，表现为 p 因素的相对强度增大；而“p-分化（p-differentiation）”模型则认为，在发展过程中，一般性的 p 因素特异化增强，表现为内化或外化独特因素的相对强度增大。为检验这心理病理问题一般与独特因素的发展特点，本研究考察了青少年早期内外化问题的发展稳定性和连续性，采用家长报告的行为核查量表（Child Behavior Check List，CBCL）对 1754 名 6 年级学生进行为期 3 年的追踪研究，以共同方差解释率（Explained Common Variance，EVC）为指标考察各因素的发展稳定性，并进一步采用交叉滞后模型考察发展过程中各因素的相互作用机制。结果发现：（1）各因素的 EVC 值在发展过程中较为稳定，其中 p 因素相比于内外化问题独特因素解释了更多的共同方差（61.5%-66.4%）。（2）T1 的 p 因素和内化问题独特因素显著预测 T2 的外化问题独特因素，T1 的内化问题独特因素显著预测 T2 的 p 因素，p 因素和外化问题独特因素在 T2 和 T3 存在双向正向预测作用，外化问题独特因素和内化问题独特因素在 T2 和 T3 存在双向负向预测作用。研究结果既支持“动态相互作用”模型也支持“p 分化”模型，表明在发展过程中，内外化问题的各因素在同质性发展和异质性发展作用下形成动态平衡，使各因素呈现发展稳定性。

关键词　p 因素，双因子模型，心理病理问题，交叉滞后

Developmental Stability and Internal Mechanisms of p Factor

and Specific Factors in Early Adolescence Internalizing and Externalizing Problems

MA Yuxin, ZHANG Liang, JI linqin ZHANG Wenxin
School of Psychology, Shandong Normal University, Jinan 250014

Abstract: In the last decade, p-factor theory has been widely used to study the co-occurring of internalizing and externalizing problems in children and adolescents. The p factor represents the general propensity of individuals to develop psychopathological problems, and the specific internalizing and externalizing factors represent the specifical components of the two types of problems beyond the common factors. Relatively little attention has been paid to the developmental stability of p factor and specific factors of internalizing and externalizing problems. According to the models, there may be developmental variability in the p factor and the specific factors of internalizing and externalizing problems: according to the "dynamic mutualism" model, the internalizing and externalizing problems interact and reinforce each other during the developmental process, which is manifested in an increase in the relative strength of the p factor, while the "p-differentiation" model suggests that the general p factor specialization increases during the developmental process, which is manifested in an increase in the relative strength of the specific internalizing and externalizing factors. To examine the developmental characteristics of this general and specific factors of psychopathological problems, this study examined the developmental stability and continuity of internalizing and externalizing problems in early adolescence by using the parent-reported Children's Behavior Checklist (CBCL) to follow up on 1,754 6th grade students over a period of 3 years, the Explained Common Variance (EVC) was used as an indicator to examine the developmental stability of the factors, and cross-lagged modeling was further used to examine the interaction mechanism of the factors during the developmental process. The results found that (1) the EVC values of the factors were more stable over the course of development, with the p factor explaining more of the common variance (61.5%-66.4%) compared to the specific factors. (2) The specific internalizing factor in T1 significantly predicted the p factor in T2, the p factor and the specific internalizing factor in T1 significantly predicted the specific externalizing factor in T2, there was a bi-directional positive predictive effect between the p factor and the specific externalizing factor in T2 and T3, and there was a bi-directional negative predictive effect between the specific externalizing factor and the specific internalizing factor in T2 and T3. The results of the study support both the "dynamic mutualism" model and the "p-differentiation" model, indicating that in the process of development, the factors of internalizing and externalizing problems form a dynamic equilibrium under the effect of homogeneous and heterogeneous development, so that the factors show developmental stability.

Keywords：p factor, bi-factor model, psychopathology problems, cross-lagged

父母科技干扰通过亲子亲密度纵向预测儿童注意控制

方心雨　贾翰琳　杨晓辉（通讯作者）
陕西师范大学心理学院，西安，710062，yangxiaohui@snnu.edu.cn

摘　要　科技干扰是指在日常生活和他人互动过程中被电子设备打断或侵扰的现象。个体内反应时变异（Intraindividual Reaction Time Variability，IIRTV）是注意或认知控制的重要指标。个体内反应时变异得分越高，表明儿童的注意控制或注意的稳定性越差。IIRTV 可能是多种神经疾病(如 ADHD)的重要生物标记。已有研究表明科技干扰对儿童的问题行为、执行功能以及网络成瘾有密切关系，而这些认知和行为问题背后的重要基础就是儿童注意控制的发展。但是少有研究采用纵向设计关注科技干扰对儿童注意控制发展的影响效果及作用机制。因此，本研究采用为期两年（间隔一年）的纵向设计来探讨父母科技干扰对学龄前幼儿注意控制的影响以及亲子亲密度的中介作用。302 名 3~6 岁幼儿（$M_{年龄}$ = 4.7 岁，$SD_{年龄}$ = 0.55，其中女生 138 名）及其父母参与了本研究。在 T1 时刻，父母通过科技干扰量表和亲子关系量表报告他们在亲子互动中受到的科技干扰程度及其亲子关系质量；通过计算儿童在 Flanker 任务不一致试次内的反应时变异获得个体内反应时变异的指标。在 T2 时刻，再次通过 Flanker 任务收集儿童的 IIRTV 指标。研究结果发现：（1）T1 时刻内的父母科技干扰与亲子亲密度显著负相关；（2）T1 的亲子亲密度与儿童 T2 的 IIRTV 显著负相关；（3）在控制了儿童的性别和年龄以及 T1 的 IIRTV 水平之后，T1 亲子亲密度在 T1 科技干扰和 T2 的儿童 IIRTV 间起完全中介作用。本研究对于理解科技干扰对儿童认知发展的影响具有重要意义。

关键词　科技干扰，注意控制，亲子亲密度，个体内反应时变异（IIRTV）

Parental Technoference Longitudinally Predicts Children's Attentional Control via Parent-Child Closeness

Xinyu Fang　Hanlin Jia　Xiaohui Yang (corresponding author)
Shaanxi Normal University, Affiliations School of Psychology, Xian, 710062,
yangxiaohui@snnu.edu.cn

Abstract: Technoference refers to the distraction, disruption, and interruption of interpersonal interactions caused by digital technology device use. Intraindividual Reaction Time Variability (IIRTV) is an indicator of attentional or cognitive control. Higher IIRTV indicate poorer attentional control or attentional stability in children. IIRTV was an important biomarker for a variety of neurological disorders (e.g. ADHD). It has been shown that technoference are closely related to children's problematic behaviors, executive functioning problems, and Internet addiction. The foundation of these cognitive and behavioral problems is probably the development of children's attentional control. However, few studies have used longitudinal design to examine the effects and mechanisms of technoference on children's attentional control development. Therefore, the present study used a two-year (with one-year interval) longitudinal design to examine the effect of parental technoference on preschoolers' attentional control indexed by IIRTV and the mediating role of parent-child closeness. 302 preschooler aged 3-6 years (M_{age} = 4.7 years, SD_{age} = 0.55, 138 girls) and their parents participated in this study. At T1, parents reported their technoference in parent-child interactions and the quality of their parent-child relationship. Children's attentional control was measured by a children's version Flanker task, and children's IIRTV were obtained by calculating the standard deviation of response-time within incongruent trials. At T2, IIRTV were collected from the children again. The results indicated that (1) T1 Technoference was significantly and negatively related to T1 parent-child closeness; (2) Parent-child closeness at T1 was significantly negatively correlated with children's IIRTV at T2; (3) After controlling for children's age, sex the level of IIRTV in T1, T1 parent-child closeness fully mediated the

relationship between T1 technoference and children's IIRTV at T2. The present study has important implication for understanding the impact of technoference on children's cognitive development.

Keywords: technoference, attentional control, parent-child closeness, intraindividual reaction time variability (IIRTV)

校园欺凌与执行功能关系的三水平元分析

贾薇[1],胡娜[1, 2]，蔡丹[1*]

1 上海师范大学心理学系，上海，200234

2 教育部"教育大数据与教育决策"实验室，上海师范大学，上海，200234

* 通讯地址：caidan@shnu.edu.cn

摘 要：校园欺凌因其普遍性、稳定性和主体的脆弱性而受到广泛关注。然而，校园欺凌经历与个体认知能力发展间的关系仅存在较少探索且缺少对欺凌事件中多个角色的共同关注。基于自我损耗理论，校园欺凌受害者的痛苦经历会占用认知资源而限制执行功能的发展。此外，欺凌者与执行功能主要成分(抑制控制、工作记忆和认知灵活性)之间的关系存在争议。因此本研究研究采用三水平元分析的方法来明确儿童所经历的校园欺凌事件中不同角色与执行功能之间的关系，并探讨了影响二者关系的调节变量。通过系统的文献检索，共获得 18 项研究，含 73 个效应量，涉及被试共 21725 名。主效应检验发现，校园欺凌事件中的欺凌者和受害者均与执行功能呈负相关。调节效应检验显示，校园欺凌中的欺凌者与执行功能的负相关受到执行功能成分的调节作用，而不受到性别、年龄和执行功能测量方式的影响；具体而言，欺凌者与抑制控制的负相关比工作记忆和认知灵活性更强，同时欺凌者与认知灵活性的负相关强于工作记忆。此外，校园欺凌事件中的受害者与执行功能的负相关则不受欺凌形式、报告方式、执行功能成分、执行功能测量方式、性别、年龄和文化的影响。上述结果表明个体的校园欺凌经历与其认知损害存在密切关联，强调校园欺凌防治应当重视个体认知发展状况以更全面的进行有效干预。

关键词：儿童，校园欺凌，执行功能，三水平元分析

The Association between School Bullying and Executive Function: A Three-Level Meta-Analysis

Jia Wei[1], Hu Na[1,2], Cai Dan[1*]

1 Department of Psychology, Shanghai Normal University, Shanghai, 200234

2 Lab for Educational Big Data and Policymaking, Ministry of Education, P.R. China, Shanghai Normal University, Shanghai, 200234

* caidan@shnu.edu.cn

Abstract: The pervasiveness, stability and vulnerability of school bullying have attracted widespread attention. However, the relationship between school bullying experience and the development of individual cognitive abilities has only been less explored and lacks a common focus on multiple roles in bullying incidents. Based on the ego depletion theory, the traumatic experience of victims of school bullying will occupy cognitive resources and limit the development of executive functions(EFs). Furthermore, the relationship between bullies and major components of EFs (inhibitory control, working memory, and cognitive flexibility) is controversial. The current study uses a three-level meta-analysis method to clarify the true relationship between different roles in school bullying and EFs' major components, and examines the moderating variables that may affect the relationship.

Through systematic literature search, a total of 18 studies were obtained, including 73 effect sizes, involving a total of 21,725 subjects. The main effect test found that both the bullies and the victims in school bullying incidents were negatively correlated with EFs. The moderating effect test showed that the negative correlation between bullies and EFs in school bullying was moderated by EFs' components, but not affected by gender, age and executive function's measurement methods; specifically, the negative correlation between bullies and inhibitory control were stronger than working memory and cognitive flexibility, while bullies was negatively associated with cognitive flexibility stronger than working memory. In addition, the negative correlation between victims and EFs in school bullying incidents was not affected by the form of bullying, source of reporting, EFs' component, executive function's measurement method, gender, age and culture. The above results show that there is a close relationship between individual school bullying experience and its cognitive impairment, emphasizing that the prevention and control of school bullying should pay attention to the individual cognitive development status in order to intervene more comprehensively and effectively.

Keywords：children, school bullying, executive function, meta-analysis

学龄前儿童抑制控制与言语、数学和推理的纵向关系

项悦颖 [1] Kailing Li[2], Chris Jarrold[2], 王腾飞 [1]（通讯作者）

1 浙江大学心理与行为科学系，杭州，3100028，tfwang@zju.edu.cn

2 布里斯托大学心理科学学院，英国

*国家自然科学基金项目(32000761)

摘 要 抑制控制（inhibitory control）是个体阻止或压抑无关信息,以排除或减少其对当前信息加工或行为产生干扰的认知过程。抑制控制是执行功能的重要成分，在流体智力、阅读理解和数学运算等高级认知中发挥着重要作用。尽管学前期（3-5 岁）是抑制控制发展的关键期，但鲜有研究在该阶段探究抑制控制的发展特点，及其与推理、言语和数学能力的纵向关系。而且，有研究表明存在不同类型的抑制控制，即反应抑制(response inhibition)和干扰抑制(interference inhibition)。两类抑制控制的发展轨迹可能存在差异，与高级认知能力的关系也可能有所不同，尚未有研究探索这些研究问题。

本研究拟采用纵向设计，探究反应抑制和干扰抑制的发展特点及其与推理、言语和数学能力的关系。采用 Simon 任务测查干扰抑制，Go/no go 任务测查反应抑制；在两个实验任务中，同时操控抑制负荷（低、中、高）和记忆负荷（低、中、高）。

研究一选取 144 名小、中、大班幼儿园儿童参与实验，完成 Simon 任务、Go/no go 任务、矩阵推理、常识、类同、点数判断、数字大小比较、顺序判断和加法判断任务。结果表明，学龄前阶段两种抑制控制能力均存在明显发展趋势，而且记忆负荷和抑制负荷存在显著交互，说明两者并非独立的成分。两种抑制控制与言语智力任务相关不显著，但与矩阵推理任务存在显著正相关。Simon 任务和多种数学任务之间存在稳定的正相关；但 Go/no go 任务与数学能力之间的相关并不稳定。

研究二基于研究一的被试，在一年后对原小、中班 91 名儿童进行第二次测量。交叉滞后分析（cross-lagged regression analysis）表明：Simon 任务和流体智力存在双向预测作用，和数学能力存在单向预测关系。潜在变化分数模型（latent change score model）结果表明：在时间点一（T1）上 Simon 任务表现更好的儿童，矩阵推理能力在两个时间点上的增长量更大，反之亦然。Go/no go 任务未发现相似的相互预测关系。

本研究采用纵向设计探究了不同类型抑制控制的发展特点及其与推理、言语和数学能力的关系，发现了抑制控制和高级认知能力之间的双向预测关系，但这一关系模式在不同类型的抑制控制上有所不同。研究结果能够为未来执行功能的测量、干预提供新的思路。

关键词 反应抑制，干扰抑制，学龄前儿童，智力

The longitudinal relationship between inhibitory control and Verbal intelligence, mathematics and reasoning in preschool children

Yueying Xiang[a], Kailing Li [b], Chris Jarrold [b], Tengfei Wang [a]

[a] Department of Psychology and Behavioral Sciences, Zhejiang University, Hangzhou, China，tfwang@zju.edu.cn

[b] School of Psychological Science, University of Bristol, UK

Abstract：Inhibitory control is a cognitive process in which individuals block or suppress irrelevant information to eliminate or reduce its interference with current information processing or behavior. Inhibitory control is an important component of executive function and plays an important role in advanced cognition ability such as fluid intelligence, reading comprehension and mathematical operations. Although the early school years (3-5 years old) are a critical period for inhibitory control development, few studies have explored the developmental characteristics of inhibitory control and its longitudinal relationship with reasoning, verbal and mathematical abilities during this period. Moreover, studies have shown that there are different types of inhibition control, namely response inhibition and interference inhibition. The developmental trajectories of the two types of inhibitory control may be different, and the relationship with advanced cognitive abilities may also be different, and no studies have explored these research questions.

In this study, a longitudinal design was used to explore the developmental characteristics of response inhibition and interference inhibition and their relationship with reasoning, verbal and mathematical abilities. Interference suppression was measured by Simon task and response suppression was measured by Go/no go task. In both experimental tasks, inhibition load (low, medium, high) and memory load (low, medium, high) were manipulated simultaneously.

In study 1, 144 kindergarten children were selected to participate in the experiment and complete the Simon task, Go/no go task, matrix reasoning, information, similarities, dots comparison, number comparison, number ordering and arithmetic task. The results showed that there was a significant development trend of the two inhibitory control abilities in preschool stage, and there was a significant interaction between memory load and inhibitory load, indicating that they were not independent components. There was no significant correlation between the two kinds of inhibition control and verbal intelligence tasks, but there was significant positive correlation with matrix reasoning tasks. There is a stable positive correlation between Simon task and various mathematical tasks. But the correlation between Go/no go tasks and math ability is not stable.

Based on the participants in Study 1, 91 children were measured a second time one year later. Cross-lagged regression analysis showed that Simon task has a bidirectional predictive relationship with fluid intelligence and a unidirectional predictive relationship with mathematical ability. Latent change score model showed that children with better inhibition performance in Simon task at time point one have greater increases in matrix reasoning ability between two time points, and vice versa. No similar mutual prediction relationship was found in the Go/no go tasks.

In this study, a longitudinal design was used to explore the developmental characteristics of different types of inhibitory control and their relationships with reasoning, verbal and mathematical abilities. A bidirectional predictive relationship between inhibitory control and advanced cognitive abilities was found, but the relationship model was different for different types of inhibitory control. The results can provide new ideas for the measurement and intervention of executive function in the future.

Keywords：Response inhibition, interference suppression, preschool children

童年中后期网络使用的发展轨迹及其影响因素:一项多层追踪分析

石慧芬[1,2]，刘宇潇[1,2]，曹敏[1,2]，周宗奎[1,2]（通讯作者）

1 青少年网络心理与行为教育部重点实验室，武汉，430079

2 华中师范大学心理学院，武汉，430079，zhouzk@ccnu.edu.cn

摘 要 网络使用在未成年群体中有年轻化的趋势，而个体早期的网络使用是网络成瘾的高风险因素。本研究旨在探讨童年中后期个体互联网使用的发展，并找出影响其发展轨迹的因素。在生态系统理论的指导下，本研究探讨了特质好奇心、友谊质量和物质教养对不同类型智能个体(包括信息获取、娱乐和社会使用)的影响。利用 218 名小学生的三年纵向数据集，采用层次线性模型进行分析。研究结果显示，在整个童年中后期，信息获取网络使用、社交网络使用和娱乐网络使用的均有显著增加。对于信息获取网络使用时长而言，特质好奇对信息获取网络使用时长的截距和斜率均存在显著性影响。特质好奇正向预测信息获取网络使用时长的初始使用水平，特质好奇水平越高，信息获取网络使用时长的初始水平就越高；特质好奇负向预测信息获取网络使用时长的发展趋势，特质好奇水平越高，信息获取网络使用时长的增长趋势减缓。对于社会交往网络使用时长而言，特质好奇对信息获取网络使用时长的截距和斜率均存在显著性影响。具体而言，特质好奇正向预测社会交往网络使用时长的初始使用水平，特质好奇水平越高，社会交往网络使用时长的初始水平就越高；特质好奇负向预测社会交往网络使用时长的发展趋势，特质好奇水平越高，社会交往网络使用时长的增长趋势减缓。友谊质量对社会交往网络使用时长的截距存在显著性影响，但不能预测斜率。具体而言，友谊质量负向预测社会交往网络使用时长的初始使用水平，友谊质量水平越高，社会交往网络使用时长的初始水平就越低。此外，对于休闲娱乐网络使用时长而言，父母物质主义奖赏可以显著正向预测休闲娱乐网络使用时长的截距。父母物质主义奖赏水平越高，儿童休闲娱乐网络使用时长的初始水平越高。并且，相对于女性，男性休闲娱乐网络使用时长的初始水平更高。这些结果为理解儿童在童年中后期 IU 的发展轨迹提供了一个全面的框架，并揭示了导致其变化的因素，有助于网络成瘾的早期干预。

关键词 网络使用，特质好奇，友谊质量，物质养育

Developmental trajectory of internet use across the late childhood and its influencing factors: A multilevel analysis

Shi Huifen[1,2], Liu Yuxiao[1,2], Cao Min[1,2], Zhou Zongkui[1,2,*]

[1]Key Laboratory of Adolescent Cyberpsychology and Behavior (CCNU), Ministry of Education, Wuhan 430079, China

[2]School of Psychology, Central China Normal University, Wuhan 430079, China, zhouzk@ccnu.edu.cn

Abstract: Currently, there is a noticeable trend of internet use shifting towards younger age groups. Early Internet use is a risk factor for Internet addiction. This study aims to explore the development of Internet use (IU) during late childhood and identify the factors that influence its trajectory. Guided by ecological systems theory, the research explores the influence of trait curiosity, friendship quality, and material parenting on different types of IU, including information acquisition, entertainment, and social usage. Utilizing a three-year longitudinal dataset comprising 218 primary students, a hierarchical linear model was employed for analysis. The findings reveal an overall increase in information acquisition IU, social IU, and entertainment IU throughout late childhood. For

information acquisition IU, trait curiosity was significantly positively related to the intercept of the information acquisition IU but negatively related to the slope of information acquisition IU. The higher the trait curiosity was, the higher the initial level while the slower the growth of information acquisition IU. For social IU, trait curiosity was significantly positively related to the intercept but negatively related to the slope of social IU. The higher the trait curiosity level was, the higher the initial level while the slower the growth trend of social IU. Friendship quality was negatively related to the intercept of social IU. The higher the level of friendship quality was, the lower the initial level of social IU. For entertainment IU, material parenting reward was significantly positively related to the intercept. The higher the level of material parenting reward was, the higher the initial level of children's entertainment IU. Gender was also significantly positively related to the intercept of entertainment IU. Boys reported higher initial level of entertainment IU than girls. These results provide a comprehensive framework for understanding the developmental trajectory of IU during late childhood and shed light on the factors that contribute to its changes.

***Keywords**:* Internet use, trait curiosity, friendship quality, material parenting

父母控制对初中生个人成长主动性的纵向研究：基于潜在剖面分析

何幼银　李彩娜（通讯作者）

陕西师范大学心理学院，陕西（高校）哲学社会科学重点研究基地-儿童青少年心理与行为健康研究中心，710062，chinali7371@163.com

摘 要　父母控制指的是父母通过对青少年行为和心理的约束使其更加符合社会规范的教养方式，是青少年社会化的必经途径。但这与青少年期个体自主性发展及分离-个体化的发展需求间存在一定的冲突，并最终影响青少年的发展结果。客体关系理论（The Object Relations Theory）也指出，过高的父母控制会阻碍子女良好依恋关系和安全感的形成，并由此抑制个体发展的主动性。然而，“父慈子孝”的儒家文化强调父母权威地位和子女孝顺的价值观，使得中国父母更多关注对子女心理与行为规范的引导与监控，子女也更倾向于将父母控制看作接纳和爱的表达，从而更愿意做出积极的改变。此外，现有关于父母控制与青少年积极发展间关系的实证研究结论也存在争议。这可能是由于以往研究更多采用变量中心视角导致的。基于此，本研究采用“个体中心”视角下的潜在剖面分析方法，考察更为客观的父母报告的心理与行为控制的整体表现及其发展特征，并探讨了父母控制的不同亚型与初中生个人成长主动性间的纵向关系。

本研究对陕西省 8 所中学的 3613 名父母（68.5%女性；Mage = 39.67，SD = 7.32）与初中生（47.3%女生；Mage = 12.73，SD = 0.66）进行了为期 1 年的 2 次追踪调查。结果发现：（1）父母报告的心理控制总体处于中等水平，父母行为控制总体处于较高水平。依据父母报告的引发内疚、爱的撤回、专利专断和行为控制的多维度表现，中国文化下的父母控制可区分为低心理控制-高行为监控组(C1；37%)、中心理控制-高行为监控组(C2；58%)和高心理控制-高行为监控组(C3；5%);（2）相较于 T1 的低心理控制-高行为监控组，T1 中心理控制-高行为监控组能够显著正向预测 T2 初中生的个人成长主动性，T1 的高心理控制-高行为监控组则显著负向预测 T2 初中生的个人成长主动性。（3）初中生性别在父母控制和个人成长主动性间的调节作用不显著。本研究结果表明，中国文化背景下的父母控制存在最佳水平，中心理控制-高行为监控能够最大的程度地促进初中生的个人成长主动性，为科学认识和有效干预中国文化背景下父母控制对初中生个人成长主动性的影响提供了依据。

关键词　心理控制，行为控制，个人成长主动性，潜在剖面分析

A longitudinal study of parental control on middle school students' personal growth initiatives: a latent profile analysis

HE Youyin LI Caina*

Shaanxi Provincial Key Research Center for Children Mental and Behavioral Health，
School of Psychology, Shaanxi Normal University, China, 710062, chinali7371@163.com

***Abstract*:** Parental control refers to the parenting style in which parents discipline their adolescents' behavior and psychology to make them more conform to social norms, and it is a necessary pathway for adolescents' socialization. However, it is in conflict with the developmental needs of adolescents for individual autonomy and separation-individualization, and ultimately affects the developmental outcomes of adolescents. The Object Relations Theory (ORT) also points out that too much parental control can hinder the formation of good attachment and sense of security in children, and thus inhibit individual developmental initiative. However, the Confucian culture of "father's kindness and son's filial piety" emphasizes the values of parental authority and filial piety, which makes Chinese parents pay more attention to guiding and monitoring their children's psychological and behavioral norms, and their children are more likely to see parental control as an expression of acceptance and love, and thus are more willing to make positive changes. In addition, the findings of existing empirical studies on the relationship between parental control and positive adolescent development are controversial. This may be due to the fact that previous studies have adopted a more variable-centered perspective. Based on this, the present study adopted the potential profile analysis method under the "individual-centered" perspective to examine the overall performance and developmental characteristics of parent-reported psychological and behavioral control in a more objective way, and explored the longitudinal relationship between different subtypes of parental control and junior high school students' personal growth initiative.

The present study was conducted on 3,613 parents (68.5% female; Mage = 39.67, SD = 7.32) and junior high school students (47.3% female; Mage = 12.73, SD = 0.66) in eight middle schools in Shaanxi Province with 2 follow-up surveys over a 1-year period. Results found (1) overall moderate levels of parent-reported psychological control and overall high levels of parent-behavioral control. Based on the multidimensional manifestations of parent-reported triggering guilt, love withdrawal, patent arbitrariness, and behavioral control, parental control in Chinese culture could be distinguished into a low psychological control-high behavioral monitoring group (C1; 37%), a medium psychological control-high behavioral monitoring group (C2; 58%), and a high psychological control-high behavioral monitoring group (C3; 5%); and (2) in comparison to the low psychological control-high behavioral monitoring group in T1 , the medium psychological control-high behavioral monitoring group in T1 was able to significantly and positively predict the personal growth initiative of T2 middle school students, while the high psychological control-high behavioral monitoring group in T1 significantly and negatively predicted the personal growth initiative of T2 middle school students. (3) The moderating role of junior high school students' gender between parental control and personal growth initiative was not significant. The results of this study indicate that there exists an optimal level of parental control in the Chinese cultural context, and that medium psychological control-high behavioral monitoring can maximally promote junior high school students' personal growth initiative, which provides a basis for scientific understanding and effective intervention of the effects of parental control on junior high school students' personal growth initiative in the Chinese cultural context.

***Keywords*:** psychological control, behavioral control, personal growth initiative, latent profile analysis

童年期父母心理攻击的发展轨迹、影响因素及其与儿童发展结果的关系

刘媛[1]　王玉珠[1]　王美芳[2]（通讯作者）
1 首都师范大学心理学院，北京，100037
2 首都师范大学初等教育学院，北京，100037，meifangw@hotmail.com

摘 要　先前研究表明，父母心理攻击会随儿童年龄的增长表现出一定变化，且在不同家庭中，父母心理攻击的发展轨迹存在差异。家庭系统理论指出，父亲和母亲的严厉管教行为可能会受到对方影响。基于该理论，在不同家庭中父亲和母亲对儿童实施的心理攻击可能表现出不同的共同发展模式。然而，已有关于父母心理攻击的研究较少关注其共同发展模式及个体差异，对父母心理攻击共同发展的影响因素及其与儿童发展间关系的揭示也不够全面、充分。鉴于此，本研究以 1137 名小学一至三年级儿童及其父母为被试，采用连续五年的追踪研究设计来考察父母心理攻击发展轨迹亚组及其联合发展轨迹亚组，在此基础上进一步探讨家庭因素(家庭社会经济地位、父母婚姻满意度和儿时受心理攻击经历)和儿童因素(性别、年龄和气质)对父母心理攻击发展轨迹的预测作用，以及这一发展轨迹与儿童发展结果(内、外化问题)的关系。结果发现：(1)父亲心理攻击发展轨迹分为低-稳定、高-下降-上升和中-上升-下降三组，母亲心理攻击发展轨迹分为低-稳定、高-下降、中-上升-下降和低-上升四组，父母心理攻击联合发展轨迹分为父母低-稳定、父中-稳定/母高-下降、父高-上升-下降/母中-稳定三组。(2)父母较低的婚姻满意度和较多的儿时受心理攻击经历是父母心理攻击发展轨迹亚组及其联合发展轨迹亚组的危险因素。儿童较小的年龄是父亲心理攻击发展轨迹亚组的危险因素，儿童较高的消极情绪性是母亲心理攻击发展轨迹亚组及父母心理攻击联合发展轨迹亚组的危险因素。(3)在父亲心理攻击的中-上升-下降组、母亲心理攻击的中-上升-下降组和低-上升组以及父母心理攻击的父中-稳定/母高-下降组和父高-上升-下降/母中-稳定组中，儿童的内外化问题行为水平较高。研究结果表明，父母心理攻击对儿童内外化问题具有累积影响，干预研究应高度关注父母心理攻击随时间发展仍处于较高水平的家庭，并从家庭和儿童等多个层面给予恰当的指导和帮助。

关键词　心理攻击，发展轨迹，影响因素，问题行为

Trajectories of Parental Psychological Aggression During Childhood: Links with Predictors and Children's Developmental Outcomes

Yuan Liu[1], Yuzhu Wang[1], Meifang Wang[2](corresponding author)
1 Department of Psychology, Capital Normal University, Beijing
2 College of Elementary Education, Capital Normal University, Beijing

Abstract：Previous research has shown that parental psychological aggression may change with children's age, and individual differences exist in the developmental trajectories of parental psychological aggression within different families. Family systems theory suggests that fathers and mothers discipline their children in a mutually influential relation. Consequently, paternal and maternal psychological aggression may exhibit distinct co-developmental patterns across different families. However, prior studies on psychological aggression have mainly focused on identifying influencing factors and examining children's developmental outcomes associated with parental psychological aggression. Limited attention has been given to understanding how paternal and maternal psychological aggression co-develop, the variations in co-developmental patterns across different subgroups, the factors that explain these co-developmental patterns, and whether these patterns are linked to

children's developmental outcomes. To address these gaps, utilizing five annual waves of survey data collected from 1137 families with children in grades 1 to 3, this study aimed to explore the developmental trajectories of paternal and maternal psychological aggression, as well as their joint presentation. Additionally, this study examined family-level factors (including socioeconomic status, parental marital satisfaction and psychological aggression experiences in childhood) and child-level factors (including gender, age, and temperament) that might influence the trajectories of parental psychological aggression. This study also investigated the association between these trajectories and children's developmental outcomes (internalizing and externalizing problem behaviors). The results revealed the following: (1) Three trajectory classes of paternal psychological aggression were identified: low-persistent, high-decreasing-increasing, and moderate-increasing-decreasing. Four trajectory classes of maternal psychological aggression were identified: low-persistent, high-decreasing, moderate-increasing-decreasing, and low-increasing. Three joint trajectory classes of paternal and maternal psychological aggression were identified: low-persistent-both, moderate-persistent-father/high-decreasing-mother, and high-increasing-decreasing-father/moderate-persistent-mother. (2) Lower marital satisfaction and more psychological aggression experiences during childhood were risk factors for the trajectory classes of paternal and maternal psychological aggression, as well as their joint presentation. In addition, a younger age of children was a risk factor for the trajectory classes of paternal psychological aggression, while higher levels of negative affectivity in children were a risk factor for the trajectory classes of maternal psychological aggression and the joint trajectory classes of paternal and maternal psychological aggression. (3) Children exhibited higher levels of internalizing and externalizing problem behaviors in the following trajectories: the moderate-increasing-decreasing trajectory of paternal psychological aggression, the moderate-increasing-decreasing trajectory and the low-increasing trajectory of maternal psychological aggression, and the moderate-persistent-father/high-decreasing-mother trajectory and the high-increasing-decreasing-father/moderate-persistent-mother trajectory of paternal and maternal psychological aggression. These findings indicate the cumulative effects of parental psychological aggression on children's internalizing and externalizing problem behaviors. Intervention projects should give adequate attention to families with chronically high parental psychological aggression and provide timely support to these families by interfering with both family- and child-related factors.

Keywords：psychological aggression, developmental trajectories, influential factors, problem behavior

青少年受欺负、自尊和亲社会行为的双向关系：一项随机截距交叉滞后研究

边昊天[1] 边玉芳[1,2] 梁丽婵[1,2]（通讯作者）

1 北京师范大学中国基础教育质量监测协同创新中心，北京，100875

2 北京师范大学儿童家庭教育研究中心，北京，100875，lichanliang@163.com

摘 要 “受欺负后还愿意表现出亲社会行为吗？”“亲社会水平低会被贴上好欺负的标签吗？”已有研究表明，两者之间的关系可能是错综复杂的。目前还没有研究在个体内水平上探讨青少年受欺负和亲社会行为之间的双向关系、潜在的中介（如自尊）以及性别影响，也缺乏利用纵向数据来检查这些过程的研究。探究受欺负和亲社会行为间的双向关系及其机制，对进一步理解青少年社会性发展具有重要价值。因此，本研究以北京市2485名青少年为被试，开展初一至初三为期三年，每次间隔一年的追踪研究。采用随机截距交叉滞后模型(random intercept cross-lagged panel model, RI-CLPM)分离个体间和个体内效应，考察男女青少年受欺负和亲社会行为间的双向关系及自尊的中介作用。结果表明：(1)在男生和女生的个体间水平上，受欺负、自尊以及亲社会行为的随机截距项间相关均显著。(2)在男生的个体内水平上，T1的受欺负显著负向预测T2的自尊(β=-0.116, p<0.05)。T1和T2的自尊分别显著正向预测T2和T3的亲社会行为($\beta_{T1\rightarrow T2}$=0.180, p<0.05; $\beta_{T2\rightarrow T3}$=0.190, p<0.05)。T2的自尊没有中介T1的受欺负对T3的亲社会行为的影响(indirect effect$_{T1BV\rightarrow T2SE\rightarrow T3PB}$=-0.007, 95%CI=[-0.031, 0.003])。对男生来说，受欺负导致自尊受损，低水平的自尊会导致亲社会行为减少，但自尊在受欺负对亲社会行为的影响中并不起中介作用。(3)在女生的个体内水平上，T1和T2的受欺负均显著负向预测随后间隔一年的自尊($\beta_{T1\rightarrow T2}$=-0.151, p<0.05; $\beta_{T2\rightarrow T3}$=-0.133, p<0.05)。T1和T2的自尊均显著正向预测随后间隔一年的亲社会行为($\beta_{T1\rightarrow T2}$=0.240, p<0.05; $\beta_{T2\rightarrow T3}$=0.231, p<0.05)。女生还表现出比男生更复杂的影响模式，具体来说，T1的亲社会行为显著正向预测T2的自尊(β=0.138, p<0.05)，T2的自尊显著负向预测T3的受欺负(β=-0.156, p<0.05)。此外，T2的自尊同时中介了受欺负和亲社会行为之间的双向关系(indirect effect$_{T1BV\rightarrow T2SE\rightarrow T3PB}$=-0.035, 95%CI=[-0.071, -0.011]; indirect effect$_{T1PB\rightarrow T2SE\rightarrow T3BV}$=-0.022, 95%CI=[-0.067, -0.001])。对女生来说，更多受欺负经历会通过损害个体自尊进而降低其亲社会行为；较少的亲社会行为也会通过损害个体自尊进而增加其受欺负的频率。本研究的结果提示需要关注青少年，特别是女生自尊的发展，为改善受欺负现状和提高亲社会行为提供实证依据。

关键词 受欺负，自尊，亲社会行为，随机截距交叉滞后模型，青少年

Reciprocal Relations between Bullying Victimization, Self-esteem, and Prosocial Behavior among Adolescents: A RI-CLPM study

Haotian Bian[1] Yufang Bian[1 2] Lichan Liang[1 2]

1 Collaborative Innovation Center of Assessment toward Basic Education Quality, Beijing Normal University, Beijing, China

2 Child and Family Education Research Center, Beijing Normal University, Beijing, China

Abstract: "Would you still be inclined to exhibit prosocial behavior after experiencing bullying victimization?" "Would low levels of prosocial behavior be labeled as vulnerable to bullying victimization?" Studies have revealed that their relationship might be complex. Studies exploring the reciprocal relationship, potential mediators (e.g., self-esteem), and gender effects between bullying victimization and prosocial behavior among adolescents at the within-person level are limited, and studies using longitudinal data to examine these processes are also lacking. The examination of the reciprocal relationship between bullying victimization and prosocial behavior, as well as its mechanism, is valuable for gaining a deeper understanding of adolescents' social development. A total of 2485 adolescents from Beijing participated in a three-year longitudinal study, with data collected annually from the first year of junior high school to the third year. The research employed the Random Intercept Cross-Lagged Panel Model (RI-CLPM) that separated the between-person and within-person effects to analysis the reciprocal relationship between bullying victimization and prosocial behavior among male and female adolescents, as well as a mediating role of self-esteem in this reciprocal relationship. The results found that: (1) There are significant correlations between random intercept of both bullying victimization, self-esteem, and prosocial behavior at the between-person level for males and females. (2) For males at the within-person level, T1 bullying victimization significantly negatively predicts T2 self-esteem (β=-0.116, p<0.05). T1 and T2 self-esteem significantly positively predict T2 and T3 prosocial behavior ($\beta_{T1\rightarrow T2}$=0.180, p<0.05; $\beta_{T2\rightarrow T3}$=0.190, p<0.05). T2 self-esteem does not mediate the influence of T1 bullying victimization on T3 prosocial behavior(indirect effectT1BV→T2SE→T3PB=-0.007, 95%CI=[-0.031, 0.003]). For males, bullying victimization leads to impaired self-esteem and lower self-esteem results in reduced prosocial behavior. However, self-esteem does not play a mediating role in the impact of bullying victimization on prosocial behavior. (3) For females at the within-person level, both T1 and T2 bullying victimization significantly negatively predict self-esteem one year later ($\beta_{T1\rightarrow T2}$=-0.151, p<0.05; $\beta_{T2\rightarrow T3}$=-0.133, p<0.05). Both T1 and T2 self-esteem significantly positively predict prosocial behavior one year later($\beta_{T1\rightarrow T2}$=0.240, p<0.05; $\beta_{T2\rightarrow T3}$=0.231, p<0.05). Female adolescents exhibit more diverse patterns of influence than male adolescents, specifically, T1 prosocial behavior significantly positively predicts T2 self-esteem (β=0.138, p<0.05), and T2 self-esteem significantly negatively predicts T3 bullying victimization (β=-0.156, p<0.05). Furthermore, T2 self-esteem simultaneously mediates the reciprocal relationship between bullying victimization and prosocial behavior(indirect effect$_{T1BV\rightarrow T2SE\rightarrow T3PB}$=-0.035, 95%CI=[-0.071, -0.011]; indirect effect$_{T1PB\rightarrow T2SE\rightarrow T3BV}$=-0.022, 95%CI=[-0.067, -0.001]). For females, experiencing more bullying victimization is associated with lower self-esteem, which in turn leads to decreased prosocial behavior. Lower levels of prosocial behavior can also increase the frequency of bullying victimization by diminishing individuals' self-esteem. These findings highlight the importance of focusing on the self-esteem development of adolescents, particularly females, and provide empirical evidence for addressing bullying victimization and promoting prosocial behavior among adolescents.

Keywords：bullying victimization, self-esteem, prosocial behavior, RI-CLPM, adolescents

儿童社交淡漠对心理社会适应的影响：父母心理控制的调节作用

胡义豪[1] 郑宏[2] 曹宇晨[3] 李冉[1] 王楠[1] 刘俊升[1 2]（通讯作者）
1 华东师范大学心理与认知科学学院，上海，200333，jsliu@psy.ecnu.edu.cn
2 上海市长宁区精神卫生中心，上海，200050
3 珠海市第二中学，珠海，519000

摘 要 作为社会退缩的一种子类型，社交淡漠的特征是在社交情境中，个体同时有着较低的趋近动机和较低的回避动机。父母心理控制是指父母通过对儿童撤回关爱、诱发他们的内疚和羞耻等手段，从而控制儿童的思想、情感和行为的一种教养方式。以往研究表明，社交淡漠和父母心理控制对于儿童的心理社会适应都有着消极的影响，但二者的相互作用则少有研究关注。根据拟合优度模型（Goodness of Fit Model）的观点，当儿童自身的气质和父母的教养行为有着良好的匹配时，儿童能获得较好的发展。考虑到社交淡漠水平较高的儿童更喜欢自由而不受限制地行动，这和父母的心理控制是相冲突的，因此推测，对于社交淡漠水平较高的儿童来说，父母的心理控制可能会有更消极的影响。本研究旨在探索父母心理控制对儿童社交淡漠及其心理社会适应关系的调节作用。研究以上海市 1275 名 3 至 7 年级学生为被试，采用班级戏剧量表、儿童抑郁量表、儿童社交焦虑量表、感知父母心理控制量表进行集体施测。结果表明：（1）社交淡漠正向预测同伴侵害、抑郁、社交焦虑，负向预测社会偏爱，即儿童的社交淡漠可能导致其不良的心理社会适应结果；（2）父母心理控制在社交淡漠和心理社会适应各变量之间的关系上均起着显著的调节作用。具体而言，父母心理控制水平较高时，社交淡漠对四个适应变量均有着较强而显著的预测作用，父母心理控制水平较低时，社交淡漠对同伴侵害、抑郁、社会偏爱的预测作用虽仍显著，但程度也有显著的下降，而社交淡漠对社交焦虑的预测作用则变得不显著。即父母的心理控制加剧了社交淡漠对于儿童心理社会适应的消极影响。研究结果揭示了父母教养行为对于儿童社交淡漠和心理社会适应关系的影响机制，对于如何帮助社交淡漠水平较高的儿童获得更好的发展具有启示作用。

关键词 儿童，社交淡漠，父母心理控制，心理社会适应，调节作用

The Moderating Effect of Parental Psychological Control on the Associations between Children's Unsociability and Psychosocial Adjustment

Yihao Hu[1], Hong Zheng[2], Yuchen Cao[3], Ran Li[1], Nan Wang[1], Junsheng Liu[1 2]
1 School of Psychology and Cognitive Science, East China Normal University, Shanghai, 200333
2 Shanghai Changning Mental Health Center, Shanghai, 200050
3 Zhuhai No.2 High School

Abstract：As a subtype of social withdrawal, unsociability is characterized by both low approach motivation and low avoidance motivation in social interactions. Parental psychological control is a type of parenting style, in which parents control their children's thought, emotion and behavior through withdrawing love and inducing children's guilt and shame. Previous studies have indicated that both unsociability and parental psychological control had negative influence on children's psychosocial adjustment, but their interaction has not been explored.

For the perspective of Goodness of Fit Model, children can acquire better development when their temperament matches their parents' parenting behavior well. Unsociable children prefer free and unrestricted activities, which may be conflicted with parental psychological control. Therefore, it can be speculated that parental psychological control may have more negative influence on psychosocial adjustment for unsociable children. The current study was aimed at exploring the moderating effect of parental psychological control on the associations between children's unsociability and psychosocial adjustment. We chose 1275 students of grade 3-7 as participants, and the measures included Revised Class Play, Children's Depression Inventory, Social Anxiety Scale for Children and Perceived Parental Psychological Scale. The results indicated that: (1) Unsociability could positively predict peer victimization, depression, and social anxiety, and negatively predict social preference. That is, children's unsociability might contribute to poor psychosocial adjustment; (2) Parental psychological control could significantly moderate the associations between unsociability and psychosocial adjustment. Specifically, when parental psychological control was high, the predicting effect of unsociability on four indices were all strong and significant. But when parental psychological control was low, although unsociability could still predict peer victimization, depression, and social preference significantly, the strength of predicting effect decreased significantly, and unsociability could not predict social anxiety significantly. That is, parental psychological control intensified the negative influence of children's unsociability on psychosocial adjustment. The results reveal the mechanism of parenting behavior on associations between children's unsociability and psychosocial adjustment, and have implications for how to help unsociable children to acquire better development.

Keywords：Children, Unsociability, Parental psychological control, Psychosocial adjustment, Moderating effect

母亲教养压力和学前儿童问题行为：心理控制的中介作用和抑制控制的调节作用

孙娟娟 李燕 （通讯作者）

上海师范大学学前教育学院，上海，200234，liyan@shnu.edu.cnE-mail

摘 要 儿童心理健康逐渐引起越来越多研究者的关注，是当前我国的一个重要问题。幼儿期是一个快速发展的时期。特别是，2 至 6 岁是从婴儿期过渡到自主成长以及社会和认知能力成长的关键时期。这也是问题行为出现的时期（Campbell, 1995, 2006）。儿童早期的问题行为一直与后来的负面发展结果有关，如学业成绩不佳、同伴关系困难、药物滥用和认知功能差。根据布朗芬布伦纳的生态系统理论，家庭是儿童生活中重要的微观环境。父母的压力在塑造孩子的个性和情感发展方面发挥着重要作用。因此，在本研究中，我们的主要目的是检验母亲教养压力影响儿童问题行为潜在的作用机制，为儿童问题行为早期预防和干预提供实践一句。

来自中国上海两所公立和普通幼儿园的 207 名儿童（107 名男孩；M_{age} = 48.62 个月，SD = 3.73）参与了这项研究。数据收集使用母亲报告的母亲教养压力，心理控制，抑制控制和教师报告的问题行为。本研究中的统计分析包括两个步骤。首先，我们进行了初步分析，计算了所有研究变量的描述性统计数据（平均值、标准差和相关性）。其次，我们使用 PROCESS 检验了母亲养育压力与儿童问题行为之间的有调节的中介模型。

结果表明：（1）母亲教养压力与母亲心理控制和儿童问题行为显著正相关，与儿童抑制控制显著负相关；（2）心理控制在母亲教养压力和儿童问题行为之间具有中介作用。母亲教养压力通过增加心理控制对问题行为的间接效应为 0.09（95%CI[0.01，0.18]，SE = 0.04）；（3）儿童的抑制控制调节了母亲教养压力与心理控制之间的关系。对于抑制控制水平较低的儿童，母亲的教养压力预测了较高的心理控制（$\beta = 0.45$，$p < 0.0001$），而对抑制控制水平较高的儿童这种消极影响则不显著（$\beta = 0.01$，$p > 0.05$）。

本研究有助于加深对中国背景下母亲教养压力对学前儿童行为问题的作用机制的理解。本研究结果强调了母亲教养压力在通过低水平的抑制控制增加儿童问题行为方面的重要性，并对父母和教育工作者在幼儿问题中母亲高教养压力背景下，加强儿童的抑制控制具有启示。父母应该更加积极地关注年幼的孩子，给予孩子更多的自主支持，与他们更友好地沟通，倾听他们的想法，这将有助于减少他们的问题行为

关键词　教养压力，问题行为，心理控制，抑制控制，学前儿童

Maternal Parenting Stress and Problem Behaviors in Preschooler' Children: The Mediating Role of Psychological Control and the Moderating Role of children's Inhibit Control

Juanjuan Sun Yan Li

Shanghai Institute of Early Childhood Education, Shanghai Normal University, Shanghai, China

Email: liyan@shnu.edu.cn

Abstract： Children's mental health has gradually attracted more and more researchers' attention, which is an important issue in current China. Early childhood is a period of rapid development. In particular, the period between 2 and 6 years old is a critical period for the transition from infancy to the growth of autonomy, as well as for the growth of social and cognitive abilities. It is also a period when problem behaviors emerged (Campbell, 1995, 2006). Problems behavior in early childhood is persistently linked with later negative developmental outcomes, such as academic underachievement, peer relationship difficulties, substance abuse, and poor cognitive functions. According to Bronfenbrenner's ecosystem theory, family is an important micro-environment in children's life. Parenting stress can play an important role in shaping children's personality and emotional development. Thus, in the present study, our primary purpose was to examine the mechanism through which maternal and child characteristics may impact children's problems behavior, and the knowledge learned can be applied to early prevention and intervention programs.

207 children (107 boys; M_{age} = 48.62 month, *SD* = 3.73) from two public and regular preschools located in Shanghai, China participated in this study. Data were collected using mother-reports of maternal parenting stress, psychological control, inhibit control and teacher-report of problems behavior. The statistical analyses in this study consisted of two steps. First, we conducted a preliminary analysis calculating descriptive statistics (means, standard deviations and correlations) for all study variables. Second, we examined the moderated mediation model between maternal parenting stress and children's problems behavior using PROCESS.

The results showed that: (1) Maternal parenting stress was positively associated with psychological control and child problems behavior, and negatively associated with child inhibit control; (2) Psychological control had a mediating effect between maternal parenting stress and child problems behavior. The indirect effect of parenting stress on problems behavior through increasing psychological control was 0.09 (95% CI [0.01, 0.18], SE = 0.04); (3) Children's inhibit control moderated the relation between maternal parenting stress and psychological control. For children with low levels of inhibitory control, maternal parenting stress predicted high psychological control (β = 0.45, $p < 0.001$),while not significant for children with high levels of inhibit control (β = 0.01， $p > 0.05$).

This study contributes to deepen the understanding of the moderated mediating effects of maternal parenting stress on preschoolers' behavior problems in the Chinese context. The present findings highlight the importance of maternal parenting stress in increasing children's problem behaviors through low levels of inhibitory control and have implications for parents and educators in enhancing children's inhibitory control in the context of maternal

parenting stress in young children's problems. Parents should pay more positive attention to young children, give children more autonomous support, and communicate with them more friendly and listen to their ideas, which will help reduce their problems behavior.
Keywords：parenting stress, problems behavior, psychological control, inhibit control, young children

中国儿童青少年心理健康问题及预测因素：一项全国大样本网络分析

申净旖[1]　方晓义[1]（通讯作者）
1 北京师范大学发展心理研究院，北京，100875，通讯作者 E-mail（fangxy@bnu.edu.cn）

摘 要　儿童青少年心理健康问题一直是社会各界密切关注的焦点。然而，现有研究较少关注这些问题的相互作用和相对重要程度，也较为忽视各影响因素在预测心理健康问题的相对作用。目前，网络分析通过结合量化与可视化的优势成为理解这一问题的重要方法。本研究旨在通过网络分析探索儿童青少年九大心理健康问题（即抑郁、焦虑、压力、网络成瘾、学业倦怠、自杀意念、自伤行为、欺凌、受欺凌）与个体和环境两方面预测因素（即毅力、应对方式、父母教育期望、父母婚姻满意度、学校满意度、社会支持）之间的关系，并重点关注性别和学段差异。本研究采用具有全国代表性的样本，针对 151,336 名儿童青少年（49.57%女生，平均年龄 = 13.50，*SD* = 2.46）进行施测。结果显示，（1）在心理健康问题网络中，网络成瘾的预期影响指数最高，其次分别是学业倦怠和自杀意念；在影响因素网络中，桥节点分别为抑郁、毅力和应对方式。（2）通过性别子网络比较发现，在心理健康问题网络中，预期影响指数最高的三个节点与总网络相同，但各节点指数之间以及整体网络强度在男生和女生间存在显著差异；在影响因素网络中，抑郁和毅力为共有桥节点，自杀意念和学校满意度分别为男生和女生特异桥节点。（3）通过学段子网络比较发现，在心理健康问题网络中，预期影响指数最高的三个节点与总网络相同，但部分节点指数以及整体网络强度在不同学段间存在显著差异；在影响因素网络中，抑郁和毅力为共有桥节点，焦虑、父母教育期待、应对方式分别为三个学段特异桥节点。综上，本研究通过网络分析揭示中国儿童青少年发展的核心问题是网络成瘾，其次是学业倦怠和自杀意念，以上问题在性别和学段上表现稳定，但强度存在显著差异；此外核心影响因素是个体毅力，不同性别和学段存在特异性影响因素。本研究为考察中国儿童青少年发展提供了新视角，未来可以通过重点干预网络成瘾和学业倦怠等问题，并结合核共同和特异性影响因素，提升儿童青少年心理健康水平，促进儿童青少年积极发展。
关键词　心理健康问题，影响因素，网络分析，中国儿童青少年

Mental health problems and predictive factors among Chinese youth: A nationwide large-scale network analysis

Jingyi Shen　　Xiaoyi Fang
Institute of Developmental Psychology, Beijing Normal University, Beijing, 100875

Abstract：Youth Mental health problems have been a focal point of concern across various sectors of society. However, existing research has paid limited attention to the interplay and relative importance of these issues, as well as the varying impact of influencing factors on predicting mental health problems. Network analysis, with its combination of quantitative and visual advantages, has emerged as an essential method for understanding these complexities. This study aims to employ network analysis to explore the relationships between nine major mental health issues among youth (i.e., depression, anxiety, stress, internet addiction, academic burnout, suicidal ideation,

self-harm behavior, bullying, being bullied), and individual and contextual predictive factors (grit, coping strategies, parental educational expectations, parental marital satisfaction, school satisfaction, social support), with a particular focus on gender and educational stage differences. This research utilized a nationally representative sample of 151,336 youth (49.57% females, mean age = 13.50, SD = 2.46) for data collection. The results show that (1) in the mental health problem network, internet addiction had the highest Expected Influence Index (EI), followed by academic burnout and suicidal ideation. In the network of influencing factors, depression, resilience, and coping strategies were identified as bridge nodes. (2) Comparing gender-specific sub-networks, the top three nodes with the highest EI in the mental health problem network were consistent with the overall network, but there were significant differences in the EI index and overall network strength between male and female participants. In the network of influencing factors, depression and resilience were common bridge nodes, while suicidal ideation and school satisfaction were identified as gender-specific bridge nodes for males and females, respectively. (3) Comparing educational stage-specific sub-networks, the top three nodes with the highest EI in the mental health problem network were consistent with the overall network. However, there were significant differences in some node EI index and overall network strength between different educational stages. In the network of influencing factors, depression and resilience were common bridge nodes, and anxiety, parental educational expectations, and coping strategies were identified as stage-specific bridge nodes for elementary, middle, and high school stages, respectively. In conclusion, this study, through network analysis, revealed that internet addiction is the core problem in the development of Chinese youth, followed by academic burnout and suicidal ideation. While these problems remained stable across gender and educational stages, there were significant differences in their intensity. Additionally, grit was identified as a core influencing factor, while gender and educational stages exhibited other specific influencing factors. This study provides new perspectives on examining the development of Chinese youth and suggests future interventions targeting internet addiction and academic burnout, considering both core and specific influencing factors, to enhance youth's mental health level and promote their positive development.

Keywords：mental health problems, predictive factors, network analysis, Chinese youth

大尺度结构协变网络预测儿童计算能力增长

叶学鉴[1#] 张凯杰[1#] 李征[1] 任天[1] 李葆明[1] 王春杰[1]（通讯作者）

1 杭州师范大学脑科学研究所，杭州，311121

摘 要 大脑不同脑区之间相互作用形成了不同的子网络。其中，结构协变网络是一种研究大脑不同脑区结构协变关系的研究手段。近年来，很多研究指出结构协变网络能够反映个体认知差异。尽管以往研究表明大脑结构对计算能力发展至关重要，然而较少有研究考察儿童大尺度结构协变网络与计算能力的关系。本研究旨在探讨儿童早期灰质结构协变网络是否有助于解释两年后儿童计算能力的增长速率。为了探究这个问题，我们使用了一个纵向样本数据集，其中包括 63 名正常发育儿童 11 岁的结构磁共振数据以及 11 岁和 13 岁两个时间点的一位数乘法减法行为数据。采用基于网络的统计方法发现，与乘法进步较低的儿童相比，乘法进步较高的儿童 11 岁时表现出一个结构协变显著增强的子网络，这个子网络的节点主要位于额顶、默认和突显网络。利用图论分析发现，乘法进步较高的儿童 11 岁时在额顶-突显网络之间和额顶-默认网络之间表现出更多的连接，而在默认网络内部表现出更少的连接。11 岁的大尺度结构协变网络与一位数减法纵向增长速率未表现出显著相关关系。我们的研究结果表明大尺度结构协变网络有助于解释儿童乘法计算能力的发展差异。本研究为结构协变网络与认知功能的关系进一步提供了证据。

关键词 计算能力，儿童，纵向增长，结构协变网络，结构磁共振成像

Large-scale structural covariance networks predict longitudinal gain in arithmetic ability in children

Xuejian Ye[a#], Kaijie Zhang[a#], Zheng Lia[a], Tian Ren[a], Bao-ming Li[a], Chunjie Wang[a*]
Institute of Brain Science and Department of Physiology, School of Basic Medical Sciences, Hangzhou Normal University, Hangzhou, China

***Abstract*:** Although a number of studies have indicated the importance of brain structure for arithmetic, it remains unclear whether and how large-scale structural covariance networks support arithmetic development in children. Here, we investigated this important question by using a public longitudinal sample comprising 63 typically developing children. The participants received structural magnetic resonance imaging scanning when they were 11 years old, and were tested with both multiplication and subtraction tasks at 11 years old (Time 1) and 13 years old (Time 2), respectively. Structural covariance was constructed using mean gray matter volumes of regions of interest. By using network-based statistics (NBS), we detected a sub-network containing structural covariance strength among the frontal-parietal, default-mode and salience networks that were positively associated with longitudinal gain in multiplication. By using graph theory, we observed that children who improved over time in multiplication exhibited more between-network connections of salience network with frontal-parietal and default-mode networks but less within-network connections of default-mode network as compared to their peers who did not improve. When comparing children with and without improvement in subtraction, we did not observe any differences in structural covariance. Our findings indicate that children with improvement in multiplication have structural brain differences from those without improvement in the patterns of anatomical coupling among widely distributed cortical regions, possibly resulting to a system-level reorganization that might may contribute to the longitudinal development of multiplication ability.

***Keywords*：** Arithmetic, Children, Longitudinal Development, Structural Covariance Network, Magnetic Resonance Imaging

孤独症谱系障碍的阅读理解缺陷：语言和任务的调节作用

雷硕[1,2] 张茜淼[1,2] 马雪儿[1,2] 李佳慧[1,2] 赵晶晶[1,2]（通讯作者）
1 陕西师范大学心理学院，西安，710062
2 陕西省行为与认知神经科学重点实验室，西安，710062，jingjing.zhao@snnu.edu.cn

摘 要 孤独症谱系障碍（autism spectrum disorder, ASD）的阅读理解缺陷已经在很多研究及元分析中得到证实。然而，很少有研究考察施测语言及阅读理解任务对 ASD 阅读理解缺陷的影响。本研究采用元分析技术，借助大样本检验了 ASD 群体和典型发育（typically developing, TD）群体在阅读理解上的组间差异，并系统探究了施测语言属性和阅读理解任务特征的调节作用。其中，施测语言属性包括书写系统及正字法深度；阅读理解的任务特征包括测验标准化类型、测验材料体裁、测验文本类型、任务难度、任务评估信息、任务作答类型和任务施测方式。元分析共纳入 55 篇文章，111 项独立研究，共计 6375 名被试，包括 2976 名 ASD（M_{age} = 13.98）和 3399 名 TD（M_{age} = 11.97）。结果表明，ASD 存在明显的阅读理解缺陷（g = -0.52, 95% CI [-0.76, -0.41]）。将施测语言属性和阅读理解的任务特征等变量纳入元回归模型，在控制了协变量后，主要结果表明：与表音文字相比，ASD 在施测语言为表意文字的阅读理解任务中的表现更差（β = -1.81, p = 0.019）；与浅层正字法语言相比，当深层正字法语言作为施测语言时，ASD 的阅读理解缺陷更明显（β = -0.82, p = 0.037）。此外，相较于非标准化或自编的阅读理解测验，ASD 在标准化阅读理解测验上具有更

差的表现（β = -0.91, p = 0.046）；与混合型的阅读理解相比，ASD 在仅针对段落或篇章（β = -1.58, p = 0.047）以及在仅针对句子的阅读理解上表现更差（β = -1.38, p = 0.049）；与未提及材料难度相比，ASD 在难度匹配时具有更差的阅读理解表现（β = -0.66, p = 0.017）。测验材料体裁以及任务作答类型对 ASD 和 TD 阅读理解的组间差异均不存在显著的调节作用（ps ≥ 0.080）。研究表明，对于施测语言属性，ASD 在使用表意文字（如中文）和深层正字法语言（如英文）进行阅读理解时会产生更多的困难；研究结果强调了阅读理解任务特征的重要性，在 ASD 的筛查与干预等应用中，应该根据应用场景和任务特点更有针对性地选用适合 ASD 的阅读理解任务。上述结果从任务特征和语言属性的角度为 ASD 的阅读理解缺陷提供了新的见解，并为未来有针对性的干预提供了灵感。
关键词　孤独症谱系障碍，阅读理解，任务特征，语言属性，元分析

Reading comprehension deficits in autism spectrum disorders: Moderation of languages and tasks

Shuo Lei[1, 2], Ximiao Zhang[1, 2], Xueer Ma[1, 2], Jiahui Li[1, 2], Jingjing Zhao[1, 2*]
1 School of Psychology, Shaanxi Normal University, Xi'an, China, 710062
2 Shaanxi Provincial Key Laboratory of Behavior and Cognitive Neuroscience, Xi'an, China, 710062, jingjing.zhao@snnu.edu.cn

***Abstract*：** Individuals with autism spectrum disorder (ASD) often present poorer reading comprehension, a finding substantiated throughout the literature. However, few studies have investigated the moderation of test languages and reading comprehension tasks on reading comprehension deficits in ASD. This research therefore systematically conducted a meta-analysis of large sample to explore group differences and the moderation of test language attributes and task characteristics of reading comprehension between the ASD and typically developing (TD) groups. Test language attributes include writing system and orthography. Task characteristics of reading comprehension include standardized types of tests, test genres, formats of the materials, difficulty, task information assessed, and task types. 55 articles (111 studies) and 6,375 individuals (ASD: 2,976, M_{age} = 13.98; TD: 3,399, M_{age} = 11.97) were included in this meta-analysis. Results suggested that ASD showed worse performance (g = -0.52, 95%CI [-0.76, -0.41]) in reading comprehension, compared with age-matched TD peers. After putting test language attributes and task characteristics of reading comprehension as variables into the meta-regression model, and controlling for covariates, the results mainly found that reading comprehension of ASD was worse on ideographic writing systems (β = -1.81, p = 0.019), compared with alphabetic writing systems; and worse on deep orthographies (β = -0.82, p = 0.037), compared with shallow orthographies; worse on standardized tests (β = -0.91, p = 0.046), compared with unstandardized or researcher-constructed tests; worse on paragraphs or passages (β = -1.58, p = 0.047), and on sentences (β = -1.38, p = 0.049), compared with mix formats; worse on difficulty matched (β = -0.66, p = 0.017), compared with unknown difficulty. Genres and task types had no impact on reading comprehension in group differences between ASD and their TD peers strongly (ps ≥ 0.080). Our study showed that ASD performed more difficulties of reading comprehension on ideographic writing systems (e.g., Chinese), and deep orthographies (e.g., English). And our study emphasized the importance of the task characteristics of reading comprehension. In ASD screening and intervention, reading comprehension tasks suitable for ASD should be selected more pertinently by researchers according to application scenarios and task characteristics. These results advance the understanding of reading comprehension in ASD from the perspective of language attributes and task characteristics, and provide inspiration for future targeted interventions.

***Keywords*：** autism spectrum disorder, reading comprehension, task characteristics, language attributes,

meta-analysis

汉字手写能力发展轨迹、性别差异及相关心理机制

张傲雪[1,2]　杨炀[1,2]（通讯作者）

1 中国科学院心理研究所行为科学重点实验室，脑科学与学习困难研究中心，北京，100101

2 中国科学院大学心理学系，北京，100049，yangyang@psych.ac.cn

摘 要　本研究旨在探讨汉语学龄儿童汉字手写能力发展特征。研究对象包括 1-5 年级的小学生 240 人，其中男生 139 人。实验一采用 5（年级：一年级，二年级，三年级，四年级，五年级）×2（性别：男，女）的组间设计，通过延迟抄写（delayed copying）任务测量了被试的手写笔迹质量与手写运动指标（手写速度与潜伏期）。结果显示，小学生手写质量呈现非线性增长趋势：一到二年级阶段，手写质量快速提升；而在二到三年级，变化不明显；在三到五年级阶段，再次快速提升。另外，小学生的手写速度和潜伏期（即书写准备阶段到开始书写的时间间隔）也呈现非线性增长。在一到三年级，手写速度快速增长；而在三到五年级，增长幅度相对较小。

实验二进一步探究小学生手写运动能力的发展。为控制高水平认知加工的负荷，本实验采用直接抄写（direct copying）任务。实验二采用 5（年级：一年级，二年级，三年级，四年级，五年级）×2（视觉反馈：有，无）的混合设计。其中，年级为组间变量，视觉反馈为组内变量，因变量为手写平均时间。结果显示，随年级增长，有视觉反馈与无视觉反馈条件的手写平均时间均显著减少。且视觉反馈与年级之间存在交互作用，一、二年级学生有视觉反馈的手写时间比无视觉反馈长，三、四、五年级不受影响。随着年级的增加，学生逐渐更加熟练地控制手写过程，减少了对视觉反馈的依赖性。

本研究还考察了其他认知机制对手写能力的影响。相关分析结果表明，阅读流畅性、工作记忆（逆序数字工作记忆、非词工作记忆）、快速命名能力以及持续性注意（数字划消测试、偏旁划消测试）均与手写质量存在显著相关。同时，阅读流畅性、视觉空间工作记忆、快速命名能力和持续性注意与汉字手写总时间以及潜伏期之间存在显著相关。

综上所述，小学生的手写能力呈非线性增长，视觉反馈仅影响低年级学生手写时间。此外，认知机制与手写能力密切相关。研究结果将有助于改进汉字教学方法，并对儿童读写障碍诊断和干预有帮助。

关键词　小学生，手写质量，手写速度，认知机制

Development trajectory, gender differences, and related psychological mechanisms of handwriting ability in Chinese characters

Aoxue Zhang[1,2] & Yang Yang[1,2] *

[1]CAS Key Laboratory of Behavioral Science, Center for Brain Science and Learning Difficulties, Institute of Psychology, Chinese Academy of Sciences, Beijing, 100101, China

[2]Department of Psychology, University of Chinese Academy of Sciences, Beijing 100049, China

Abstract：The purpose of this study was to investigate the developmental characteristics of Chinese handwriting ability in Chinese-speaking schoolchildren. The study population consisted of 240 elementary school students in grades 1-5, including 139 boys. Experiment 1 used a 5 (grade: 1st, 2nd, 3rd, 4th, 5th) × 2 (gender: male, female) between-groups design, and measured subject and handwriting handwriting quality and handwriting motor indexes (speed and latency) through a delayed copying task. The results showed that the handwriting quality of elementary

school students showed a non-linear growth trend: at the stage of grades 1 to 2, the quality of handwriting increased rapidly; whereas at the stage of grades 2 to 3, the change was not significant; and at the stage of grades 3 to 5, it increased rapidly again. In addition, elementary school students' handwriting speed and latency (i.e., the time interval between the writing preparation stage and the start of writing) showed a nonlinear increase. In grades one through three, handwriting speed increased rapidly; while in grades three through five, the increase was relatively small.

Experiment 2 further explored the development of handwriting motor skills in elementary school students. To control for the load of high-level cognitive processing, a direct copying task was used in this experiment. Experiment 2 utilized a 5 (grade: 1st, 2nd, 3rd, 4th, 5th) x 2 (visual feedback: yes, no) mixed design. In this case, grade level was the between-group variable, visual feedback was the within-group variable, and the dependent variable was the average handwriting time. The results showed that the mean handwriting time decreased significantly with grade level for both the with and without visual feedback conditions. And there was an interaction between visual feedback and grade level, with students in grades 1 and 2 taking longer to handwrite with visual feedback than without, and grades 3, 4, and 5 were unaffected. As the grade level increased, students gradually became more proficient in controlling the handwriting process, reducing their reliance on visual feedback.

This study also examined the effects of other cognitive mechanisms on handwriting ability. The results of correlation analyses showed that reading fluency, working memory (inverse numerical working memory, nonword working memory), rapid naming ability, and sustained attention (numerical scratch-off test, parabolic scratch-off test) were all significantly correlated with handwriting quality. Meanwhile, reading fluency, visuospatial working memory, rapid naming ability, and sustained attention were significantly correlated with total time spent writing Chinese characters and latency.

In summary, elementary school students' handwriting ability increased nonlinearly, and visual feedback only affected handwriting time in the lower grades. In addition, cognitive mechanisms are closely related to handwriting ability. The results of the study will help to improve the teaching methods of Chinese characters and will be useful for the diagnosis and intervention of dyslexia in children.

Keywords：primary school students, handwriting quality, handwriting speed, cognitive mechanisms

父母数学焦虑与家庭数学活动的关系

尧希[1] 李沛沛[1] 李晓敏[1] 朱映艳[2] 邓林园[3] 牟毅[1]

1 中山大学心理学系，广州，510006,mouyi5@mail.sysu.edu.cn

2 广州番禺实验幼儿园，广州

3 北京师范大学教育学部，北京

摘 要　父母自身的数学焦虑可能会阻碍他们对儿童的数学教育，但目前尚不清楚这一消极影响在儿童的什么年龄开始出现。本研究探讨学前儿童父母的数学焦虑与其在家中开展数学活动频率的关系，以及该关系是否受一系列人口学因素调节(家庭收入、父母受教育程度、家庭藏书数量、父母年龄和性别、儿童年龄和性别)。648 名学前儿童的父母(母亲 497 名，女孩 301 名，儿童平均年龄 4.47 岁；年龄范围 3-6 岁)线上报告自己的数学焦虑水平以及在家对儿童开展数学活动的频率。结果表明，数学活动的频率总体上随父母数学焦虑程度的增加而降低，随父母受教育程度、家庭藏书数量和儿童年龄的增加而增加。此外，儿童年龄调节了父母数学焦虑与数学活动频率的关系:当儿童大于 4.5 岁(4.5-6.0 岁)时，父母数学焦虑显著负向预测数学活动的频率(β = -0.21, p < .001)；但当儿童小于 4.5 岁(3.0-4.5 岁)时，父母数学焦虑和数学活动的关系不显著(β = -0.05, p = .38)。该调节作用可能是因为儿童随年龄增加而需要学习的数学内容更复杂，相应的数

学活动对家长的数学教学技巧也要求更高，这些更易触发家长的数学焦虑并回避居家数学活动；该调节也可能因为儿童即将进入小学，家长预计到儿童将面临的数学学业压力且触发自己的数学焦虑并回避数学活动。此外，结果还显示父女间的数学活动频率显著少于父子、母子和母女间的数学活动频率，提示了早期数学居家教育的性别不平等风险。总之，在儿童正式入学前，父母数学焦虑对其居家数学教学的负面影响已经出现，且其在儿童即将进入小学前尤为明显。这些发现也丰富了幼小衔接时期家庭教育的研究内容，并提示需要对父母的数学焦虑进行有针对性的干预。
关键词　家庭数学活动，父母数学焦虑，数学性别差异，数学养育

The relation between parental mathematical anxiety and home-based math activity

Xi Yao[1]　Peipei Li[1]　Xiaomin Li[1]　Yingyan Zhu[2]　Linyuan Deng[3]　Yi Mou[1]

1 Department of Psychology, Sun Yat-sen University, Guangzhou

2 Panyu Experimental Kindergarten, Guangzhou

3 Faculty of Education, Beijing Normal University, Beijing

Abstract: The math anxiety of parents impedes their math parenting to children, but it is unclear from what age of children this negative impact begins to appear. This study examined the relation between parental math anxiety and the frequency of home-based math activities in parents with preschool-aged children, and the possible moderator effects of multiple demographic factors on this anxiety-activity relation, including family socioeconomic status (house income, educational level, amount of household books), and age and gender of parents and children. Totally 648 parents (497 mothers) of preschool-aged children ($Mean_{age}$ = 4.47y, $Range_{age}$ = 3y0m – 6y0m, 301 girls) reported the level of their math anxiety and the frequency of math activities at home through online surveys. The results showed that the frequency of math activities decreased with the level of parental math anxiety and increased with parental educational level, amount of household books, and children's age. Furthermore, the parental math anxiety-activity relation was moderated by children's age: The frequency of math activities significantly decreased with parental math anxiety when their children were older than age of 4.5 years (4y6m – 6y0m) (β = -0.21, p < .001), but this was not the case when children were younger (3y0m – 4y6m) (β = -0.05, p = .38). The moderator effect of children's age may be due to that the math knowledge children learn becomes more complex and abstract as they age, and teaching children this math knowledge may trigger parents' own math anxiety and induce math avoidance. It may also due to that parents with higher math anxiety tend to concern and perceive math learning pressures that children would suffer when moving to elementary school. In addition, regardless of parental math anxiety levels, the frequency of math activities was lowest in the father-daughter dyad, compared to other parent-child dyads (father-son, mother-daughter, and mother-son). This finding may suggest the existing of gender inequality in early math home education. Above all, our findings suggested that the negative impact of parental math anxiety can be observed even before children enroll into elementary school, and this necessitated early interventions for parental math anxiety.

Keywords*:* home-based math activities, parental math anxiety, gender difference in mathematics, math parenting

夫妻冲突对幼儿社会技能的影响：家庭经济地位的调节作用

魏舒静　孙圣涛*

(上海师范大学心理学系，上海, 200234)

摘 要 家庭成员之间有着安全的情感联结，和幼儿的社会技能关系密切。而夫妻冲突对幼儿社会技能的影响尤其受到研究者们的广泛关注。本研究采用追踪设计旨在探讨夫妻冲突对幼儿社会技能的影响，以及家庭社会经济地位在其中的调节作用。采用 Liang 等人（2015）编制的父母冲突问卷和孙圣涛等人（2017）制定的幼儿社会技能家长评定问卷对 290 名幼儿家长进行调查，以分别测量夫妻之间的冲突水平和幼儿社会技能。在第一年时，父母报告了夫妻冲突和幼儿社会技能以及家庭社会经济地位；在第二年时，父母报告了幼儿的社会技能。研究结果显示：（1）夫妻冲突与幼儿社会技能显著相关，夫妻冲突越低，幼儿的 T1、T2 的社会技能越高；（2）家庭社会经济地位在夫妻冲突与幼儿 T1 社会技能间的调节作用不显著；家庭社会经济地位在夫妻冲突与幼儿 T2 社会技能间的调节作用显著。在高家庭社会经济地位中，夫妻冲突对幼儿社会技能的负面影响有所缓解。研究结论为幼儿父母努力改善父母关系提供了新的方向，从而共同为幼儿营造一个安全、温暖的环境，以促进幼儿社会技能的发展。

关键词 夫妻冲突，幼儿，社会技能，家庭社会经济地位

---

* 孙圣涛，副教授，博士，研究方向：幼儿社会性发展和特殊儿童心理。E-mail：sstao@shnu.edu.cn

The impact of martial conflict on young children's social skills: the moderating role of family economic status

Wei Shujing， Sun Shengtao*

(Department of Psychology, Shanghai Normal University, Shanghai 200234, China)

Abstract: Family members have a secure emotional bond with each other, which is closely related to young children's social skills. However, the influence of marital conflict on young children's social skills has attracted extensive attention from researchers. The purpose of this study is to explore the influence of marital conflict on children's social skills and the moderating role of family socioeconomic status. The parental conflict questionnaire compiled by Liang et al. (2015) and the Parental Assessment questionnaire for social skills of young children developed by Sun Shengtao et al. (2017) were used to investigate 290 parents of young children to measure the conflict level between husband and wife and the social skills of young children respectively. In the first year, parents reported spousal conflict and young children's social skills and family socioeconomic status; In the second year, parents reported on their toddlers' social skills. The results show that: (1) there is a significant correlation between marital conflict and children's social skills. The lower the marital conflict, the higher the children's social skills of T1 and T2; (2) Family socioeconomic status has no significant moderating effect on spousal conflict and children's T1 social skills; Family socioeconomic status has a significant moderating effect on spousal conflict and children's T2 social skills. In high family socioeconomic status, the negative impact of marital conflict on children's social skills was mitigated. The conclusion of this study provides a new direction for parents of young children to strive to improve the parental relationship, so as to jointly create a safe and warm environment for

young children to promote the development of social skills.

***Keywords*:** marital conflict, young children, social skills, family socioeconomic status

---

*Corresponding author at: Department of Psychology, College of Education, Shanghai Normal University, 100 Guilin Street, Xuhui District, Shanghai 200234, China. *E-mail address:* sstao@shnu.edu.cn.

日常亲子关系模式与青少年情绪问题的关系：基于多水平潜在剖面分析

安也[1] 王慧[2] 徐健捷[1] 车俐颖[1] 刘思含[1] 曹惠婷[1] 胡月琴[1] 韩卓[1]（通讯作者）

1 北京师范大学心理学部，北京，100875，rachhan@bnu.edu.cn

2 北京师范大学珠海校区文理学院，珠海，519087

摘 要 青少年与父母的关系模式与他们的情绪问题密切相关。然而，以往研究对亲子关系在日常生活中的模式特征关注不足。本研究采用最新的多水平潜在剖面分析（multilevel latent profile analysis, MLPA）的方法，探究在日常生活中青少年与父母的潜在关系模式，并进一步比较在不同关系模式的家庭中青少年的情绪问题水平的差异，以期从日常亲子关系的角度为干预青少年情绪问题提供思路。**方法：**315 名青少年（48.3%为女孩；平均年龄 13.05±0.77 岁）在基线调研阶段汇报总体焦虑和抑郁症状的程度，并连续两周（每周一至周五，共 10 天）每天填写亲子关系（即母子亲密、父子亲密、母子冲突和父子冲突）日记。通过对日记数据进行多水平潜在剖面分析分别得到两个水平的亲子关系潜在模型：即，第一水平（日常层面），根据所有天数中对多种亲子关系成分得分来确定每日亲子关系模式；第二水平（家庭层面），根据不同亲子关系模式的天数比例对不同家庭间的整体亲子关系模式进行分类。**结果：**日常层面的分析中，母子关系和父子关系在不同的剖面中是一致的，确定了四种剖面所占天数的比例情况："亲密日"（高亲密低冲突；占所有天数的 35.2%）、"疏离日"（低亲密低冲突；占所有天数的 50.8%）、"平稳日"（中等亲密中等冲突；占所有天数的 7.8%）、"冲突日"（低亲密高冲突；占所有天数的 6.2%）。在家庭层面的分析中，确定了三种剖面："稳定亲密"型家庭（占所有青少年的 38.4%），在这种家庭中日常的典型亲子关系模式是高亲密和低冲突；"稳定疏离"型家庭（占所有青少年的 50.4%），在这种家庭中日常的典型亲子关系模式是低亲密和低冲突；"不稳定冲突"型家庭（占所有青少年的 11.2%），在这种家庭中日常亲子关系是不稳定的，特点是在冲突层面变化很大。进一步分析发现，相比"稳定亲密"型家庭的青少年，"稳定疏离"型和"不稳定冲突"型家庭的青少年报告的焦虑和抑郁症状水平会更高，而"稳定疏离"型和"不稳定冲突"型家庭青少年间的抑郁焦虑症状水平没有明显差异。**讨论：**本研究首次揭示了青少年亲子关系模式在日常和家庭层面中存在不同的模式。由于中国传统文化价值观念强调对情感表达的克制和约束，参与本研究的家庭普遍存在着亲子关系疏离的现象：青少年与家长之间虽然没有过多冲突，但青少年与父母之间的亲密程度也很低，长时间亲子关系疏离的家庭会损害青少年的情绪健康。研究启示当代中国父母在对待青少年时应当表现出更多的爱意，让他们感知到更为亲密的亲子关系，同时多与青少年交流、理解他们的内心世界，有效化解亲子冲突。

关键词 亲子关系，情绪问题，多水平潜在剖面分析

Daily Parent-Adolescent Relationship Patterns and Adolescent Emotional Symptoms among Chinese Families: A Multilevel Latent Profile Analysis

Ye An[1], Hui Wang[2], Jianjie Xu[1], Liying Che[1], Sihan Liu[1], Huiting Cao[1], Yueqin Hu[1], Zhuo Rachel Han[1]*

[1] Faculty of Psychology, Beijing Normal University, China

[2] Department of Psychology, Faculty of Arts and Sciences, Beijing Normal University at Zhuhai, Zhuhai, China

***Abstract*:** Patterns of parent-adolescent relationship are closely associated with adolescent emotional symptoms (Miller et al., 2000; Qu et al., 2021). However, few prior studies have examined the dynamic configurations of the fine-grained components of parent-child relationships (e.g., closeness vs. conflict, father-adolescent relationship vs. mother-adolescent relationship). In addition, most studies have ignored the cultural specificity of parent-adolescent relationships. The present study employed an innovative technique – multilevel latent profile analysis (MLPA) – to identify daily- and family-level parent-adolescent relationship patterns. The adolescent emotional symptoms (i.e., depressive and anxiety symptoms) were then compared across distinct subgroups at the family-level. **Methods:** The study involved 315 Chinese adolescents (48.3% girls; M_{age} = 13.05 years, *SD* = 0.77 years) who completed daily diaries on four components of parent-adolescent relationships (i.e., mother-adolescent closeness, father-adolescent closeness, mother-adolescent conflict, and father-adolescent conflict) on school days of 2 consecutive weeks. Adolescents also reported their overall anxiety and depressive symptoms at baseline. In the MLPA model with daily diary data, the Level 1 model identified daily parent-adolescent relationship patterns based on daily reports of multiple parent-child relationship components across all days. The Level 2 model classified subgroups of adolescents based on the proportions of days of each parent-adolescent relationship patterns identified in Level 1 model. **Results:** At the daily level, both mother-adolescent and father-adolescent relationships exhibited consistency across profiles. MLPA at Level 1 identified four profiles across days (see Figure 1 for more details): "Intimate" (35.2% of all days), "Disengaged" (50.8% of all days), "Average" (7.8% of all days), and "Conflictual" (6.2% of all days). At the family level, three profiles were identified (Figure 2): "Stable intimate" family (38.4% of all adolescents), in which adolescents' typical daily relationship patterns with their parents were high in closeness and low in conflict; "Stable disengaged" family (50.4% of all adolescents), in which adolescents' typical daily relationship patterns with their parents were low on both closeness and conflict; and "Unstable conflictual" family (11.2% of all adolescents), in which adolescents' daily relationship patterns with their parents were unstable, characterizing by large variability at the conflict levels. Comparing the emotional symptoms of adolescents across these family profiles, it was observed that adolescents in both "Stable disengaged" and "Unstable conflictual" families reported higher levels of anxiety and depressive symptoms when compared to those in "intimate" families. **Discussion:** Embedded in Chinese culture, the present study extends previous research by identifying diverse configurations of parent-adolescent relationship patterns at both daily and family levels. Although there were no excessive conflicts between the adolescents and their parents, it was prevalent in the Chinese families in this study for adolescents to be perceived as being disengaged from their parents. This could be caused by the cultural emphasis on emotional restraint in China. Similar to families with parent-child conflicts, prolonged parent-child detachment can also harm adolescents' emotional well-being. Thus, Chinese parents are suggested to show more affection and reduce punishment and criticism towards their children.

Keywords： Parent-Adolescent Relationship，Emotional Symptoms，Multilevel Latent Profile Analysis

消极情绪性的潜在结构与青少年内外化问题的跨诊断及特异性关联：性别的调节作用

蔡晴雨[1] 杜舒[1] 张良[1] 纪林芹[1] 张文新[1]（通讯作者）

1 山东师范大学心理学院，济南，250014

摘 要 消极情绪性（Negative Emotionality）这种气质特质与多种心理病理问题有密切关系，是常见的跨诊断因素之一。根据 p 因子理论，内化和外化心理病理问题可以用一个包含一般精神病理学因子（general psychopathological factor；即 p 因子）和内化与外化问题独特因子的双因子结构来表征，其中各种心理病理问题共有的一般心理病理问题倾向被表征为 p 因子。有研究发现 p 因子与消极情绪性之间在表型水平和遗传水平上高度相关，然而，消极情绪性作为一个多维构念，它的不同方面与心理病理问题各潜在因子之间的关系还尚未明晰。因此，本研究拟以双因子模型范式界定消极情绪性的潜在结构，并进一步考察消极情绪性的不同因子（一般因子及独特因子）与心理病理问题 p 因子及独特因子的关系，从而确定消极情绪性的各因子能否作为心理病理问题的跨诊断风险因素或特异性风险因素，以及性别在其中的调节作用。通过在青少年样本中（N=1273）对单因子模型、相关因子模型、高阶因子模型和双因子模型等竞争模型进行比较，结果发现：（1）对于消极情绪性和心理病理问题，双因子模型都具有最佳拟合；消极情绪性的潜在结构包括一个一般消极情绪性因子（将其命名为 n 因子）和两个独特因子（羞怯、易受挫），心理病理问题的潜在结构包括 p 因子及内化、外化独特因子。（2）n 因子、羞怯因子、易受挫因子均能正向预测 p 因子，羞怯因子正向预测内化因子，易受挫因子正向预测外化因子，表明 n 因子是心理病理问题的跨诊断风险因素，而羞怯因子和易受挫因子分别是内化问题和外化问题的特异性风险因素。（3）性别在羞怯因子与内化因子之间存在调节作用，具体表现为羞怯因子与内化问题因子的关联在女生中更强。本研究结果支持了气质与心理病理问题的易感性模型（vulnerability model），并展示了细致区分气质的深层结构在揭示气质与心理病理问题间关系上的重要性。

关键词 消极情绪性，气质，心理病理问题，双因子模型

The Transdiagnostic and Specific Associations Between Latent Constructs of Psychopathology Symptoms and Negative Emotionality in Adolescence: the Moderate Role of Gender

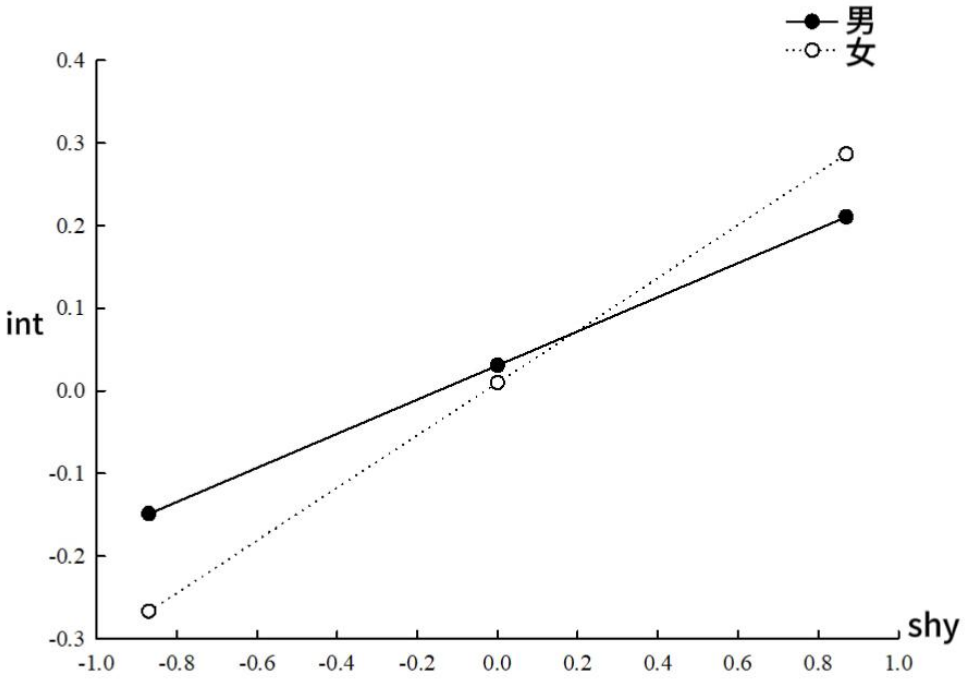
Qingyu CAI[1]; Shu Du[1]; Liang ZHANG[1]; Linqin Ji[1]; Wenxin ZHANG[1]

School of Psychology, Shandong Normal University, Jinan, 250358

Abstract：Negative Emotionality (NE) is a transdiagnostic factor of psychopathology, which is highly associated with common mental and behavioral problems. According to the p factor theory, latent psychopathology construct includes a general common psychopathology factor (p factor) and specific latent internalizing and externalizing factor, as captured by a bifactor model. And the p factor represents co-occurrence between internalizing and externalizing problems. Some studies have found NE highly correlated with p factor at the phenotypic and genetic level. However, NE is a multidimensional construct, less is known about how lower-order facets of NE relate to each psychopathology factor. Therefore, we investigated the latent construct of NE and psychopathology by using

bifactor model, and we further examined the transdiagnostic and specific associations between latent constructs of psychopathology and NE, as well as the moderating role of gender. By comparing competing models (the one factor model, the correlated factor model, the higher order factor model, and the bifactor model) in a sample of youths (N = 1273), we found that (1) both the bifactor model of NE and psychopathology had best fit, with the latent structure of NE consisting of a general NE factor (named the n factor) and two specific factors (shyness, frustration), and the latent structure of psychopathology consisting p factor, internalizing and externalizing factor; (2) The n factor, shyness factor, and frustration factor all positively predicted the p factor, with the shyness positively predicting the internalizing factor and the frustration factor positively predicting the externalizing factor, suggesting that the n factor is a transdiagnostic risk factor for psychopathology, and that the shyness and frustration are specific risk factors for internalizing and externalizing problems, respectively; (3) Gender had moderate effect between the shyness factor and the internalizing factor. Specifically, the association between the shyness factor and the internalizing factor was stronger in girls. The results of this study support the vulnerability model of temperament and psychopathology and demonstrate the importance of carefully distinguishing the deep structure of temperament in revealing the relationship between temperament and psychopathology.

Keywords：negative emotionality, temperament, psychopathology, bifactor



青春期早期欺凌受害与抑郁：生命意义感的中介作用与压力观的调节作用

吕沐华[1]　熊昱可[1]　陈嘉慧[1]　任萍[1]（通讯作者）
1 北京师范大学中国基础教育质量监测协同创新中心，北京，100875
通讯作者 E-mail：renping@bnu.edu.cn

摘 要　欺凌受害是校园环境中严重的负性压力事件，在国内外青少年群体中普遍存在。欺凌受害会对青少年心理健康状况造成较高程度的负面影响，如产生抑郁等内化问题，受到国家和研究者的广泛关注。既往研究表明，欺凌受害是青春期早期抑郁的一个重要风险因素，然而并不是所有青少年都会经历抑郁，因此探究这一过程可能存在的缓冲因素及其作用机制具有重要理论意义及干预价值。压力观（Stress Mindset）是指个体关于压力对压力相关结果带来影响的一般观念，如压力会积极促进相关结果的产生（压力增强观），反之，压力削弱相关结果的产生（压力削弱观），压力增强观被认为是面对压力源的一种缓冲因素。本研究以陕西省 3547 名七年级学生（52.4%男生；M_{age} = 12.36；SD = 0.50）为研究对象，开展了横跨两学期的两次追踪调查，考察了欺凌受害与青春期早期抑郁的关系，以及生命意义感在二者之间的中介作用和压力观的调节作用。结果发现：（1）T1 欺凌受害显著正向预测青少年 T2 抑郁；（2）T1 生命意义感在 T1 欺凌受害与 T2 抑郁的关系中起部分中介作用；（3）在中介模型中，T1 压力观调节了 T1 欺凌受害对 T1 生命意义感的影响。具体而言，当压力观更为积极（压力增强观）时，欺凌受害与生命意义感的负相关显著弱于压力观更为消极（压力削弱观）时。这些发现为改进现有的欺凌受害干预措施提供了帮助，改善青春期早期青少年的压力观，可以明显减少欺凌受害对青少年生命意义感的影响，进而阻断欺凌受害与青少年抑郁之间的联系。

关键词　欺凌受害，抑郁，生命意义感，压力观，青春期早期

Peer Victimization and Depressive Symptoms among Early Adolescents: A Moderated Mediation Model of Meaning in Life and Stress Mindset

Muhua Lyu[1]　Yuke Xiong[1]　Jiahui Chen[1]　Ping Ren[1] *
1 Collaborative Innovation Center of Assessment toward Basic Education Quality, Beijing Normal University, 100875

Abstract：Bullying victimization is a serious negative stress event in schools, which is widespread among early adolescents. The experience of bullying victimization has long-lasting deleterious effects on adolescents' mental health, such as depressive symptoms and other internalizing problems, which has attracted wide attention from governments and researchers. Previous literature has shown that bullying victimization is an important risk factor for depressive symptoms among early adolescents. However, not all adolescents will experience depressive symptoms. Therefore, it is of great theoretical significance and intervention value to explore the possible buffer factors and their mechanism of action in this process. Stress mindset has been defined as the extent to which one holds the belief that stress has enhancing consequences for various stress-related outcomes such as personal growth (referred to as a "stress-is-enhancing mindset") or the belief that stress has debilitating consequences for such outcomes (referred to as a "stress-is-debilitating mindset"). Stress-is-enhancing mindset is considered a buffer

factor in the face of stressors. Using a short-term longitudinal design, two-wave data were obtained from 3,547 Chinese adolescents (52.4% boys at Time 1 (T1); M_{age} = 12.36; *SD* = 0.50) from 76 classes over 6 months. The present study examined the mediating effects of meaning in life and the moderating effect of stress mindset on the association between bullying victimization and depressive symptoms. The results showed that: (1) T1 bullying victimization positively predicted T2 depressive symptoms among early adolescents. (2) T1 meaning in life played a partly mediating role in the relationship between T1 bullying victimization and T2 depressive symptoms. (3) Within the mediating model, T1 stress mindset moderated the effect of T1 bullying victimization on T1 meaning in life. Specifically, when the stress mindset was more like stress-is-enhancing, the negative correlation between bullying victimization and meaning in life was weaker than when the mindset was more of a stress-is-debilitating mindset. These findings provided support for improving existing bullying victimization interventions. Specifically, enhancing the adolescents' stress mindset can significantly reduce the impact of bullying victimization on meaning in life, and thus block the link between bullying victimization and depressive symptoms among early adolescents.
Keywords ： bullying victimization, depressive symptoms, meaning in life, stress mindset, early adolescents

5.3 理论心理与心理学史专业委员会

登州文会馆开设心理学课程的考辨

阎书昌

河北师范大学心理学系，石家庄 050024，通讯作者 yanshuchang@126.com

摘 要 中国近代心理学史上的历史事件具有重要的参照价值，例如，哪些人，何时在开设心理学课程？最近笔者看到在山东登州文会馆首次开设心理学课程的时间问题上仍存在着疑问，诸如是 1876 年抑或 1877 年，是狄考文开设心理学课程吗？他有心理学背景性知识吗？登州文会馆是中国最早开设心理学课程的吗？本文希望呈现出登州文会馆心理学课程开设的过程、译称等问题，进而其内部争议及其与中国文化的联系。早在 1877 年 9、10 月，狄考文专门写了一篇文章时，就提到用“soullaw”来表示心理学（psychology）并不是合适的一种选择。1891 年印行的《登郡文会馆典章》中“文会学馆课程”中并没有心灵学课程，1891 年出版的英文的《登郡文会馆要览》中也未见心灵学课程。根据 1895 年 1 月文凭原件的影印件中有第一年开设的“诗文”课程而不是“策论经学”，而据刊印于 1913 年的登州文会馆文凭样式文凭样式中有“策论经学”，可以判断该文凭大致可能于 1896 至 1904 年之间（1904 年登州文会馆迁往潍县，更名为广文学堂），因此，可以判断出现心理学课程的时间，大致也是在这个时间段里。狄考文自身具有一定的心理学知识背景，在他对 psychology 的汉语译制，及对丁韪良著作的评述中可以看出，他对中国传统文化在译语创制中作用的认可。

关键词 登州文会馆，狄考文，心理学课程

On the Psychology Course in Tengchow College

Yan Shuchang

(Department of Psychology, Hebei Normal University, Shijiazhuang 050024)

Abstract： Historical events in the history of modern Chinese psychology have important reference values, for

example, who and when were psychology courses being offered? Recently, I have seen that there are still questions about the timing of the first psychology course at the Shandong Dengzhou Wenhui Hall, such as whether it was 1876 or 1877, and whether it was Di Cowen who offered the psychology course? Did he have background knowledge of psychology? Was the Dengzhou Wenhui Hall the first in China to offer a psychology program? This paper hopes to present the process of the opening of the psychology program at the Dengzhou Wenhui Hall, the translation of its name, and then its internal controversy and its connection with Chinese culture. As early as September or October 1877, Mateer wrote an article specifically mentioning that the use of "soullaw" to mean psychology was not a suitable choice, and that the "登郡文会馆典章" printed in 1891 did not have a course of study in psychology. There is no course on psychology in the 文会学馆 Curriculum in the "登郡文会馆要览" printed in 1891. According to the photocopy of the original diploma of January 1895, the first year of the course "诗文" was offered instead of "策论经学" and according to the style of the diploma of the Tengchow College, which was printed in 1913, the style of the diploma includes "策论经学" so it can be judged that the diploma was probably issued between 1896 and 1904. Therefore, it can be judged that the emergence of the psychology course was roughly in the same time period. Mateer himself has some intellectual background in psychology, and his recognition of the role of traditional Chinese culture in the creation of translations can be seen in his Chinese translations of psychology, and in his comments on the writings of W. A. P. Martin.

Keywords：Tengchow College，Calvin Wilson Mateer, psychology course

警惕脑神经科学的决定论陷阱

李莉莉 [1, 2]

1 新疆师范大学心理学院，乌鲁木齐，830017

2 新疆心智发展与学习科学重点实验室，乌鲁木齐，830017

通讯作者 E-mail: bluebird555@163.com

摘 要 神经决定论将脑或神经活动看作个体心理、行为和社会性的原因，力图通过对脑神经活动的探究来解释和控制人的心智。神经决定论有三个核心命题：（1）行为的原因并非意识，一个先于意识的神经活动才是行为的真正原因，自由意志不过是一种幻觉；（2）人类的心理和社会属性可以通过找到相应的脑神经结构进行解释；（3）心理或精神异常的原因在于脑的结构和机能异常,修缮神经，可以治愈心灵。通过否证以上三个命题，人们将看到神经决定论的逻辑错误及其可能的危险。

首先，意识或自由意志不能被看成是一种幻觉。因为：（1）神经决定论借以否定自由意志的实验论据存在错漏，且重现了实验研究的方法论困境。同时，意识不是动作意向的额外发起者，动作意向本身就是意识。（2）从脑与意识的关系看，意识是脑进化来的机能，在个体经验世界中，意识是脑的代理。从脑进化出意识以更好地适应环境这一点来说，脑并非是在制造幻觉。

其次，遗传的脑神经结构并非心理和社会属性的全部原因。脑结构的遗传决定论传递出的观念是，脑内的神经细胞有其与生俱来的角色，正是它们才使个体拥有了相应的心理机能和社会属性，并执行相关行为。这一观念忽略了三个事实。第一，人脑神经元功能的特异性以更为原始、低阶的功能为基础；第二，机能是先天的，但机能的内容是环境文化的；第三，神经细胞和神经系统的可塑性，决定了学习和经验可以对脑的机能和结构产生影响，脑的发育和心智的发生是一个与环境互动的过程。

最后，修复脑不能治愈心灵。与脑的系统性和复杂性相比，人们对它仍然知之甚少。通过修复脑来治愈心灵的生物学立场，忽略了脑是一个融合内外世界信息的意义处理系统。如果心理和行为症状是处理和加工病理性冲突的结果，那么它们必须经由同样的心理加工机制才能得以消除。

自我、灵魂、自由意志是人成为一个有意识存在之后对自身的假定，也是自我从物理世界的挣脱。因此，“脑是心理的器官”这一断言不能作为还原论和决定论的充足依据。

关键词　神经决定论，意识，自由意志

Be Alert to the Determinism Trap of Brain and Neuroscience

LI-Lili

School of Psychology, Xinjiang Normal University, Urumqi 830017

Xinjiang Key Laboratory of Mental Development and Learning Science, Urumqi 830017

Abstract: Neurological determinism regards the brain or neural activity as the cause of individual psychology, behavior and sociality, and tries to explain and control the human mind through the exploration of cranial nerves activity. There are three core propositions in neurological determinism: first, the cause of behavior is not consciousness, there is a neural activity prior to consciousness, which is the real cause of behavior, and free will is just an illusion; second, The psychological and social attributes of human beings can be explained by finding the corresponding brain nerves and their structures, which are responsible for all our psychological, behavioral and social attributes; the third, the cause of psychological or mental abnormality lies in the abnormal structure and function of brain nerves and insist that repairing the nerves can cure the mind. By questioning and disproving the rationality of these three propositions, one will see the logic errors of neurological determinism and its possible dangers.

First, consciousness or free will cannot be regarded as an illusion. There are three reasons. (1) The errors and omissions of the experimental argument by which neurological determinism negates free will reproduces the riddle of the quantum dilemma of physics that is, the methodological dilemma of experimental research. At the same time, consciousness is not the additional initiator of action intention, the action intention itself is also consciousness. (2) From the relationship between brain and consciousness, consciousness is an evolved function of brain. In the experience world of individuals, consciousness is the agent of the brain. From the point that the brain evolved the individual's consciousness function to better adapt to the environment, the brain is not producing a hallucination.

Secondly, the hereditary brain neural structure is not the whole reason for the psychological and social attributes. The idea conveyed by this claim is that the neural cells in our brain have their innate roles and functions. It is precisely the neural cells that enable individuals to have corresponding psychological and social attributes and perform relevant behaviors. This concept obviously ignores three facts. First, the specificity of human brain neuron function is based on more primitive and low-order function. Second, function is innate, but the content of function is environmental and cultural. Thirdly, the plasticity of nerve cells and nervous system determines that learning and experience can affect the function and structure of the brain, the development of brain and the generation of mind is a process of interaction with the environment.

Finally, repairing the brain cannot cure the mind. Compared with the systematization and complexity of the brain, we still know little about it. The biological standpoint of healing the mind by repairing the brain ignores that the brain is a meaning processing system that integrates the information of the internal and external world. If psychological and behavioral symptoms are the result of processing and processing pathological conflicts, they must be eliminated through the same psychological processing mechanism.

Self, soul and free will are the assumptions of human beings after becoming a conscious existence, and also the breakaway of self from the physical world. Therefore, the assertion that "Brain is the organ of mind" cannot be used as a sufficient basis for reductionism and determinism.

Keywords: neurological determinism, consciousness, free will

理想心理学的伦理挑战

刘雨纯[1]　曾祥龙[1]（通讯作者）
1 北京师范大学心理学部，北京，100875，xzeng@bnu.edu.cn

摘 要　儒释道等中国传统哲学蕴涵了丰富的心理学思想和修行体系，其有别于西方心理学的重要特色为追求理想心理（值得追求、但尚未实现的心理）。当代学者受此启发，提出理想心理学，将心理学的研究范围从既存心理扩展至理想心理。理想心理学提出采用设计、实现、评估之循环的方法来研究和实现理想心理，并提出了重视干预、重视价值澄清等具体的原则。目前理想心理学的实证研究数量较少，尽管有第二代正念干预部分采用了理想心理学的具体原则，如在干预时强调价值澄清，但尚未有研究按照设计、实现、评估之循环的方法，从无到有研究一个新的理想心理。限制理想心理学实践的因素之一，就是如何在伦理上，论证一种理想心理是值得培养的。实际上，理想心理学已将伦理方面的论证作为“设计”的重要方面，即已经意识到了这个问题的重要性，但并未给予清楚的回答。目前理想心理学理论中涉及的理想心理，往往来自佛学（如涅槃）和儒家（如天人合一），即以传统来论证理想心理值得追求。但这一策略依然存在诸多问题。首先，如何确保在具体的历史与现实条件下，这些理想心理依然是有益的、值得追求的？其次，不同传统的理想心理及其背后的价值观，经常是相互冲突的。这也意味着当代的心理学实践，依然要选择某种价值观为理想心理提供论证。并且，理想心理学强调理想心理不止来源于传统，未来也可以提出新的理想心理。这也意味着过度依靠传统是行不通的，新的理想心理需要其它方式论证其值得追求。此外，既然理想心理是被人为设计、尚未经过实证研究的，如何确保其实现的过程和结果对接受干预者安全且无伤害，也是伦理上需要关注的议题。尽管理想心理学在伦理层面尚有很多问题需要探讨，但其指向尚未实现之心理的研究方向，无疑拓展了心理学的领域，符合心理学未来发展的趋势；并且，即使是针对既存心理的研究，也会涉及对干预目的的论证，因此心理学界应对上述问题给予更多重视。
关键词　心理学史，理论心理学，理想心理学，伦理挑战，中国传统文化

Ethical challenges in ideal psychology

Yuchun LIU[1], Xianglong ZENG[1]
Faculty of Psychology, Beijing Normal University, Beijing

***Abstract*：** Chinese spiritual traditions such as Confucianism, Buddhism, and Taoism contain a lot of psychological ideas and practice systems. An important feature that distinguishes them from Western psychology is the pursuit of ideal mentalities (mentalities that are desirable but have not yet been achieved). Inspired by them, contemporary scholars proposed ideal psychology, expanding the research scope of psychology from existing mentalities to ideal mentalities. Ideal psychology proposes the cycle of design, achieve and evaluate as the method to study and realize ideal mentalities, and puts forward specific principles such as emphasizing intervention and value clarification. The number of empirical studies on ideal psychology is currently small. Although some Second-Generation Mindfulness-Base Interventions partially adopt specific principles of ideal psychology, such as emphasizing value clarification in intervention, no research has designed, achieved and evaluated new ideal mentalities from scratch. One of the factors that limits the practice of ideal psychology is how to ethically demonstrate that an ideal mentality is worth pursuing. In fact, ideal psychology has made ethical arguments an important aspect of "design", i.e., scholars have recognized the importance of this issue, but have not given a clear answer. Ideal mentalities involved in the current theory of ideal psychology often come from Buddhism (such as nirvana) and Confucianism (such as oneness), that is, using tradition to argue the ideal mentality is worth pursuing. But there are still many problems of this strategy. First, how to ensure that under specific historical conditions,

these ideal mentalities are still beneficial and worth pursuing for human beings? Second, ideal mentalities of different traditions and the values behind them often conflict with each other, which means that contemporary psychological practice still has to choose certain values to provide arguments for ideal mentalities. Moreover, ideal psychology emphasizes that ideal mentalities not only come from tradition, new ideal mentalities also can be proposed in the future, which means that over-reliance on tradition will not work. New ideal mentalities need other ways to argue that they are worth pursuing. In addition, since ideal mentalities are artificially designed and has not been empirically studied, how to ensure that the processes and results of its realization are safe and harmless to the recipient of the interventions, which is also an important ethical concern. Although ideal psychology still has many issues to be explored at the ethical level, the research direction towards mentality that has not yet been achieved undoubtedly expands the field of psychology and is in line with the future development trend of psychology. Moreover, even research on existing mentalities also involve arguments for the purpose of intervention, so the psychology community should pay more attention to the above issues.

Keywords ： History of psychology, Theoretical psychology, Ideal psychology, Ethical challenges, Chinese spiritual traditions

民国时期的心理健康研究及其当代价值

陈庆华[1]（通讯作者） 庞维国[2]

1 合肥师范学院教育与心理科学学院，安徽合肥，230601，通讯作者 E-mail：873498616@qq.com

2 华东师范大学心理与认知科学学院，上海，200062

摘 要 我国心理健康研究发轫于民国时期，是在引介西方儿童心理学、心理测验及心理卫生研究成果的基础上，立足我国本土问题研究而逐渐兴起的。根据研究侧重点的变化，民国时期的心理健康研究可分为三个发展阶段：第一个阶段为引介国外研究期，时间上大致介于民国成立（1912 年）到心理健康学科创立（1930 年）之间。这一阶段的典型特征是开始重视心理健康问题，大力引介西方研究成果，但本土化研究较少。第二阶段为注重本土研究期，时间上大致介于 1930 年-1936 年之间。这一阶段的典型特征是心理健康学科正式建立，本土化的心理健康研究全面展开。第三阶段为服务普通大众期，时间上介于 1937 年-1949 年之间。这一阶段的典型特征是把心理健康研究的重心从高校转向社会，重视普通民众的心理健康。民国时期的心理健康研究内容主要有三方面：其一是儿童心理健康研究。这是民国时期心理学家特别重视的一个研究领域，他们注重考察儿童心理问题产生的根源，并在此基础上提出相应的干预措施，民国时期的心理学家还非常重视训育的育心功能，强调学校教育要能够促进儿童的心理健康。其二是心理健康测评研究。伴随国际心理测验运动的发展，民国时期的智力测验、人格测验、心理问题评估等研究发展迅速，且被广泛运用于诸多领域，成为研究者帮助国人解决心理健康问题的重要依据。其三是精神分析学说研究。以高觉敷、丁瓒等为代表的研究者不仅开展了大量关于精神分析的理论研究，而且还特别注重该理论在心理健康实践中的应用。归结而言，民国时期的心理健康研究具有鲜明的科学性、本土性与应用性特征，研究中体现出的爱国主义情怀、服务人民福祉以及扎根中国大地的精神，对于今天开展心理健康研究依然具有重要的现实意义。

关键词 民国时期，心理健康，研究阶段，研究内容，研究特征，当代价值

Mental Health Research during the Republic of China and its Contemporary Value

Chen Qinghua[1]（Corresponding Author），Pang Weiguo[2]
1 School of Education And Psychology , Hefei Normal University，Hefei 230601，
Corresponding Author，E-mail：873498616@qq.com
2 School of Psychology and Cognitive Science, East China Normal University, Shanghai, 200062

Abstract：The research on mental health in China originated in the period of the Republic of China, which was based on the research results of western child psychology, psychological test and mental health, and established in the research on local problems in China. According to the point of research focus, the mental health research in the period of the Republic of China can be divided into three stages: the first stage is the period of introducing foreign research, roughly between the foundation of the Republic of China (1912) and the establishment of the discipline of mental health (1930). The typical characteristic of this stage is to pay attention to mental health problems and to introduce some western research results, but less focus on localized research. The second stage is the period of focusing on indigenous research, which is mainly between 1930 and 1936. The typical characteristic of this stage is the formal establishment of mental health discipline and the comprehensive development of localized mental health research. The third stage is the service period for the public, which is between 1937 and 1949. The typical characteristic of this stage is to shift the focus of mental health research from universities to society and pay attention to the mental health of ordinary people. The research on mental health in the period of the Republic of China mainly includes three aspects: first is the research on children's mental health. Psychologists during the period of the Republic of China paid special attention to this research field. They focus on the key causes of children's psychological problems and put forward corresponding intervention measures on this basis. Psychologists in the period of the Republic of China also attached great importance to the nurturing function of discipline and emphasized that school education should promote children's mental health. The second is the study of mental health evaluation. With the development of the international psychological test movement, the research on intelligence test, personality test and psychological problem assessment developed rapidly during the period of the Republic of China, which was widely used in many fields and became an important basis for researchers to help Chinese people solve mental health problems.Last is the study of psychoanalysis. The researchers represented by Gao Juefu and Ding Zan have not only carried out a lot of theoretical research on psychoanalysis, but paid special attention to the application of the theory in the practice of mental health as well. In summary, the research on mental health in the Republic of China has distinct scientific, local and applied characteristics. The patriotism, the spirit of serving the people's well-being and taking root in the land of China reflected in the research are still of important practical significance for the research on mental health today.

Keywords： the period of the republic of China, mental health, research period, research content, research characteristics, contemporary value

5.4 普通心理和实验心理专业委员会

中国人自我优势数据库的建立

祁宇轩[1]　邹丰杰[3]　Michelle Zhou[1]　Xi Ying Chau[1]　彭凯平[1,2]　王非[1,2]（通讯作者）
1 清华大学心理学系，北京，100084，wf3126@mail.tsinghua.edu.cn

2 清华大学积极心理学研究中心，北京，100083
3 清华大学外国语言文学系，北京，100084

摘 要　大量心理学研究表明，人们倾向于表现出自我服务偏差（或自我优势）。一方面，传统认知心理学研究表明，与自我相关的信息（如面孔、名字等）在认知任务（包括记忆、注意、知觉等）中得到了更好的加工。这类研究大多以认知任务中的反应时、准确率等为指标，体现出了基于任务表现（performance）的自我优势。另一方面，使用传统社会心理学方法的研究发现，个体对于自己或与自己相关的物品给出相对于他人而言更高（甚至不切实际）的评价。这类研究大多以外显或内隐的主观评价为指标，体现出了基于效价（valence）的自我优势。虽然以往研究证明了这些自我优势在不同文化中的存在，但这些研究中往往都只涉及到了其中 1 种实验范式。本研究选取了 7 种基于任务表现的自我优势实验范式（例如自我参照记忆、自我面孔视觉搜索等）和 3 种基于效价的自我优势实验范式（例如自我增强、内隐联想测验等），同时测量了自我报告的个体差异变量（如自我建构、大五人格、幸福感、自尊等），从而建立起中国人个体层面的自我优势数据库。在这一数据库的基础上，我们将探索：（1）中国人在以上实验任务中能否表现出自我优势；（2）不同实验范式测得的自我优势量级之间是否存在关联；（3）自我优势可以被分为几类，是否可以从通过不同实验范式得到的自我优势中提取出共有因素。初步研究结果（N = 54）显示，中国被试群体在以上 10 种实验范式的 7 种中，表现出了显著的自我优势。探索性因素分析的结果表明，这些自我优势大致可以被分为 4 类。本研究将有助于我们深入了解中国文化背景下自我优势的表现形式，并为进一步探索不同类型的自我优势之间的关联提供了数据基础。
关键词　自我优势，社会认知，自我概念，数据库，因素分析

The database of Chinese People’s Self-biases

Yuxuan Qi [1], Fengjie Zou [3], Michelle Zhou [1], Xi Ying Chau [1], Kaiping Peng [1, 2], & Fei Wang [1, 2]
1 Department of Psychology, Tsinghua University, Beijing, China
2 The Centre for Positive Psychology Research, Tsinghua University, Beijing, China
3 Department of Foreign Languages and Literatures, Tsinghua University, China

Abstract: Numerous psychological studies have shown that people tend to exhibit self-serving biases. On the one hand, traditional cognitive psychological research indicates that information related to oneself (such as faces, names, etc.) is better processed in cognitive tasks (including memory, attention, perception, etc.). Most of these studies use the response time (RT) and the accuracy (ACC) in cognitive tasks as indicators, reflecting a self-bias based on task performance. On the other hand, studies using traditional social psychology methods have found that individuals give higher (and sometimes unrealistic) evaluations to themselves (or items related to themselves) compared to others (or items related to others). These studies often use explicit or implicit subjective ratings as measures, reflecting a self-bias based on valence. Although previous research has demonstrated these self-biases across various cultural backgrounds, they usually involve only one experimental paradigm in each study. In this study, we aim to establish a database of self-biases at the individual level among Chinese people. Specifically, we selected seven self-bias experimental paradigms based on task performance (e.g., self-reference memory, self-face visual search, etc.), and three based on valence (e.g., self-enhancement, Implicit Association Test, etc.). In addition, we measured some self-reported individual difference variables (e.g., self-construction, Big Five personality, happiness, self-esteem, etc.). Based on this database, we aim to explore: (1) whether Chinese people can exhibit self-biases in these experimental tasks; (2) whether there are any correlations between the magnitudes of self-bias obtained from different experimental paradigms; (3) how many types of self-biases are there, and whether common factors can be extracted from self-biases obtained through different experimental paradigms. Preliminary results (N

= 54) showed that the Chinese participants demonstrated a significant self-bias in seven of the ten experimental paradigms. Results of exploratory factor analysis also revealed that self-biases can roughly be divided into four categories. This research will not only contribute to a deeper understanding of the manifestations of self-bias within the Chinese cultural context, but also provides a data basis for further exploration of the relationships between different types of self-biases.
Keywords：Self-bias, social cognition, self-concept, database, factor analysis

互补规则调控社会统计学习中的自我-他人整合：来自 EEG 脑间同步的证据

郑峥[1] 汪俊[1] (通讯作者)
1 浙江师范大学心理学院，浙江，金华，321003
通讯作者 E-mail: jun.wang@zjnu.edu.cn

摘 要 本课题组前期研究发现当与他人互动时，个体能够同时习得自己与他人任务刺激中的规律，即社会统计学习效应。但以往联合行动研究指出，联合行动中除了形成自我任务表征与他人任务表征外，个体还能整合双方任务信息形成整体表征，从而实现自我-他人整合。同时自我-他人整合会受到实验情景（如合作、竞争）或行动者因素（如情绪状态）的调控。因此在我们前期研究的基础上，有必要进一步探讨任务规则本身是否能调控自我-他人整合机制，从而实现个体间任务信息的整合。更重要的是，现有反映自我-他人整合的指标主要来源于行为层面或单脑层面，尚需研究进一步从脑际神经层面探讨自我-他人整合。

本研究采用 EEG 超扫描技术，运用互补任务规则范式探讨了社会统计学习中的自我-他人整合机制。实验过程中，被试需要根据目标刺激所在的空间位置进行空间相容的按键反应。目标刺激位置设定为长度为 12 的固定序列，同时目标刺激的颜色随机设置为红色或蓝色，由不同被试分别进行反应，即互补规则。整个实验共包括 8 个区块，其中区块 1 至 6 和区块 8 中出现的目标刺激位置为上述固定序列，而在区块 7 中目标刺激位置则替换为长度为 12 的随机位置序列。联合情景下，两名被试相邻而坐，分别对不同颜色的目标刺激位置做按键反应。控制情景下，两名被试相邻而坐，但仅有一名被试需要对预先指定颜色的目标刺激位置做按键反应，其同伴只需坐在旁边观察即可。结果发现个体仅在联合情景下通过整合同伴的信息习得了互补统计规则，表现为反应时在区块 1 至 6 间显著下降，同时在区块 6 至 8 间呈现出显著下降-上升-下降的模式。进一步，行为上的社会统计学习效应仅与 alpha 频段的脑间同步相关。研究结果说明，个体能够根据任务规则自发地调控自我-他人整合，从而实现对他人任务信息的整合和分离，且群际间神经同步可能是该过程的重要神经基础。
关键词 社会统计学习,互补规则，自我-他人整合,脑间同步

Complementarity Regularities Modulate Self-Other Integration in Social Statistical Learning: Evidence from EEG Interbrain Synchronization

Zheng Zheng[1] Wang Jun[1]
1 School of Psychology, Zhejiang Normal University, Jinhua, Zhejiang, China. E-mail: jun.wang@zjnu.edu.cn

***Abstract*：** The previous research of our laboratory found that when interacting with others, actors can simultaneously learn the regularities in their own and others' task stimuli, i.e., the social statistical learning effect. However, previous joint action literature has shown that in addition to forming self-task representations and others' task representations in joint action, actors can also integrate task information from both sides to form an overall representation, thus achieving self-other integration. Meanwhile, self-other integration can be modulated by experimental situations (e.g., cooperation, competition) or actor factors (e.g., emotional state). Therefore, based on our previous study, it is necessary to further explore whether the task rule itself can modulate the mechanism of self-other integration so as to realize the integration of task information among actors. More importantly, existing indicators of self-other integration are mainly derived from the behavioral level or the single-brain level, and research is needed to further explore self-other integration from the inter-brain level.

In the present study, we explored the mechanism of self-other integration in social statistical learning using the complementary task regularities paradigm with EEG hyperscanning. During the experiment, participants were required to perform spatially compatible key press responses according to the spatial location of the target stimulus. The target stimulus location was set as a fixed sequence of length 12, while the color of the target stimulus was randomly denoted as red or blue, and the responses were performed by different subjects separately, i.e., the complementary rule. The whole experiment consisted of eight blocks, in which the target stimulus positions appearing in blocks 1 to 6 and block 8 were the fixed sequences described above, while in block 7 the target stimulus positions were replaced with a randomized sequence of positions of length 12. In the joint condition, two actors sat next to each other and made key press responses to different colored target stimulus locations. In the control condition, two actors sat next to each other, but only one actor was required to make key press responses to target stimulus locations of a pre-specified color, and his/her partner simply sat next to him/her and observed. It was found that individuals acquired complementary statistical regularities by integrating information from their partners only in the joint condition, as evidenced by a significant decrease in response time between blocks 1 to 6, while showing a significant decrease-rise-decrease pattern between blocks 6 to 8. Further, reduction in response time was only associated with inter-brain synchronization in the alpha band. The findings suggest that individuals are able to spontaneously modulate self-other integration according to task rules, leading to integration and separation of task information from others, and that intergroup neural synchronization may be an important neural basis for this process.

***Keywords*：** social statistical learning, self-other integration, interbrain synchronization, complementarity regularities

压力是否扼杀了个体创造性？来自认知神经科学的证据

段海军[1]（通讯作者） 王一凡[1] 张佳琪[1] 段文劲[1]

1 陕西师范大学现代教学技术教育部重点实验室，西安 710062

摘 要 创造力既是人类独有的天赋，也是人类最重要的活动之一。当前，剧烈的社会变革对人类创造力提出严峻考验。VUCA 时代的到来让压力成为每个人都会面临的一种生活方式。无论个人还是组织，经常需要在压力状态下创造性地提出解决问题的策略。本研究围绕“压力是否扼杀了人类的创造性”这一核心问题，从生理、心理、脑与行为等多个层面，借助神经生理学及认知神经研究手段系统探讨了压力影响创造力的神经生理机制及提升创造力的干预手段。在个体层面，首先从神经内分泌变化的视角，探索了压力影响创造力的生理基础。以唾液皮质醇评估 HPA 轴的激活情况，以眨眼频率与瞳孔直径作为多巴胺和去甲肾上腺素的活动指标。结果显示，压力下的皮质醇、眨眼频率和瞳孔直径等生理反应能够负向预测创造性任务

表现，且认知灵活性在其中起到重要的中介作用。其次，采用 EEG 和 fNIRS 技术探究了压力影响创造性活动的认知神经机制。结果表明，在压力后个体α波全时程处于去同步化，表现出更低的右侧前额激活状态和更弱的前额内功能连接，反映出自下而上受刺激驱动的加工状态。在团体层面上，基于 fNIRS 超扫描技术，从亲密关系和人际互动的视角考察了压力对团体创造力的影响。结果表明，压力损害了团体创造力表现。互异性人格和独立型人格共存的团体有更好的创造力表现，表现出“照料与结盟”的习惯化反应模式。恋人组在压力下的合作水平和创造力成绩明显高于陌生组，且压力状态下男女合作策略不同。在干预层面上，tDCS 压力后干预能够促进状态焦虑缓解，从而改善压力诱导的创造力损伤。同时，压力前 tDCS 干预能够减弱压力下的心率、消极情绪和焦虑状态变化，并通过改善压力下的前额功能失调进而缓解创造力损伤。未来研究应综合运用多模态手段，从神经内分泌系统动态平衡机制的视角，进一步探讨神经内分泌系统的中介作用机制和个体基线的调节作用机制，以期构建起生化—认知—行为—脑的综合解释框架。
关键词　压力，创造力，团体创造力，神经生理机制

Does Stress Impair Creativity? Evidence from Cognitive Neuroscience

Haijun Duan[1](Corresponding Author), Yifan Wang[1], Jiaqi Zhang[1], Wenjin Duan[1]
[1]MOE, Key Laboratory of Modern Teaching Technology, Shaanxi Normal University, Xi’an, 710062

***Abstract*:** Creativity, as a unique human talent, is one of the most important human activities. Nowadays, with the advent of the VUCA (Volatility, Uncertainty, Complexity, and Ambiguity) era, stress has become a regular part of life that people have to face. Creative problem-solving under stress seems to be the norm for organizations and individuals. Both individuals and organizations often need to come up with creative problem-solving strategies under stressful situations. Surrounding the core proposition of “Does stress kill creativity?”, this study systematically explored the neurophysiological mechanisms of stress affecting creativity and the interventions to enhance creativity by means of neurophysiology and cognitive neuroscience. At the individual levels, we firstly explored the physiological basis of stress affecting creativity from the perspective of neuroendocrine changes. Salivary cortisol was assessed as a marker of stress-induced activation of the HPA axis. Blink frequency (EBR) and pupil diameter were measured as indicators of dopamine and noradrenaline released by SAM axis activation, respectively. The results showed that physiological responses such as cortisol, EBR and pupil diameter under stress can negatively influence creative task performance in which cognitive flexibility plays an important mediating role. Second, EEG and fNIRS techniques were employed to explore the cognitive neural mechanisms from both temporal and spatial process perspectives. Results showed a general decrease in upper-frequency alpha power after stress, compared with that of before stress. It reflected a bottom-up stimulus-driven processing state. At the group level, the effects of stress on group creativity were examined from the perspectives of intimacy and interpersonal interaction based on the fNIRS hyperscanning technique. The results indicated that stress impaired group creativity performance. Groups in which reciprocal and independent personalities coexisted had better creativity performance and showed a response pattern of "care and alignment". The couple group had significantly higher levels of cooperation and creativity scores under stress than the strangers' group, and male were the emitters of information flow under stress. At the intervention level, the tDCS post-stress intervention was able to promote state anxiety relief and thus ameliorate stress-induced creativity impairment. Meanwhile, the pre-stress tDCS intervention was able to attenuate stress-induced changes in heart rate, negative mood, and state anxiety. More importantly, tDCS mitigated creativity impairment by improving stress-induced prefrontal dysfunction. Future

studies should construct an integrated biochemical-cognitive-behavioral-brain explanatory framework by making comprehensive utilization of multimodal means to further explore the mediating role mechanism of the neuroendocrine system and the regulating role mechanism of the individual baseline.

Keywords：stress, creativity, group creativity, neurophysiological mechanism

实验设计的维度与空间——以知觉匹配任务为例

温佳慧[1] 胡传鹏[1]（通讯作者）

1 南京师范大学心理学院，南京，210037，hcp4715@hotmail.com

摘 要　实验设计是心理科学的灵魂，研究者通过不断改进和改变实验设计来深入探索人类行为与认知的机制。然而，研究者很少对实验设计本身进行探索，即“元设计(meta-design)”。例如，实验设计本身是否可以形式化为不同维度？是否可以将这些维度作为变量从而获得关于某一主题的全部实验设计的空间？回答这些问题将帮助研究者加深对实验设计的理解，开发算法以辅助研究者进行更有效的实验设计。本研究以自我认知中的知觉匹配任务(Perceptual Matching Task)为例进行初步的探索。知觉匹配任务分为两个阶段，在训练阶段，被试需要建立标签和形状的联结（例如，“自我是三角形，朋友是圆形”）；在匹配阶段，被试需要按键判断呈现的形状和标签的配对与习得的联结是否一致。自 2012 以来，该任务被广泛引用。通过对 136 篇文章中 256 个实验的知觉匹配任务的变式进行分析，本研究发现，在知觉匹配任务中，在基本任务结构不变的情况下，研究者可以通过改变联结的种类，刺激的内容、呈现顺序，试次数量等维度得到不同的实验设计。每个变式的数据都可能为自我优先效应的特定方面提供见解。这些结果提示，研究者可以采用整合方法(Integrative Approach)来理解研究对象，通过三个阶段的迭代过程来形成新知识：首先，总结或者推断实验设计维度及各个维度可能变化的范围，构建实验设计空间，然后根据试图解决的问题和理论假设，从设计空间中采样，最后，对采样获得的实验设计进行数据收集，从而得到实证数据以检验与更新理论。通过迭代，研究者将能够从更多角度理解研究对象，形成更完整的理论模型。本研究提出的方法适用于其他任务和范式，有望推动科学心理学的理论进步。

关键词　知觉匹配任务，整合方法，实验设计空间，理论建构

Dimensions and Spaces of Experimental Design: A Case Study of Shape Matching Task

Wen Jiahui[1] Hu Chuan-Peng[1](corresponding author)

1 School of Psychology, Nanjing Normal University, Nanjing, 210037, hcp4715@hotmail.com

Abstract：Experimental design is the soul of psychological science. Researchers investigate the cognitive and psychological mechanisms underlying human behavior by designing exquisite experiments. However, questions related to meta-design are rarely explored. For example, how to formalize experimental design in different dimensions? Can we treat these dimensions of design as variables to generate the space of all possible designs regarding a psychological phenomenon? Answering these questions will deepen our understanding of experimental design and may help us develop algorithms to facilitate experimental design. Here we take the perceptual matching task in self-cognition as an example to explore these unknown questions. The perceptual matching task has two stages. In the training stage, participants learn associations between labels and shapes (for example, self is a triangle and friend is a circle); in the matching phase, participants make the decision on whether the presented

shape and label pairing are matched with the learned association by pressing one of two buttons. Since 2012, the task has been widely used to study the self-prioritization effect. The current study examined the variations of perceptual matching tasks in 256 experiments from 136 articles. We found that different experimental designs varied in many dimensions, with the basic task structure unchanged, such as the association types, stimulus content, presentation order, and the number of trials. Data obtained from each variation may provide insights for a particular aspect of the self-prioritization effect. Our findings in this case study suggest that an integrative approach may provide more comprehensive picture of the effect of interest. More specifically, we suggest a three-step iterative process: First, summarizing/theorizing the dimensions of experimental designs, defining the variability of each dimension, and thus constructing the space of experimental designs. Then, sample from the design space according to the problems and theoretical hypotheses. Finally, collecting data for each sampled experimental design, testing and updating the theories. Through iteration, researchers will be able to examine multiple hypotheses/theories that explain the effect of interest. We believe the approach proposed here is applicable to other effects and paradigms, and will facilitate the theory development in psychological science.
Keywords：Perceptual Matching Task, Integrative Approach, Experimental design space, Theory

基于直觉解决问题的广泛探索模型

叶丽敏 [1,2] 黄力强*[3] 李诗荣 [1,2] 周可 [4] 孟明*[1,2]（通讯作者）

1 华南师范大学心理应用研究中心，广州，510631

2 华南师范大学心理学院，广州，510631，mingmeng@m.scnu.edu.cn

3 香港中文大学心理学系，香港特别行政区，999077，lqhuang@cuhk.edu.hk

4 北京师范大学心理学部，北京，100875

摘 要 人们日常生活中解决问题常常不一定经过严密的逻辑推理或仔细的计算分析，而是通过直觉进行近似性预测，迅速地做出抉择。但是，基于直觉解决问题到底是什么样的一个心理学过程仍不清楚。本研究对线上采集的行为实验大数据建模，探究人们在遇到通过计算无法解决的难题时如何基于直觉做出抉择。在经典的组合优化类问题-货郎担问题（Travelling Salesman Problem，以下简称 TSP)中，卖货郎需要从指定城市出发，用最短路径遍历各个城市并回到起点。该问题是一个 NP-hard 问题，当节点数量增多时，无法在多项式时间内求得最优解。然而人类在 TSP 问题中拥有令人赞叹的直觉能力，可以在非常短的时间内预测出接近最优的路径，在某些情况下甚至超越计算机的算法。本研究通过线上小游戏，模拟解决对称性 TSP 问题，采集了超过 1.6 亿个点的有效行为反应，发现随着节点数增多，通过计算解决 TSP 问题的难度急剧增加，但人类解决该问题的效率并没有相应程度的下降，说明人类确实是基于直觉而非计算在做抉择。更有趣的是，人类倾向于沿着临近的节点顺次连接，并且尽量避免路线的交叉，在该任务中的表现与总体结构的视觉感知相关，当路线形成的凸包角度较大时，往往可获得更好成绩。可见在解决复杂问题时，人们常通过构建简单的心理表征进行计划。本研究运用深度学习与认知和行为的计算建模，尝试建立基于直觉解决问题的广泛探索性模型。与计算机的算法相比，人脑的不同之处在于丰富性和效率。本研究剖析了人类解决复杂问题的心理过程与起源，有益于理解基于直觉解决问题的认知行为机制，并且对现有 TSP 问题的算法开发提出新视角。目前，AI 在许多领域表现出了惊人的能力，但它仍然存在一些局限性。AI 需要明确的指令和规则，无法向人类那样依靠直觉做出判断。基于直觉解决问题的广泛探索性模型有助于提升 AI 的物理直觉熵能力，将人工智能和直觉结合起来，可以提高 AI 的决策和推理能力，使 AI 不仅是解决问题的模型，更可以是解释和理解世界的因果模型。

关键词 直觉，问题解决，抉择，TSP，深度学习

A comprehensive exploratory model based on intuition for

problem-solving

Limin Ye[12], Liqiang Huang*[3], Shirong Li[12], ke Zhou[4], Ming Meng*[12](Corresponding author)
1 Center for Studies of Psychological Application, South China Normal University, No. 55 West Zhongshan Ave, Tianhe District, Guangzhou, Guangdong, China, 510631
2 school of Psychology, South China Normal University, No. 55 West Zhongshan Ave, Tianhe District, Guangzhou, Guangdong, China, 510631, mingmeng@m.scnu.edu.cn
3 department of Psychology, The Chinese University of Honkong, Hong Kong, China, 999077, lqhuang@cuhk.edu.hk
4 school of Psychology, Beijing Normal University, No. 19, Xinjiekouwai Street, Haidian District, Beijing, China, 100875

Abstract：In daily life, people often solve problems not necessarily through rigorous logical reasoning or careful computational analysis, but by making approximate predictions based on intuition and making decisions quickly. However, the psychological process underlying problem-solving based on intuition remains unclear. This study models large-scale behavioral experiments collected online to explore how people make decisions based on intuition when facing problems that cannot be solved through computation. In a classic combinatorial optimization problem, the Traveling Salesman Problem (TSP), a salesman is requested to start from a specified city, traverse various cities using the shortest path, and return to the starting point. This problem is NP-hard, and as the number of nodes increases, it is not possible to find the optimal solution in polynomial time. However, humans have an astonishing intuition ability in the TSP problem, able to predict a near-optimal path in a very short time and sometimes even surpassing computer algorithms. The present study used an online game to simulate the solution to the symmetric TSP problem and collected over 160 million valid behavioral responses. The computational complexity of solving the TSP increases dramatically as the number of points increases. However, human performance did not drop correspondingly, confirming the reliance on intuition instead of computation to make decisions in solving the TSP. More interestingly, it was found that humans tend to connect adjacent points in the visually presented TSP task and try to avoid crossing routes. Performance in this task is related to the visual perception of the overall structure, with better results obtained when the angle of the convex hull formed by the route is larger. It can be seen that when solving complex problems, people often use simple mental representations for planning. This study applies deep learning and computational modeling of cognition and behavior to establish a comprehensive exploratory model based on problem-solving intuition. The key differences between the human brain and computer algorithms lie in richness and efficiency. This study analyzes the psychological processes and origins of human problem-solving to better understand the cognitive and behavioral mechanisms underlying intuition-based problem-solving and provides a new perspective for the development of algorithms for the TSP. Currently, AI has demonstrated remarkable capabilities in many fields, but it requires explicit instructions and rules and cannot rely on intuition like humans to make decisions. The extensive exploratory model based on intuition for problem-solving may contribute to enhancing AI's physical intuition entropy, combining computation with intuition to improve AI's decision-making and reasoning abilities. This would make AI not only a model for problem-solving but also a causal model for explaining and understanding the world.

Keywords：intuition, problem-solving, decision making, TSP, deep learning

知觉匹配任务作为自我优势效应测量的信度评估

刘铮[1, 2#]　胡孟真[1#]　郑元瑞[1]　隋洁[3]　胡传鹏[1*](通讯作者)

1 南京师范大学心理学院，江苏 南京 210023
2 香港中文大学（深圳）人文社科学院, 广东 深圳 518172
3 阿伯丁大学心理学院 苏格兰 阿伯丁
这些作者对该研究做出了同等的贡献
* 通讯作者：胡传鹏（hu.chuan-peng@nnu.edu.cn；hcp4715@hotmail.com）

摘 要 自我优势效应（SPE）指在认知任务中，人们对于与自我相关的刺激反应更迅速，准确率更高的现象。知觉匹配任务（SPMT）被广泛运用于研究 SPE 现象，SPMT 所测量的 SPE 也被当作测量个体在自我信息加工上差异的指标，应用于个体差异和临床研究。作为一项简单的按键任务，SPMT 中得到两个直接用于量化 SPE 的结果变量：反应时和准确率。从反应时和准确率可派生出四种计算 SPE 的结果变量：信号检测理论下的灵敏度 *d'*、效率指数（Efficiency）、漂移扩散模型参数漂移率（*v*）和起始点（*z*）。此外，SPE 的计算可以采用不同的基线条件，包括亲密他人（Close other）、陌生人（Stranger）、名人（Celebrity）和非人条件（Non-person）。然而，以不同基线条件和不同结果变量计算出来的 SPE 指标的信度尚属未知，意味着 SPMT 测量的个体差异的稳定性也未知。本研究采用来自 11 篇论文中的 18 个独立数据集（N = 857），并使用分半信度（Split-half Reliability）和组内相关系数（ICC）探究以上 4 个基线条件和 6 个结果变量计算出的 24 个 SPE 指标的可靠性。结果显示，以亲密他人和陌生人条件为基线的反应时指标（yi_{Close} = 0.58; $yi_{Stranger}$ = 0.60）和效率指标（yi_{Close} = 0.52; $yi_{Stranger}$ = 0.58）的分半信度相对较高，但仍低于心理测量学所要求的信度水平。其他 20 个指标的估计分半信度在 0.5 及以下。ICC 分析得到类似的结果，在衡量个体差异的信度指标 ICC2 中,仅亲密他人和陌生人条件为基础的反应时指标（$ICC2_{Close}$ = 0.53; $ICC2_{Stranger}$ = 0.58）和效率指标（$ICC2_{Close}$ = 0.52; $ICC2_{Stranger}$ = 0.34）相对较高，同样远低于心理测量学所要求的水平。用于衡量群体水平的 ICC2k 指标则发现，以亲密他人和陌生人条件为基础的反应时指标（$ICC2k_{Close}$ = 0.87; $ICC2k_{Stranger}$ = 0.89）和效率指标（$ICC2k_{Close}$ = 0.86; $ICC2k_{Strange}$ = 0.76）达到较高信度，其余的 10 个 ICC2k 指标大约为 0.5，甚至更低。本研究结果表明，基于反应时和效率评估的 SPE 仅在群体水平上可靠，用于测量个体差异时则仍需进一步探索。这些结果对于更深入地理解 SPMT 的可靠性及其未来应用场景具有一定的启示意义。

关键词 自我优势效应，知觉匹配任务，信度，多重分析

Reliability Assessment of Self-Prioritization Effect as Measured by the Perceptual Matching Task

Zheng Liu[1,2#], Mengzhen Hu[1#], Yuanrui Zheng[1], Jie Sui[3], Hu Chuan-Peng [1*]
[1] School of Psychology, Nanjing Normal University, Nanjing, China
[2] School of Humanities and Social Sciences, The Chinese University of Hongkong (Shenzhen), Shenzhen, China
[3] School of Psychology, University of Aberdeen, Old Aberdeen, Scotland
[#] These authors are equally contributed to this study
[*] Corresponding authors: Hu Chuan-Peng (hu.chuan-peng@nnu.edu.cn；hcp4715@hotmail.com)

Abstract: The self-prioritization effect (SPE) refers to the phenomenon where individuals demonstrate faster and more accurate responses to self-relevant stimuli in cognitive tasks. The self-perceptual matching task (SPMT) has emerged as a mainstream paradigm for studying the cognitive mechanisms underlying the SPE. Additionally, the

SPE measured by the SPMT has been utilized as an indicator of individual differences in research, including clinical studies. As a simple button-pressing task, SPMT eliminates familiarity effects and yields two outcome variables for quantifying SPE: reaction time (RT) and accuracy (ACC). Existing literature has also reported four additional outcome variables derived from reaction times and accuracy, including sensitivity *d'* under signal-detection theory, the efficiency (RT/ACC), drift rate (*v*) and starting point (*z*) estimated using the drift-diffusion models. Moreover, the calculation of SPE can employ different baseline conditions, including "Close other", "Stranger", "Celebrity", and "Non-person". However, the reliability of SPE measures computed using different baseline conditions and outcome variables has not been systematically examined, leaving the stability of using the SPMT for measuring individual differences unknown. To fill the gap, we conducted a pre-registered study wherein we re-analyzed 18 datasets from 11 papers (N = 857) using the split-half reliability and intraclass correlation coefficient (ICC). The results revealed that the split-half reliabilities of RT (yi_{Close} = 0.58; $yi_{Stranger}$ = 0.60) and Efficiency (yi_{Close} = 0.52; $yi_{Stranger}$ = 0.58), when close other and stranger used as the baseline condition, are relatively high but still lower than that required in psychometrics. The estimated split-half reliabilities for all other indices are approximately 0.5 or even lower. Similar results were obtained in ICC analysis, where the ICC2 for individual differences in the reaction time measures ($ICC2_{Close}$ = 0.53; $ICC2_{Stranger}$ = 0.58) and efficiency measures ($ICC2_{Close}$ = 0.52; $ICC2_{Stranger}$ = 0.34) are relatively high when using close other or stranger as baseline conditions, but still considerably lower than the desired level in psychometrics. For the ICC2k, which measures the stability of SPE on group level, the reaction time measures ($ICC2k_{Close}$ = 0.87; $ICC2k_{Stranger}$ = 0.89) and efficiency measures ($ICC2k_{Close}$ = 0.86; $ICC2k_{Stranger}$ = 0.76) are relatively high when using close other or stranger as baseline conditions, while the remaining 10 ICC2k indices are about 0.5 or even lower. These findings suggest that SPE measures based the reaction time and efficiency are reliable only at the group level, while further exploration is needed for measuring individual differences. These results provide insights into the reliability of the SPMT and its future applications.

***Keywords*:** Self-Prioritization Effect (SPE), Self-Perceptual Matching Task (SPMT), Reliability, Multiverse

风味信息引导视觉注意的机制：来自 ERP 的证据

彭宇彬 宛小昂（通讯作者）

清华大学心理学系，北京，100084（wanxa@mail.tsinghua.edu.cn）

摘 要　以往研究证实，人们在品尝到某种特定的风味后，会对与该风味关联的颜色产生自下而上的注意偏向。这可能是因为个体在品尝到某种风味后，与该风味有着联结的颜色概念就会被激活，而这种激活的内在表征能使具有这种表征特征的项目捕获被试的注意。以往使用行为范式的研究所得到的仅为最后的行为表现结果，无法考察风味信息影响视觉注意的内在过程。在接受风味信息后，当干扰项为风味关联颜色时对于形状靶子的搜索更慢，可能是因为风味关联颜色干扰项捕获了注意。然而个体也可能存在对干扰项的注意抑制，只是抑制程度还不足以弥补其注意被干扰项捕获的效率损失。为了考察真实风味信息影响视觉搜索的在不同时程的具体认知神经过程，本研究采用了事件相关电位（ERP）技术。在实验中，被试被随机分入靶子色味关联和不关联组，靶子色味关联意味着靶子的颜色与风味信息的关系符合色味联结，而不关联组即为靶子的颜色与风味信息不符合色味联结。此外，具有风味关联颜色的干扰项可能出现在靶子同侧、对侧或不出现。在每个试次中，被试会先品尝某种风味刺激然后进行基于形状的视觉搜索。考虑到 N2pc 和 Pd 成分分别表征了注意捕获和注意抑制过程，本研究的 ERP 主要关注这两个指标。行为结果表明，当风味关联颜色干扰项出现时，被试的视觉搜索反应时更慢，正确率更低。最重要的是，ERP 的结果表明，

当风味关联干扰项出现在靶子对侧时，表征注意捕获的 N2pc 波幅更大。而当风味关联干扰项出现在靶子同侧时，指示注意抑制的 Pd 波幅更大。这些结果说明，风味信息影响注意的过程根据时程的不同可分为两个过程：对早期注意首次发生转移的加工时段和后期认知控制发挥主导作用的加工时段。总的来说，本研究不仅首次为风味信息使风味关联颜色捕获注意提供了电生理证据，更是揭示了其中存在着行为范式无法证明的注意抑制过程，这也为进一步探讨跨通道交互的心理与神经机制奠定了基础。
关键词　视觉搜索，ERP，色味交互，注意偏向

Mechanisms underlying the influence of flavor information on visual attention: Evidence from ERP

Yubin Peng & Xiaoang Wan*
Department of Psychology, Tsinghua University, Beijing, China

Abstract： Previous research has demonstrated that after tasting a certain flavor, people's attention would be biased towards the flavor-associated color. It is possible that the concept of color associated with the flavor is activated after tasting the flavor, and this intrinsic representation of this activation enables items with such representational features to capture the attention. Although previous studies using the behavioral paradigm have obtained behavioral results, they did not examine the internal processes by which flavour information affects visual attention. After being exposed to flavor information, individuals make slower search for shape targets when the distractor was in flavour-associated color, possibly as attention was captured by the distractor with flavor-associated color. However, it is also possible that there was attentional inhibition of the distractor, just the power of inhibition can not make up for the loss of efficiency due to the attention capture of the distractor. In order to examine the specific cognitive neural processes underneath the influence of real flavor information on visual attention, the present study employed the event-related potential (ERP) technique. Therefore, the present study used the event-related potential (ERP) technique, leveraging its high temporal resolution, to investigate the cognitive and neural processes underlying the influence of real flavor information on visual search. In the experiment, participants were randomly assigned to either the target color-flavor congruency or the color-flavor incongruency. In the target color-flavor congruency, the color of the target was associated with the flavor, whereas in color-flavor incongruency group, the color of the target was not associated with the flavor. Moreover, distractors with flavor-associated colors were presented either ipsilaterally or contralaterally to the target, or they were absent. In each trial, participants were first exposed to a certain flavor information, followed by a shape-based visual search task. Considering that the N2pc and Pd components have been linked to the attentional capture and attentional suppression process, respectively, the ERP analysis in this study mainly focused on these two components. The behavioral results showed that participants exhibited slower response times and lower accuracy in their visual search when distractors with flavor-associated color were present. Most importantly, the ERP results revealed that the amplitude of the N2pc, which characterizes attentional capture, was greater when the distractor with flavor-associated color appeared on the contralateral side of the target. In contrast, the amplitude of the Pd, indicative of attentional inhibition, was greater when the distractor with flavor-associated color appeared on the ipsilateral side of the target. Collectively, the present study not only provides the initial electrophysiological evidence that flavor information facilitates the capture of attention by flavor-associated colors, but also reveals the presence of attentional inhibition processes that cannot be demonstrated through behavioral paradigms alone. These findings lay the groundwork for further investigation into the psychological and neural mechanisms of crossmodal interactions.

Keywords：visual search, ERP, color-flavor interaction, attentional bias

Early perceptual locus of suppression during the attentional blink

赵松 [1,#], 解纪梅 [1,#], 周宇欣 [1], 马芳芳 [1], 冯成志 [1,*], 冯文锋 [1,2,*]

[1] 苏州大学教育学院心理学系, 江苏 215123

[2] 苏州大学心理与行为科学研究中心, 江苏 215123

[#] 共同第一作者

* 通讯作者: 冯文锋 (fengwf@suda.edu.cn), 冯成志 (psyfrank@126.com)

Abstract: The attentional blink (AB) demonstrates that recognizing the second of two targets (T1 and T2) is difficult when they appear in close succession in a rapid serial visual presentation (RSVP) stream. Although the AB has been widely accepted as a suppression of T2 processing at the *post-perceptual* stage, several event-related potential (ERP) studies using real-world objects or faces as RSVP items stumbled across reduced P1/N1 component evoked by T2 during the AB, suggesting that the AB may occur at the *perceptual* stage. The current study probed this possibility systematically by utilizing line drawings of common objects as RSVP items in two ERP experiments where T2 was presented at lag 3 or lag 8 after T1. Experiment 1 required participants to either discriminate the exact identities or simply classify the object categories of T1 and T2. To invalidate the temporal expectation as an alternative account, Experiment 2 instructed participants to discriminate either T1 and T2 identities (dual-target task) or only T2 identity (single-target task). The results showed that the T2-elicited P1 amplitude was consistently decreased at lag 3 relative to lag 8 whenever a dual-target, but not single-target, task was required, and the magnitude of this P1 amplitude decrease was significantly predictive of the behavioral AB magnitude in each dual-target task. These findings provide the strongest evidence to date that the AB can suppress T2 processing at a very early perceptual stage, at least when observers encounter RSVP items of real-life objects. Thus, we tentatively put forward a multiple-mechanism model for the AB, in which the invocation of the early-perceptual suppressive mechanism is hypothesized to be contingent on the salience of the stimulus materials, a factor that needs to be examined further in the future. More broadly, these findings also demonstrate that under certain circumstances, the earliest locus of *time*-based attentional selection can be as early as that of *space*-based attentional selection, thereby updating our understanding of the relationship between the two forms of attentional selection in general.

Keywords: attentional blink, perceptual, post-perceptual, event-related potentials, P1

随时间动态波动的心智游移：基于意向性维度与情绪状态的证据

殷婷婷 [1]　安玉萌 [2]　王华 [3]　徐展 [1]（通讯作者）

1 西南大学心理学部，重庆，400015，xuzhan@swu.edu.cn

2 深圳市锦田小学，深圳，518020

3 芜湖师范学校，安徽 241070

摘 要　心智游移(Mind wandering)是一种普遍存在的现象，指的是人们自主地将注意力从当前任务转移。已有研究表明心智游移受到各种因素的影响，例如任务要求、环境刺激和个体差异。但目前少有研究探讨心智游移与其发生时间之间的关系。

本研究旨在探索意向性维度的心智游移是否稳定。我们通过两个实验，使用持续注意反应任务和探针捕获相结合的方式测量个体的有意图心智游移(Intentional mind wandering, IMW)和无意图心智游移(Unintentional mind wandering, IMW)，使用 PANAS 测量个体的情绪状态。实验 1 在一天的三个主要时间段（早晨、中午和晚上）测量个体的心智游移频率和情绪状态，结果发现（1）个体在早晨时段的 IMW 和 UMW 均显著大于晚上时段。（2）在一天中，个体的 IMW 动态变化趋势与积极情绪的变化趋势一致，而 UMW 的动态变化趋势与消极情绪的变化趋势吻合。实验 2 为进一步验证 MW 随时间动态波动的稳定性，在连续五天的晚上时段以同样的方法测量个体的心智游移频率和情绪状态。另外，为检验认知控制对心智游移随时间波动的影响，我们使用变化察觉任务测量个体的工作记忆。实验结果表明（1）个体在第一天晚上时段的 UMW 显著大于其余四天，而连续五天夜晚时段的 IMW 频率无显著差异。（2）在连续五天中，个体 UMW 的波动趋势与积极情绪的变化趋势一致，而 IMW 和消极情绪的变化在连续五天中均保持稳定。（3）心智游移随时间的动态波动不受工作记忆容量的影响。

综上所述，我们首次发现了（1）意向性维度的心智游移会随时间变化而有规律地波动，主要体现为对于同一任务内容，个体的无意图心智游移(UMW)的频率随着发生时间段的累积而逐渐减少。（2）有意图心智游移(IMW)与无意图心智游移(UMW)在不同时间段中的波动模式存在差异，且两种心智游移的变化与个体当时的情绪有关。本研究揭示了心智游移不是一个静态的现象，而是随时间动态波动的，并且意图性的维度及个体的情绪状态对心智游移的动态波动有影响，为进一步探索心智游移在认知和行为中的基本机制和功能意义奠定了基础。

关键词　心智游移，时间段，意向性，情绪，工作记忆

Mind Wandering with Time Fluctuations: Evidence Based on the Intentionality Dimension and Emotion State

Yin Tingting[1], An Yumeng[2], Wang hua[3], Xu Zhan[1] (Corresponding author)

[1]Faculty of Psychology, Southwest University, Chongqing 400015, China

[2] Shenzhen Jintian Primary School, Guangdong 518020, China

[3] Wuhu Normal School, Anhui 241070, China

Abstract：Mind wandering, a prevalent phenomenon, refers to the voluntary shift of attention away from the current task. Previous research has indicated that mind wandering is influenced by various factors, such as task demands, environmental stimuli, and individual differences. However, limited studies have investigated the relationship between mind wandering and time periods.

This study aims to explore the stability of mind wandering based on the dimension of intentionality. Two experiments were conducted using a combination of sustained attention response tasks, probe-caught measures, and questionnaires to measure participants' levels of intentional mind wandering (IMW) and unintentional mind wandering (UMW). Additionally, participants' emotional states were assessed using the Positive and Negative Affect Scale (PANAS). In Experiment 1, mind wandering frequency and emotional states were measured during three main time periods of the day (morning, afternoon, and evening). The results revealed that (1) both IMW and UMW were significantly higher in the morning compared to the evening, and (2) the dynamic fluctuations of IMW throughout the day aligned with positive emotional trends, while UMW fluctuations corresponded to negative emotional trends. To verify the stability of temporal fluctuations in mind wandering, Experiment 2 was conducted

over five consecutive evenings using the same measures. Additionally, a change detection task was used to assess working memory and its influence on mind wandering fluctuations. The results indicated that (1) UMW was significantly higher on the first evening compared to the subsequent four days, while IMW frequency remained stable, and (2) the fluctuations of UMW over five consecutive evenings were consistent with positive emotional trends, while the changes in IMW and negative emotions remained stable across the five days. Moreover, the dynamic fluctuations of mind wandering were not affected by working memory capacity.

In summary, this study provides novel evidence that (1) mind wandering based on the dimension of intentionality exhibits regular temporal fluctuations, with a gradual decrease in the frequency of unintentional mind wandering (UMW) over time for the same task content, and (2) intentional mind wandering (IMW) and UMW show different patterns of fluctuations across different time periods, which are associated with individuals' current emotional states. These findings highlight the dynamic nature of mind wandering, and the influences of intentionality and emotional states on its temporal dynamics. This study contributes to our understanding of the fundamental mechanisms and functional significance of mind wandering in cognition and behavior.

Keywords：mind wandering, time period, intentionality, emotion, working memory

规律场景视觉搜索中的注意选择机制

徐健哲[1]　徐昊骅[1]　郝少妍[1] 陈辉[1] 周吉帆[1] 沈模卫[1]（通讯作者）

1 浙江大学心理与行为科学系，杭州，310058；E-mail: mwshen@zju.edu.cn

摘 要　日常生活中的视觉场景往往由彼此关联的视觉对象组成，对象间的关系定义了场景的内在规律。人类的视觉系统通常在此类场景中表现出高效的目标搜索能力，但对于视觉系统如何利用场景中的规律引导注意从而利化视觉搜索仍所知甚少。本研究以数字为搜索对象，构建了数值大小随空间位置变化的有规律场景，同时也构建了无此规律的随机排布场景，通过三个实验考察了两种场景中的视觉搜索绩效和注意选择模式。行为结果发现，规律排布条件下的搜索时间显著短于随机排布条件。此外，在规律排布条件下，搜索时间与搜索集大小的函数关系呈对数模式；而在随机排布条件下，该函数关系呈线性模式。眼动结果显示，在规律排布场景中搜索时所需的注视次数显著更少，且眼跳方向正确的比例显著更高。以上结果表明，人类能利用视觉场景中的规律高效地缩小搜索空间和定位目标，从而实现更快速的视觉搜索。为进一步探究上述过程的实现机理，我们构建了四种模拟搜索中注意选择过程的计算模型：随机引导模型、方向引导模型、概率引导模型和预期信息增益引导模型，并使用与人类被试相同的任务进行模拟。结果显示，预期信息增益引导模型最接近人类的行为绩效和眼动模式，且随着搜索集的增大其优势更加明显。上述结果共同揭示了基于预期信息增益的注意选择机制，该机制可能是人类在复杂环境中顺利搜索目标的重要认知基础。

关键词　注意，视觉搜索，预期信息增益

Attention Selection Mechanism of Visual Search in a Regularly Arranged Scene

Jianzhe Xu[1] Haokui Xu[1] Shaoyan Hao[1] Hui Chen[1] Jifan Zhou[1] Mowei Shen[1*]

1 Department of Psychology and Behavioral Sciences, Zhejiang University, Hangzhou, 310058;

E-mail: mwshen@zju.edu.cn

Abstract： Visual scenes in daily life commonly consist of interconnected visual objects, where the relations between these objects define the regularities observed in these scenes. The human visual system typically portrays efficient visual search capabilities in such scenes, but there is limited understanding of how it leverages the regularities within scenes to guide attention and enhance visual search. In this study, we employed number stimuli as search objects and created regularly arranged scenes where the numerical values of numbers varied with their spatial arrangements. Randomly arranged scenes with no such regularities were also included. Three experiments were conducted to investigate the behavioral performance and attention selection patterns during visual search in such scenes. The behavioral results demonstrated a significantly shorter search time in the regular condition compared to the random condition. Furthermore, in the regular condition, the relationship between search time and set size followed a logarithmic pattern, whereas in the random condition, it exhibited a linear pattern. Eye tracking data indicated that fewer number of fixations were required during visual search in the regularly arranged scenes, accompanied by a significantly higher proportion of correct saccade directions. These findings suggest that humans can efficiently narrow down the search space and locate targets by utilizing the embedded regularity within visual scenes, leading to faster visual search. To further investigate the underlying mechanisms of this process, we built four computational models to simulate the attention selection processes during visual search: a random guidance model, a direction guidance model, a probability guidance model, and an expected information gain guidance model. We conducted model simulations on tasks identical to those performed by human participants. The simulation results revealed that the expected information gain guidance model provided the best fit for human behavioral performance and eye movement patterns, and its advantage become more pronounced as the set size increased. Collectively, these findings unveil an attention selection mechanism based on expected information gain, which may serve as a vital cognitive foundation for humans to effectively search for targets in complex environments.

Keywords： attention, visual search, expected information gain

不同特征的模板信息在联合搜索中的灵活更新机制

周志恒[1, 2]（通讯作者） 余星儿[2] Joy J. Geng[2,3]

1 四川师范大学心理学院，成都，610068，通讯作者 E-mail（zhzhou44@gmail.com）

2 加利福利亚大学戴维斯分校 Center for Mind and Brain，戴维斯，95618

3 加利福利亚大学戴维斯分校心理学系，戴维斯，95616

摘 要 在视觉搜索中，目标信息存储在工作记忆或长期记忆中的“搜索模板”中。早期研究表明模板包含了目标的所有信息，并且这些信息都被用来引导注意并做出目标匹配决策。然而最近的研究却指出用于引导注意力的模板信息可以不同与用于做出匹配决策的信息。Yu 等人（2023）提出注意引导是基于一个“good-enough”的原则，即引导过程需要较低的注意资源来快速定位候选目标，从而可以做出更精确的目标匹配决策。大部分现有研究都集中在对单一特征维度信息的灵活调节上，然而较少的研究关注了在视觉搜索的两个阶段中如何使用具有多个特征维度的搜索模板。本研究采用 representational similarity analyses（RSA）来研究在注意引导和目标匹配决策过程中对多个特征维度信息的优先加工过程。在实验 1 中，被试需要在三个干扰物中搜索由颜色（1A）或方向（1B）定义的 Gabor 目标。该实验的目的是通过眼动数据来估计对于单一特征视觉搜索中不同阶段受到干扰物相似性影响的“ground-true”。然后基于第一扫视（first saccade）和注视持续时间（fixation duration）构建单一特征维度目标的 Representational-dissimilarity matrices（RDMs）。在实验 2 中，另一组被试完成了一个联合搜索任务，其中 Gabor 目标由颜色和方向两个特征共同定义。我们把实验 2 的生成的 RDMs 和实验 1 种生成的“ground-true” RDMs 进行一个多元回归模型拟合以估计每个特征的权重。在实验 2A 中，关键干扰物的颜色和方向的相似性被随机分配，因此其两个特

征都不可预测。结果显示，在此情况下注意引导主要依赖颜色信息，而匹配决策则同时涉及颜色和方向信息。在实验 2B 中，关键干扰物的方向的差异以 block 的形式出现，因此被试可以有效的预期目标和干扰物之间的方向差异但不能预期它们的颜色差异。结果显示，在此情况下颜色和方向都被用于注意引导和匹配决策。综合这两个实验的结果，本研究提供了新的证据支持这样一种观点：搜索模板信息可以灵活调节以适应最具诊断性的特征变化，而与此同时任务的情境也会同时导致不同特征之间的优先级的变化。
关键词　视觉搜索，搜索模版，注意引导，匹配决策。

Flexible updating of template information between different features during conjunction search

Zhiheng Zhou[1,2]　Xinger Yu[2]　Joy J. Geng[2,3]

1 College of Psychology, Sichuan Normal University, Chengdu 610068, China

2 Center for Mind and Brain, University of California Davis, Davis, CA 95618, USA

3 Department of Psychology, University of California, One Shields Ave, Davis, CA 95616, USA

Abstract：During visual search, target information is stored in “search template” within working or long-term memory. Previous studies have suggested that the template is presumed to contain a complete version of the entire target object and that all of that information is used to guide attention and make identity match-decisions. It has recently been suggested that the template information used to guide attention could be different from the information used to make match decisions. In line with this, Yu et al. (2023) suggest that attentional guidance is designed to operate according to a good-enough principle, such that guidance takes low effort to rapidly localize target candidates and then make more precise identity decisions. Most existing research has focused on the flexible tuning of single-feature dimension information, yet less research has focused on how search template with multiple-feature dimensions is used during the two stages of visual search. The present study used representational similarity analyses (RSA) to investigate the prioritization for multiple-feature dimension information during attentional guidance and target match decision. In experiment 1, participants searched for a Gabor target defined either by the color (1A) or the orientation (1B) among three distractors. The eye-tracking data were used to estimate the “ground-true” of how distractors with varying similarity impacted target search. Representational-dissimilarity matrices (RDMs) for the single-feature dimension target during different stages of visual search were constructed based on the first saccade and fixation duration. In experiment 2, a new set of participants performed a conjunction search task in which the Gabor target was defined by both the color and orientation. The RDMs from experiment 2 were then fit into a multiple regression model to estimate the weight of each feature based on the “ground-true” RDMs. In experiment 2A, the similarity of color and orientation was randomly assigned, making it unpredictable. The results revealed that the attentional guidance mainly relied on the color information while the match decision recruited both color and orientation information. In experiment 2B, the dissimilarity of the critical distractor's orientation was blocked, providing participants with an expectation of reliable dissimilarity in orientation but not color between the target and distractor. The results revealed that both the color and orientation were used for attentional guidance as well as match decisions. Together, the results from the current study provide novel evidence to support the view that search template information is tuned flexibly towards the most diagnostic feature while the context of the task shapes the prioritization between different features.

Keywords：Visual search, Search template, attentional guidance, match decision

成人 ADHD 自然语音追踪能力的脑电研究

马瑛[1] 王思诗[1] 孙美荣[1]（通讯作者）

1 北京体育大学心理学院，北京，100084，leer@bsu.edu.cn

摘　要　成人注意缺陷多动障碍(Attention Deficit Hyperactivity Disorder, ADHD)以注意缺陷、多动/冲动为主要表现，患者的正常学习工作、人际关系等都会受到严重影响。本研究通过自然语音追踪任务，探讨了成人 ADHD 听觉选择注意中对注意语音的追踪过程和对非注意语音的干扰抑制过程，并进一步探究了成人 ADHD 的听觉选择注意能力与认知能力之间的关系。

我们选取了 27 名成人 ADHD 和 36 名正常成人，控制了年龄和性别等人口统计学变量，首先对其进行了一系列认知能力的评估。然后我们采用自然语音追踪任务，播放男生和女生同时讲述不同内容的混合语音材料（每段时长大约 1 分钟），被试需要注意先说话的人所讲述的内容，并根据听到的内容判断主试陈述的几个句子的对错。实验中共有 10 段不同的语音材料，每段重复三次，一共 30 个试次。

本研究的数据处理采用了时间响应函数模型(Temporal　Response Function，TRF)，根据语音刺激材料和 EEG 数据构建大脑中的时间响应函数(TRF)。用 TRF 以及语音刺激来预测被试的反应，并将该反应与真实的 EEG 数据进行对比，得到 Predict Power，即模型的预测力。结果表明，(1)与正常人群相比，成人 ADHD 的视觉学习能力($t(62) = 4.969, p = 0.03$)和社会认知能力($t(62) = 6.174, p = 0.016$)明显降低；(2)成人 ADHD 对注意语音的预测力显著低于健康对照组($F(1,61) = 10.155, p < 0.01$, *partical* $\eta^2 = 0.145$)；(3) 成人 ADHD 对注意语音的预测力与工作记忆成显著负相关（$r = -0.329$，$p = 0.011$），与视觉学习显著负相关（$r = -0.309$，$p = 0.017$）。注意语音的预测力能够显著地负向预测工作记忆 ($\beta = -0.329, t = -2.630, p = 0.011$)和视觉学习($\beta = -0.309, t = -2.449, p = 0.017$)。

综上，研究结果表明，与健康对照相比，成人 ADHD 的听觉选择注意能力较差，并且听觉选择注意能力与其认知功能有关。本研究结果可以为深入理解成人 ADHD 的听觉选择注意能力的神经机制提供一定的依据。

关键词 成人 ADHD，自然语音追踪，听觉选择注意

An EEG study on natural speech tracking ability of adults with ADHD

Ying Ma[1] , Sishi Wang[1], Meirong Sun[1]

1 School of Psychology, Beijing Sport University, Beijing, 100084, leer@bsu.edu.cn

***Abstract*:** Adult Attention Deficit Hyperactivity Disorder (ADHD) is characterized by attention deficits and hyperactivity/impulsivity, along with serious family and work difficulties. To explore the tracking process of attention speech and the interference suppression process of non-attention speech in auditory selective attention in adults with ADHD, a natural speech tracking task was used in this study, meanwhile, the relationship between auditory selective attention abilities and cognitive abilities in adults with ADHD was diggered out through EEG data.

27 adults with ADHD and 36 healthy adults were recruited, controlling for demographic variables such as age and sex differences. The subjects firstly performed a series of cognitive assessments. A natural speech tracking task was used in which we played mixed speech material (each segment was about 1 minute) in which boys and girls simultaneously narrated different contents, and subjects were required to pay attention to what the person who spoke first was narrating and to judge the rightness or wrongness of several sentences stated by the main subject based on what they heard. There were 10 speech materials in the experiment, each of which was

repeated three times, for a total of 30 trials.

Temporal Response Function (TRF) model was used for data processing in this study based on the speech stimulus material and EEG data. The TRF as well as the speech stimuli were used to predict the subject's response, and that response was compared to the real EEG data to obtain Predict Power, which is the predictive power of the model. The results showed that, (1) Compared with the healthy adults, adults with ADHD had significantly lower visual learning ($t(62) = 4.969$, $p = 0.03$) and lower social cognitive abilities ($t(62) = 6.174$, $p = 0.016$); (2) The Predict Power of the attention speech in adults with ADHD was significantly lower than healthy adults ($F(1,61) = 10.155$, $p < 0.01$, *partical* $\eta^2 = 0.145$); (3) The Predict Power of attention speech in adults with ADHD was significantly negatively correlated with working memory ($r = -0.329$, $p = 0.011$) and visual learning ($r = -0.309$, $p = 0.017$). And the predictive power for attention speech significantly negatively predicted working memory ($\beta = -0.329$, $t = -2.630$, $p = 0.011$) and visual learning ($\beta = -0.309$, $t = -2.449$, $p = 0.017$).

In summary, the results of this study showed that adults with ADHD showed poorer auditory selective attention compared to healthy controls and that the auditory selective attention might be related to their cognitive function ability. This may provide some insights into the neural mechanisms underlying auditory selective attention in adults with ADHD.

***Keywords*:** Adults with ADHD, Natural speech tracking, Auditory selective attention

言语可理解性影响听觉时间感知

陈梁杰[1]　陆灵犀[2]　晋杨平[2]　李量[1]（通讯作者）

1 北京大学心理与认知科学学院，北京，100871

2 北京语言大学语言认知科学学科创新引智基地，北京，100083，

通讯作者 E-mail：liangli@pku.edu.cn

摘 要　时钟的发明和改进表达出人们对于客观时间精确性的追求，这或许是我们对无法在主观上精确评估时间的“补偿”。听觉加工是随时间展开的，听者能够准确表征言语中的时间信息（如：时域包络的神经夹带）似乎已成为公认的事实，但知觉层面上，听者似乎难以精确的评估言语的时间特征。实验一中，我们首先通过语谱噪声对人工言语进行频谱衰减降低其物理层面的可理解性，然后要求被试对部分测试语料进行熟悉训练增加材料的可理解性。实验任务是要求听者对熟悉和非熟悉的频谱衰减语料进行语速评估。结果发现熟悉语料下语速的主观相等点低于非熟悉语料，并且熟悉语料的再认成绩能够负向预测听者的主观相等点。这说明当言语可理解性较好时，相比于可理解性较低的材料，听者会主观认为言语的语速较慢。为了排除潜在计数策略的影响以及探究可理解性是如何改变听觉时间感知，在实验二中我们采用时间对比范式并通过漂移扩散模型解释行为结果。我们将言语材料替换为简单句和随机句，在认知层面控制可理解性的高低。时间对比范式通过事先呈现的语料快慢改变听者对后续音节的判定，即快语速下听者会更倾向于将模糊音节归类为具有更长的嗓音起始时间（如：/t/），反之亦然（如：/d/）。听者任务是对语速相同的简单句或随机句后出现的音节进行判定。结果表明事先出现随机句时，听者会有更大的概率将模糊音节判定为/ti/，这与以往研究中快语速语料的结果一致。这于实验一的结论类似，即可理解性较差的言语会加快语速感知。漂移扩散模型表明在随机句条件下，听者的漂移率更偏向/ti/，即更倾向将加工的信息归于比真实持续时间更长的一方。刺激编码模型对两种条件下初始点的估计，排除了随机句条件下被试会更偏好选择/ti/的干扰。我们还在非汉语母语群体中重复了实验二，结果并未表现出在音节判断上两种语料的差异。综上所述，本研究首次揭示了言语可理解性高低能够影响听者时间感知的现象，可理解性低时会导致听者低估持续时间产生语速增快的感受。

关键词　言语可理解性，语速感知，背景效应，漂移扩散模型

The comprehensibility of speech affects the auditory time perception

Liangjie Chen[1] Liangxi Lu[2] Yangping Jin[2] Liang Li[1] (Corresponding author)

1 School of Psychology and Cognitive Sciences, Peking University，Peking，100871
2 Center for the Cognitive Science of Language, Beijing Language and Culture University，Peking，100083，
Corresponding author E-mail：liangli@pku.edu.cn

Abstract：The invention and improvement of clocks express our pursuit of the precision of objective time, which perhaps serves as a “compensation” for our inability to accurately evaluate time subjectively. Auditory processing takes place over time, and it has become an accepted fact that listeners can precisely represent temporal information in speech (such as neural enslavement of time-domain envelopes). However, at the perceptual level, it seems difficult for listeners to accurately assess temporal features of speech. In our first experiment, we first used vocoder noise to attenuate the spectrum of synthetic speech thus reducing its physical comprehensibility, then we asked the subjects to undergo familiarization training with some of the test materials to enhance their comprehensibility. The task required listeners to assess the speed of speech for familiar and unfamiliar spectrally attenuated materials. The results showed that the subjective equivalence point of speech rate under familiar conditions was lower than under unfamiliar conditions, and the recognition scores of familiar materials could negatively predict the listeners' subjective equivalence points. This suggests that when speech comprehensibility is good, compared to materials with lower comprehensibility, listeners would perceive the speech rate to be slower. In order to rule out the potential impact of counting strategies and explore how comprehensibility changes auditory time perception, in the second experiment, we used a time comparison paradigm and interpreted the behavioral results via the drift diffusion model. We replaced speech materials with simple and random sentences to control the high or low comprehensibility at the cognitive level. Time comparison paradigm changes listeners' judgement of following syllables by the speed of the previously presented materials, that is, under high speech rates, listeners are more inclined to categorize ambiguous syllables as having a longer voice onset time (e.g., /t/), and vice versa (e.g., /d/). Listeners' task was to determine the syllable appearing after simple or random sentences with the same speech rate. Results showed that when random sentences are presented first, listeners are more likely to judge ambiguous syllables as /ti/, which is consistent with the results of previous studies involving fast speech rate materials. This is similar to the conclusion of Experiment One, where less comprehensible speech quickens perceived speech rate. The drift diffusion model revealed that under random sentence conditions, listeners have a higher drift rate towards /ti/, meaning they more likely attribute the processed information to be longer than the real duration. The stimulus encoding model’s estimates of starting points under both conditions ruled out the interference that test subjects would prefer choosing /ti/ under random sentence conditions. We also replicated Experiment Two among a non Chinese-speaking group, and the results did not show any difference in syllable judgment between the two types of materials. In summary, this study first revealed a phenomenon that the level of speech comprehensibility can affect listeners' time perception: lower comprehensibility may lead listeners to underestimate duration, resulting in a perceived acceleration of speech rate.

Keywords：Speech comprehensibility, Perceived speech rate, Context effect, Drift diffusion model

心理表象和未来情景思维对前瞻记忆的影响

全紫涵 林其玉 张乐 蔡晨(通讯作者)

青岛大学师范学院应用心理学系，青岛，266071，caichen@qdu.edu.cn

摘 要 作为日常生活中十分重要的一项认知功能，成功的前瞻记忆能够帮助人们记住并有效执行未来计划。有研究表明，表象能力能较好地预测前瞻记忆水平。心理表象是指个体根据描述来模拟或重新创造知觉经验，使个体能够感知目前不存在的事物的过程；而未来情景思维即个体将自我投射到未来，以预先体验未来事件的一种能力。现有研究已证明二者之间存在联系，但尚缺少研究同时考察二者对于前瞻记忆的交互影响。本研究旨在深入探讨心理表象与未来情景思维的关系，以及二者对前瞻记忆的交互作用机制。研究一采用相关研究，招募在校大学生 88 名（24 名男生，19.17±0.90 岁），通过间隔六个月的两次测试建立交叉滞后模型考察心理表象和未来情景思维之间的关系。结果表明，二者之间存在双向预测关系。研究二采用实验法，招募被试 116 名（25 名男生，18.76±0.89 岁），将被试随机分配到控制组、心理表象组与未来情景思维组以考察不同表象方式对前瞻记忆的影响。研究结果表明，心理表象和未来情景思维均可以促进被试的前瞻记忆任务表现，$F(2, 115) = 8.31, p < 0.001, \eta^2 = 0.499$。并且心理表象对于提升前瞻记忆任务执行速度的效果显著优于未来情景思维，$p = 0.025$。综上所述，心理表象和未来情景思维可相互预测，且二者可平行作用于前瞻记忆，这些发现对前瞻记忆领域的现有发现做出了补充，进一步揭示了三者之间相互作用的心理机制。

关键词 前瞻记忆，心理表象，未来情景思维，交叉滞后模型

Effects of mental imagery and episodic future thinking on prospective memory

Zihan Quan, Qiyu Lin, Le Zhang, Chen Cai*

Department of Psychology, Normal College, Qingdao University, 266071

*E-mail: caichen@qdu.edu.cn

***Abstract*:** As a vital cognitive function in daily lives, successful prospective memory assumes a critical role in assisting individuals in recalling and effectively carrying out their future plans. Current research has revealed that the imagery ability is a potent predictor of prospective memory capabilities. Mental imagery involves the remarkable ability of individuals to recreate sensory experiences based on descriptions, enabling them to perceive things that are not physically present; episodic future thinking refers to the ability of individuals to project themselves into the future and mentally pre-experience forthcoming events. Existing studies have established a correlation between mental imagery and episodic future thinking, but systematic research exploring the simultaneous interactive effects of the two on prospective memory remains limited. Therefore, this study aims to conduct a comprehensive investigation into the intricate relationship between mental imagery, episodic future thinking, and their combined interaction mechanism, specifically in relation to prospective memory. In Study 1, we employed a correlation method by constructing a cross-lagged model to investigate the relationship between mental imagery and episodic future thinking. A total of 88 college students (24 males;

mean age = 19.17 years, *SD* = 0.90) were recruited and we conducted two tests at six-month intervals to analyze this relationship. The findings of the study revealed a noteworthy two-way predictive relationship between mental imagery and episodic future thinking. In Study 2, an experimental approach was employed to explore the influence of different imagery methods on prospective memory. A total of 116 participants (25 males; mean age = 18.76 years, *SD* = 0.89) were recruited and randomly allocated to three groups: the control group, the mental imagery group, and the episodic future thinking group. The study results showed that both mental imagery and episodic future thinking positively influenced the participants' performance in the prospective memory task, $F(2, 115) = 8.31$, $p < 0.001$, $\eta^2 = 0.499$. And mental imagery exhibited a more pronounced impact on enhancing the execution speed of prospective memory tasks compared to episodic future thinking, $p = 0.025$. In conclusion, the findings suggest a reciprocal relationship between mental imagery and episodic future thinking, with both factors exerting parallel effects on prospective memory, which not only supplement the existing discoveries in the field of prospective memory but also provide valuable insights into the underlying psychological mechanisms that govern the interactions among these three factors.

***Keywords*:** prospective memory, mental imagery, episodic future thinking, cross-lagged model

协同规划未来：联合行动中的意图性承诺

郝少妍[1]　程少哲[1]　朱静茵[1]　沈模卫[1]　周吉帆[1]（通讯作者）

1 浙江大学心理与行为科学系，杭州，310058；E-mail: jifanzhou@zju.edu.cn

摘 要　经典理性行动模型认为，人们的联合行动基于预期效用最大化原则，即人们会以最高效的方式协调彼此的行动以完成联合行动规划。然而，最近研究发现，在面对多个冲突目标时，个体的连贯行动规划并不完全遵从最大化原则，而表现出意图性承诺：人们通过提前承诺于一个固定的未来目标，使个体在时序上的行动规划免受多个冲突目标的干扰，进而帮助个体协调更远的未来（Cheng et al.,2023）。为了将上述个人行动规划中发现的效应推广至双人联合行动场景，本研究设计了一个双人“吃豆人”范式来检验联合行动中人们是否会自发地表现出意图性承诺。在该任务中，地图上始终存在两个目标（两个豆子），两名被试轮流操作同一个吃豆人。每当吃豆人获取一个豆子后，该豆子会消失，此时地图上会出现另一个豆子（新），同时保留未被吃掉的豆子（旧）。被试被要求在一定时间内尽可能多地获取地图上的豆子。实验操纵了吃豆人距离新-旧豆子的距离来考察被试对新-旧豆子的偏好。如果被试的联合行动基于高效性原则，被试将选择更近的目标，且当吃豆人与新-旧豆子的距离相同时，被试不会表现出任何偏好；如果被试的联合行动基于意图性承诺，被试将会提前规划前往地图上原有的两个目标的行动路径，那么当新豆子出现时，被试已经规划好了到旧豆子的路径，因此其联合行动将会偏向于旧豆子。本研究根据任务中角色切换的方式设置了两个实验。实验一（N=40）在固定的时间点进行角色切换，一个被试吃到一个豆子后随即切换另一个被试操作吃豆人；实验二（N=40）中角色切换的时间点不固定，因而要求被试在联合行动中保持更高的协作程度。在两个实验中，被试均表现出对旧豆子的显著偏好。此外，相较实验一，实验二中的被试表现出对旧豆子更强的偏好，表明意图性承诺可能受到联合行动中协作程度的调控。两个实验的结果共同表明，人们在联合行动中会自发地形成意图性承诺来进行连贯的行动规划，且联合行动的程度越高，个体形成的意图性承诺越强。

关键词　目标承诺，时序规划，意图，合作

Intentional Commitment in Joint Action

Shaoyan Hao[1]　Shaozhe Cheng[1]　Jingyin Zhu[1]　Mowei Shen[1]　Jifan Zhou[1*]

1Department of Psychology and Behavioral Sciences, Zhejiang University, Hangzhou, 310058;

E-mail: jifanzhou@zju.edu.cn

Abstract: The classical rational model posits that joint action is based on the principle of maximizing expected utility (MEU). That is, people coordinate their actions in the most efficient way. However, recent research has demonstrated that when faced with multiple conflicting goals, individuals' coherent action planning is not always based on the MEU principle. Instead, they show intentional commitment by committing to a fixed future, which prevents their temporal action planning from being disrupted by multiple conflicting goals and helps them coordinate for a further future (Cheng et al., 2023). To investigate the intentional commitment in individual action to joint action, the current study employed a two-person "Pac-Man" paradigm to examine whether people spontaneously show intentional commitment in joint action. In this task, participants took turns operating the same Pac-Man to collect as many beans as possible within a certain time limit. The task involved two beans on the map, with the Pac-Man obtaining one bean at a time. Whenever the Pac-Man obtained a bean, the bean disappeared and another new bean appeared on the map alongside the uneaten old one. The distance between the Pac-Man and the beans was manipulated to examine participants' preferences. If participants' joint action was based on the MEU principle, they would choose the closer bean, and when the Pac-Man was equidistant from the beans, participants would not show any preference. However, if participants' joint action was based on intentional commitment, they would plan their paths to the two original beans beforehand, and their joint action would show preference for the old bean when a new bean appeared. The study conducted two experiments based on the setting of role-switching in the task. Experiment 1 (*N=40*) made role switching at a fixed time point, that is, as soon as one participant obtained a bean, the control of the Pac-Man was switched to the other participant. Experiment 2 (*N=40)* made role switching at an unspecified time point, requiring higher coordination in joint action. The results of both experiments indicated that participants showed a significant preference for the old bean, suggesting that people spontaneously form intentional commitment in joint action to achieve coherent action planning. Moreover, participants in Experiment 2 showed a stronger preference for the old bean compared to Experiment 1, indicating that intentional commitment may be modulated by the level of coordination in joint action. These findings provide evidence for the role of intentional commitment in joint action planning and highlight intentional commitment as a potential mechanism for coordinating joint action.

Keywords: goal commitment, time planning, intention, cooperation

自主动作对声音诱发闪光错觉效应的影响

雷耀杰[1]　王凌云[2]（通讯作者）
1 东北师范大学心理学院，长春，130022
2 东北师范大学心理学院，长春，130022，wangly880@nenu.edu.cn

摘 要　个体对事物的感知不仅仅依赖于单一感官，多感官的交互作用才构成了个体内部多彩的世界，而自主动作作为自我的构成部分之一，与多感官的交互密切相关。相比于非自主动作产生的结果，自主动作的结果对动作发出者具有更特殊的意义，它能够使动作发出者对动作结果产生知觉层面的变化。以往研究主要关注自主动作对动作结果中视听单通道的影响，而很少有研究关注当视听信息同时作为动作的结果时，自主动作对视听整合的作用。本研究采用声音诱发闪光错觉作为视听整合的研究材料。该错觉是指在 100ms 内快速呈现的视听刺激条件下，被试倾向于依据听觉刺激个数判断视觉刺激的个数，即出现听觉主导效应。本研究以 23 名大学生为被试，采用声音诱发闪光错觉范式，考察视听刺激呈现前被试是否按键对非错觉条件(F1B1、F2B2)以及错觉条件(F2B1、F1B2)下视听整合的影响。其中，F 代表视觉刺激个数，B 代表听觉刺激个数；被试在实验中仅报告感知到的视觉刺激个数。研究结果发现，在非错觉条件下，自主动作显著提高了被试在 F2B2 条件下的正确率，而对 F1B1 条件没有显著影响。在错觉条件下，自主动作显著提高了被试在 F2B1 条件下的正确率，而对 F1B2 条件没有显著影响。进一步的辨别力分析发现，自主动作能够提高被试在 F2B1 条件下的辨别力，而对 F1B2 条件下的辨别力没有显著影响。研究结果表明，(1)在非错觉条件下，自主动作对视觉通道的影响大于听觉通道，表现在提高了视觉通道信息的可靠性。(2)在错觉条件下，自主动作能够通过提高被试视觉刺激间的辨别力以抵消部分听觉主导效应，但是无法通过提高被试听觉刺激间的辨别力以加强听觉主导效应。

关键词　自主动作，声音诱发闪光错觉，多感觉整合，跨通道加工

The effect of voluntary action on sound-induced flash illusion

Yaojie Lei, Lingyun Wang
School of Psychology, Northeast Normal University, Changchun, 130022

Abstract：We investigated the influence of voluntary actions on the integration of audiovisual information as action outcomes. Previous research has primarily focused on the impact of voluntary actions on unimodal audio or visual outcomes, with little attention given to the role of voluntary actions in audiovisual integration when both auditory and visual information serve as action outcomes.In this study, we employed the sound-induced flash illusion as the experimental material for audiovisual integration research. This illusion refers to the phenomenon where participants tend to judge the number of visual stimuli based on the number of auditory stimuli presented within a rapid 100ms interval, resulting in an auditory-dominant effect.Twenty-three university students participated as subjects, and we used the sound-induced flash illusion paradigm to investigate the influence of voluntary actions on audiovisual integration under non-illusion conditions (F1B1, F2B2) and illusion conditions (F2B1, F1B2). Here, F represents the number of visual stimuli, and B represents the number of auditory stimuli. Subjects were only required to report the perceived number of visual stimuli during the experiment.The results of the study revealed that under non-illusion conditions, voluntary actions significantly increased the accuracy of subjects in the F2B2 condition, while showing no significant impact on the F1B1 condition. Under illusion conditions, voluntary actions significantly improved the accuracy of subjects in the F2B1 condition but had no

significant effect on the F1B2 condition. Further discriminability analysis indicated that voluntary actions could enhance the discriminability of subjects for the F2B1 condition, while having no significant effect on the discriminability for the F1B2 condition.

These findings suggest that (1) under non-illusion conditions, voluntary actions have a greater impact on the visual channel than the auditory channel, leading to an increase in the reliability of visual channel information; (2) under illusion conditions, voluntary actions can compensate for some auditory-dominant effects by enhancing subjects' discriminability between visual stimuli but cannot strengthen auditory-dominant effects by improving their discriminability between auditory stimuli.

Keywords：voluntary action, sound-induced flash illusion, multisensory integration, cross-modal processin

考试焦虑对个体认知功能的影响

汪春楠[1]　李富洪[2]（通讯作者）

1 江西师范大学心理学院，南昌，330022

2 江西师范大学心理学院，南昌，330022，lifuhong@jxnu.edu.cn

摘 要　考试焦虑是个体在学业评价情境中产生的情绪、生理、行为方面的焦虑体验和认知担忧。减轻考试焦虑带来的负面影响有助于帮助学生降低焦虑情绪困扰、提升心理健康水平、提高学习效率。近年来，研究者开始关注考试焦虑对个体注意、工作记忆、抑制功能及相关脑机制的影响。研究发现，高特质考试焦虑个体对考试相关刺激存在更大的注意偏向，主要原因在于高特质考试个体对考试相关的特定刺激存在注意抑制困难。高特质考试焦虑个体在考试压力情境下工作记忆容量减小。对考试焦虑的理论解释最主要围绕注意控制理论展开，支持注意控制理论的研究者认为高焦虑与相关脑区的更大激活有关，且有相关研究结果支持该观点；反对注意控制理论的研究者认为高焦虑与相关脑区激活不足有关，也得到了相关研究结果的支持。认知功能的核心是执行功能，执行功能通常被分成三个子成分——认知切换、工作记忆表征的更新和监控、优势反应的抑制。考试焦虑作为焦虑症的一个亚类型，也会损害个体的认知功能。研究表明，当可用注意资源不足（高工作记忆负荷条件）时，高考试焦虑被试的抑制功能被削弱，以及在考试威胁条件下高考试焦虑个体的抑制功能也被削弱。然而，有关考试焦虑对记忆更新和任务切换功能的影响尚不清楚，目前还没有相关研究。今后的研究应该在现有理论基础上探究考试焦虑对记忆更新和任务切换功能的影响及相关认知神经机制，并探究有效的干预方法。

关键词　考试焦虑，注意，工作记忆，认知功能

Article Title——4 号 Times New Roman 体居中

Chunnan Wang, Fuhong Li

School of Psychology, Jiangxi Normal University, China

Abstract：Test anxiety (TA) is a situation-specific mood disorder, wherein individuals experience excessive worry, irrelevant thinking, and physical arousal in evaluation situations. Reducing the negative effects of test anxiety can help students reduce anxiety, improve their mental health and improve their learning efficiency. In recent years, researchers began to pay attention to the effects of test anxiety on individual attention, working memory, inhibitory function and related brain mechanisms. It is found that individuals with high test anxiety (HTAs) have greater attentional bias towards test-related stimuli, mainly because they have difficulty in attentional inhibition of specific test-related stimuli. For individuals with high test anxiety (HTAs), their working memory capacity decreased under

test stress. The theoretical explanation of test anxiety mainly focuses on Attention Control Theory (ACT). Researchers who support Attention Control Theory believe that high anxiety is related to greater activation of related brain areas, and relevant research results support this view. While, researchers who oppose Attention Control Theory believe that high anxiety is related to insufficient activation of relevant brain areas, which is also supported by relevant research results. The core of cognitive function is executive function, which is usually divided into three subcomponents: cognitive switching, updating and monitoring of working memory representations, and inhibition of dominant responses. Test anxiety, as a subtype of anxiety disorder, can also impair an individual's cognitive function. Studies have shown that when the available attention resources are insufficient (in high working memory load condition), the inhibitory function of high test anxiety subjects is weakened, and the inhibitory function of high test anxiety individuals is also weakened under the test threat condition. However, the effect of test anxiety on memory updating and task switching function is not clear, and no relevant studies have been conducted. Future studies should explore the effects of test anxiety on memory updating and task switching function and related cognitive neural mechanisms on the basis of existing theories, and explore effective intervention methods.

Keywords：test anxiety, attention, working memory, cognitive function

学习判断对虚假记忆的反应性效应

赵文博[1]　曹宇琪[2]　杨春亮[2]　罗良[2]

1 北京师范大学社会发展与公共政策学院，北京，100875

2 北京师范大学心理学部，北京，100875

通讯作者：罗良，E-mail：luoliang@bnu.edu.cn

摘 要　学习判断(judgments of learning; JOLs)是指学习者对所学内容在未来测验中能够被成功提取可能性的预见性评估。以往研究主要聚焦于考察 JOL 的准确性及其内在产生机制等问题，然而近期研究表明 JOL 能够反应性改变记忆成绩本身，这种现象被称为反应性效应(the reactivity effect)。先前研究发现 JOL 对于项目自身记忆和项目间关系记忆的反应性效应存在分离，即学习时做 JOL 促进项目自身加工，表现出积极反应性效应；但同时做 JOL 将破坏项目间关系记忆（例如，项目间时序和项目间语义关系记忆），表现出消极反应性效应。Zhao 等人(2023)基于项目自身与关系理论(item-specific and relational account)来解释反应性效应的分离，该理论指出学习时做 JOL 增加了个体对项目自身特征的编码，进而提高项目自身记忆。但是，由于过多的注意资源投入到项目自身加工，导致个体忽略了项目间的关系加工，进而做 JOL 破坏项目间关系记忆。虽然，目前反应性效应的研究揭示出 JOL 对已学项目和项目间关系记忆的反应性效应，并发现这两种效应存在双分离现象，但尚未有研究探讨 JOL 是否对未学项目产生反应性影响，即是否对虚假记忆产生反应性效应。本研究采用 3 个实验，通过 DRM 范式，首次考察 JOL 对虚假记忆的反应性效应（实验 1），并进一步检验项目自身与关系理论（实验 2 和实验 3）。实验 1 发现，与 no-JOL 条件相比，逐项 JOL 降低了关键诱饵词的虚报率，即降低虚假记忆的产生。与此同时，逐项 JOL 促进了已学词的击中率，即项目自身记忆出现积极反应性效应。实验 2 和实验 3 通过改变 DRM 词列呈现形式和 JOL 类型，发现整体 JOL 促进项目内语义关系加工，但其破坏项目间语义关系加工，符合项目自身与关系理论的预期。上述研究结果不仅再次验证项目自身与关系理论在反应性效应研究中的适用性，而且为元记忆监测策略作为缓解虚假记忆产生的干预方式提供了重要启示。

关键词　学习判断，虚假记忆，项目自身与关系理论，反应性效应

The Reactivity Effect of Soliciting Judgments of Learning on False Memory

Wenbo Zhao[1], Yuqi Cao[2], Chunliang Yang[2] and Liang Luo[2*]

[1] School of Social Development and Public Policy, Beijing Normal University, Beijing, 100875

[2] Institute of Developmental Psychology, Faculty of Psychology, Beijing Normal University, Beijing, 100875

Abstract：Judgments of learning (JOLs) refer to learners' predictive evaluations of the likelihood that they would successfully retrieve learned content in future tests. Previous research has mainly focused on examining the accuracy of JOLs and the mechanisms underlying JOL formation. However, recent studies have shown that JOLs can affect memory performance itself, which is called *the reactivity effect*. Previous research revealed dissociable reactivity effects on item and inter-item relational memory. Making JOLs enhances item-specific processing, showing a positive reactivity effect on item memory. However, it simultaneously disrupts relational memory (e.g., temporal order and semantic relational memory), resulting in a negative reactivity effect. Zhao et al. (2023) proposed that the item-specific and relational account can explain these dissociable reactivity effects. The item-specific relational account suggests that making JOLs promotes encoding of item-specific features, thereby facilitating item memory and producing a positive reactivity effect. However, due to limited cognitive resource, allocating more resources to item-specific processing corresponds to decreased resources for processing inter-item relations, leading to impaired inter-item relational memory and a negative reactivity effect. Although prior research observed the reactivity effects on memory for learned items and inter-item relations, no studies have examined whether making JOLs elicits reactivity effects on memory for non-learned items, specifically, false memory. Therefore, the current study utilized the DRM paradigm to examine the reactivity effect of making JOLs on false memory. Experiment 1 showed that item-by-item JOLs concurrently reduced false memory and increased correct recognition for studied words. Experiments 2 and 3, manipulating DRM word list presentation and JOL types, respectively, demonstrated that making global JOLs facilitates intra-item relational processing but disrupts inter-item relational processing. The results not only reconfirm the applicability of the item-specific and relational account but also provide valuable insights for using metacognitive monitoring strategies as interventions to mitigate the occurrence of false memory.

Keywords：Judgments of Learning, False memory, Item-specific and relational account, Reactivity effect

跨通道 Stroop 任务中的认知控制调节机制

李政汉 [1,2,3,4] 杨国春 [5,4] 刘勋 [4,6*]（通讯作者）

[1] 杭州师范大学基础医学院生理学系脑科学研究所，杭州，311121

[2] 浙江省哲学社会科学培育实验室“杭州师范大学婴幼儿发展与托育实验室”，杭州

[3] 浙江省认知障碍评估技术研究重点实验室，杭州

[4] 中国科学院心理研究所行为科学重点实验室，北京，100101，liux@psych.ac.cn

[5] 爱荷华大学心理与脑科学系，爱荷华，美国

[6] 中国科学院大学心理学系，北京

摘 要 **背景：**认知控制是指我们大脑动态调整注意资源、产生适应性目标导向行为的能力。作为一种核心的高级认知功能，认知控制参与从感知觉、注意、学习和记忆到情绪调节、奖励决策等心理过程的方方面面。认知控制对注意的调节机制有两种：一种是对目标刺激的加工增强，另一种是对干扰刺激的加工抑制，而相关理论模型大多将两者有机结合，认为是两种过程共同作用的结果。但近期的一些实证研究又发现了很多不一致的结果，重新引发了关于认知控制调控机制的争议。**方法：**为了更好地分离目标刺激与干扰刺激的加工，进一步探究认知控制的调节机制，本研究基于改编的视听跨通道 Stroop 任务，采用功能性磁共振（functional magnetic resonance imaging, fMRI）技术将目标刺激和干扰刺激的加工分离到相应的特异性脑区。该研究共包含三个任务，分别是视觉（目标刺激）Stroop 任务、听觉（目标刺激）Stroop 任务和匹配任务。其中视觉和听觉 Stroop 任务均为选择性注意，而被作为基线的匹配任务则为分配性注意。**结果：**感兴趣区分析发现，相比于匹配任务，在完成视觉 Stroop 任务时，视觉区和面孔特异性加工脑区的激活都显著增强，证明了任务相关刺激的加工增强。此外，我们分别对视觉区和听觉区进行了表征相似性分析（representational similarity analyses, RSA），结果发现相比于匹配任务，在完成视觉 Stroop 任务时，视觉区的模式相似性显著更高，而在完成听觉 Stroop 任务时，视觉区的模式相似性显著更低。表明任务相关刺激加工脑区的相似性被增强，而任务无关刺激加工脑区的相似性被抑制。最后，相关分析发现视觉 Stroop 任务中视觉区的激活增强与两侧顶内沟有关，而听觉 Stroop 任务中视觉区激活的减弱与前扣带回与背外侧前额叶有关。**结论：**我们发现了目标刺激加工增强与干扰刺激加工抑制同时作用的脑成像证据，但认知控制似乎更多通过调节视觉信息的加工促进冲突解决。这一结果不仅有助于加深人们对认知控制网络与其他脑网络之间作用关系的理解，也可以为开发更有效的认知训练程序提供理论依据。

关键词：跨通道 Stroop 任务，认知控制，功能性磁共振（fMRI），表征相似性分析（RSA）

Abstract： **Background**：Cognitive control refers to the ability of our brain to dynamically adjust attentional resources and generate adaptive goal-directed behavior. As a core higher-order cognitive function, cognitive control is involved in various aspects of psychological processes, ranging from perception, attention, learning, and memory to emotion regulation, reward decision-making, and more. There are two mechanisms of cognitive control in regulating attention: one is enhancing the processing of target stimuli, while the other is inhibiting the processing of interfering stimuli. Most relevant theoretical models integrate these two processes, considering them as the result of their combined action. However, recent empirical research has uncovered many inconsistent findings, reigniting the controversy surrounding the mechanisms of cognitive control regulation. **Methods**: In order to better separate the processing of target and interfering stimuli and further explore the regulatory mechanisms of cognitive control, this study conducted an adapted audiovisual cross-modal Stroop task, using functional magnetic resonance imaging (fMRI) technology to separate the processing of the target and the distractor into respective specific brain regions. The study consists of three tasks: Visual (target modality) Stroop

task, Auditory (target modality) Stroop task, and Matching task used as a baseline. Both Visual and Auditory Stroop tasks involve selective attention, while Matching task serves as a baseline involving only divided attention. **Results**: The region of interest (ROI) analysis revealed that compared to the matching task, activation in the visual area and face-specific processing brain regions significantly increased during the Visual Stroop task, demonstrating the enhancement of task-relevant stimulus processing. In addition, we conducted representational similarity analyses (RSA) for both the visual and auditory areas, and found that during the Visual Stroop task, the pattern similarity in the visual area was significantly higher, while during the Auditory Stroop task, the pattern similarity in the visual area was significantly lower, compared to the matching task. This indicates that the similarity of task-relevant stimulus processing in the brain region was enhanced, while the similarity of task-irrelevant stimulus processing in the brain region was suppressed. Furthermore, correlation analyses found that the enhanced activation in the visual area during the Visual Stroop task was related to the bilateral intraparietal sulcus, while the reduced activation in the visual area during the Auditory Stroop task was related to the anterior cingulate cortex and the dorsolateral prefrontal cortex. **Conclusion**: We found brain imaging evidence of both enhancement of target and inhibition of distractors, indicating that cognitive control operates through the modulation of visual information processing to facilitate conflict resolution. This result not only deepens our understanding of the interaction between the cognitive control network and other brain networks, but also provides a theoretical basis for developing more effective cognitive training programs.

Keywords: cross-modal Stroop task, cognitive control, fMRI, RSA

词汇再认记忆积极反应性效应的认知机制

李佰科[1]　杨春亮[2]（通讯作者）

1 辽宁师范大学心理学院，大连，116029

2 北京师范大学心理学部，北京，100875，通讯作者 E-mail：chunliang.yang@bnu.edu.cn

摘 要　在学习过程中进行学习判断(Judgments of Learning, JOLs)能够反应性地篡改个体对该项目的记忆表现，该现象被称为反应性效应(the reactivity effect)。纯列表词汇学习任务中，做 JOL 能够提高词汇再认记忆，表现出积极的反应性效应(the positive reactivity effect)。词汇再认记忆的积极反应性效应可以被学习投入增强理论所解释。该理论认为做 JOL 通过增加个体的学习投入（如注意、认知努力等）进而提高记忆表现。具体而言，在 No-JOL 条件下，随着学习过程的持续，被试集中到当前所学任务的注意力会逐渐衰退，进而开始产生走神行为。然而，在 JOL 条件下，被试需要寻找一些线索用来做出较为准确的 JOL。做 JOL 这一过程反应性地增加了个体对当前所学内容的注意，提高了个体的认知努力和学习参与程度，进而提高记忆成绩。虽然学习投入增强理论能够解释词汇再认记忆的积极反应性效应，但是较少有研究为该理论提供充足的实验证据。本研究使用三个行为范式（分散学习范式、产生效应范式以及节省时间范式）调节学习投入，为学习投入增强理论提供直接的行为证据。此外，本研究还通过认知神经手段(e.g., EEG)比较词汇编码阶段与认知投入相关的指标(例如，alpha 能量变化)，为学习投入增强理论提供认知神经证据。

关键词　学习判断、反应性效应，再认记忆，学习投入增强。

The cognitive mechanisms underlying the positive reactivity effect to recognition memory

Baike Li[1] Chunliang Yang[2]

[1] School of Psychology, Liaoning Normal University, Dalian, 116029
[2] Department of Psychology, Beijing Normal University, Beijing, 100875, Corresponding Author's Email: chunliang.yang@bnu.edu.cn

Abstract： In the learning process, making a Judgments of Learning (JOLs) can reactively alter individuals' memory performance on the items, a phenomenon known as the reactivity effect. In pure list word learning tasks, making JOLs can enhance word recognition memory, demonstrating a positive reactivity effect. The positive reactivity effect in word recognition memory can be explained by the Enhanced-Engagement Theory (EET). The theory suggests that making JOLs increases participants' learning engagement (e.g., attention, cognitive effort, etc.), thereby improving memory performance. Specifically, under the No-JOL condition, as the learning process progresses, participants' attention to the concurrent learning materials gradually declines, leading to mind-wandering behavior. However, under the JOL condition, requiring participant to make JOL, they need to search for cues to make more accurate JOLs. This process reactively increases individuals' attention to the current learning content, enhancing their cognitive effort and engagement, thus improving memory performance. Although the EET can explain the positive reactivity effect in word recognition memory, there is limited research providing sufficient empirical evidence for this theory. This study employs three behavioral paradigms (spacing effect paradigm, production effect paradigm, and time-saving paradigm) to manipulate learning engagement, offering direct behavioral evidence for the EET. Additionally, the current study employs cognitive neuroimaging techniques (e.g., EEG) to compare encoding stage with cognitive engagement-related indicators (e.g., alpha power changes), providing cognitive neuroscientific evidence for the EET.

Keywords：judgments of learning, reactivity effect, recognition memory, enhanced engagement theory

认知冲突控制和情绪冲突控制的领域特殊性：来自比例一致性效应迁移的证据

向玲[1]（通讯作者） 高宇[2] 杨婷婷[3]
1 江西师范大学心理学院，南昌，330022，xiangling1997@126.com

摘 要 目前对于信息加工过程中认知冲突和情绪冲突的解决是依赖的认知控制资源是共享的还是相互独立的，这一点尚存在争论。已有研究从反应性控制的角度,以微观的序列一致性效应(SC 效应)为指标探讨了冲突解决的领域性问题，本研究则从宏观视角，以比例一致性效应(PC 效应)为指标，从主动性控制的视角出发，探究认知冲突和情绪冲突解决的领域性问题。采用面孔-词情绪效价冲突和空间 Simon 冲突的整合交叉任务开展两个实验，实验 1 操纵了 Simon 任务一致性比例，实验 2 则对情绪效价冲突任务的一致性比例进行了操纵，观察 Simon 冲突任务激发的控制资源的调整是否能够迁移到情绪冲突任务中，以及相反。结果发现，在正确率、反应时以及 N450 和晚期正波 SP 上，Simon 冲突和情绪效价冲突都只表现出任务内的 PC 效应，没有跨任务表现，这表明认知冲突诱发的持续性控制资源不能迁移到情绪冲突的解决，情绪冲突诱发的持续性控制资源也不能迁移到认知冲突的解决。研究进一步从宏观层面，基于主动性控制的角度，证明了冲突控制资源在认知冲突和情绪冲突上是领域特殊性的。结果强调了区分人类认知系统中特定领域控制机制的重要性，并支持情绪冲突和认知冲突的模块化架构。

关键词 认知冲突，情绪冲突，主动性控制，比例一致性效应，领域一般性的

The Domain Specificity of Cognitive Conflict Control and Emotional Conflict Control: Evidence from Proportion Congruency Effect Transfer

XIANG Ling[1](corresponding author) GAO Yu[2] YANG Tingting[3]
1 School of Psychology, Jiangxi Normal University, Nanchang 330022, China

Abstract： Currently, there is a debate regarding whether the cognitive control resources involved in resolving cognitive and emotional conflicts during information processing are shared or independent. Prior research has explored the domain specificity of conflict resolution from a reactive control perspective, using micro-level sequence congruency effect (SC effect) as an indicator. In contrast, this study adopts a macro-level perspective, employing the proportion congruency effect (PC effect) as an indicator from a proactive control viewpoint to investigate the domain specificity of resolving cognitive and emotional conflicts. Two experiments were conducted using an integrated cross-task involving face-word emotional valence conflict and spatial Simon conflict. Experiment 1 manipulated the congruency proportion of the Simon task, while Experiment 2 manipulated the congruency proportion of the emotional valence conflict task. The aim was to observe whether the adjustment of control resources triggered by the Simon conflict task could transfer to the emotional conflict task, and vice versa. The results indicates that both the Simon conflict and emotional valence conflict exhibited only within-task PC effects in accuracy, response time, N450, and late positive potential (late SP). There was no transfer of effects between tasks, suggesting that the sustained control resources triggered by cognitive conflict cannot transfer to emotional conflict resolution, and vice versa. From a macro-level perspective and based on the proactive control approach, this research provided evidence supporting the domain specificity of conflict control resources in cognitive and emotional conflict resolution. The findings underscore the importance of differentiating specific domain control mechanisms within the human cognitive system and support the modular architecture of emotional and cognitive conflict processing.

Keywords： Cognitive conflict, Emotional conflict, Proactive control, Proportion Congruency effect, Domain generality

实际能力未必决定成败：认知控制中预期认知成本的作用

郑旭涛[1] 刘卓璇[1] 周吉帆[1]（通讯作者）
1 浙江大学心理与行为科学系，杭州，310000，jifanzhou@zju.edu.cn

摘 要　认知控制也被称作执行控制，是支持人们顺利实现目标导向行为所必需的能力。由于认知资源有限，为实现效用最大化，如何投入认知控制应同时考虑预期认知成本与预期收益。相关研究主要关注预期收益对认知控制的影响，但预期认知成本未得到足够重视。

本研究在成本-收益框架下，考察预期认知成本（高/低）与预期收益（高/低）对认知控制的影响。在 2 个实验中，分别采用虚假绩效反馈与真实绩效体验，操作被试对自身认知能力的判断，在此基础上形成执行后续任务的预期认知成本。实验 1（N=64）采用 Stroop 范式和任务切换范式。通过 Stroop 范式测量被试的实际认知能力，并在任务结束后提供虚假绩效反馈。获得高绩效反馈的被试感到自身认知能力高，在随后任务中将预期低认知成本。与之相对，获得低绩效反馈的被试在随后任务中将预

期高认知成本。随后，采用任务切换范式考察预期认知成本与预期收益对认知控制的影响。在该任务中，用金钱线索操作被试的预期收益，用任务类型发生切换时的反应损耗作为认知控制投入的指标。实验 2（N=64）中 Stroop 任务不再提供绩效反馈，改为插入一项高难度或低难度的对立要求任务，以操作被试在后续任务中的预期认知成本。

2 项实验结果均显示，预期认知成本与预期收益具有显著交互作用：预期高认知成本的被试在预期低收益时的反应损耗显著高于预期高收益时，而预期低认知成本的被试在预期高收益与预期低收益时的反应损耗相当。有趣的是，被试的实际认知能力与预期收益间不存在交互作用。

以上结果首次证明了预期认知成本对执行认知控制的关键作用。人们在预期高认知成本时变得“精明”，降低预期低收益时的认知控制，投入到预期高收益的情境中。而在预期低认知成本时，无论预期收益的高低，均投入较多认知控制，以获取完整的收益。预期认知成本取决于人们对自身能力的感知，其并非实际能力的直接反映。在目标导向行为中，人们“认为”自己拥有的能力可能比“实际”能力更为关键，这对教育工作者有重要意义。

关键词　认知控制，预期认知成本，预期收益，认知能力

Actual Capacity May Not Determine Success or Failure: The Effect of Expected Cognitive Costs on Cognitive Control

Xutao Zheng[1], Zhuoxuan Liu[1], Jifan Zhou (jifanzhou@zju.edu.cn)[1]

1 Department of Psychology and Behavioral Sciences, Zhejiang University

Abstract：Cognitive control, also known as executive control, is the ability necessary for individuals to successfully achieve goal-directed behavior. Since cognitive resources are limited, in order to maximize utility, how to invest cognitive control should consider both the expected cognitive costs and expected benefits. Previous research has mainly focused on the effect of expected benefits on cognitive control, while expected cognitive costs have not received sufficient attention.

This study examines the effect of expected cognitive costs (high vs. low) and expected benefits (high vs. low) on cognitive control within a cost-benefit framework. Two experiments were conducted, using false performance feedback and real performance experience to manipulate participants' judgments of their own cognitive capacity, based on which they formed their expectations of cognitive costs for subsequent task. Experiment 1 (N=64) used the Stroop paradigm and task-switching paradigm. First, participants' actual cognitive capacity was measured using the Stroop paradigm, and false performance feedback was provided after the task. Participants who received high-performance feedback perceived their cognitive capacity as high and formed expectations of low cognitive costs for the subsequent task. Conversely, participants who received low-performance feedback formed expectations of high cognitive costs for the subsequent task. Then, the task-switching paradigm was used to measure the effects of expected cognitive costs and expected benefits on cognitive control. In this task, monetary cues were used to manipulate participants' expected benefits, and the reaction cost when switching between task types was used as an indicator of cognitive control invested. In Experiment 2 (N=64), the Stroop task no longer provided performance feedback, instead inserted a hard or easy countermanding task to manipulate participants' expectations of cognitive costs for the subsequent task.

The results of both experiments showed a significant interaction between expected cognitive costs and expected benefits: participants with expectations of high cognitive costs showed significantly higher reaction costs when expecting low benefits compared to high benefits, while participants with expectations of low

cognitive costs showed similar reaction costs regardless of high or low expected benefits. Interestingly, there was no interaction between participants' actual cognitive capacity and expected benefits.

These results provide the first evidence of the crucial role of expected cognitive costs in cognitive control. Individuals become "shrewd" with high expected cognitive costs, reducing cognitive control in situations with low expected benefits so that they can invest more cognitive control in situations with high expected benefits. In contrast, with low expected costs, individuals tend to invest much cognitive control regardless of the magnitude of expected benefits in order to obtain complete rewards. Expected cognitive costs depend on Individuals' judgments of their own capacity, which are not a direct reflection to their true capacity. In goal-directed behavior, individuals' perceived cognitive capacity may be more critical than their actual cognitive capacity, which is of significant meaning for educators.

Keywords：cognitive control, expected cognitive costs, expected benefits, cognitive capacity

工作记忆捕获注意过程中认知控制参与的必要性研究

张豹[1]　刘树辉[1]　隋洁[2]　黄赛[2]（通讯作者）

1 广州大学心理学系，广州，510106

2 阿伯丁大学心理学系, 阿伯丁，AB24 3FX，通讯作者 huangsai@gzhu.edu.cn

摘 要 近年来的大量研究表明，在视觉搜索过程中，如果有刺激与当前保存在工作记忆中的内容有特征匹配，注意会被该记忆匹配刺激所捕获，即使该记忆匹配刺激只是作为视觉搜索的干扰刺激，这种现象被称为记忆驱动的注意捕获。然而，关于该注意捕获现象是自动化的过程，还是受到认知控制的调节，目前仍存在持续的争议。本研究采用眼动追踪技术，通过四个实验考察认知控制的作用边界。实验 1 中，通过给予被试与视觉搜索速度相关的金钱奖罚；实验 2 和实验 3 分别对选择记忆匹配干扰刺激与选择目标进行即时的金钱奖罚；实验 4 则只进行重复练习而无金钱激励的操作。结果显示，不管是激励还是重复练习都可以提高视觉搜索效率，但对注意捕获的影响呈现出两种不同的模式。实验 1-3 中，当视觉搜索涉及到金钱激励时，注意捕获被抑制，表明基于激励条件下可以促使认知控制参与，从而避免被记忆匹配的干扰物所捕获。相比之下，实验 4 尽管进行了重复练习而提升了视觉搜索效率，但仍观察到持续的注意捕获效应，表明在没有外部激励的情况下，被试优先考虑资源的平衡而非优化搜索效率。总体而言，这些结果表明，在工作记忆内容捕获视觉注意的过程中，并非必须启动认知控制来调节注意捕获，认知控制的参与程度一定程度上取决于其本身所消耗的资源和带来的收益之间的平衡。

关键词　记忆驱动的注意捕获、认知控制、工作记忆、金钱激励

Necessity of Cognitive Control Involvement in Memory-driven Attentional Capture

Bao Zhang [1] Shuhui Liu[1] Jie Sui[2], Sai Huang[1*]

1. Department of Psychology, Guangzhou University, Guangzhou, China

2. School of Psychology, University of Aberdeen, Aberdeen, United Kingdom

Abstract： Visual attention can be captured by distractors that match the contents of working memory during visual search. This phenomenon, known as memory-driven attentional capture, has been extensively studied.

However, there is ongoing debate regarding the role of cognitive control in mediating this capture effect. This study employed eye-tracking technology to explore the boundary conditions for cognitive control's influence in four experiments. Experiment 1 utilized performance-based monetary incentives tied to visual search speed, while Experiments 2 and 3 involved immediate monetary rewards or penalties for selecting memory-matching distractors or targets. Experiment 4 focused solely on repetitive practice without monetary incentives. The results showed that both incentives and repetitive practice improved visual search efficiency but had distinct effects on attentional capture. In Experiments 1 to 3, monetary incentives suppressed attentional capture, suggesting the involvement of cognitive control when motivated by external rewards, leading to the avoidance of memory-matching distractors. Conversely, Experiment 4 revealed persistent attentional capture despite repetitive practice, indicating that participants prioritized resource balance over optimizing search efficiency in the absence of external motivation. Overall, these findings support the assumption that the initiation of cognitive control is not always necessary for modulating attentional capture. The extent of cognitive control's involvement appears to depend on the balance between the resources it consumes and the benefits it yields.

Keywords：memory-driven attentional capture, cognitive control, working memory, monetary incentives

元认知干预中的认知训练效果及影响因素：一项元分析研究

翟钰慧[1]，郭宇飞[2]，叶群[1](通讯作者)

(浙江师范大学心理学院，金华，321004，qun.ye@zjnu.edu.cn)

摘 要　元认知是评估和调节自身认知过程的一种高级认知功能。良好的元认知能力能够帮助个体快速意识到行为表现的波动，并适当地调节其信心水平，进而优化行为表现。认知训练被认为是一种有效的元认知干预方式，但不同的认知训练类型对于元认知的干预效果不一。系统考察其干预效果及其影响因素，有助于理解其作用机制，并为今后的认知训练干预元认知提供实践指导。本研究运用元分析技术，以元认知效率、元认知偏差、元认知敏感性以及测量工具所测元认知分数为结果变量，考察训练类型、被试群体、干预周期和反馈类型（是/否）的调节作用。通过对文献的检索和筛选，最终纳入 30 篇文献，共 51 个效应量，总样本量为 3273。研究使用 Comprehensive Meta-Analysis(CMA 3.0)软件对数据进行分析。结果发现：总效应及各结果变量的干预效果均显著。认知训练对元认知的总体干预效果量达到中等以上水平(g=0.525)，评估工具、元认知效率和元认知偏差的干预均达到中到大的效果量(评估工具：g=0.557，元认知效率：g=0.603，元认知偏差：g=0.522)，而元认知敏感性的干预效果为小效果量(g=0.275)。亚组分析发现，认知训练对元认知的干预受到训练类型、干预周期、和反馈的调节，但不受被试群体的影响。最后，发表偏倚检验的结果显示纳入元分析的研究存在发表偏倚的可能性较低(N_{fs}>5k+10)。研究结果表明，认知训练确实可以改善元认知能力，尤其是针对元认知效率、元认知偏差和测量工具所测元认知能力方面，在一定程度上解决了不同研究结果之间存在的差异。这将有助于未来的研究改进方法，拓展干预领域，并为促进个体元认知能力的提升提供实践指导。

关键词　认知训练，元认知，干预，调节作用，元分析

The Effect and Influencing Factors of Cognitive Training in Metacognitive Intervention: A Meta-analysis

YuHui Zhai[1], YuFei Guo[2], Qun Ye[1](Corresponding Author)

(School of psychology, Zhejiang Normal University, Jinhua, 321004, qun.ye@zjnu.edu.cn)

Abstract：Metacognition is an advanced cognitive function that involves evaluating and regulating one's own cognitive processes. Individuals with strong metacognition are aware of fluctuations in task performance and appropriately modulate their confidence levels, thus optimizing their behavioral performance. Cognitive training is considered an effective intervention for enhancing metacognition; however, its effects can vary depending on the type of cognitive training employed. Examining the intervention effects and influencing factors of cognitive training can help us understand its mechanisms and provide valuable guidance for future metacognitive interventions. In this study, we conducted a comprehensive meta-analysis to investigate the moderating effects of training type, participant group, intervention duration, and feedback type (yes/no) on metacognitive efficiency, metacognitive bias, metacognitive sensitivity, and metacognitive scores measured by assessment tools. A total of 30 articles, comprising 51 effect sizes and a sample size of 3273, were included after literature retrieval and screening. Data analysis was performed using Comprehensive Meta-Analysis (CMA 3.0) software. The results showed significant intervention effects for the overall effect size and all outcome variables. The overall effect size of cognitive training on metacognition reached a moderate level (g=.525), with moderate to large effect sizes for assessment tools (g=.557), metacognitive efficiency (g=.603), and metacognitive bias (g=.522), and a small effect size for metacognitive sensitivity (g=.275). Subgroup analyses revealed that the intervention effects of cognitive training on metacognition were moderated by training type, intervention duration, and feedback, but not by participant group. Finally, the results of publication bias tests indicated a low possibility of publication bias in the included studies (N_{fs}>5k+10). The findings suggest that cognitive training can indeed improve metacognitive abilities, particularly in terms of metacognitive efficiency, metacognitive bias, and metacognitive scores measured by assessment tools, thus partially resolving the discrepancies among different research results. This will contribute to methodological improvements in future studies, expand the scope of interventions, and provide practical guidance for enhancing individual metacognitive skills.

Keywords：cognitive training, metacognition, intervention, moderating effects, meta-analysis

5.5 工业心理专业委员会

成人依恋与工作倦怠的关系：心理弹性及工作家庭冲突的作用

吴杨轩[1] 曹贤才[1,2,3]（通讯作者）

1 天津师范大学心理学部,天津，300387

2 教育部人文社会科学重点研究基地天津师范大学心理与行为研究院,天津，300387

3 学生心理发展与学习天津市高校社会科学实验室,天津，300387，通讯作者 caoxiancai@tjnu.edu.cn

摘 要 在组织情境中，工作倦怠是损害员工身心健康及组织工作绩效的一个重要因素，一直是组织心理学研究关注的重要方面。而近年来，依恋理论及相关研究提供了一种解释工作倦怠产生的新的视角，多项横断研究表明，安全的依恋关系可能会通过增加个体心理弹性进而降低工作倦怠的产生。本研究结合依恋控制系统理论及角色压力理论，从家庭与工作的相互作用角度，创新性提出：家庭对工作的冲突与工作对家庭的冲突在依恋与工作倦怠的关系中分别扮演不同角色，前者与心理弹性相似会中介依恋与工作倦怠的关系，而后者会调节依恋、心理弹性与工作倦怠中介模型的前半段。对此，研究采用亲密关系量表、成人心理弹性量表、工作家庭冲突量表和马斯勒倦怠量表对 492 名在职人员进行问卷调查，结果发现：（1）依恋焦虑、依恋回避与工作倦怠、工作-家庭冲突、家庭-工作冲突呈显著的正相关关系；心理弹性与依恋焦虑、

依恋回避、工作倦怠、工作-家庭冲突、家庭-工作冲突呈显著的负相关关系。（2）心理弹性在依恋焦虑和依恋回避与工作倦怠之间起部分中介作用。（3）家庭-工作冲突在依恋焦虑和依恋回避与工作倦怠之间起部分中介作用。（4）在依恋焦虑与工作倦怠的模型中，工作-家庭冲突调节了“依恋焦虑→家庭-工作冲突→工作倦怠”中介机制的前半段路径；而在依恋回避与工作倦怠的模型中，工作-家庭冲突对依恋回避与工作倦怠间直接路径的调节作用显著。本研究扩展了依恋理论的运用范围，可以从个体层面、家庭层面以及家庭与工作交互作用层面为工作倦怠的产生提供一种新的解释。
关键词　成人依恋，工作倦怠，心理弹性，工作家庭冲突

The relationship between adult attachment and job burnout: the role of psychological resilience and the conflict between work and family

Yangxuan WU[1]　Xiancai CAO[1,2,3]

1 Faculty of Psychology, Tianjin Normal University, Tianjin, China

2 Key Research Base of Humanities and Social Sciences of the Ministry of Education, Academy of Psychology and Behavior, Tianjin Normal University, Tianjin, China

3 Tianjin Social Science Laboratory of Students' Mental Development and Learning, Tianjin, China

Abstract：In the context of organizations, job burnout is a significant factor that undermines employees' mental and physical well-being as well as organizational performance. It has been an important focus of research in organizational psychology. In recent years, attachment theory and related studies have provided a new perspective for understanding the emergence of job burnout. Several cross-sectional studies have indicated that attachment security may reduce an individual’s job burnout by increasing psychological resilience.

Combining the control-systems model of attachment and the role stress theory, the current study considered the interaction between family and work and innovatively proposed that work-family conflict and family-work conflict may play different roles in the relationship between attachment and job burnout. The former is similar to psychological resilience in mediating the relationship between attachment and job burnout, while the latter moderates the first half of the mediating model between attachment, psychological resilience, and job burnout.

To test these hypotheses, a series of questionnaires, including the Experiences in Close Relationships Inventory, the Resilience Scale for Adults, the Work-Family Conflict and Family-Work Conflict Inventory, and the Maslach Burnout Inventory, were conducted with 492 employed individuals. The results revealed that: (1) There were significant positive correlations between attachment anxiety, attachment avoidance, job burnout, work-family conflict, and family-work conflict. Psychological resilience showed significant negative correlations with attachment anxiety, attachment avoidance, job burnout, work-family conflict, and family-work conflict. (2) Psychological resilience partially mediated the relationship between attachment anxiety, attachment avoidance, and job burnout. (3) Family-work conflict partially mediated the relationship between attachment anxiety, attachment avoidance, and job burnout. (4) In the model of attachment anxiety and job burnout, the mediating effect of family-work conflict was moderated by work-family conflict. Similarly, in the model of attachment avoidance and job burnout, work-family conflict moderated the direct effect of attachment avoidance and job burnout.

This study expands the application of attachment theory and provides a new explanation for the emergence of

job burnout from the perspectives of individuals, families, and the interaction between family and work.

Keywords：adult attachment，job burnout，psychological resilience，the conflict between work and family

企业家从众消费行为对投资者投资意愿的影响:感知领导力的中介作用

宗心雨　钟建安（通讯作者）

浙江大学心理与行为科学系，杭州，310004，jiananzhong@zju.edu.cn

摘 要　天使投资是初创企业早期阶段重要的资金来源，具有高不确定性和信息不对称性。在这种“高噪音环境”下，投资者时常寻找各种信号来确定一个新企业的价值。而随着社交媒体的普及，社交媒体也成为人们获取信息的重要渠道，社交媒体中的信息作为一种信号，可以用来减少天使投资中的信息不对称性。从众消费是一种常见的社会现象，人们对于从众消费的态度十分矛盾，有时候人们会认为从众消费的人没有个性、性格软弱，但有时候人们又希望他人在消费决策中跟从多数人的意见。所以，本研究基于信号理论，以企业家的社交媒体作为一种信息的展示形式，通过两个研究，探究其从众消费行为对投资者投资意愿的影响，并探究其中可能的中介机制与调节因素。研究一采用单因素（企业家消费行为：从众、不从众）被试间设计，探索了企业家从众消费行为对投资者投资意愿的影响，并检验了领导力感知的中介作用。研究二采用 2（企业家消费行为：从众、不从众）×2（感知动机：自利动机、利他动机）的被试间设计，再次检验领导力感知的中介作用，并考察了感知动机的调节作用。研究结果显示，相较于不从众消费行为，企业家的从众消费行为会引发投资者更低的投资意愿，领导力感知的中介作用显著；感知动机的调节作用显著，利他动机下，进行从众消费行为的企业家获得更低的领导力感知评价以及更低的投资意愿，自利动机下，领导力感知的中介作用不显著。本研究对于信号理论与内隐领导理论在天使投资中的应用进行了扩展，同时研究结果对于投资者与企业家具有一定的实践意义。

关键词　天使投资，信号理论，从众消费，领导力感知，从众动机

The influence of conformity consumption on investors' investment intention:the mediating role of leadership perception

Zong Xinyu　Zhong jianan

Department of Psychology and Behavior Sciences,Zhejiang University, Hangzhou, jiananzhong@zju.edu.cn

Abstract：Angel investment is an important source of start-ups in the early stage, and it is of high uncertainty and information asymmetry. In “high-noise environment” like this, investors often search for various signals to determine the value of a new enterprise. With the popularity of social media, it has become an important channel for people to obtain information from. As signals, information from social media can be used to reduce information asymmetry in angel investment. Conformity consumption is a common social phenomenon, however, people hold contradictory attitudes towards it. Sometimes people regard conformity consumer as of weak character, but sometimes people expect others to follow the majority in consumption decisions. Therefore, based on the signaling theory, this research takes entrepreneur's social media as the form of information display to explore the influence of conformity consumption on investors' investment intention, and to explore the possible mediating mechanism and moderating factors through two studies . In the first study, an one-way(entrepreneur's consumption behavior: conformity, nonconformity) between-subjects design was used to explore the influence of

entrepreneur's conformity consumption behavior on investors' investment intention, also the mediating role of leadership perception was tested. In the second study, a 2(entrepreneur's consumption behavior: conformity, nonconformity)×2(perceived motivation:self-focus motivation, group-focus motivation) between-subjects design was used to test the mediating role of leadership perception and to investigate the moderating role of perceived motivation. As the results showed, compared with nonconformity consumption, entrepreneur who engages in conformity consumption obtains lower investment intention from the investors, with the mediating role of leadership perception significant. Also, the moderating role of perceived motivation is significant, under group-focus motivation, entrepreneur who engages in conformity consumption obtains lower leadership perception evaluation and lower investment intention from the investors, while the mediating role of leadership perception is not significant under self-focus motivation. The research expands the application of signaling theory and implicit leadership theory in angel investment, while the results provides practical significance for the investors and the entrepreneurs.

Keywords **：** angel investment, signaling theory, conformity consumption, leadership perception, conformity motivation

省力休闲与休闲重塑对警察工作投入的影响：恢复体验的中介作用

张佳佳

1.四川警察学院 警察管理系 四川泸州 646000；

2.中国人民公安大学 犯罪学学院 北京 100038；

通讯作者 E-mail：zhangjj@scpolicec.edu.cn

摘 要 [目的]分析省力休闲、休闲重塑、恢复体验、工作投入之间的关系，检验恢复体验在省力休闲与休闲重塑和警察工作投入之间的中介效应。[方法]于 2021 年 2-6 月通过方便取样法对四川省某市 987 名公安民警进行问卷调查，采用省力休闲量表、休闲重塑量表、恢复体验量表及工作投入量表对研究对象的省力休闲、休闲重塑、恢复体验及工作投入水平进行评价。运用 SPSS21.0 软件对本次调查数据进行共同方法偏差检验、描述性统计、Pearson 相关分析、半偏相关分析、回归分析和 Process 宏程序提供的有偏差校正的 bootstrap 方法的中介效应检验。[结果]回收有效问卷 932 份。不同人口学变量警察群体在省力休闲、休闲重塑、恢复体验、工作投入得分差异具有统计学意义，其中男、女性警察恢复体验及工作投入得分差异具有统计学意义（t=-2.231,P<0.05；t=3.512,P<0.001）；不同年龄组警察的休闲重塑、恢复体验、工作投入得分差异均具有统计学意义（F=8.748,P<0.001；F=3.069,P<0.05；F=4.511,P<0.001）；不同警龄组警察省力休闲、休闲重塑、恢复体验及工作投入得分差异也均具有统计学意义（F=5.379, F=7.615, F=7.110, F=5.962,均 P<0.001）；刑侦特巡警的工作投入最强（F=4.812,P<0.01）；未婚警察恢复体验感最强（F=4.527,P<0.05）；不同学历与来源警察各变量得分差异不具统计学意义（P>0.05）；工作地点不同的警察休闲重塑得分差异具有统计学意义（F=3.429,P<0.05），且工作在市区的警察恢复体验感最强（F=4.818,P<0.01）；省力休闲、休闲重塑与恢复体验及工作投入变量得分间均呈正相关（r_P =0.217, 0.257; 0.383, 0.453,均 P<0.01；），恢复体验与工作投入变量得分间也呈正相关（r_P =0.310, P<0.01）。回归结果显示省力休闲、休闲重塑得分对警察工作投入均有正向影响作用(β=0.257,0.453,P<0.001)，其中，休闲重塑对警察工作投入的促进作用强于省力休闲（sr^2=0.194、0.057）；恢复体验在省力休闲、休闲重塑与警察工作投入之间具有中介效应，中介效应值分别为0.057（95%CI=0.035~0.086）和0.061（95%CI=0.029~0.100），中介效应百分比分别为22.26%和13.47%。[结论]不同人口学变量影响警察省力休闲、休闲重塑、恢复体验及工作投入得分；休闲有助于警察工作投入的提升，休闲重塑对警察工作投入的促进作用强于省力休闲；恢复体验在休闲与工作投入之间发挥部分中介作用。

关键词 省力休闲，休闲重塑，工作投入，恢复体验，中介效应

Low-effort Activities and Leisure Crafting Effect on Police' Work Engagement: the Mediating Role of Recovery Experiences

ZHANG Jia-jia

1.Department of Police Management, Sichuan Police College, Sichuan, Luzhou 646000, China；

2.School of Criminology, People's Public Security University of China, Beijing 10038, China

Abstract: [Objective] To explore the relationship among low-effort activities, leisure crafting, recovery experience and work engagement, and test the mediating role of recovery experience among low-effort activities, leisure crafting and police work engagement.[Methods] From February to June 2021, a questionnaire survey was conducted among 987 police officers in a city of Sichuan Province through the convenience sampling method. Low-effort Activities Scale, Leisure Crafting Scale, Recovery Experiences Scale and Work Engagement Scale were used to evaluate the low-effort activities, leisure crafting, recovery experiences and work engagement of police. SPSS21.0 software was used for identifying common method bias, descriptive statistics, Pearson correlation analysis, partial correlation analysis, regression analysis and mediation effect test.[Results] A total of 932 valid questionnaires were collected. There was significant differences in the scores of low-effort activities, leisure crafting, recovery experiences and work engagement among police groups with different demographic variables. First, there was a significant difference between men and women in recovery experiences and work engagement scores (t=-2.231,P<0.05;t=3.512,P<0.001). Second, there was significant differences in the scores of leisure crafting, recovery experiences and work engagement among police officers in different age groups (F=8.748,P<0.001;F=3.069,P<0.05;F=4.511,P<0.001). And there was significant differences in the scores of low-effort activities, leisure crafting, recovery experiences and work engagement among police officers in different length of police service groups (F=5.379, F=7.615, F=7.110, F=5.962, P<0.001 for all). Third, Comparing with other groups, the criminal investigation and special patrol police officers group, who had highest scores on the work engagement(F=4.812, P<0.01); The unmarried police officers had the strongest sense of recovery experiences (F=4.527, P<0.05). Forth, there was no statistically significant difference in scores across variables among police officers with different educational backgrounds and sources (P>0.05). Finally, there was a statistically significant difference in leisure crafting scores among police officers from different work locations (F=3.429, P<0.05), and police officers working in urban areas had the strongest sense of recovery experiences (F=4.818, P<0.01). Correlation analysis showed that police low-effort activities and leisure crafting were positively correlated with recovery experience and work engagement respectively (r_P =0.217, 0.257; 0.383, 0.453, P<0.01 for all), and recovery experience was also positively correlated with work engagement (r_P =0.310, P<0.01). Regression analysis found that in the case of controlling demographic variables, the scores of low-effort activities and leisure crafting could both positive influence the police work engagement scale (β=0.257, 0.453, P<0.001 for all), and among them, leisure crafting had a stronger effect on promoting police work engagement than low-effort activities (sr^2=0.194, 0.057). The results of mediation effect analysis revealed that recovery experience had a mediating effect between low-effort activities and police work engagement (Effect value=0.057, 95%CI=0.035-0.086; effect percentage=22.26%), and had a mediating effect between leisure crafting and police work engagement (Effect value=0.061, 95%CI=0.029-0.100; effect percentage=13.47%). [Conclusion] Demographic variables such as gender, age, length of police service, police division, marital status, education level and work location effected on the level of low-effort activities, leisure crafting, recovery experiences and work engagement among police officers. And leisure contributed to the enhancement of police job engagement, and

leisure crafting had a stronger promoting effect on police job engagement than low-effort activities, and recovery experience played a partial mediating role between leisure and work engagement among police officers.
Keywords: low-effort activities, leisure crafting, recovery experience, work engagement, mediating effect

善意性别偏见觉知对女性领导力涌现的影响

董航[1]　徐建平[1]（通讯作者）

北京师范大学心理学部，北京，100875，xujp@bnu.edu.cn

摘 要　近年来，无论是在网络论坛还是学术界，性别偏见都是容易引起热议的话题。随着人们受教育水平的提高，越来越多的女性具有了独立的经济实力，并开始意识到社会中对于女性的性别偏见。善意性别偏见是一种从主观情感上出于爱护女性，但实质上是将她们捆绑在传统性别角色上的一种隐含期望。本研究意欲探究在组织中下，善意性别偏见的觉知水平是否会对女性领导力涌现产生影响。

研究一编制了善意性别偏见量表。通过问卷网招募被试 566 名，参考多个经典量表，编制了一个含有 38 道题目的量表，分为性别角色、性别魅力、亲密关系三个维度。该工具信度 Cronbachα系数为 0.95，结构效度 CFI 为 0.83，信效度良好。

研究二检验了性别刻板印象威胁对唤醒善意性别偏见的作用。通过线上问卷平台进行被试招募与抽取，将 136 名被试随机分为实验组与对照组，进行被试内前后测实验。使用隐含善意性别偏见的性别刻板印象唤醒文本进行操纵，测量在唤醒前后的动态善意性别偏见。结果表明，在进行性别刻板印象唤醒后，善意性别偏见觉知水平显著提升。说明经过刻板印象威胁刺激，女性可以提高善意性别偏见觉知。

研究三探究了善意性别偏见对女性领导力涌现的作用。使用研究一编制的量表，以及研究二中的操纵文本作为实验材料，使用简单随机抽样法招募 136 名被试，分为实验组和控制组，实施随机对照实验。两组在实验前阅读实验材料，实验组阅读性别刻板印象唤醒本文，对照组阅读心理学科普类文本。随后两组均进行无领导研讨小组，解决经过简化处理的行政岗位公文筐试题，模拟组织研讨。任务完成后，对其善意性别偏见与领导力涌现水平进行测量。研究发现，善意性别偏见觉知水平正向预测了领导力涌现水平。

研究结论认为，编制的善意性别偏见量表，从多个角度能够较为全面的测量善意性别偏见，性别刻板印象唤醒文本能够提升对善意性别偏见的觉知。对善意性别偏见的觉知水平可以对领导力涌现的水平产生正向影响。本研究探索组织中对女性善意性别偏见的觉知，对改善组织中男女平等、促进女性领导上升发展有一定实践指导意义。

关键词　女性，女性领导力，领导力涌现，善意性别偏见，性别平等

BENEVOLENT GENDER BIAS AROUSES THE INFLUENCE OF FEMALE LEADERSHIP EMERGENCE

Hang Dong, JianPing Xu
Faculty of Psychology, Beijing Normal University, 19 Xinjiekouwai Street, Xicheng District, Beijing 100875, China. Email: xujp@bnu.edu.cn

***Abstract*：** In recent years, sexism has been a hot topic both on the Internet and in academia. With the improvement of people's education level, more and more women have independent economic power and become aware of the sexism against women in society. Benevolent sexism is an implicit expectation that women are emotionally attached to traditional gender roles but are emotionally attached to women. The purpose of this study is to explore whether the perceived level of benevolent sexism affects the emergence of female leadership in organizations.

In Study 1, I developed a goodwill sexism scale. 566 subjects were recruited from the Internet. Referring to several classic scales, a scale with 38 questions was compiled to evaluate the three dimensions of gender role, gender charm and intimate relationship. In this tool, Cronbach α is 0.95, the structural validity CFI is 0.83, and the reliability and validity are great.

In Study 2, I examined the effect of gender stereotype arousal on benevolent sexism. Subjects were recruited and selected through the questionnaire network platform, and 136 subjects were randomly divided into experimental group and control group. The dynamic benevolent sexism before and after arousal was measured by manipulating the arousal text with gender stereotypes containing benevolent sexism. The results showed that the level of benevolent sexism awareness increased significantly after gender stereotype awakening. These results suggest that stereotype threat stimulation can enhance women's awareness of benevolent sexism.

In Study 3, I explored the role of benevolent sexism in the emergence of female leadership. Using the scale prepared in Study 1 and the manipulated text in Study 2 as experimental materials, 136 subjects in the society were collected by simple random sampling method, divided into experimental group and control group, and the randomized controlled experiment was carried out. The two groups read the experimental materials before the experiment, the experimental group read the text about gender stereotypes, and the control group read the text about psychological science. Subsequently, both groups conducted leaderless discussion groups to solve the simplified administrative post in-tray questions and simulate the discussion in the organization. After the task was completed, the level of benevolent sexism and leadership emergence was measured. The results show that the level of benevolent sexism positively predicts the level of leadership emergence.

The study concluded that the scale of benevolent sexism can measure benevolent sexism comprehensively from multiple perspectives, and gender stereotype awakening text can enhance awareness of benevolent sexism. The level of awareness of benevolent sexism has a positive impact on the level of leadership emergence. Exploring the awareness of sexism against female goodwill in organizations. It has certain practical guiding value for improving gender equality in organizations and promoting the rise and development of female leaders.

***Keywords*：** Benevolent sexism, Female leadership, Women, Leadership emergence

“随时在线”：非工作时间职场通讯压力的溢出与交叉效应：工作反刍的双向作用机制

何晓燕[1] 高钦[2] 曹雅[1] 卞冉[1](通讯作者)
1 北京师范大学心理学部，北京，100875，ranbian@bnu.edu.cn
2 中国政法大学社会学院, 北京，100088

摘 要 职场通讯压力指员工想要快速回复工作相关信息而体验到的紧迫感，是工作中频繁的使用通讯技术互动产生的心理体验。研究发现，职场通讯压力会给员工带来许多负面的影响，在非工作时间的影响更为明显。然而，这些研究未区分工作时间与非工作时间职场通讯压力，且仅从员工层面，强调职场通讯压力导致员工工作心理脱离困难，从而对员工产生负面影响。员工难以在心理上与工作脱离，实际反映了对工作的反刍，即对工作问题的持续思考，其包含两个反向作用维度：积极的问题解决沉思和消极的情感反刍。本研究认为聚焦于非工作时间职场通讯压力(workplace telepressure after hours, WTA)，从工作反刍双向作用机制，且基于溢出-交叉模型，从员工和伴侣层面考察非工作时间职场通讯压力的后续效应及驱动不同路径效应生效的边界条件，将会有助于更全面地认识 WTA 对员工自身及其整个家庭带来的影响。研究使用一个跨三个时间点的研究设计，收集了 333 对在职夫妻的相关数据。结果发现，溢出效应显著：(1) WTA 通过增加问题解决沉思减少家庭阻抑的中介效应显著，核心自我评价正向调节问题解决沉思的中介作用。(2)WTA 通过增加情感反刍增加家庭阻抑的中介效应不显著，但核心自我评价有效负向调节该中介路径；在低核心自我评价条件，情感反刍的中介效应显著。进一步地，交叉效应显著：(3)员工家庭阻抑增加配偶感知的压力交叉传递，进而负向影响配偶婚姻关系满意度和正向影响配偶家庭情绪耗竭的中介效应均显著。(4)WTA 通过问题解决沉思、家庭阻抑和配偶感知压力交叉传递，正向影响配偶婚姻关系满意度和负向影响配偶家庭情绪耗竭链式中介均显著, 核心自我评价均正向调节这两条链式中介效应。(5)WTA 通过情感反刍、家庭阻抑和配偶感知的压力交叉传递，负向影响配偶关系满意度和正向影响配偶家庭情绪耗竭的链式中介效应不显著，但核心自我评价显著负向调节这两条中介效应，且在低核心自我评价条件，这两条链式中介效应均显著。本研究发现，为组织领导探索更有效管理员工非工作时间通讯行为的方法提供理论启示。
关键词 非工作时间职场通讯压力，工作反刍，家庭阻抑，配偶婚姻关系满意度，配偶家庭情绪耗竭

"Always online": the spillover and crossover effects of workplace telepressure after hours: a bidirectional mechanism of work-related rumination

Xiaoyan He[1], Qin Gao[2], Ya Cao[1], Ran Bian[1](Corresponding author)
1 Department of Psychology, Beijing Normal University, Beijing, 100875, China
2 Department of Sociology, China University of Political Science and Law, Beijing, 100088, China

***Abstract*:** Workplace telepressure refers to the urgency experienced by employees when they want to respond quickly to work-related information, which is a unique psychological experience that accompanies the frequent use of communication technology interactions in the workplace. Research has found that workplace telepressure have many negative effects on employees, especially in non-working time. However, these studies do not differentiate between working time and non-working time workplace telepressure, and only at the employee level, emphasizing that workplace telepressure leads to difficulties in psychologically disengaging from the work, which in turn negatively affects employees. Employees' difficulties in psychologically disengaging from work actually reflects employees' work-related rumination i.e., continuous thinking about work-related problems, which consists of two inverse action dimensions: positive problem-solving pondering and negative affective rumination. Our study argues that focusing on workplace telepressure after hours (WTA), examining the subsequent effects of WTA and the boundary conditions that drive the effects of different pathways to take effect from the perspective of work-related rumination in terms of the bidirectional mechanism of action and based on the spillover-crossover model at the level of the employee and the partner, will help to provide a more comprehensive understanding of the impact of WTA on employees themselves and their families as a whole. Using a research design that spanned three time points, the study collected relevant data from 333 working couples. The results revealed significant spillover effects:(1) WTA had a significant mediating effect of reducing family undermining by increasing problem-solving pondering, and core self-evaluation positively moderated the mediating effect of problem-solving pondering. (2) The mediating effect of WTA increasing family undermining through increased affective rumination was not significant, but core self-evaluation effectively negatively moderated this mediating path; in the low core self-evaluation condition, the mediating effect was significant. Further, the crossover-effects were significant:(3) The mediating effects of employee family undermining increasing spousal perceived stress cross-transmission, and thus negatively affecting spousal marital relationship satisfaction and positively affecting spousal family emotional exhaustion were both significant. (4) WTA positively affects spousal marital relationship satisfaction and negatively affects spousal family emotional exhaustion chain mediators through problem-solving pondering, family undermining, and spousal perceived stress cross-transmission were all significant, and core self-assessment positively moderated both chain mediation effects. (5) WTA through emotional rumination, family undermining, and spousal perceived stress cross-transmission, negatively affecting spousal relationship satisfaction and positively affecting spousal family emotional exhaustion chain mediator effects were not significant, but core self-appraisal significantly negatively moderated both mediator effects, and in the low core self-appraisal condition, both chain mediator effects were significant. The findings of this study are useful in providing theoretical insights for organizational leaders to explore more scientific and effective ways to manage employees' non-working time communication behaviors.

***Keywords*:** workplace telepressure after hours, work-related rumination, family undermining, spousal marital

relationship satisfaction, spousal family emotional exhaustion

数字监控如何影响志愿者的行为：基于情绪劳动的视角

苗青[1]　郁林瀚[2]（通讯作者）
1 浙江大学公共管理学院，杭州，310027
2 浙江大学心理与行为科学系，杭州，310027，ylinhan@126.com

摘 要　志愿者数字平台通过监控志愿者绩效，能够有效提高志愿者管理的效率。然而，对志愿者进行数字监控会带来何种后果及其内在机制仍然缺乏研究。本研究采用情绪劳动的视角，基于 110 家非营利组织的 3546 名志愿者的数据，对不同目的数字监控（预防型 Vs.发展型）如何影响志愿者不同情绪劳动策略（表层扮演 Vs.深层扮演），进而影响其工作投入和离职的问题进行了探索。结果表明，预防型数字监控会激发表层扮演策略，进而促进志愿者离职，志愿者感受到的绩效压力加强了这一路径。发展型数字监控则会激发志愿者的深层扮演，促进志愿者对工作的投入，减少志愿者的离职，而志愿者绩效压力不影响这一过程。本研究的结论对数字监控，志愿者情绪劳动及志愿者绩效压力等领域的文献具有理论贡献，并对非营利组织管理提供了实践启示。
关键词　数字监控，情绪劳动，志愿者工作投入，志愿者离职

How does digital monitoring influence volunteer behavior? The perspective of emotional labor

Qing Miao[1] Linhan Yu[2]
1 School of Public Affairs, Zhejiang University, Hangzhou, 310027
2 Department of Psychology and Behavioral Science, Zhejiang University, Hangzhou, 310027, ylinhan@126.com

Abstract：Using data from 3,546 volunteers at 110 nonprofit organizations, the present study explores how the digital monitoring for different purposes affects volunteer work engagement and turnover intention via emotional labor strategies. The results showed that digital monitoring for the purpose of deterrence-oriented caused surface acting, which in turn promoted volunteer turnover, and that performance pressure strengthened these relationships. Development-oriented digital monitoring can promote volunteer work engagement and reduce turnover intention through deep acting. However, volunteer performance pressure does not moderate these relationships. Our results provide theoretical contributions to the related literature and offer practical implications for nonprofit organization management.
Keywords：digital monitoring; emotional labor; volunteer's work engagement; volunteer's turnover intentions

效率与人性：算法管理对组织非人化的影响

宫剑　李晔（通讯作者）　吴旭瑶
华中师范大学心理学院，武汉，430079，liye@mail.ccun.edu.cn

摘 要　数智经济时代，人工智能已成为组织重要的生产要素，越来越多的企业开始使用人工智能算法自动化地执行劳动力管理功能，如招聘、解雇和绩效管理。尽管算法拥有远超人类的计算和重写升级能力，能帮助企业实现之前难以想象的管理范围、深度与强度，其本质仍是“冰冷无情”的代码。算法作为决策主体具有量化、结构化和去情境化的特点，人类员工在算法管理中很容易被手段化、抽象化，意识到自己对组织来说只是一个可被替换的零件。因此，本文尝试考察当组织用人工智能算法替代传统的人类上司时，人类员工是否会产生组织非人化（organizational dehumanization）的心理感受，以及感知尊重（perceived respect）是否是这一关系的内在机制。具体地，本文基于非人化理论，开展了两项研究。研究一招募了 250 名在职员工，在解雇这一算法管理的具体应用场景下，运用情景实验法初步检验了算法管理对组织非人化的影响。研究二在研究一的基础上，招募了 279 名在职员工，通过两个情景实验（分别以绩效管理和薪酬管理为背景），多场景、多指标地重复验证了算法管理对组织非人化的影响，并检验了感知尊重在其中的中介作用。结果显示：（1）与接受人类管理相比，接受算法管理的员工感知到的组织非人化水平更高；（2）感知尊重在算法（vs. 人类）管理对组织非人化的影响中起中介作用。本研究首次发现将算法技术纳入到管理流程当中会导致员工产生组织非人化的心理感受。这提示从业者，尽管日益兴起的算法管理是组织在数字经济浪潮中实现管理升级和高质量发展的常见选择，但推动员工像机器人一样地工作绝非组织获取最高利润的黄金途径。管理者在将算法技术纳入已有的管理流程中时，须做好“以效率为导向的数字管理”与“以人性为导向的伦理管理”之间的平衡。
关键词　算法管理，组织非人化，感知尊重

Efficiency and humanity: the effect of algorithmic management on organizational dehumanization

Jian Gong,　Ye Li,　Xuyao Wu

School of Psychology, Central China Normal University, Wuhan 430079, China

***Abstract*:** In the age of digital intelligence, artificial intelligence has become an important factor of production for organizations, and more and more enterprises are beginning to use artificial intelligence algorithms to automate workforce management, such as hiring, firing, and performance management. Although algorithms have far more computing and upgrading capabilities than humans and can help enterprises achieve previously unimaginable management scope, depth, and intensity, their essence is still “cold and heartless” code. As a decision-making agent, algorithm has the characteristics of quantification, structure and de-contextualization. Human employees are easily manipulated and abstracted in algorithmic management, realizing they are just a replaceable part for the organization. Therefore, this paper focuses on whether human employees will have feelings of organizational dehumanization when organizations replace human bosses with artificial intelligence algorithms, and whether perceived respect is the internal mechanism of this relationship. Specifically, based on the dehumanization theory, we carry out two studies. Study 1 recruited 250 employees to initially test the effect of algorithmic management on organizational dehumanization using experimental vignette methodology in the context of firing, a specific application scenario of algorithmic management. Study 2 recruited 279 employees to repeatedly validate the effect of algorithmic management on organizational dehumanization through two scenario experiments (in the context of performance management and salary management, respectively), and to test the mediating role of perceived respect. The results show that: (1) Compared with human management, employees who accept algorithmic management perceive a higher level of organizational dehumanization; (2) Perceived respect plays a mediating role in the effect of algorithmic management on the organizational dehumanization. This paper found for the first

time that incorporating algorithm technology into the management process will lead to psychological feelings of organizational dehumanization. This reminds organizational managers that while the rise of algorithmic management is a common choice for organizations to achieve high-quality development in the wave of the digital economy, pushing employees to work like robots is not the golden way for organizations to achieve the highest profits. When incorporating algorithmic technologies into existing management processes, managers must strike a balance between efficiency-oriented digital management and humanity-oriented ethical management.
Keywords：algorithmic management, organizational dehumanization, perceived respect

感知算法自主性支持对网约车司机工作投入的影响研究

杨琴 殷恬静 金致君 管圆圆 刘世勇（通讯作者）
中国地质大学（武汉）应用心理学研究所，武汉，430000，通讯作者 liushiyong@cug.edu.cn

摘 要 数字零工经济背景下，零工平台的算法管理机制以及零工工作者的生存现状受到社会和相关研究领域的广泛关注。自主性作为零工工作的重要特点，是众多零工工作者选择从事零工工作的关键驱动因素之一，但对于算法管理平台是否能够真正支持零工工作者的自主性，仍存在很多争议。本研究在前人研究的基础上，以自我决定理论的视角，探究零工工作者感知算法自主性支持对工作投入的影响机制，同时，验证自主性动机的中介作用以及程序公平的调节作用。

研究选择网约车司机群体作为研究对象，使用修订后的中文版感知算法自主性支持量表及自主性动机（The Multidimensional Work Motivation Scale，MWMS）、工作投入（Utrecht Work Engagement Scale–9）、程序公平量表（Procedural Justice，PJ），进行数据收集与模型检验。通过两阶段的数据收集方法，最终获得有效数据 316 份。借助 SPSS21.0 和 AMOS23.0 统计分析软件，对感知算法自主性支持与工作投入之间的影响机制进行了检验。研究结果表明，（a）零工工作者感知算法自主性支持对其工作投入有着显著的正向影响；（b）零工工作者感知算法自主性支持对其自主性动机有着显著的正向影响；（c）自主性工作动机在零工工作者感知算法自主性支持与工作投入之间起着部分中介作用；（d）程序公平调节了感知算法自主性支持对自主性动机的正向直接效应（e）程序公平调节了感知算法自主性支持通过自主性动机对工作投入的正向间接效应。本研究探索了零工工作者感知算法自主性支持及其对工作投入的影响机制，拓展了自我决定理论、组织支持以及工作投入在零工经济领域的应用，检验了程序公平的边界效应，对零工经济领域的研究及零工工作设计有着一定的启示作用。
关键词 感知算法自主性支持；自主性动机；工作投入；程序公平；自我决定理论

Research on the influence of perceived algorithm autonomy support on the work engagement of ride-share drivers

Yang Qin Yin Tianjing Guan Yuanyuan Jin zhijun Liu Shiyong
Institute of Applied Psychology, China University of Geosciences (Wuhan), No. 388 Lumo Road, Hongshan District, Wuhan City

Abstract：In the background of digital part-time work economy, the algorithm management mechanism of the part-time work platform and the survival status of the part-time workers have been widely concerned by the society and relevant research fields. Autonomy, as an important feature of part-time work, is one of the key drivers

for many part-time workers to choose to engage in part-time work. However, there are still many disputes about whether the algorithm management platform can really support the autonomy of part-time workers. Therefore, on the basis of previous studies, this study explored the impact mechanism of perceived algorithmic autonomy support on job engagement by part-time workers through self-decision theory, and at the same time, verified the mediation role of autonomy motivation and the regulatory role of procedural fairness, further enriching relevant theoretical and empirical research.

This study selects the online ride-hailing driver group as the research object and carries out two studies in total. We used the revised Chinese version of the Perceived Algorithm Autonomy Support Scale, the Multidimensional Work Motivation Scale (MWMS), the Utrecht Work Engagement Scale – 9, and the Procedural Justice Scale (PJ) to collect data and test the model. By adopting the method of convenient sampling and two-stage data collection, 316 valid data were finally obtained. With the help of SPSS21.0 and AMOS23.0 statistical analysis software, the impact mechanism between autonomous support of perceptual algorithms and work engagement was tested. The results show that: (a) the perceived autonomy support of the algorithm has a significant positive impact on their work engagement; (b) The perceived algorithm autonomy support of part-time workers has a significant positive impact on their autonomy motivation; (c) Autonomous work motivation plays a part of intermediary role between the perceived algorithm autonomy support and work engagement of part-time workers; (d) Procedural fairness regulates the positive direct effect of perceived algorithmic autonomy support on autonomy motivation. (e) Procedural fairness regulates the positive and indirect effects of perceived algorithm autonomy support on work engagement through autonomy motivation.

This study explores the autonomous support of the perception algorithm of part-time workers and its impact mechanism on job engagement, expands the application of self-determining theory, organizational support and job engagement in the field of part-time work economy, tests the boundary effect of procedural fairness, and has some enlightenment on the research and design of part-time work in the field of part-time work economy.

Keywords：Perceived Algorithm Autonomy Support; Autonomous Motivation; Work Engagement; Procedural Fairness; Self-Determination Theory

挑战性压力、阻碍性压力和创新工作行为：工作繁荣和情绪耗竭的中介效应

谢晋艳　温忠麟　马益铭

华南师范大学心理学院，广州，510631，jinyanxie@m.scnu.edu.cn

摘 要　在市场竞争日益激烈的复杂经济环境中，创新已成为组织生产和发展的关键因素。组织创新本质上是员工的创新。员工的创新工作行为不仅是增强组织竞争力的核心要素，也有助于员工更好地完成工作任务，提高工作绩效。以往研究表明，影响创新工作行为的一个重要因素是压力。压力分为挑战性压力和阻碍性压力，这两者对员工的创新工作行为发挥着不同的作用。然而，挑战压力和阻碍压力对创新工作行为的影响机制尚未明确。本研究采用挑战性-阻断性压力量表、工作繁荣量表、情绪耗竭量表以及创新行为量表，通过互联网收集了 789 名在职员工的问卷调查数据。构建了一个双路径中介效应模型，以工作繁荣和情绪耗竭为中介变量，探讨挑战性压力和阻断性压力对创新工作行为的影响机制。结果表明：(1)挑战性压力正向预测工作繁荣和创新工作行为；(2)工作繁荣在挑战性压力与创新工作行为之间起部分中介作用；(3)阻碍性压力负向预测工作繁荣，正向预测情绪耗竭；(4)阻碍性压力对创新工作行为的直接效应不显著，间接效应显著，即阻碍性压力主要是通过工作繁荣和情绪耗竭的中介效应对创新工作行为产生影响。这些

研究结果表明，员工应该合理地应对不同性质的工作压力，而管理者应该科学规划工作任务，给员工更多的时间学习和休息，从而使员工能保持积极的状态解决问题和从事创新性的工作。
关键词　创新工作行为，挑战性压力，阻碍性压力，工作繁荣，情绪耗竭

Challenge stress, hindrance stress, and employees' innovative work behavior: Mediation effects of thriving at work and emotional exhaustion

Xie Jinyan, Wen Zhonglin, Ma Yiming
School of Psychology, South China Normal University, Guangzhou, 510631,
jinyanxie@m.scnu.edu.cn

***Abstract*：** In a complex economic environment with increasing market competition, innovation has become crucial for the production and development of an organization. Organizational innovation, in nature, is employee innovation. Innovative work behavior is not only one of the key factors in increasing organizational competitiveness, but it also helps employees better complete work tasks and improve work performance. Previous studies show that challenge and hindrance stress can impact employees' innovative work behavior, but our understanding of the exact mechanism underlying the impact is still limited. The present study employed four scales (Challenge and Hindrance Stress Scale, Thriving at Work Scale, Chinese Emotional Exhaustion Scale, and Employee Innovative Behavior Scale) to collect questionnaire data from 789 employees in diverse organizations via an online platform. A two-path mediation model was constructed. The results show that: (1) challenge stress positively predicted thriving at work and innovative work behavior; (2) thriving at work played a partial mediation effect between challenge stress and innovative work behavior; (3) hindrance stress negatively predicted thriving at work and positively predicted emotional exhaustion; and (4) hindrance stress did not directly impact innovation behavior while thriving at work and emotional exhaustion were main mediators of the relationship between hindrance stress and innovative work behavior. These findings suggest that employees should sensibly cope with different work stresses, while managers should plan work tasks scientifically and give employees adequate opportunities to learn and rest in order to keep them in a positive state to solve problems and work creatively.
***Keywords*：** Innovative work behavior, Challenge stress, Hindrance stress, Thriving at work, Emotional exhaustion

资质过剩感知对新员工社会化的影响研究—基于矛盾放大理论

颜爱民[1]　孙毅聪[1]　张颖慧[1]　齐丽雅[1]（通讯作者）
1 中南大学商学院，长沙，430018
通讯作者: 201601030@csu.edu.cn

摘 要　新员工的社会化意味着从“圈外人”向“圈内人”的转变，实现与组织的融合，但资质过剩感知意味着员工难以发挥其资质，不能从工作中获得成就感，产生情绪上的波动，对社会化产生负面影响。本研究基于矛盾放大理论，提出资质过剩感知作为一种能力感知上的失调,会放大个体认知和情感上的反应，造成情绪矛盾，从而对职场行为产生间接的影响。即资质过剩感知放大了新员工产生情绪矛盾，情绪矛盾进一步影响了新员工社会化进程，真实型领导可以降低员工的矛盾感，弱化这一负向中介机制，缓解资质过剩

感知对社会化的不良影响。本研究收集了 173 名新员工和主管领导的配对数据，员工分别在第一时点填写资质过剩感知量表，在第二时点填写情绪矛盾量表和真实型领导量表，领导在第三时点填写新员工的社会化评价量表。通过建立多层线性回归模型，得到如下结论：（1）资质感知过剩负向影响新员工的社会化；（2）资质感知过剩正向影响员工的情绪矛盾，情绪矛盾负向影响新员工的社会化，情绪矛盾在资质感知过剩对社会化的影响中发挥中介作用；（3）真实型领导负向调节了资质过剩感知和情绪矛盾之间的关系；（4）真实型领导负向调节了资质过剩感知通过情绪矛盾对社会化的间接中介关系。研究结果有助于了解资质感知过剩的新员工和社会化关系的情绪机制，也有助于了解真实型领导的调节作用，对于新员工更好的适应组织有一定的实践意义。
关键词　资质过剩感知，社会化，情绪矛盾，真实型领导

A Study of the Perceived Overqualification on Socialization of Newcomers: An Ambivalence Amplification Theory

Aimin Yan　Yicong Sun　Yinghui Zhang　Liya Qi
Business School, Central South University, Changsha, 430018
(Corresponding author: 201601030@csu.edu.cn)

Abstract： The socialization of new employees means the transition from "outsiders" to "insiders" and the integration with the organization, but the perceived overqualification means that employees have difficulty in utilizing their qualifications, fail to gain a sense of accomplishment from their work and experience emotional fluctuations, which negatively influences socialization. Based on ambivalence amplification theory, this study proposes that perceived overqualification, as a kind of dysfunction in the perception of competence, will amplify the cognitive and emotional reactions of individuals and cause emotional ambivalence, thus indirectly influencing workplace behaviors. That is, the perceived overqualification amplifies the newcomer's emotional ambivalence, which further influences the socialization process of newcomers. Authentic leadership can reduce employees' sense of ambivalence, weaken this negative intermediary mechanism, and alleviate the adverse effects of the perception of overqualification on socialization. In this study, we collected paired data from 173 new employees and supervisory leaders. Employees filled out the Perceived Overqualification Scale at the first time point, the Emotional Ambivalence Scale and the Authentic Leadership Scale at the second time point, and the leaders filled out the Newcomer's Socialization Scale at the third time point, respectively. By establishing a hierarchical linear regression, the following conclusions were obtained: (1) perceived overqualification negatively affects the socialization of new employees; (2) perceived overqualification positively affects employees' emotional ambivalence, and emotional ambivalence negatively affects the socialization of new employees, and emotional ambivalence plays a mediating role in the influence of perceived excess qualification on socialization; (3) authentic leadership negatively moderates the relationship between perceived overqualification and emotional ambivalence; (4) authentic leadership negatively moderated the indirect mediation of perceived overqualification on socialization through emotional ambivalence. The results of this study help to understand the emotional mechanisms of the relationship between perceived overqualification and socialization and also help to understand the moderating role of authentic leadership, which is of practical significance for new employees to better adapt to the organization.
Keywords： perceived overqualification, socialization, emotional ambivalence, authentic leadership

资质过剩感对高校毕业生生涯行为的影响：认知与情绪的双路径模型

潘润生[1]　王丹妮[2]　侯志瑾[1]（通讯作者）
1 北京师范大学心理学部，北京，100875
2 集美大学师范学院，福建省厦门市，361000
通讯作者 E-mail：zhijinhou@163.com

摘 要　资质过剩是当下青年人，特别是高校毕业生，在就业中普遍面临的生涯阻碍之一。现有研究表明，资质过剩感会对员工的心理健康和组织绩效带来消极影响。然而，鲜有研究从生涯发展发展的角度探讨资质过剩感对个体的影响，导致我们对其如何影响个体的生涯行为知之甚少。因此，本研究提出了一个认知和情绪的双过程模型，探讨了资质过剩感激励和阻碍生涯行为(包括工作搜寻和工作重塑)的中介机制。为了验证该模型，我们对 517 名近年毕业的高校学生进行了三波追踪问卷调查，并通过结构方程模型对假设模型进行检验。结果表明，资质过剩感通过生涯自我效能感和生涯探索的序列中介负向预测高校毕业生的工作搜寻和工作重塑行为。相反，资质过剩感通过工作中经历的愤怒情绪和职业探索的序列中介正向预测高校毕业生的工作搜寻和工作重塑行为。此外，我们还发现工作中经历的无聊情绪在资质过剩感和工作搜寻间起正向中介作用，同时在资质过剩感和工作重塑间起负向中介作用。上述研究结果拓展了我们对资质过剩感如何影响个体生涯行为、资质过剩感与生涯自我效能感的关系、以及负面情绪在职业困境中的激励作用的理解。从实践的角度看，本研究也对那些寻求为资质过剩员工提供生涯发展支持的组织或个体具有启示意义。
关键词　资质过剩感，生涯自我效能感，工作搜寻，工作重塑，消极情绪

The effect of perceived overqualification on college graduates' career behaviors: A dual-process model of cognition and emotion

Runsheng Pan[a], Danni Wang[b], Zhijin Hou[a*]
[a]Faculty of Psychology, Beijing Normal University, Beijing, China, 100875;
[b]Normal College, Jimei University, Xiamen, Fujian, China, 361000;
[*]Correspondence: Zhijin Hou, zhijinhou@163.com

Abstract: Overqualification is one of the common career barriers that young people, especially college graduates, face in employment nowadays. Existing research indicates that perceived overqualification can have negative influence on employees' mental well-being and organizational performance. However, there is limited research exploring the effects of perceived overqualification on individual career development, leaving us with little understanding of how it influences individuals' career behaviors. This study examines how perceived overqualification motivates and hinder college graduates' career behaviors (i.e., job search and job crafting), utilizing a dual-process model that stresses both the cognitive and emotional intermediate processes. To test the model, we conducted a three-wave questionnaire survey with 517 recent college graduates in China. Results indicate that perceived overqualification negatively predicted job search and job crafting through the serial mediation of career self-efficacy and career exploration. Conversely, perceived overqualification positively predicted job search and job crafting through the serial mediation of anger experienced at work and career exploration. Furthermore, we found that boredom experienced at work mediated the positive relationship between perceived overqualification and job search, as well as the negative relationship between perceived overqualification and job crafting. The results extend our understanding of how perceived overqualification influences career development, the relationship between perceived overqualification and career self-efficacy, and the motivational function of negative emotions in career adversity. This study also has implications for

practitioners who seek to support the career development of overqualified employees.

Keywords：perceived overqualification, career self-efficacy, job search, job crafting, negative emotions

5.6 医学心理专业委员会

冰毒和甲卡西酮使用者对愤怒面孔的注意偏向

尹杰（通讯作者） 李根

北京体育大学心理学院，北京，100084，yinjie2006@163.com

摘 要 注意偏向指的是个体在注意上选择性地加工某些刺激。以往研究表明，高攻击性个体对敌意性刺激具有注意偏向。冰毒和甲卡西酮都属于兴奋型毒品，其使用者都伴随较高的攻击性。然而，二者具有不同的分子结构，且使用者也存在不同的冲动性水平。那么，这两种毒品使用者对敌意性刺激（如愤怒表情）是否也存在注意偏向？以及他们对敌意性刺激的注意偏向是否存在差异？

本研究招募 32 名冰毒使用者，30 名甲卡西酮使用者和 39 名健康对照组，使用情绪 stroop 范式来探讨他们对敌意性刺激的注意偏向，同时采用 ERP 技术考察他们在加工不同面孔时的脑响应差异。行为结果显示，甲卡西酮组被试在愤怒面孔和悲伤面孔条件下的反应时都显著长于中性面孔。冰毒组被试在愤怒面孔条件下的反应时显著长于悲伤面孔和中性面孔。对照组被试在愤怒面孔条件下的反应时长于悲伤面孔，愤怒和悲伤面孔条件下的反应时长于中性面孔。脑电结果显示，甲卡西酮组的 EPN 波幅显著高于对照组，而与冰毒组之间没有差异。对于 N2 波幅，冰毒组显著高于甲卡西酮组和对照组，甲卡西酮组和对照组之间没有显著差异。对于 P3 波幅，冰毒组和甲卡西酮组显著高于对照组，冰毒组和甲卡西酮组之间差异不显著。对于 P3 的潜伏期，冰毒组和甲卡西酮组显著长于对照组，而冰毒组和甲卡西酮组之间差异不显著。

进一步对被试加工面孔信息的全脑电位活动进行多变量模式分析（MVPA）显示，三组被试对愤怒面孔和悲伤面孔表现出了不同的神经解码效率。对于愤怒面孔表征的持续时间，冰毒组大于甲卡西酮组，且大于对照组，冰毒组更早知觉到愤怒面孔。对于悲伤面孔表征的持续时间，甲卡西酮组大于冰毒组，且大于对照组，甲卡西酮组更早知觉到悲伤面孔。本研究表明，成瘾组被试对不同的负性面孔具有不同的注意偏向，或许源于他们对负性情绪面孔具有不同的加工模式。

关键词 冰毒，甲卡西酮，注意偏向，事件相关电位，多变量模式分析

Attentional biases for angry faces in individuals with methamphetamine and methcathinone use disorders

Jie Yin, Gen Li

School of psychology, Beijing Sport University, No.48 Xinxi Road, Beijing, 100084, China

Abstract：Attentional bias refers to the individual's selective attention to specific stimuli. Numerous previous studies have demonstrated that individuals with high level of aggression exhibited attentional bias towards threatening stimuli. Methamphetamine and methcathinone are both psychostimulants and the use of which is accompanied by a high level of aggression. However, the two drugs differ in the molecular structure and the users demonstrated different level of impulsivity. So, do they have attentional biases toward threatening stimuli? And whether there were differences in their attentional bias towards threatening stimuli.

In the present study, 32 methamphetamine users, 30 methcathinone users and 39 healthy controls were

recruited. The emotional Stroop paradigm was used to explore their attentional bias towards threatening stimuli. At the same time, ERP technology was used to investigate their brain responses to different emotional faces. The behavioral results showed that in methcathinone group, the reaction time of angry faces and sad faces were significantly longer than that of neutral faces. In methamphetamine group participants, the reaction time of angry faces was significantly longer that that of sad faces and neutral faces. In healthy controls, the reaction time of angry faces was significantly longer than that of sad faces, and the reaction times of angry and sad faces were significantly longer than that of neutral faces. The EEG results showed that the amplitude of EPN was significantly higher in the methcathinone group than that in the control group, but there was no difference in the methcathinone and methamphetamine group. The amplitude of N2 was significantly higher in the methamphetamine group compared to the methcathinone group and the control group. There was no difference in the methcathinone group and the control group. The amplitude of P3 was significantly higher in the methamphetamine and methcathinone groups compared to the control group. There was no difference in the methcathinone group and the methamphetamine group. The P3 latency was significantly delayed in the methamphetamine and methcathinone groups compared to the control group. There was no difference in the methcathinone and methamphetamine groups.

In addition, the multivariate pattern analysis (MVPA) showed that the three groups exhibited different neural decoding efficiency for angry and sad faces. The duration of angry face representation was significantly longer in the methamphetamine group compared to methcathinone group and the control group, and the methamphetamine group perceived angry faces earlier. The duration of sad face representation was significantly longer in the methcathinone group compared to methamphetamine group and the control group, and the methcathinone group perceived angry faces earlier. These findings suggested that the addiction groups have different attentional biases towards different negative faces, possibly due to their different processing patterns towards negative emotional faces.

Keywords： methamphetamine, methcathinone, attentional biases, event-related potentials, multivariate pattern analysis

医生与护士间抑郁-职业倦怠网络的差异：来自网络分析的证据

张正 [1,2] 陈慧 [1] 李思虹 [1] 叶严月 [1] 周建松 [1*]

1 中南大学湘雅二医院，国家精神心理疾病临床研究中心，国家精神障碍中心，精神病学科

2 安徽师范大学心理学系

通讯作者 E-mail：周建松 zhoujs2003@csu.edu.cn

摘 要 以往的研究已经证明医疗保健专业人员之间抑郁和职业倦怠之间存在很强的关联，但结果不一致，并且对不同医疗保健专业之间的这种关系缺乏深入探讨。基于心理病理网络理论的网络分析提供了新的视角，可以揭示医生与护士间抑郁-职业倦怠的网络结构、症状间相互作用模式，以及关键症状和网络的稳定性。通过分析网络结构和中心性，可以确定干预重点和预测症状演化趋势，为干预和预防提供科学依据。本研究旨在调查中国医疗保健专业人员之间抑郁和职业倦怠的相互关系，并探讨这些症状网络之间的差异是否存在于医生和护士之间。我们采用职业倦怠量表和 2 项患者健康问卷（PHQ2）来评估 3,684 名医疗保健专业人员的职业倦怠和抑郁。翻译经过改进以确保准确性和学术适用性。随后，对具有较高职业倦怠水平的 2,244 名参与者进行网络分析，包括 328 名男性和 1,919 名女性，平均年龄为 30.91±7.17 岁。以确定核心症状并探索职业倦怠与抑郁之间的关联。t 检验显示两个职业之间的抑郁和焦虑没有显著差异（t=0.595~1.079，p=0.281~0.552）。但是在网络分析中，我们发现了一些值得关注的细节。

抑郁和工作倦怠在医护人员中存在一定的相关性，其中抑郁症状（对事物失去兴趣和乐趣）与工作倦怠症状（工作精疲力尽、面对工作过度疲劳、倾向于崩溃、对工作的热情不如以前）之间存在一定的相关性（稀疏度＞0.463）。在医生和护士之间，抑郁和工作倦怠网络的结构有所差异，医生的网络结构似乎更松散、连接性较差，但两类专业人员之间的差异并不显著。在护士中，对事物失去兴趣和乐趣与对工作的热情不如以前之间的关联较强（0.12＞0.01）；过度工作压力和倾向于崩溃之间的相关性在护士中较强（0.46＞0.12），表明护士更容易在过度压力下出现崩溃。这些结果显示了医护人员在抑郁和工作倦怠方面的网络特征和职业差异。本研究为制定针对性干预措施改善医疗保健专业人员的心理健康提供了参考。
关键词 医生，护士，抑郁，职业倦怠，网络分析

Differences in the Depression and Burnout Networks between Doctors and Nurses: Evidence from Network Analysis

Zhang Zheng [1,2] Chen Hui [1] Li Sihong [1] Ye Yanyue [1] Zhou Jiansong [1*]

[1] Department of Psychiatry, National Clinical Research Center for Mental Disorders, and National Center for Mental Disorders, The Second Xiangya Hospital of Central South University, Changsha, Hunan, China.

[2] College of Educational Sciences, Anhui Normal University, Wuhu, Anhui, China

Abstract: Previous studies have shown a strong association between depression and professional burnout among healthcare professionals, but the results have been inconsistent, and there is a lack of in-depth exploration of this relationship among different healthcare professions. Network analysis based on the psychopathological network theory offers a new perspective to reveal the network structure of depression and professional burnout between doctors and nurses, patterns of symptom interactions, as well as key symptoms and network stability. By analyzing network structure and centrality, intervention priorities can be determined and symptom evolution trends can be predicted, providing a scientific basis for intervention and prevention. This study aims to investigate the mutual relationship between depression and professional burnout among Chinese healthcare professionals and explore whether there are differences in these symptom networks between doctors and nurses. We assessed the professional burnout and depression of 3,684 healthcare professionals using the Burnout Inventory and two items from the Patient Health Questionnaire (PHQ2). The translation has been improved to ensure accuracy and academic suitability. Subsequently, network analysis was conducted on 2,244 participants with higher levels of professional burnout, including 328 males and 1,919 females, with a mean age of 30.91±7.17 years, to identify core symptoms and explore the association between professional burnout and depression. T-tests showed no significant differences in depression and anxiety between the two professions (t=0.595~1.079, p=0.281~0.552). However, in network analysis, we found some noteworthy details. There is a certain correlation between depression and work burnout among medical personnel, with a correlation between depression symptoms (loss of interest and pleasure) and work burnout symptoms (exhaustion, excessive fatigue in work, tendency to collapse, decreased enthusiasm for work) (sparsity > 0.463). The network structure of depression and work burnout differs between doctors and nurses, with doctors' network structure appearing looser and less connected, but the differences between the two professions are not significant. Among nurses, there is a strong correlation between loss of interest and pleasure and decreased enthusiasm for work (0.12 > 0.01); the correlation between excessive work pressure and tendency to collapse is stronger in nurses (0.46 > 0.12), indicating that nurses are more likely to experience collapse under excessive pressure. These results demonstrate the network characteristics and

professional differences in depression and work burnout among medical personnel. This study provides reference for developing targeted interventions to improve the mental health of healthcare professionals.
Keywords：Doctor, nurse, depression, burnout, network analysis

佛罗里达强迫量表在中国临床样本中的信度和效度

曹璇[12] 范青[1*]（通讯作者）
1 上海交通大学医学院附属精神卫生中心，上海，200030，fanqing_98@sina.com
2 上海交通大学医学院附属新华医院，上海，201112，mengshuixiang@163.com

摘 要 背景：佛罗里达强迫症量表(FOCI)是一种自评问卷，旨在评估强迫症症状是否存在及严重程度。本研究评估了中国版 FOCI 的信度和效度，以及它的最佳分值。
方法：采用系统的翻译过程将英文 FOCI 翻译成中文。453 名成年人参与了这项研究，其中包括 153 名强迫症患者，150 名患有原发性焦虑或抑郁症的病例对照，以及 150 名健康对照。所有三组均采用一系列测量方法进行评估，包括耶鲁-布朗强迫症量表(Y-BOCS)、FOCI、强迫症量表修订版(OCI-R)、贝克抑郁量表第二版(BDI-II)、贝克焦虑量表(BAI)和简短健康调查(SF-36)。在强迫症患者中，对 47 名参与者进行了为期两周的评估，以评估 FOCI 的重测可靠性。
结果：强迫症组 FOCI 症状检查表和严重程度量表的内部一致性分别为 0.813 和 0.840。两周重测信度分别为 0.934 和 0.935。FOCI 症状检查表和严重程度量表的聚合效度均较强。总体而言，与区分效度各量表的相关性不大。对 FOCI 严重程度量表进行了因子分析，发现单因素解决方案解释了 62.3%的方差。强迫症组的 FOCI 得分高于病例对照组和健康对照组。8 分是预测病例的最佳分值。
结论:中文版 FOCI 具有良好的心理测量特性，包括内部一致性、重测信度、稳定的因子结构、聚合效度和区分效度。8 分是预测病例的最佳分值。
关键词 FOCI，强迫症，信度，效度

项目支持：上海交通大学“交大之星”计划医工交叉研究基金重点项目（YG2021ZD28）：强迫症决策信心神经网络的功能与代谢耦合研究

The reliability and validity of the Florida Obsessive-Compulsive Inventory in a Chinese clinical sample

Xuan Cao[1], Qing Fan[2*]
1 Xinhua Hospital, Shanghai Jiao Tong University School of Medicine
2 Shanghai Mental Health Center, Shanghai Jiao Tong University School of Medicine

Abstract：Background: The Florida Obsessive-Compulsive Inventory (FOCI) is a self-report measure designed to assess obsessive-compulsive symptom presence and severity. This study evaluated the reliability and validity of

the Chinese version of the FOCI and its optimal cut-off score.

Methods: A systematic translation process was used to translate the English FOCI into Chinese. Four hundred and fifty-three adults participated in the study including 153 individuals with OCD, 150 case-controls with a primary anxiety or depressive disorder, and 150 healthy controls. All three groups were evaluated by a set of measures including the Yale-Brown Obsessive-Compulsive Scale (Y-BOCS), the FOCI, the Obsessive-Compulsive InventoryRevised (OCI-R), the Beck Depression Inventory-Second Edition (BDI-II), the Beck Anxiety Inventory (BAI), and the Short Form Health Survey (SF-36). Among the OCD patients, a subset of 47 participants were evaluated over a two-week interval to assess test-retest reliability of the FOCI.

Results: The internal consistency of the FOCI Symptom Checklist and Severity Scale in the OCD group were0.813 and 0.840. Two-week test-retest reliability were 0.934 and 0.935. Convergent validity of the FOCI Symptom Checklist and Severity Scale were both strong. Correlations with diverging constructs were modest overall. Factor analysis of the FOCI Severity Scale was conducted, identifying a single factor solution explaining 62.3% of the variance. FOCI scores among those in the OCD group were higher than those from the case-control and healthy control groups. A cut-off score of 8 was optimal in predicting caseness.

Conclusions: The Chinese version of the FOCI demonstrated good psychometric properties including internal consistency, test-retest reliability, a stable factor structure, and convergent and divergent validity. A cut-off score of 8 was optimal in predicting caseness.

Keywords：FOCI， obsessive-compulsive， reliability， validity

重性抑郁障碍患者非自杀性自伤行为的决策相关神经机制

钟闰清[1] 方舒琳[1] 刘沁钰[1] 周玮婷[1] 季欣蕾[1] 王湘[1]（通讯作者）

1 中南大学湘雅二医院医学心理中心，长沙，410011，wangxiang0916@csu.edu.cn

摘 要 目的：自伤行为常见于重性抑郁障碍（MDD）患者，但往往被视为 MDD 的附属症状，直至 2013 年 DSM-5 将非自杀性自伤（NSSI）列为独立的行为综合征进行诊断后，其独立的心理与神经机制开始引起了研究者的关注。由于决策是最接近行为输出的心理加工过程，本研究拟采用阳性对照法，结合气球模拟风险决策任务(BART)与核磁共振成像技术，探索 MDD 患者中 NSSI 行为的特异性心理和神经机制。

方法：68 名 MDD 患者完成了 Beck 抑郁量表（BDI）、状态特质焦虑量表（STAI）、Barratt 冲动量表（BIS）、时间性愉快体验量表（TEPS）、三维心理痛苦量表（TDPPS），以及 Beck 自杀意念量表（BSI）等评估，并根据 DSM-5 的 NSSI 诊断标准分为伴 NSSI 的 MDD 患者（MDD_NSSI，n=26），以及不伴 NSSI 的 MDD 对照组（MDD_C，n=42）。随后进行 BART 任务态核磁共振实验，并对量表评估和 BART 任务的行为学指标，以及决策阶段、正/负反馈阶段的神经生理激活信号分别进行组间比较，还进行了脑激活信号-行为学/量表间的相关分析。

结果：MDD_NSSI 组在 BDI 总分及消极态度、操作困难分量表分，特质焦虑分量表分，TDPPS 的痛苦逃避分量表分，以及最严重时自杀意念得分上显著高于 MDD_C 组（均 $p < 0.05$），控制抑郁水平后的协方差分析表明特质焦虑水平组间差异仍显著（$F = 6.35$， $p = 0.014$）。BART 任务行为学指标两组无显著差异（均 $p > 0.05$），但在 BART 任务的正反馈阶段，MDD_NSSI 组的左侧脑岛、左侧扣带回及右侧额下回眶部脑区激活显著低于 MDD_C 组（$p < 0.05$，FWE corrected），且分别与 BDI 的操作困难和消极态度得分，以及特质焦虑得分等呈显著负相关（均 $p < 0.05$）；负反馈阶段右侧额下回三角部的脑区激活也显著低于 MDD_C 组（$p < 0.001$，uncorrected），且与特质焦虑得分呈显著负相关；决策阶段两组激活无显著差异。

结论：MDD 患者的非自杀性自伤行为主要由更高的负性情绪体验、高特质焦虑，以及痛苦逃避动机驱动，且高特质焦虑特征可能是 NSSI 出现的重要因素。在决策加工过程中伴 NSSI 的 MDD 患者主要表现为对决策结果的情绪调节异常，涉及左侧脑岛、左侧扣带回，以及双侧侧额下回等脑区。
关键词　重性抑郁障碍，非自杀性自伤，决策，气球模拟风险决策任务(BART)，任务态功能核磁共振

The neural mechanisms of decision-making processing in major depressive disorder patients with non-suicidal self-injury

Runqing Zhong [1], Shulin Fang [1] , Qinyu Liu [1] ,Weiting Zhou[1],
Xinlei Ji[1] , Xiang Wang [1] (Correspondence)
1 Medical Psychological Center, The Second Xiangya Hospital, Central South University, Changsha, China, 410011

Abstract：Objective: Self-injurious behavior is common in patients with major depressive disorder (MDD), but was often viewed as an accessory symptom of MDD until its independent psychological and neurological mechanisms began to attract the attention of researchers after the DSM-5 classified nonsuicidal self-injury (NSSI) as a separate behavioral syndrome for diagnosis in 2013. Given that decision-making is the psychological process closest to behavior, this study proposes a method using positive control, in combination with the Balloon Analogue Risk Task (BART) and Magnetic Resonance Imaging (MRI) techniques, to explore the specific psychological and neurobiological mechanisms of NSSI behavior in patients with MDD.

Method: Sixty-eight patients with MDD completed various assessments, including the Beck Depression Inventory (BDI), State-Trait Anxiety Inventory (STAI), Barratt Impulsiveness Scale (BIS), Temporal Experience of Pleasure Scale (TEPS), Three-dimensional Psychological Pain Scale (TDPPS), and the Beck Scale for Suicide Ideation (BSI). According to the DSM-5 criteria for NSSI, patients were divided into two groups: a group with MDD and NSSI (MDD_NSSI, n=26), and a control group of MDD patients without NSSI (MDD_C, n=42). Subsequently, participants underwent an MRI experiment during the BART task. Behavioral measures from the task and questionnaire assessments, as well as neurophysiological activation signals during the decision-making phase and positive/negative feedback phases, were compared between groups. Correlation analyses were also conducted between brain activation signals and behavioral/questionnaire measures.

Results: The MDD_NSSI group scored significantly higher than the MDD_C group in total BDI scores, negative attitude subscale scores of BDI, operational difficulty subscale scores of BDI, trait anxiety scale scores,pain avoidance subscale scores of TDPPS, and scores of the suicidal ideation at the worst time(all $p < 0.05$). After controlling for depression severity, the analysis of covariance (ANCOVA) still showed a significant difference in trait anxiety level between the groups ($F = 6.35$, $p = 0.014$). In terms of behavioral measures in the BART task, there was no significant difference between the two groups (all $p > 0.05$). However, during the positive feedback phase of the BART task, the MDD_NSSI group demonstrated significantly lower activation in the left insula, left cingulate gyrus, and right inferior frontal gyrus (orbital part) compared to the MDD_C group ($p < 0.05$, FWE corrected). These areas showed significant negative correlations with the operational difficulty and negative attitude scores of BDI, as well as trait anxiety scores (all $p < 0.05$). During the negative feedback phase, activation in the right inferior frontal gyrus (triangular part) was also significantly lower in the MDD_NSSI group ($p < 0.001$, uncorrected) and showed a significant negative correlation with trait anxiety scores. There were no significant differences in activation between the groups during the decision-making phase.

Conclusion: Non-suicidal self-injury behavior in patients with MDD is primarily driven by higher negative

emotional experiences, high trait anxiety, and the motivation to pain avoidance. High trait anxiety might be a key factor contributing to NSSI. During the decision-making process, MDD patients with NSSI mainly exhibit abnormal emotional regulation of decision outcomes, involving brain regions such as the left insula, left cingulate gyrus, and bilateral inferior frontal gyri.
Keywords：Major Depressive Disorder, Nonsuicidal Self-Injury, Decision-Making, Balloon Analogue Risk Task (BART)，Task-Based Functional Magnetic Resonance Imaging

上海市初中生基于网络的 ADHD 筛查及计算机辅助干预研究

摘 要 **目的：**筛查初中生的注意缺陷多动障碍患病情况，探讨计算机辅助训练对患儿症状及执行功能缺陷的改善情况。**方法：**随机抽取上海市浦东新区 5 所初中阶段学校的全日制在校生 2396 名，先由父母完成长处和困难问卷（strengths and difficulties questionnaire，SDQ)。采用 SDQ 的“多动与注意不能因子”（以 7 分为分界）划分为 ADHD 高风险组，由儿少精神科医生对其逐个行电话 SNAP-IV 访谈，在结果阳性学生中展开计算机辅助训练干预（每次训练保证完成所有项目内容，每周训练 3 次，一共 12 次，基本在一月内完成)。在干预前后由父母完成 Conners 症状问卷(Parent Symptom Questionnaire, PSQ)、执行功能行为评定量表（BRIEF)；由学生本人接受执行功能相关神经心理测试。**结果：**以 SDQ 结果分组得到：ADHD 高风险组（(n=232；48.02±12.32）与低风险组（n=2164;60.86±10.49)。经 SNAP-IV 访谈得到阳性结果学生 89 名，签署同意及评估后，实际 64 人入组进行干预，在训练前、后 BRIEF（t=8.11~14.82，P<0.001） 及 PSQ 量表（t=8.12~14.82，P<0.001）的各维度及总分上的差异均有显著性（P<0.001)。在神经心理测试中 STROOP 乙表正确数/反应抑制（t=-5.68)、工作记忆（t=-4.38~-3.95）及加工速度（t=-5.78~-3.78）得分在训练后均有提高（P<0.001)。注意缺陷亚型的 AD HD 在经过训练后在部分神经心理测试表现上改善更显著（P<0.05)。亲子关系较好的较亲子关系差的组别在训练前后改善情况更明显 （PSQ，BRIFE，神经心理测试等)。**结论：**计算机辅助的执行功能训练模式可以在短期改善 ADHD 患儿的执行功能缺陷，对核心症状也有部分改善；AD HD 亚型、亲子关系也会影响训练干预的效果。

关键词：校园筛查，注意缺陷多动障碍，计算机辅助训练，执行功能训练

A study of Web-based ADHD screening and computer-assisted intervention in Shanghai junior middle school students

Abstract： Objectives To screen the incidence of attention deficit hyperactivity disorder(ADHD) in junior middle school students, and explore the improvement of computer-assisted training on symptoms and executive dysfunction of children affected with ADHD.

Method： A total of 2396 full-time students from 5 junior high schools in Pudong New Area of Shanghai were randomly selected to complete the strengths and difficulties questionnaire (SDQ) by their parents. The hyperactivity and inattentional factors of SDQ (divided into 7 points) were used to divide the high-risk group into ADHD, and the psychiatrists interviewed them with SNAP-IV by phone, and carried out computer-assisted training intervention in the students with positive results (each training guaranteed to complete all the items, 3 times a week, a total of 12 times, basically completed within one month). Parents completed the Parent Symptom Questionnaire (PSQ) and the Executive Functional Behavior Rating Scale (BRIEF) before and after the intervention. Neuropsychological tests related to executive function were performed by the students themselves.

result ： According to SDQ results, the students grouped into the high risk of ADHD ((n=232; 48.02±12.32) and low risk of ADHD (n=2164; 60.86±10.49). After the SNAP-IV interview, 89 students obtained positive results. After signing the agreement and evaluation, 64 students were actually enrolled for intervention. There were significant differences in each dimension and total score of BRIEF scale (t=8.11~14.82, P<0.001) and PSQ scale (t=8.12~14.82, P<0.001) before and after the training (P<0.001). In neuropsychological test, STROOP B correct number/response inhibition (t=-5.68), working memory (t=-4.38~-3.95) and processing speed (t=-5.78~-3.78) were all improved after training (P<0.001). Attention deficit subtype of AD HD showed more significant improvement in some neuropsychological tests after training (P<0.05). The group with better parent-child relationship than the group with worse parent-child relationship improved more significantly in scores (PSQ, BRIFE, neuropsychological test, etc.) after training. conclusion ： The computer-assisted executive function training can improve the executive function deficit and the core symptoms of ADHD children in the short term. Subtypes of ADHD and parent-child relationship also affect the effect of training intervention.

Keyword: Campus screening, attention deficit hyperactivity disorder, computer-assisted training, executive function training

强迫症患者在决策中的风险偏好和风险相关的脑激活特征

韩燕 [1,2,3] 高峰 [1,2,3] 刘倩 [1,2,3] 樊洁 [1,2,3] 朱熊兆 [1,2,3]（通讯作者）

1 中南大学湘雅二医院医学心理中心，长沙，410011

2 中南大学医学心理研究所，长沙，410011

3 国家精神心理疾病临床医学研究中心，长沙，410011，xiongzhaozhu@csu.edu.cn

摘 要 **目的：**既往研究关于强迫症（obsessive-compulsive disorde, OCD）患者在决策过程中的风险偏好以及风险相关的神经学基础尚不明确，本研究旨在进一步探索 OCD 患者在决策过程中的风险偏好表现以及风险相关的神经影像特征，以期为他们受损的决策功能提供更多有价值的信息。

方法：本研究共纳入 OCD 患者 51 人和健康被试（Healthy control, HC）50 人。通过仿真气球冒险任务（Balloon Analog Risk Task, BART）探讨个体的风险决策表现，所有被试在完成 BART 任务时进行功能核磁共振成像（functional magnetic resonance imaging, fMRI）扫描。计算被试在 BART 中的行为学表现和认知参数。探索个体在完成 BART 任务时受风险水平调节的脑激活特征以确定个体在决策中风险相关的神经学基础。采用 ANCOVA 对 OCD 患者和 HC 在决策中风险相关的行为学表现和脑激活特征进行组间比较。

结果：对 BART 行为学指标和认知参数的分析结果表明，与 HC 相比，OCD 患者在 BART 任务中出现显著增加的风险厌恶行为以及在接受负反馈后下调风险水平的程度显著增高。基于 ROI 的 fMRI 结果发现 OCD 患者左侧脑岛(BA13，体素数 202，t=4.28，MNI 坐标: -39 -6 0)和右侧脑岛(BA13，体素数 92，t=3.97，MNI 坐标: 39 3 9)受风险水平调节的激活程度显著低于 HC。

结论：本研究首次分离出 OCD 患者在决策过程中风险相关的神经学基础。OCD 患者在决策时表现出更高的风险厌恶且双侧脑岛的功能异常可能是 OCD 患者风险厌恶增高的神经学基础。本研究发现为理解 OCD 患者的风险厌恶和决策功能受损提供了更多线索。

关键词 风险决策，强迫症，功能核磁共振成像，仿真气球冒险任务，脑岛

The risk preference and neural correlates of risk taking in patients with obsessive-compulsive disorder during decision-making

Yan Han[1,2,3], Feng Gao[1,2,3], Qian Liu[1,2,3], Jie Fan[1,2,3], Xiongzhao Zhu [1,2,3]
[1]Medical Psychological Center, The Second Xiangya Hospital, Central South University, Changsha, Hunan 410011, China
[2]Medical Psychological Institute of Central South University, Changsha, Hunan 410011, China
[3]National Clinical Research Center for Mental Disorders, Changsha, Hunan 410011, China

Abstract

Background: The risk preference during decision-making and the involved neural substrates in patients with obsessive-compulsive disorder (OCD) remined unclear. The current study was designed to evaluate the risk-taking behavior during decision-making and the neural correlates of risk taking in OCD patients, attempting to provide more insight into their impaired decision-making function.

Methods: Fifty-one OCD patients and 50 healthy control (HC) were included in this study. The Balloon Analog Risk Task (BART) was used to test individuals' risk-taking performance during decision-making. All subjects underwent functional magnetic resonance imaging (fMRI) scans during completing BART. The behavioral indicators and cognitive model parameters in BART were calculated. The neural correlates of risk taking were explored by analyzing the individuals' brain activation modulated by risk levels in BART. The ANCOVA was used for comparison of the risk-taking related behavior and brain activation between OCD patients and HC during decision-making.

Results: The analyses of behavior indicator and cognitive model parameter during BART revealed that the OCD patients performed significantly more risk-averse behaviors and adjusted down risk level after negative feedbacks during BART relative to HC. The fMRI results based on region of interest showed that the OCD patients had significantly decreased activation modulated by risk levels both in left insula (BA13, voxel size=202, peak T=4.28; Peak MNI coordinates: -39 -6 0) and right insula (BA13, voxel size=92, peak T=3.97; Peak MNI coordinates: 39 3 9) compared with HC.

Conclusions: This study firstly dissociate the neural substrates of risk from decision-making in OCD patients. The OCD patients exhibited higher risk aversion during decision-making and the dysfunction of insula may be the neural underpinning of increased risk aversion in OCD. These findings provide more clues for understanding the risk aversion and impaired decision-making function of OCD patients.

Keywords: risky decision-making, obsessive-compulsive disorder, functional magnetic resonance imaging, Balloon Analog Risk Task, insula

抑制 mGluR5 改变大鼠额前皮质和海马 BDNF/TrkB 和 GLT-1 的表达和改善 PTSD 样行为

潘芳 1（通讯作者）、成淑月 1、徐晶晶 1
1 山东大学基础医学院医学心理学与伦理学系 山东 济南 250012

摘 要 目的：以往的研究表明，创伤应激会改变海马（HIP）和额前皮层（PFC）的代谢谷氨酸受体 5（mGluR5）的表达。而 mGluR5 表达通常伴随着脑源性神经营养因子（BDNF）/原肌球蛋白相关激酶 B（TrkB）信号的改变，后者通过调节谷氨酸转运蛋白-1（GLT-1）发挥抗抑郁作用。本研究旨在探讨 mGluR5 对不可避免的足休克（IFS）治疗大鼠创伤后应激障碍（PTSD）样行为、HIP 和 PFC 中 BDNF、TrkB 和 GLT-1 表达的影响。方法：用 7 天的不可逃避的足掌电击建立 PTSD 大鼠模型，用 10mg/kg 的 MPEP 抑制暴露于创伤应激的大鼠体内 mGluR5 的表达。建模后，检测 HIP 和 PFC 的行为变化、mGluR5、BDNF、TrkB 和 GLT-1

的表达。结果：IFS 程序诱导了类似焦虑和抑郁的行为，空间记忆缺陷。它增加了 mGluR5 的表达，降低了 HIP 和 PFC 中的 BDNF、TrkB 和 GLT-1。此外，使用 mGluR5-拮抗剂可以逆转这些变化。结论：mGluR5 通过改变 BDNF、TrkB 和 GLT-1 的表达参与 IFS 诱导的 PTSD 样行为。
关键词　创伤后应激障碍，谷氨酸，脑源性神经营养因子

Inhibiting mGluR5 Alters BDNF/TrkB and GLT-1 expression in the Prefrontal cortex and Hippocampus and Ameliorates PTSD-like behavior of the rats

Fang Pan, Shuyue Cheng, Jingjing Xu
Department of Medical Psychology and Ethnic, School of Basic Medical Sciences, Shandong University; Jinan, 250012, China

Abstract：Objective:: Post-traumatic stress disorder (PTSD) is a prevalent and debilitating psychiatric disorder. However, its specific etiological mechanism remains unclear. Previous studies have shown that traumatic stress changes metabolic glutamate receptor 5 (mGluR5) expressions in Hippocampus (HIP) and Prefrontal cortex (PFC). More importantly, the mGluR5 expression are often accompanied by alteration of Brain-derived neurotrophic factor (BDNF)/Tropomyosin-associated kinase B (TrkB) signaling, the later plays an antidepressant role by regulating Glutamate transporter-1 (GLT-1). The study aims to explore the effects of inhabiting the mGluR5 on PTSD-like behaviors, BDNF, TrkB and GLT-1 expression in HIP and PFC of inevitable foot shock (IFS) treated rats. Methods: Seven-day IFS was used to establish PTSD rats model, 10 mg/kg MPEP was used to inhibit (intraperitoneal injection) mGluR5 expression during rats exposed to IFS. After modeling, the behavioral changes, mGluR5, BDNF, TrkB and GLT-1 expressions in HIP and PFC were examined. Results: IFS procedure induced anxiety-like and depression-like behaviors, deficit in spatial memory. It increased the expression of mGluR5 and decreased the BDNF, TrkB and GLT-1 in HIP and PFC. Moreover, using mGluR5 antagonist could reverse these changes. Conclusions: mGluR5 was involved in IFS-induced PTSD-like behavior by changing the BDNF, TrkB and GLT-1 expression.
Keywords：post-traumatic stress disorder; glutamate; brain-derived neurotrophic factor

自闭症谱系障碍儿童父母省映式教养团体干预：方案改编及可行性评价

周婷（通讯作者）[1]　张畅[1]　刘在田[1]　高丹[1]　陈书田[1]　曾卓[1]　胡蝶[1]　王蕊[1]
1 北京大学医学人文学院医学心理学系，北京，100191
zhouting.92@bjmu.edu.cn

摘 要　目的：本研究旨在 1）根据自闭症谱系障碍(ASD, autism spectrum disorder)儿童及其家庭教养特征，对手册化的父母心智化（省映功能）团体干预（RPP, reflective parenting program）方案进行改编，形成针对 ASD 儿童父母的心理健康教育团体方案(RPP-ASD)；2）检验 RPP-ASD 线上团体干预的可行性和可接受性，并初步检验其缓解 ASD 儿童问题行为的效应。

方法：采用专家咨询法完成方案改编。采用混合研究方法中的嵌入性设计（embedded mix-method design），在单组前后测设计中嵌入质性研究，对干预方案的可行性和有效性进行初步评价。23 名 3-7 岁 ASD 儿童的父母自愿参加为期 8 周的父母省映式教养干预。在干预前后，通过问卷调查和父母洞察力访谈评估，完成

对父母心智化水平（以父母自评省映功能及父母洞察力评估结果为指标）、教养压力（父母自评）及儿童问题行为（父母评价）的测量。此外，在干预后，通过问卷调查了解父母满意度；通过半结构化访谈,了解父母的参与体验。

结果：1) 团体干预招募情况良好，家长需求强烈。家长活动完成率与后测完成率高，23 名被试中，1 名被试脱落。定量及定性数据均支持高干预满意度。团体干预保真度高；2) 定量数据分析结果表明，父母洞察力中的洞察、接纳和开放性指标有显著提升。父母对 ASD 儿童社交缺陷的教养压力得分显著降低。ASD 儿童问题行为得分有下降趋势，但未达到显著；3) 定性数据分析结果表明，家长的收获主要在于：更能够从 ASD 和发展阶段两个角度理解儿童行为，更注重自身情绪调节，对问题行为管理更有效能感。

结论：本研究结果支持，基于心智化的 ASD 儿童父母教养团体干预具有良好的可行性和可接受性。
关键词　ASD 儿童父母，省映式教养干预，可行性评价，混合方法研究

Adapting and pilot testing a reflective parenting group intervention for parents of children with ASD: A feasibility study

Ting Zhou*, Chang Zhang, Zaitian Liu, Dan Gao, Shutian Chen, Zhuo Zeng, Jenifer Hu, Rui Wang

Department of Medical Psychology, School of Health Humanities, Peking University, Beijing, 100191

***Abstract*：**

Objective: the present study aimed to adapt the reflective parenting group intervention for parents of children with ASD and further to examine the feasibility, acceptability and preliminary efficacy of the online intervention in reducing behavioral problems in young children with ASD.

Method: A manualized reflective parenting group intervention program was adapted specially for parents of children with ASD. An embedded mix-method design with a pre- and post-test repeated measures pilot study and a qualitative study was employed to evaluate the feasibility and efficacy of the program. Twenty-three parents of 3-7 years old children with ASD participated in the 8-week online reflective parenting group program. The primary outcome was parent-report children's behavioral problems. Secondary outcomes were parental mentalization (self-reported parental reflective functioning and observed parental insightfulness) and parenting stress. The outcomes were assessed before and after the program. Interviews were conducted after the intervention to evaluate parental experience and satisfaction.

Results: 1) Recruitment, retention, completion of measures, and intervention fidelity were high. Quantitative and Qualitative data documented high rate of satisfaction. 2) There was significant pre-post increase in parental insightfulness, acceptance and openness. Parents also reported lower level of parenting stress on the child's social competence. There was a decreasing tendency of behavioral problems, but the difference did not reach a significant level. 3) Results of qualitative analyses suggested that parents were empowered by understanding the child from both perspectives of autism symptoms and children's abilities at specific developmental stages, enhancing emotion regulation of themselves and behavioral problems management.

Conclusion: The results suggest the feasibility and acceptability of the mentalization based parental psychoeducation program for parents of children with ASD.

***Keywords*：** parents of children with ASD, reflective parenting program, feasibility evaluation, mixed-method

study

社会快感缺失个体日常生活中的共情：一项经验采样研究

顾杰[1] 孟雪[1] 胡文婷[1] 王淼[1] 张丽颖[1] 王艳郁[1](通讯作者) 王毅[2,3](通讯作者)

1 潍坊医学院心理学院，潍坊，261053

2 神经心理学与认知神经科学实验室，中国科学院心理健康重点实验室（中国科学院心理研究所），北京，100101

3 中国科学院大学心理系，北京，100049

通讯作者 E-mail: wangyanyu@wfmc.edu.cn，wangyi@psych.ac.cn

摘 要 精神分裂症患者在共情等社会认知方面的缺损严重影响其正常社会功能。社会快感缺失指在社会互动过程中愉悦体验能力的降低，是精神分裂症的核心阴性症状之一。以往研究表明社会快感缺失与共情关联密切，相较于低分组被试，社会快感缺失高分组共情表现存在异常。但现有研究局限于实验室环境，目前尚缺乏在日常生活环境中对共情表现的考察。因此，本研究旨在通过经验采样法（Experience Sampling Method, ESM）考察社会快感缺失个体日常生活中的共情表现，及其与日常生活中社交愉悦度之间的关系。本研究采用社会快感缺失量表（The Revised Social Anhedonia Scale, CSAS）筛选并招募了 46 名社会快感缺失高分被试（平均年龄：19.85 ± 0.73 岁，男性 24 名; CSAS > 16）以及 53 名社会快感缺失低分被试（平均年龄：19.81 ± 0.71 岁，男性 21 名; CSAS < 11），两组被试的年龄、性别和受教育年限无显著差异。被试完成自评认知和情感共情问卷（Questionnaire of Cognitive and Affective Empathy, QCAE）以及为期 7 天每天 10 次的 ESM 调查，每次调查包括 36 道题目，测量日常生活中的积极和消极情绪体验、社交愉悦和共情表现。统计分析采用独立样本 t 检验考察 QCAE 量表得分的组间差异，采用多层混合效应模型分析 ESM 数据考察日常生活中共情表现的组间差异、共情表现与社交愉悦的关系及其组间差异。结果发现：1）与低分组相比，社会快感缺失高分组被试 QCAE 量表的情感共情维度得分显著更低，认知共情维度得分未发现显著差异；2）ESM 分析结果表明，社会快感缺失高分组被试日常生活中的认知和情感共情水平更低，社交愉悦度更低；3）日常生活中的社交愉悦度对认知共情和情感共情均具有正向预测作用，这一关系在社会快感缺失高低分组之间没有显著差异。总之，本研究提示社会快感缺失高分组被试日常生活中的认知和情感共情均存在异常，日常人际交往中的愉悦度水平可以预测认知和情感共情表现。本研究通过 ESM 研究探讨了日常生活中的共情，为理解精神分裂症及其风险人群的社会认知异常提供了新的视角。

关键词 认知共情，情感共情，社交愉悦，经验采样法，多层混合效应模型

Empathy in daily life of individuals with social anhedonia: an experience sampling study

Jie Gu[1] Xue Meng[1] Wen-ting Hu[1] Miao Wang[1] Li-ying Zhang[1] Yan-yu Wang[1] Yi Wang[2,3]

1 School of Psychology, Weifang Medical University, Weifang, 261053

2 Neuropsychology and Applied Cognitive Neuroscience Laboratory, CAS Key Laboratory of Mental Health, Institute of Psychology, Chinese Academy of Sciences, Beijing, 100101

3 Department of Psychology, University of Chinese Academy of Sciences, Beijing, 100049

Abstract： Deficits in social cognition such as empathy play an important role in social functioning impairments in patients with schizophrenia. Social anhedonia refers to diminished ability to experience pleasure from social activities, which belongs to core negative symptoms of schizophrenia. Previous studies suggested that social anhedonia is closely associated with empathy, for example, individuals with high level of social anhedonia reported lower scores on empathy compared to individuals with low social anhedonia. However, very few studies have investigated whether and how empathy experiences in daily life changes in individuals with social anhedonia. Applying the Experience Sampling Method (ESM), our study aimed to investigate empathy and its associations with social pleasure experience in daily life of individuals with high and low levels of social anhedonia. The Revised Social Anhedonia Scale (CSAS) was adopted to screen individuals with high social anhedonia (n=46, mean age:19.85 ± 0.73 years, 24 males) and low social anhedonia (n=53, mean age:19.81 ± 0.71 years, 21 males). There were no significant differences in age, gender proportions, and years of education between two groups. The self-report Questionnaire of Cognitive and Affective Empathy (QCAE) was used to measure trait cognitive and affective empathy. In addition, participants completed the ESM survey 10 times a day for 7 days, with 36 items covering positive and negative emotional states, social pleasure, and cognitive and affective empathy in daily life. Independent samples t-tests were used to examine between-group differences in dimensional and total scores of the QCAE. Multilevel mixed-effect linear model was conducted for the data of ESM surveys to examine the between-group differences of empathy and its associations with social pleasure in daily life. Results showed that: 1) Compared to individuals with low social anhedonia, high social anhedonia individuals reported lower scores on affective empathy dimension of the QCAE, no significant differences were found on cognitive empathy; 2) In daily life, individuals with high social anhedonia showed poorer cognitive and affective empathy and reduced social pleasure compared to their counterparts; 3) social pleasure positively predicted cognitive and affective empathy in both groups, no significant differences were observed on these associations. In conclusion, our findings suggest that individuals with high social anhedonia manifest reduced cognitive and affective empathy in daily life, and diminished pleasure from social interactions predict changes in cognitive and affective empathy. Taken together, our findings providing new perspective for understanding social cognitive impairments in patients with schizophrenia and at-risk individuals.

Keywords： Cognitive Empathy, Affective Empathy, Social Pleasure, Experience Sampling Method, Multilevel Mixed-Effect Linear Model

精神分裂症患者及高分裂型人格特质个体的情绪性反应抑制缺损：基于外显及内隐加工的视角

胡文婷[1] 顾雨婷[1] 周晨[1] 王毅[2, 3] 王艳郁[1]（通讯作者）

1 潍坊医学院心理学院，山东，261053，wangyanyu@wfmc.edu.cn

2 神经心理学与认知神经科学实验室，中国科学院心理健康重点实验室(中国科学院心理研究所)，北京，100101

3 中国科学院大学心理系，北京，100049

摘 要 精神分裂症患者及高分裂型人格特质个体均存在不同程度的反应抑制异常，目前研究多集中于非情绪加工及外显加工方面，而考察内隐加工条件下反应抑制表现的研究较少。因此本研究基于谱系视角探究精神分裂症患者及高分裂型人格特质个体在不同条件下的情绪反应抑制特点。研究一招募 32 例精神分裂症患者及 36 例健康对照，研究二招募 34 例高分裂型人格特质个体及 39 例低分对照。两研究均采用包含

三种情绪加工条件的停止信号任务，即非情绪加工、外显加工及内隐加工，以此来考察被试的情绪反应抑制能力。采用混合模型方差分析组内和组间的差异。研究一表明，在非情绪性停止信号任务中，精神分裂症患者组与健康对照组在四个指标上的表现均无显著差异；在外显停止信号任务中，精神分裂症患者组的停止信号反应时(SSRT)大于健康对照组，而成功抑制率(PI)、停止信号延迟时间(SSD) 均小于健康对照组；在内隐停止信号任务中，精神分裂症患者组的 SSRT 大于健康对照组，而 PI 、SSD 均小于健康对照组。研究二表明，在非情绪性及外显停止信号任务中，高分裂型人格特质组与低分对照组在四个指标上的表现均无显著差异；而在内隐停止信号任务中，高分裂型人格特质组的 SSRT 大于低分对照组，尤其表现在对负性情绪面孔刺激方面，而 PI 、SSD 均小于低分对照组。本研究提示了内隐条件下对情绪刺激的反应抑制缺损有可能是精神分裂症患者及亚临床人群稳定的缺损，这一缺损有可能为精神分裂症的早期识别提供参考。
关键词　反应抑制，情绪，精神分裂症，高分裂型人格特质，停止信号任务

Emotional response inhibition deficits in schizophrenia and schizotypal personality disorder: a perspective based on explicit and implicit processing

HU Wenting[1] GU Yuting[1] ZHOU Chen[1] WANG Yi[2,3] WANG Yanyu[1](corresponding author)

[1]School of Psychology, Weifang Medical University, Shandong, 261053

[2] Neuropsychology and Applied Cognitive Neuroscience Laboratory, CAS Key Laboratory of Mental Health, Institute of Psychology, Chinese Academy of Sciences, Beijing, 100101

[3] Department of Psychology, University of Chinese Academy of Sciences, Beijing, 100049

Abstract：Most recent studies have concentrated on non-emotional and explicit processing, while fewer studies have looked at the performance of response inhibition under implicit processing conditions. Patients with schizophrenia and individuals with schizotypal personality disorder have varying degrees of response inhibition abnormalities. Therefore, based on a spectrum perspective, the current study examined the characteristics of emotional response inhibition in schizophrenic patients and individuals with schizotypal personality disorder under various circumstances.In Study 1, 32 schizophrenia patients and 36 healthy controls were recruited, while in Study 2, 34 participants with schizotypal personality disorder and 39 low-scoring controls were recruited. The ability of subjects to suppress emotional reactions was examined in both experiments using a stop signal task with three emotional processing conditions, including non-emotional processing, explicit-emotional processing, and implicit-emotional processing. A mixed-model ANOVA was used to examine variations within and between groups. According to Study 1, there was no significant difference in performance between the control group and the schizophrenia group on any of the four indices during the non-emotional stop signal task; however, during the explicit-emotional stop signal task, the stop-signal reaction time (SSRT) of the schizophrenia group was higher than the control group, while the successful inhibition rate (PI) and stop-signal latency (SSD) was lower than that of the control group. When it came to the task, the SSRT of the schizophrenia group was higher than that of the control group, while the PI and SSD were lower. Study 2 revealed that the low-scoring control group and the schizotypal personality disorder group performed similarly on all four indices in the non-emotional and

explicit-emotional stop signal tasks; however, in the implicit-emotional stop signal task, the SSRT of the schizotypal personality disorder group was higher than that of the low-scoring control group, particularly in response to the negative emotional face stimuli, whereas the PI and SSD we found no significant differences between the two groups. The present study suggests that the implicitly conditioned deficit in response inhibition to emotional stimuli is likely to be a stable deficit in patients with schizophrenia and subclinical individuals, and that this deficit has the potential to inform the early identification of schizophrenia.
Keywords：Response inhibition, Emotion, Schizophrenia, Schizotypal personality disorder, Stop signal task

精神分裂症言语幻听中言语抑制控制功能异常的认知机制研究

杨馥银[1,2,3] 张晨[1] 田兴[4,3,2]（通讯作者）

1 上海市精神卫生中心，上海交通大学医学院，上海，200030

2 华东师范大学心理与认知科学学院，上海，200062

3 华东师范大学-纽约大学脑与认知科学联合研究中心（上海纽约大学），上海，200062

4 上海纽约大学，文理学院，上海，200012

摘 要 认知理论认为，幻听可能与对信息来源的监控异常有关。对任何认知过程的一般性的监控功能是开启和停止此过程，在言语范畴中即开启和停止说话。以往对抑制控制功能的研究主要聚焦于外显的动作输出阶段，但动作产生的其他时间节点上抑制功能的神经机制还不清楚。言语产生和感知领域的研究表明，内部言语（在没有任何外部动作输出下在内部产生和言语感知过程相似的感觉）可能是言语幻听内容的来源，抑制功能如何作用于内部言语还有待进一步验证。本研究探讨了运动感知神经网络对言语抑制功能的调节作用，并探讨了言语幻听患者内部言语抑制功能异常的脑机制。本研究采用功能磁共振成像和两个停止信号范式任务，即发音停止任务和想象发音停止任务，在 31 例正常健康人和 29 例伴有幻听症状的精神分裂症病人中探索反应执行和抑制的神经机制。在“执行”试次中，视觉刺激后进行发音或者想象发音任务；在“停止”试次中，一个红色的圆作为停止信号出现在视觉刺激后的特定的“停止信号延迟时间(SSD)”时，进行停止发音或者想象发音反应。行为学结果表明，幻听患者的停止信号反应时间(SSRT)显著高于健康对照组。fMRI 结果表明，在发音抑制任务中，幻听患者的右侧额下回 (rIFC)激活程度较弱，而缘上回(SMG)和角回(AG)激活较强。而在想象发音抑制任务中，幻听患者 SMG 和 AG 激活程度较弱，但 rIFC 的激活程度与健康对照组没有差异。以上结果表明，rIFC 可能执行抑制功能，顶叶区域可能评估抑制功能的结果。此外，发音任务中，健康对照组中 rIFC 的激活程度与 SSRT 呈正相关；幻听患者组中 rIFC 激活与幻听严重程度 AHRS 总分呈负相关。行为和神经影像学结果一致表明，前额叶-顶叶网络的低效处理是言语幻听患者抑制控制缺陷的神经基础。
关键词 精神分裂症，言语幻听，源监控，抑制控制，运动感觉整合

Impaired inhibition function for speech control in schizophrenia with auditory verbal hallucinations

Fuyin Yang[1,2,3] (杨馥银), Chen Zhang[1] (张晨), Xing Tian[4,3,2,*] (田兴)

1 Shanghai Key Laboratory of Psychotic Disorders, Shanghai Mental Health Center, Shanghai Jiao Tong University School of Medicine, Shanghai 200030, China

2 Shanghai Key Laboratory of Brain Functional Genomics (Ministry of Education), School of

Psychology and Cognitive Science, East China Normal University, Shanghai, 200062, China
3 NYU-ECNU Institute of Brain and Cognitive Science at NYU Shanghai, 3663 Zhongshan Road North, Shanghai, 200062, China
4 Division of Arts and Sciences, New York University Shanghai, 1555 Century Avenue, Shanghai, 200122, China

Abstract：According to recent cognitive models, impaired source monitoring may cause hallucinations. The most general monitoring and control function is to stop the action. Previous studies focus on the aspect of stopping motor outputs. How the inhibition function operates at any point of the production process is unclear. Specific in the speech domain, how the inhibitory function operates on inner speech (covert speaking without articulation motor output) that is potentially the internal source of auditory verbal hallucinations (AVHs) remains unknown. This study investigated the functional neural network that mediated the inhibition function of speech and examined the impairment of the function in patients with AVHs, especially during inner speech. In a functional magnetic resonance imaging (fMRI) study, 29 schizophrenia patients with AVHs and 31 healthy controls performed overt and imagined articulation tasks in a revised stop-signal paradigm. In the Go trials, participants articulated or imagined speaking a syllable as fast as possible after saw a visual cue in the overt and imagined articulation tasks, respectively. In the Stop trials that consisted of 1/3 of the total trials, participants were asked to stop their responses (either overt or imagined articulation) when a red circle was presented after the visual cue at the individually quantified stop-signal delay (SSD). Behaviorally, AVHs patients showed slower stop-signal reaction time (SSRT) than the healthy controls. For the fMRI results, a neural network including the right inferior frontal cortex (rIFC), supramarginal gyrus (SMG), and angular gyrus (AG) was observed for the inhibition function in both overt and imagined articulation tasks in patients and healthy controls. Moreover, during the inhibition of overt articulation, patients had significantly weaker responses in the rIFC, and stronger responses in the SMG and AG. Whereas during the inhibition of imagined articulation, patients had a weaker response in the SMG and AG, but not different from the healthy controls in the rIFC. These dissociations across groups and cortical regions in overt or imagined articulation inhibition tasks suggest that rIFC may execute the inhibition function and parietal regions may evaluate the results of the inhibition function. Furthermore, rIFC activation positively correlated with SSRT in the articulation task in the healthy controls. Whereas the rIFC activation negatively correlated with patients' AHRS total scores. These consistent behavioral and neuroimaging results suggest that inefficient processing in the frontal-parietal network underlies a deficiency of inhibitory speech control in AVHs patients.

Keywords： schizophrenia, auditory verbal hallucinations, source monitoring, inhibition control, motor-sensory integration

5.7 生理心理专业委员会

首发未服药抑郁症患者认知灵活性受损：基于脑电微状态的溯源分析

郑凯莉 [1,2]，刘朝霞 [1,2]，蚁金瑶 [1,2,3]（通讯作者）

1 中南大学湘雅二医院医学心理研究中心，长沙，410011

2 中南大学医学心理研究所，长沙，410011

3 国家精神心理疾病临床医学研究中心，长沙，410011，

Email: jinyaoyi@csu.edu.cn

摘 要 **研究背景**：抑郁症（Major Depressive Disorder，MDD）患者存在认知灵活性受损，本研究拟采用

非情绪和情绪性任务转换范式测量 MDD 患者认知灵活性，阐明 MDD 患者是仅对情绪性信息存在认知灵活性受损，或是对所有信息（情绪性与非情绪性）均存在认知灵活性受损，并结合基于脑电微状态的溯源分析获得 MDD 患者在任务转换过程的时空变化和相应的脑功能状态，以进一步阐明 MDD 认知灵活性受损的电生理机制。**方法**：人口学资料相匹配的 41 名首发未服药 MDD 患者与 42 名健康对照（Health Control，HC）被试完成非情绪和情绪性两种任务转换范式，同步采集其行为学和脑电数据。采用 2（组：MDD vs. HC）× 2（范式：非情绪 vs. 情绪）× 2（任务：重复 vs.转换）重复测量方差分析比较两组在反应时和错误率上的差异。采用偏相关分析计算脑电微状态指标与行为学变量的相关性。采用全脑体素 *t* 检验比较两组基于微状态时间进程的标准化低分辨率电磁脑断层扫描（Standardized Low Resolution Brain Electromagnetic Tomography, sLORETA）图像的差异。**结果**：（1）与 HC 组相比，MDD 组完成任务转换范式的错误率更高，反应时更长。（2）MDD 组情绪性转换任务条件下的反应时与该条件的微状态 2 出现频率呈显著负相关（r=-0.44, p<0.01），与该条件的微状态 2 持续时间呈显著正相关（r=0.35, p<0.05）；MDD 组情绪性错误率转换成本与情绪性转换任务条件微状态 3 的全局场功率（r=-0.29, p=0.068）、出现频率（r=-0.30, p=0.052）和覆盖率（r=-0.31, p=0.055）均呈边缘显著负相关。（3）情绪性转换任务和情绪性重复任务的微状态 2（在 162-214 毫秒时间窗内）sLORETA 图像对比显示，MDD 组在中央前回（Brodmann area 44; MNI coordinates: X=55, Y=10, Z=10）的激活程度显著高于 HC 组（t>-4.859, p<0.05）；情绪性转换任务和情绪性重复任务的微状态 3（在 260-350 毫秒时间窗内）sLORETA 图像对比显示，MDD 组在枕中回（Brodmann area 18; MNI coordinates: X=10, Y=-95, Z=10）的激活程度显著低于 HC 组（t>4.972, p<0.05）。**结论**：MDD 患者对情绪与非情绪信息均存在认知灵活性受损，但对情绪性信息的受损更严重。在任务早期对目标信息异常的知觉控制可能是 MDD 患者认知灵活性受损的电生理机制。
关键词　抑郁症，认知灵活性，微状态，溯源分析

Impaired Cognitive Flexibility in Drug-naïve Patients with First-Episode Major Depressive Disorder: Source Localization Analysis based on Brain Electrical Microstates

Kaili Zheng[1,2], Zhaoxia Liu[1,2], Jinyao Yi[1,2,3](Corresponding author)

1 Medical Psychological Center, Second Xiangya Hospital, Central South University, Changsha 410011, China

2 Medical Psychological Institute, Central South University, Changsha 410011, China

3 National Clinical Research Center for Mental Disorders, Changsha 410011, China,

Email: jinyaoyi@csu.edu.cn

***Abstract*: Background:** Patients with Major depressive disorder (MDD) have impaired cognitive flexibility. With non-emotional and emotional task switching paradigms being adopted to measure the cognitive flexibility of patients with MDD, this study aimed to clarify whether patients with MDD only have impaired cognitive flexibility for emotional information or for all information (emotional and non-emotional). By combining source localization based on brain electrical microstates to obtain the spatiotemporal changes and corresponding brain function states during task switching paradigms in MDD, this study also further elucidates the electrophysiological mechanism of impaired cognitive flexibility in MDD. **Methods:** A demographically matched cohort of 41 first-episode, drug-naïve patients with MDD and 42 healthy control (HC) subjects completed both non-emotional and emotional task switching paradigms, and their behavioral and electroencephalogram data were collected simultaneously. The group differences in the reaction time and error rate were compared by 2 (group: MDD vs. HC) × 2 (paradigm: non-emotional vs. emotional) × 2 (task: repeat vs. switch) repeated measures analysis of variance. The correlation between the brain electrical microstate indicators and behavioral variables were calculated by partial correlation analysis. The group differences in the standardized low resolution brain electromagnetic

tomography (sLORETA) images based on microstate time course were compared by whole brain voxel *t* test. **Results:** (1) Compared with HC group, MDD group made more errors and had longer time completing task switching paradigms. (2) In MDD group, the reaction time under emotional switch task condition was negatively correlated with the occurrence of microstate2 (r=-0.44, p<0.01) and positively correlated with the duration of microstate2 (r=0.35, p<0.05), and the switching cost of emotional error rate was marginally negatively correlated with the global field power (r=-0.29, p=0.068), occurrence (r=-0.30, p=0.052) and coverage (r=-0.31, p=0.055) of microstate3 under the emotional switch task condition. (3) The comparison of sLORETA images of emotional switch task and emotional repeat task in microstate2 (time window :162-214 ms) showed that MDD group had more activation than HC group in the precentral gyrus (t>-4.859, p<0.05; Brodmann area 44, MNI coordinates: X=55, Y=10, Z=10); the comparison of sLORETA images of emotional switch task and emotional repeat task in the microstate3 (time window: 260-350 ms) showed that the MDD group had less activation than HC group in the medial occipital gyrus (t>4.972, p<0.05; Brodmann area 18, MNI coordinates: X=10, Y=-95, Z=10). **Conclusion:** Patients with MDD have impaired cognitive flexibility for both emotional and non-emotional information, but have more severely impaired for emotional information. The abnormal perceptual control of target information in the early stage of switching task may be the underlying electrophysiological mechanism of impaired cognitive flexibility in MDD.

Keywords：Major depressive disorder, Cognitive flexibility, Microstate, Source localization analysis

抑郁症患者转换功能受损及其神经机制

丁紫夏[1,2]，宋倩[1,2]，蚁金瑶[1,2,3]（通讯作者）

[1]中南大学湘雅二医院医学心理研究中心，长沙，410011

[2]中南大学医学心理研究所，长沙，410011

[3] 国家精神心理疾病临床医学研究中心，长沙，410011，Email: jinyaoyi@csu.edu.cn，Tel:13574838712

摘 要 **目的：**本研究拟结合采用评价转换功能的任务和功能磁共振技术，分析抑郁症（Major Depressive Disorder, MDD）患者转换功能的行为学特征与任务态脑影像学特征，探析抑郁症转换功能受损特征的潜在神经机制。**方法：**37 名抑郁症患者和 37 名人口学资料匹配的健康对照（Healthy Control, HC）被试完成了任务转换范式，同步采集被试执行任务转换范式时的行为学数据与任务态功能磁共振数据。首先，采用重复测量方差分析比较两组在任务转换范式中的行为学表现差异。其次，采用单样本 *t* 检验分析被试由转换任务引发的脑区功能激活（转换条件减去重复条件），并采用独立样本 *t* 检验比较两组的脑区功能激活差异。再者，选取功能激活存在显著组间差异的脑区，以其最大激活坐标为球心、6mm 为半径的球形范围作为种子点，采用心理生理交互作用(PPI)考察转换任务中被试的全脑功能连接模式，并采用独立样本 *t* 检验比较两组的功能连接差异。最后，基于 PPI 的结果，聚焦于额顶网络中存在异常连接的脑区，将其作为感兴趣区，构建动态因果模型(DCM)以考察异常功能连接的方向性。**结果：**(1) 在执行任务转换范式时，抑郁症组与健康对照组在正确率(MDD<HC, p<0.05)和反应时(MDD>HC, p<0.001)上均存在显著差异。(2) 全脑功能激活结果显示，抑郁症组右侧额下回、右侧顶下小叶和左侧中扣带回的激活水平均显著低于健康对照组(p_{FWE}<0.05, 团块水平校正)。(3) PPI 结果显示，抑郁症组右侧额下回与左侧顶下小叶及左侧颞极的功能连接值均显著低于健康对照组(p_{uncorr}<0.001)，右侧顶下小叶与左侧额上回的功能连接值则显著高于健康对照组(p_{uncorr}<0.001)。(4) DCM 结果显示，抑郁症组从左侧顶下小叶至右侧顶下小叶的有效连接、从右侧顶下小叶至右侧额上回的有效连接均显著弱于健康对照组（后验概率大于 0.95），而从左侧额上回至右侧顶下小叶的有效连接则显著强于健康对照组（后验概率大于 0.95）。**结论：**抑郁症患者转换功能受损，在行为学上表现为速度慢、正确率低，在脑影像学上表现为额顶网络的脑区激活异常、自下而上和自上而下的有效连接失衡。在转换任务中，抑郁症患者对任务无关刺激的抑制不足及注意转移能力降低，这可能是其转

换功能受损的病理机制之一。

关键词　抑郁症，转换功能，任务态，脑激活，脑功能连接

Neurological mechanism of the Impaired Switching Function in Patients with Major Depressive Disorder

Zixia Ding[1,2] Qian Song [1,2] Jinyao YI [1,2,3] (Corresponding author)

[1] Medical Psychological Center, Second Xiangya Hospital of Central South University, Changsha 410011, China

[2] Medical Psychological Institute, Central South University, Changsha 410011, China

[3] National Clinical Research Center for Mental Disorders, Changsha 410011, China, Email: jinyaoyi@csu.edu.cn, Tel: 13574838712

***Abstract*：** **Objective:** This study aims to analyze the behavioral and neuroimaging characteristics of the switching function in patients with Major Depressive Disorder (MDD) by using switching tasks and functional magnetic resonance imaging (fMRI), and to explore the underlying neurological mechanism of the impaired switching function in patients with MDD. **Method:** A total of 37 MDD patients and 37 healthy controls (HC) completed the task switching paradigm. The task-related functional magnetic resonance imaging data were collected when subjects were performing the task switching paradigm. Firstly, repeated measures analysis of variance was performed to compare the group differences in the Task Switching Paradigm. Secondly, a one-sample *t*-test was used to analyze the brain activation induced by switching task, and an independent-sample *t*-test was used to compare the group differences in brain activation. Thirdly, seeds were selected based on brain regions with significant group differences in functional activation, and psychophysiological interaction (PPI) analysis was then used to investigate the functional connectivity patterns of the whole brain during subjects performing task. Independent-sample *t*-tests were used to compare the group differences in brain functional connectivity in PPI. Finally, in the frontoparietal network, those brain regions with abnormal connectivity in PPI were selected as the region of interest, and a dynamic causal modeling (DCM) was constructed to explore the directionality of the abnormal functional connectivity. **Results:** (1) When completing the task-switching paradigm, the two groups had significant differences in the accuracy (MDD<HC, $p<0.05$) and reaction time (MDD>HC, $p<0.001$). (2) For the whole-brain functional activation, compared with the HC group, the MDD group had significantly lower activation levels in right inferior frontal gyrus, right inferior parietal lobule, and left middle cingulate gyrus ($p_{FWE}<0.05$, cluster-level correction). (3) For the PPI results, compared with the HC group, the MDD group had significantly decreased functional connectivities between right inferior frontal gyrus and left inferior parietal lobule and left temporal pole ($p_{uncorr}<0.001$), while significantly increased functional connectivity between right inferior parietal lobule and left superior frontal gyrus ($p_{uncorr}<0.001$). (4) For the DCM results, compared with the HC group, the MDD group had significantly decreased effective connectivities from left inferior parietal lobule to right inferior parietal lobule, and from right inferior parietal lobule to right inferior frontal gyrus (posterior probability>0.95), while had increased effective connectivity from left superior frontal gyrus to right inferior parietal lobule (posterior probability>0.95). **Conclusions:** The impaired switching function of patients with MDD shows slow speed and low accuracy, and abnormal activation of some brain regions and the imbalance of bottom-up and top-down effective connectivities in frontalparietal network. Patients with MDD have insufficient inhibition of task-irrelevant stimuli and decreased ability to shift attention when performing switching tasks, which might be the underlying mechanism of the impaired switching function in MDD.

***Keywords*:** Major Depression Disorder, Switching Function, Task-Based fMRI, Functional Activation, Functional Connectivity

Prenatal immune activation and postnatal maternal separation alter maternal behavior of female rat offspring

Shinnyi Chou[1], Ming Li [2]

[1]Department of Psychiatry, University of Pittsburgh, Pittsburgh, PA

[2]Department of Psychology, University of Nebraska-Lincoln, Lincoln, NE

*Corresponding author

Ming Li

238 Burnett Hall

Department of Psychology

University of Nebraska-Lincoln

Lincoln, NE 68588-0308

402-472-3144

mli@unl.edu

Highlights

- Prenatal immune activation disrupts offspring's nest building and prepulse inhibition.
- Maternal separation disrupts nest building and fear-potentiated startle response.
- Combined immune activation and maternal separation resolved nest building deficits.

Abstract： Early life adversities are known to exert long-term negative impacts on the psychological and brain functions of individuals. The present work examined how a prenatal and a postnatal stressor independently or concurrently influence various maternal responses (e.g., pup retrieval, licking, nest building, etc.) of postpartum female rats and their cognitive and emotional processing, as a way to identify the potential risk factors for postpartum mental disorders. Sprague-Dawley female offspring born from rat mothers exposed to polycytidilic:polyinosinic acid (PolyI:C, 4.0 mg/kg) or saline during pregnancy were subject to a repeated maternal separation stress (3 h/day) for 9 days in the first two weeks of postpartum or no separation (a 2 × 2 design). After they became mothers, their attentional filtering ability (as measured in the prepulse inhibition of acoustic startle response), positive hedonic response (as measured in the sucrose preference test), and negative emotional response (as measured in the fear-potentiated startle) were examined, along with their home-cage maternal behavior. Virgin littermates served as controls in all the behavioral tests except in the maternal behavior. Results showed that mother rats who had experienced a prenatal immune activation (a risk factor for autism and schizophrenia) exhibited a deficit in nest building and sensorimotor gating. Prenatal immune activation also impaired fear-potentiated startle in virgin controls. Mother rats who experienced repeated maternal separation also had fewer nest building activity, but higher basal startle reactivity, and an increased fear-potentiated startle. Interestingly, mother rats who experienced both exhibited normal nest building and fear-potentiated startle, no different from that of virgin controls. Other maternal responses, including pup retrieval, pup licking and hovering over pups, and the positive hedonic response (e.g., sucrose preference) were not affected by either stressor. These results indicate that early life stress can selectively impact maternal related behaviors, mainly nest building, attention and negative emotion response, which could negatively impacts the wellbeing of offspring.

Keywords: Acoustic startle response; Early life stress; Fear potentiated startle; Maternal behavior; Maternal immune activation; Postpartum depression; Prepulse inhibition; Sucrose preference test; Repeated maternal separation

在线固相萃取-高效液相色谱-串联质谱法检测人体头发中的尼古丁和可替宁及其与头发皮质醇和可的松的关系

皋伟[1]（通讯作者）Clemens Kirschbaum[2]

1 南京师范大学心理学院，南京，210023，通讯作者 E-mail：gaowei.biopsychology@outlook.com.

2 Faculty of Psychology, Chair of Biological Psychology, Technische Universität Dresden, Dresden, Germany，

摘 要 **导言：**吸烟是威胁全世界公众健康的重要因素之一，头发中尼古丁和可替宁的定量分析可以为体内的尼古丁和可替宁含量提供可回溯性指证，以评估长期吸烟或者被动吸烟的暴露量。另外，由于吸烟与下丘脑-垂体-肾上腺（HPA）轴之间的关系牵涉到应激反应和尼古丁成瘾，因此更好地了解头发尼古丁、可替宁水平与头发皮质醇、可的松水平之间的关系是吸烟和应激相关研究的重要前提。

方法：本研究致力于开发一种结合在线固相萃取技术和高效液相色谱-串联质谱技术（LC-MS/MS）的定量检测方法，用于分析头发中尼古丁和可替宁含量，同时评估萃取头发中尼古丁和可替宁的孵育溶液以及孵育容器的材料。在验证研究中，该方法被用于分析 20 名吸烟者（Mean ± SD 年龄：44.55 ± 13.33 岁；50% 为男性）和 20 名不吸烟者（Mean ± SD 年龄：47.95 ± 10.39 岁；30% 为男性）的头发尼古丁和可替宁含量，并探索它们与头发皮质醇和可的松含量之间的关系。

结果：研究发现最优的提取方法确定为使用甲醇和玻璃管提取头发中的尼古丁和可替宁，孵育时间为 18 小时。该检测方法的尼古丁和可替宁定量限分别为 1 pg/mg 和 0.1 pg/mg，日间和日内变异系数均低于 15%，

方法回收率在 90% 至 104% 之间。验证研究中，吸烟者头发中尼古丁和可替宁水平显著高于不吸烟者（尼古丁：$Z = 342.5$，$p < 0.001$；可替宁：$Z = 381.0$，$p < 0.001$）。同时，吸烟者头发中的尼古丁和可替宁水平与头发中的皮质醇和可的松水平呈显著正相关（尼古丁和皮质醇： Spearman's $\rho = 0.619$，$p = 0.005$；可替宁和皮质醇： Spearman's $\rho = 0.468$，$p = 0.043$；尼古丁和可的松：Spearman's $\rho = 0.773$，$p = 0.000$；可替宁和可的松：Spearman's $\rho = 0.531$，$p = 0.016$），而在非吸烟者的头发中却没有发现任何相关性。

结论：该研究开发并验证了一种全新的结合甲醇萃取和在线固相萃取的 LC-MS/MS 检测方法，用于定量分析人体头发中尼古丁和可替宁的含量。相关研究结果表明，在未来与应激有关的研究中，应用头发糖皮质类固醇作为慢性应激的生物标志物时，必须考虑到吸烟状况。该研究同时也为其他揭示吸烟与应激之间关系的研究提供了一种新颖有效的方法。

关键词　头发，尼古丁，可替宁，质谱法，头发皮质醇

Determination of nicotine and cotinine in human hair using online solid phase extraction coupled with liquid chromatography-tandem mass spectrometry and their relation to hair cortisol and cortisone

Wei Gao[a,b] (Corresponding Author), Clemens Kirschbaum[b]

[a] School of Psychology, Nanjing Normal University, Nanjing, China
[b] Faculty of Psychology, Chair of Biological Psychology, Technische Universität Dresden, Dresden, Germany
Corresponding Author Email: gaowei.biopsychology@outlook.com.

***Abstract*：** **Introduction:** Tobacco smoking is one of the critical public health threats all over the world. Since nicotine and its metabolite cotinine have been routinely used as the biomarkers to estimate the exposure to tobacco smoking, hair nicotine and cotinine analyses can provide of a retrospective index of nicotine and cotinine integrated over extended periods of several months prior to hair sampling to estimate the long-term exposure to tobacco smoking. In addition, hair sample collection is able to offer a simple, non-invasive sampling process. Since the relationship between tobacco smoking and hypothalamic-pituitary-adrenal (HPA) axis is implicated in both stress response and nicotine addiction, better understanding of the association between hair nicotine, cotinine levels and hair cortisol, cortisone levels are an essential prerequisite toward adequate use of this method in future research.

Methods: We here presented an online solid phase extraction (SPE) coupled with liquid chromatography- tandem mass spectrometry (LC-MS/MS) method for quantification of long-term integrated nicotine and cotinine in human hair. Different incubation solvents were evaluated for hair nicotine and cotinine extraction, including methanol, acetonitrile, 1 M sodium hydroxide, 1 M hydrochloric acid, and water. Polypropylene and glass vial were compared under the condition of the current hair preparation protocol. In the proof-of-concept study, this method was applied to the analysis of hair nicotine and cotinine in 20 smokers (mean ± SD age: 44.55 ± 13.33 years; 50% male) as well as 20 nonsmokers (mean ± SD age: 47.95 ± 10.39 years; 30% male), and the investigation of their association with hair cortisol and cortisone. 3 cm hair segment was cut as close as possible to the scalp from a

posterior vertex position of each participant using surgical clippers, and then were wrapped in aluminum foil and kept at room temperature until they were prepared.

Results: Methanol together with glass tube was used for hair nicotine and cotinine extraction during the incubation time of 18-hour. The limits of quantification were 1 pg/mg for nicotine as well as 0.1 pg/mg for cotinine. The inter- and intra-day coefficients of variation were below 15%. The method recovery ranged between 90% and 104%. Group-level analyses revealed that smokers exhibited higher hair nicotine and cotinine levels compared to nonsmokers (Nicotine: Z = 342.5, p < 0.001; Cotinine: Z = 381.0, p < 0.001). Hair nicotine and cotinine levels showed significant positive associations with hair cortisol and cortisone levels in smokers (nicotine and cortisol: Spearman's ρ = 0.619, p = 0.005; cotinine and cortisol: Spearman's ρ = 0.468, p = 0.043; nicotine and cortisone: Spearman's ρ = 0.773, p = 0.000; cotinine and cortisone: Spearman's ρ = 0.531, p = 0.016), but not in nonsmokers.

Conclusions: A novel online SPE LC–MS/MS method coupled with methanol extraction was developed and validated for the measurement of nicotine and cotinine in human hair. The application of online SPE together with methanol extraction led to a considerable automated, simple and fast pretreatment to increase throughput of this method. The smokers exhibited higher hair nicotine and cotinine levels compared to the nonsmokers. Furthermore, hair nicotine, cotinine levels correlated with hair cortisol, cortisone levels in smokers other than nonsmokers. Our findings document that smoking status must be taken into consideration in future stress-related studies with the application of hair steroids as the biomarker of chronic stress. Our results may spark the interest of basic researchers and clinicians alike to unfold the mechanism underlying the association between tobacco smoking and stress.

Keywords：Human hair; Nicotine; Cotinine; Mass spectrometry; Hair cortisol

高原世居者的工作记忆：现象、机制与氧干预

德吉央珍[1]　王美懿[1]　李昊[2]

1 西藏大学高原脑科学研究中心,拉萨，850000

2　西藏大学教育学院，拉萨，850000，futanghu888@126.com

摘 要　工作记忆负责暂时存储和处理信息，虽然高原世居者存在某种程度的适应机制，但有证据显示他们的脑认知功能也受缺氧暴露的影响。本文目的在于探索世居者的工作记忆受高原缺氧暴露影响和生理机制，以及不同氧干预的改善作用。以纵向干预对照设计进行研究。

研究方法：被试（世居者 N=74, M=24.2, SD=1.77），研究分为三个部分，第一部分对所有被试进行了血液、问卷和认知任务测试，对以上指标进行 K-means 聚类分析，将所有被试以缺氧适应程度分组，比较不同组的工作记忆能力，考察缺氧适应能力对工作记忆的影响。第二部分为干预对照研究，将被试分为对照、高压氧与常压氧三组，其中高压氧与常压氧又分干预 30 分钟、60 分钟和 90 分钟三种时间，每两周 5 次共 10 次。考察氧干预对被试工作记忆的影响。第三部分，在控制了睡眠质量和心理健康状况等干扰因素前提下，考察总胆汁酸对氧干预和工作记忆的调节作用，建立解释机制模型。

研究结果：（1）第一部分研究在 1-back 反应时上各组差异显著，优适应组好于低适应组(p=0.051)，说明缺氧适应能力越好的人在 1-back 反应时上表现得越好；（2）第二部分研究中高压氧 30 分钟组(p=0.022, η^2=0.076)和常压氧 30 分钟组(p=0.010，η^2=0.094)在氧干预前后的 1-back 任务正确条件下的反应时差异显著，对照组(p=0.004, η^2=0.118)和高压氧 30 分钟组(p=0.000, η^2=0.252)在氧干预前后的 2-back 任务正确条件下的反应时差异显著，高压氧 30 分钟组(p=0.023，η^2=0.074)和常压氧 30 分钟组(p=0.011, η^2=0.094)在氧干预前后的 1-back 任务反应时差异显著，高压氧 30 分钟组(p=0.006, η^2=0.108)在氧干预前后的 1-back 任务反应时差异显著；（3）第三部分研究结果显示，对于低总胆汁酸的人来说，随着氧干预时间的增加，其工作记忆能力有显著下降的趋势(simple slope=0.908, t=2.703, p=0.012)；对于高总胆汁酸的被试来说，氧干预时间不

显著预测工作记忆能力。

通过本研究首次证实了高原缺氧暴露条件下世居者的工作记忆功能也会受到消极影响，并给出了氧干预能改善这一情况的相应证据。进一步丰富了高原脑科学领域理论基础，对我国世居高原人民的脑健康保护具有应用价值。

关键词 氧干预，世居者，工作记忆，肝功能

Working memory in high-altitude sedentary people: phenomena, mechanisms and oxygen intervention

Yangzhen DeJi[1], Meiyi Wang[1], Hao Li[2]

[1]Plateau Brain Science Research Center, Tibet University, Lhasa, China

[2] Tibet University's School of Education, Lhasa, 850000,futanghu888@126.com

Abstract： Objective**:** Working memory, which is responsible for the temporary storage and processing of information, has been found to be severely affected by hypoxia exposure in highland migrant populations. Although some degree of adaptation mechanisms exists in plateau settlers, there is evidence that their brain cognitive functions are also affected by hypoxia exposure. This paper, therefore, explores the physiological mechanisms by which working memory (WM) in sedentary individuals is affected by hypoxia exposure in the highlands, and the effect of different oxygen supplementation interventions to improve it. The paper was conducted in a longitudinal intervention control design.

Methods: Subjects (selected descent dwellers N=74, M=24.2, SD=1.77), the study was divided into three parts, the first part of the study measured all subjects with blood, questionnaires, and cognitive task tests, and all subjects were grouped by the degree of hypoxia adaptation by performing K-means cluster analysis on the above indicators, comparing the working memory ability of different groups, and examining the effect of hypoxia adaptation ability on The second part was a controlled study. In the second part of the study, participants were divided into three groups: control, hyperbaric and normobaric oxygen, with hyperbaric and normobaric oxygen being divided into three different intervention time levels of 30 minutes, 60 minutes, and 90 minutes, for a total of 10 sessions every two weeks. The effect of the oxygen intervention on the working memory of the highland sedentary was investigated. In the third part, at the end of the intervention, after controlling for confounding factors such as sleep quality and mental health status, the moderating effect of total bile acids on the oxygen intervention and working memory was examined.

Results: (1) In the first part of the study, the groups differed significantly on the 1back reaction time, with subjects in the superior adaptation group were better than those in the low adaptation group (p=0.051), indicating that those with better adaptation to hypoxia also performed better in the 1back reaction time in the N-back task; (2) in the second part of the study, the hyperbaric oxygen 30-minute group (p =0.022, η^2=0.076) and the normobaric oxygen 30-minute group (p =0.010, η^2=0.094),in the oxygen Significant differences in reaction times before and after the intervention with the correct 1-back task were found in the control group (p =0.004, η^2=0.118) and the hyperbaric 30-minute group (p =0.000, η^2=0.252), and in reaction times before and after the oxygen intervention with the correct 2-back task were found in the hyperbaric 30-minute group (p =0.023, η^2= 0.074) and the normobaric oxygen 30-minute group (p =0.011, η^2=0.094) differed significantly in response time to the 1-back task before and after the oxygen intervention, and the hyperbaric oxygen 30-minute group (p =0.006, η^2=0.108) differed significantly in response time to the 1-back task before and after the oxygen intervention. (3) The results of the third part of the study showed that for those with low total bile acids, subjects showed a significant

downward trend in working memory capacity as the duration of the oxygen intervention increased (simple slope=0.908, t=2.703, p =0.012); for subjects with high total bile acids, the duration of the oxygen intervention did not significantly predict working memory capacity.

Conclusion：(1) Hypoxia adaptation affected the working memory capacity of plateau sedentary; (2) 10 sessions of hyperbaric oxygen for 30 minutes, normobaric oxygen for 60 minutes, and normobaric oxygen for 30 minutes interventions all contributed to the functional memory capacity of plateau sedentary; (3) 20 sessions of oxygen interventions of different durations had significant differences in the effects on subjects with different liver functions, and subjects with low total bilirubin had better working memory changes with the 30-minute hyperbaric oxygen intervention.

Through this study, it was confirmed for the first time that working memory function was also negatively affected by indigenous residents under hypoxic exposure conditions in the plateau, and the corresponding evidence that oxygen intervention can improve this situation was given. It further enriches the theoretical basis in the field of plateau brain science and has application value for the protection of brain health of the world-dwelling plateau people in China.

Keywords: oxygen intervention, indigenous residents, working memory, liver function

高原缺氧与吸烟对认知的影响及氧干预的改善作用

习明莉[3] 张玉明[1] 李昊[2]

1 高原脑科学研究中心,拉萨,850000

2 西藏大学教育学院,拉萨,850000，futanghu888@126.com

摘 要 高海拔缺氧环境暴露和严重烟碱依赖都对认知功能有负向影响，但高海拔缺氧环境暴露合并烟碱依赖对基本认知功能影响的叠加效应及机制尚不清楚。本研究目的在于厘清高海拔缺氧与烟碱因素对个体认知的影响及可能的生理机制，并尝试通过氧干预改善缺氧合并烟碱依赖带来的不良影响。

方法：本研究招募在海拔 3650m 生活一年时间的 148 名青年采集血液生理、行为实验方面的数据，通过四项研究进行问题探索。研究 1：探究高海拔环境烟碱依赖者一般生理特征和认知功能差异，根据烟碱依赖水平将被试分为重度、轻度和无依赖三组，采集血液、烟碱依赖程度量表和认知行为数据，比较各组差异。研究 2：加入缺氧适应性到实验中以证实缺氧会使吸烟群体的认知损伤加重，在研究一被试中筛选出轻、重度烟碱依赖者 99 名，探究不同缺氧适应性对烟碱依赖被试的认知功能差异。研究 3：在研究一、二基础上分析原样本 XX 人探究缺氧与烟碱影响认知功能的内在机制并建立模型。研究 4：探究氧干预是否能改善高海拔环境中烟碱依赖者认知损伤及改善效果大小，招募一批轻度烟碱依赖以上男性被试 140 名，分为实验和对照组，实验组氧干预二十天，测量比较两组干预前后的认知功能。

结果：研究一发现高烟碱依赖者 flanker 不一致任务反应时长于不吸烟者。研究二发现烟碱依赖人群 flanker 任务反应时与缺氧适应性呈负相关，在 franker 不一致和不一致任务的反应时间上，缺氧适应性差的重度烟碱依赖者同时高于适应良好的重度烟碱依赖者、缺氧适应性差的轻度烟碱依赖者。研究三发现红细胞压积在缺氧适应性和认知任务的关系中起完全中介作用，受烟碱水平调节。研究四发现氧干预通过改善缺氧水平能改善轻度及以上烟碱依赖者的认知功能。

研究意义：这是首次用氧干预的方式改善高海拔环境下烟碱依赖者的认知功能，为提供个体缺氧适应性方案、改善烟碱对人体的损伤提供了新思路。可进一步通过氧剂量效应实验来探索更适合烟碱人群的临床方案，帮助高原上的吸烟者养成良好生活习惯，增强适应能力。

关键词 高海拔，认知功能，烟碱依赖，氧干预

The effects of altitude hypoxia and smoking on cognition and the improvement effect of oxygen intervention

Mingli Xi[1],Yuming Zhang[1],Hao Li[2]

1 Plateau Brain Science Research Center, Tibet University, Lhasa, China

2 Tibet University's School of Education,Lhasa,850000,futanghu888@126.com

Abstract：Previous studies have found that both high altitude hypoxia and nicotine dependence affect cognitive functions such as attention, memory, and executive control, for example, severe nicotine dependence can lead to cognitive dysfunction and affect daily life. However, the superimposed effect of nicotine dependence on cognitive

function at high altitude and the underlying mechanisms are not clear. Therefore, the purpose of this study is to clarify the effects of hypoxia and nicotine on human physiology and cognition, to help smokers living at high altitude to develop good living habits, to improve the adverse effects of hypoxia and nicotine, and to ensure that individuals can better adapt to the high-altitude environment. On this basis, 148 Tibetan and Chinese youths living at 3650m above sea level were recruited to conduct blood physiological and behavioral experiments to investigate the effects of high-altitude environment on the cognitive function of people with different levels of nicotine dependence. Therefore, four experiments were designed to explore the above problems. Study 1:148 men (M±SD=23±2.01 years old) at high altitude (3650m) were recruited. The participants were divided into three groups according to their nicotine dependence level. Blood indicators, Fagerström Test for Nicotine Dependence and behavioral data were collected to explore the differences in cognitive function between smokers and nonsmokers at high altitude. Study 2: 99 participants (M±SD=20±1.21 years old) with mild level of nicotine dependence or higher were screened on the basis of study 1 participants to explore the performance of cognitive function of participants with different levels of hypoxia state and nicotine dependence in a plateau environment. Study 3: 140 male participants (M±SD=22±2.41 years old) with mild level of nicotine dependence or higher were recruited and divided into experimental and control groups. The experimental group received 20 days of oxygen intervention, and cognitive function was measured before and after the intervention in both groups to investigate the impact of oxygen intervention on cognitive function in nicotine dependent people with hypoxia; Study 4: To explore the mechanism underlying the effect of hypoxia and nicotine on cognitive function.

Study 1 showed that the flanker inconsistent task response time of high nicotine dependence was longer than that of non-smokers (F (1,97) =2.853, p=0.025); and in Study 2 there was a positive correlation between flanker task response time and hypoxia state in the nicotine dependent population (r =.181, p<.001). In terms of the response time of flanker inconsistent and inconsistent tasks, severe nicotine dependent patients with severe hypoxia state were higher than those with mild hypoxia state (p=0.039), and higher than those with severe hypoxia state but mild nicotine dependence (p=0.038); In the Study 3 , we found that oxygen intervention improved the cognitive function of people with mild level of nicotine dependent or higher by improving the hypoxia state, especially in flanker consistency (F(2,138)=6.669, p=0.042, p-η^2=0.065) and inconsistent tasks (F(2,138)=6.669, p=0.037, p-η^2=0.100), the accuracy of hyperbaric oxygen group was higher than that of non-oxygen group; Study 4 developed a moderated mediation model indicating that hematocrit played a full mediation effect in the relationship between hypoxia state and cognitive tasks ($effect$= -0.149, SE = 0.0815, 95% CI =[-0.3233 , -0.0008]), and nicotine levels moderated this relationship. Nicotine dependence in an alpine environment affects individual cognitive function task performance, and oxygen intervention can ameliorate this cognitive impairment, and hematocrit can mediate the relationship between the hypoxic state and flanker task response time and this relationship is modulated by the level of nicotine dependence.

***Keywords*:** High altitude, Cognitive function, nicotine dependence, oxygen intervention

5.8 体育运动心理专业委员会

基于机器学习的认知能力预测电竞专长的分类模型比较

苗浩飞[1] Daphné Bavelie[2] C. Shawn Green[2] 迟立忠[1]（通讯作者）
1 北京体育大学心理学院，北京，100091，chilizh3804@163.com
2 日内瓦大学心理与教育科学学院，日内瓦，1211

摘 要 **目的**：探索运动员的核心竞技能力对选材和训练具有重要意义。电子竞技不同于传统的竞技项目，对体能要求相对较低但需要广泛的认知参与、精细的动作控制能力。这些特征决定了认知能力是电竞玩家的核心能力之一。因此采用认知能力预测电竞专长具有理论可行性。然而过去认知预测电竞表现的模型多采用传统的线性回归模型。实际上能力和专长往往并非简单的线性相关。因此基于机器学习的非线性模型可能具有更好的拟合效果。本研究将采用 7 种认知能力，以玩家所处百分位对应的分数(matchmaking rating, MMR)作为专长指标建立分类模型。

方法：共招募年龄在 18-35 岁之间的英雄联盟端游玩家，共 539 人，MMR 在 285-1912 分之间，选取 MMR≥1400 分作为高水平组(标签)，共 152 人；余下的纳入低水平组。预测变量(特征)包括 7 项认知能力：信息处理速度、持续注意、数字广度、多目标追踪、视觉搜索、视觉推理、强化学习。预处理采用 Box Cox 法将数据转换为正态值，采用平均值法处理少量缺失值。采用支持向量机(Suppert Vector Machine, SVM)、最近邻(K-Nearest Neighbor,KNN)、决策树(Decision Tree,DT)、随机森林(Rondom Forest,RF)、多层感知机(Multilayer Perceptron,MLP)共 5 个模型。采用贝叶斯法优化参数,迭代次数设置为 5。采用 10 折交叉验证。训练集、验证集、测试集的比例为 8:1:1。

结果：KNN 模型的拟合效果最好，10 折交叉验证的准确率为 74.7%；其次是 DT 模型，为 73.4%；RF 模型和 MLP 模型的准确率为 72.5%和 72.3%。SVM 的结果最低，为 71.2%。在 KNN 模型的特征权重方面，从高到低依此是信息处理速度、视觉搜索、强化学习、视觉推理、持续注意、多目标追踪、数字广度，其中信息处理速度的权重明显高于其他认知能力。

结论：总体上各个模型的预测准确度较好且结果较为接近。使用机器学习方法建立基于认知能力预测电竞水平的模型具有可行性。未来可尝试新的标签分类方法，检验分类模型在其他电竞项目中的适用性，并适当补充电竞相关的认知能力和精细动作控制能力。

关键词 认知能力，机器学习，电子竞技，专长

Comparing Machine Learning-Based Classification Models for Predicting Esports Expertise Based on Cognitive Abilities

Haofei Miao[1], Daphné Bavelier[2], C. Shawn Green[2], Lizhong Chi[1]
1 School of Psychology, Beijing Sport University, Beijing, 100091, chilizh3804@163.com
3 Department of Psychology and Education, University of Geneva, Geneva, 1211
4

Abstract：Exploring the importance of core athletic abilities of athletes in talent selection and training. Esports differs from traditional sports in that it requires relatively low physical demands but extensive cognitive engagement and fine motor control. These characteristics determine that cognitive ability is one of the core competencies of esports players. Therefore, using cognitive ability to predict esports expertise is theoretically

feasible. However, past models that predict esports performance using cognitive ability have mostly used traditional linear regression models. In reality, ability and expertise are often not simply linearly correlated. Therefore, machine learning-based nonlinear models may have better fitting effects. This study will use seven cognitive abilities and the player's matchmaking rating (MMR) as the expertise indicator to establish a classification model.

Methods: A total of 539 League of Legends players aged between 18 and 35 were recruited, with MMR ranging from 285 to 1912 points. MMR≥1400 points were selected as the high-level group (label), with a total of 152 people; the remaining players were included in the low-level group. The predictive variables (features) include seven cognitive abilities: information processing speed, sustained attention, numerical breadth, multitasking, visual search, visual reasoning, and reinforcement learning. Preprocessing used the Box Cox method to transform the data into normal values, and the mean method was used to process a small amount of missing data. Five models were used: Support Vector Machine (SVM), K-Nearest Neighbor (KNN), Decision Tree (DT), Random Forest (RF), and Multilayer Perceptron (MLP). The Bayesian method was used to optimize parameters, with the number of iterations set to 5. Ten-fold cross-validation was used, with a ratio of 8:1:1 for the training, validation, and test sets.

Results: The KNN model had the best fitting effect, with an accuracy of 74.7% in 10-fold cross-validation; followed by the DT model, with an accuracy of 73.4%; the accuracy of the RF model and MLP model was 72.5% and 72.3%, respectively. The result of the SVM was the lowest, at 71.2%. In terms of feature weights in the KNN model, from high to low, they were information processing speed, visual search, reinforcement learning, visual reasoning, sustained attention, multitasking, and numerical breadth. The weight of information processing speed was significantly higher than that of other cognitive abilities.

Conclusion: Overall, the prediction accuracy of each model is good and the results are relatively close. Using machine learning methods to establish a model based on cognitive ability to predict esports performance is feasible. In the future, new label classification methods can be tried to test the applicability of classification models in other esports projects, and esports-related cognitive abilities and fine motor control abilities can be supplemented appropriately.

Keywords： cognitive ability, machine learning, esports, expertise

视听信息整合促进羽毛球运动预判的 ERP 研究

王晓婷[1,4]　任鹏飞[2]　张鑫[3]　迟立忠[4]（通讯作者）

1 陕西师范大学体育学院，西安，710119

2 延安大学体育学院，延安，716000

3 沈阳体育学院运动训练学院，沈阳，110006

4 北京体育大学心理学院，北京，100101，chilizh3804@163.com

摘 要　在羽毛球等击打类项目以及棒球等团体球类项目中，快速准确地预判对手和队友的下一步动作或动作结果至关重要。高质量的运动预判不仅源于有效获取与整合情景信息和运动学信息(视觉信息)，利用听觉信息预判击球速度与击球力度时，其效果优于视觉信息。以往研究分别探讨了视觉(如运动学信息)与听觉信息(如击球声音)对运动预判的影响，但对视听信息整合是否比仅视觉信息更能促进运动预判及如何促进运动预判的的探讨尚不充分。多感觉整合模型认为，信息整合可能发生在涉及初级感觉皮质的感知加工阶段，也可能发生在信息加工的认知决策阶段。

本研究利用 ERP 技术，采用 3(信息类型：视听信息一致、视听信息不一致、视觉信息) × 2(运动水平：高、低)混合实验设计，以不同水平羽毛球运动员为研究对象，以信息类型为组内自变量、以运动水平为组

间自变量，以落点预判的准确率、反应时及 N1、P2、P3 波幅、潜伏期为因变量，从多感觉信息整合角度，探讨视听信息整合对羽毛球运动预判的影响及视听信息的整合加工过程。

行为结果发现，视听信息一致条件比视觉信息条件落点预判准确率更高，视听信息不一致条件比视觉信息条件落点预判准确率更低、反应时更长。脑电结果发现，与视听信息不一致条件比，视听信息一致条件下的 P2(200-270 ms)波幅更高，P3(370-470 ms)潜伏期更短。结果表明视听信息整合(一致)促进运动预判，P2 代表的语义整合、客体识别等高阶认知在视听信息整合中发挥关键作用，加快了 P3 代表的预判决策进程。

关键词　运动预判，视听信息整合，ERP，羽毛球

ERP Research of Audio-visual Information Integration to Promote Anticipation in Badminton

Wang Xiaoting[1,4]　Ren Pengfei[2]　Zhang Xin[3]　Chi Lizhong[4](corresponding author)

1 Physical Education School of Shaanxi Normal University，Xi'an，710119

2 School of Physical Education of Yan'an University，Yan'an，716000

3 Shenyang Sport University，Shenyang，110006

4 School of Psychology of Beijing Sport University，Beijing，100101，chilizh3804@163.com

Abstract：In striking sports such as badminton and team ball sports such as baseball, it is very important to quickly and accurately anticipate the next action or result of the opponent and teammates. High-quality sports anticipation not only comes from the effective acquisition and integration of contextual information and kinematic information (visual information), but also uses auditory information to anticipate the speed and strength of the ball, and its effect is better than that of visual information. Previous studies have separately explored the impact of visual (such as kinematic information) and auditory information (such as the sound of hitting) on sports anticipation, but whether the integration of audio-visual information can promote anticipation and how to promote anticipation is more important than visual information has not been fully discussed. The multi-sensory integration suggests that information integration may occur during the perceptual processing phase involving the primary sensory cortex, or during the cognitive decision-making phase of information processing.

This study uses ERP technology, adopts 3 (information type: consistent audio-visual information, inconsistent audio-visual information, visual information) × 2 (sports level: high, low) mixed experimental design, takes badminton players of different levels as the research object, and takes information type as the independent variable within the group, the sports level as the independent variable between groups, and the accuracy and the reaction time of landing point anticipation, the amplitude and latency of N1, P2, P3 components as dependent variables. From the perspective of multi-sensory information integration, this study explores the impact of audio-visual information integration on sports anticipation in badminton and the process of audio-visual information integration.

The behavioral results found that the accuracy of the landing position anticipation was higher under the condition of consistent audio-visual information than that of the visual information condition, and the accuracy of landing position anticipation was lower and the reaction time was longer under the condition of inconsistent audio-visual information than the visual information condition. The results of EEG showed that compared with the condition of inconsistent audiovisual information, the amplitude of P2 (200-270 ms) was higher and the latency of P3 (370-470 ms) was shorter under the condition of consistent audiovisual information. The results show that audiovisual information integration (consistent) promotes sports anticipation, and higher-order cognition, such as

semantic integration and object recognition represented by P2, plays a key role in the integration of audio-visual information, which accelerates the decision-making process of P3 representatives.
Keywords：sports anticipation, audio-visual information integration, ERP, badminton

工作记忆“执行”容量对篮球运动员冲突决策的影响

苗秀影[1]　迟立忠[1]（通讯作者）
1 北京体育大学心理学院，北京，100084，通讯作者 chilizh3804@163.com

摘 要　进行篮球传球决策时，运动员通常会事先形成传球给谁的意图，当此时传球情景符合运动员已形成的决策时，决策效果最佳，若此时传球情景不符合已有决策，则会出现适合当下传球情景的适应性决策与已有决策的冲突。如何解决冲突避免出现决策偏差成为本文关注的焦点。基于工作记忆的注意控制理论，工作记忆中的“执行”功能不仅能够排除无关因素的干扰、抑制冲动错误，同时可以解决反应冲突，其执行容量越大，解决反应冲突的能力越强。可见，高执行容量能够在一定程度上提高冲突决策质量。本文基于篮球传球决策的真实特点，通过创设冲突情景与常规情景，通过极端被试法区分出高执行容量 21 名和低执行容量 21 名的篮球运动员，分别比较完成冲突情景和常规情景的决策质量差异考察工作记忆的注意控制理论在运动决策中的应用。冲突情景的设置：在篮球传球视频呈现前会出现标有数字的图片，告知被试这是给你提供的推荐选项，比如，呈现数字“3”代表推荐你传给 3 号队友，但你需要根据实际比赛情景进行最佳选择。为保障冲突设置成功，推荐选项图片和最终传球决策结果不一致占比 33%。结果：(1)对工作记忆容量得分进行工作记忆容量(高、低)的方差分析，结果表明，高工作记忆容量组的得分(54.29±2.39)显著高于低工作记忆容量组(34.43±3.82) ($F(1,40)=408.48$, $p<0.001$, $\eta_p^2=0.91$)。(2)对正确率进行运动情景(常规、冲突) × 工作记忆容量(高、低)的重复测量方差分析，最重要的结果表明，运动情景(常规、冲突) ×工作记忆容量(高、低)的交互作用显著($F(1, 40)=4.59$, $p<0.05$, $\eta_p^2=0.10$)，进一步简单效应分析发现，常规情景下，高工作记忆容量的决策正确率(0.76±0.14)与低工作记忆容量的决策正确率(0.71±0.12)无显著性差异($p=0.230$)；冲突情景下，高工作记忆容量的决策正确率(0.68±0.15)显著高于低工作记忆容量的决策正确率(0.54±0.13, $p<0.01$, $d=1.00$)。结论：工作记忆容量在解决竞争反应时发挥重要作用，能够在一定程度上提高冲突决策的质量，支持了工作记忆的注意控制理论在运动决策中的应用。
关键词　工作记忆, 执行容量, 运动决策, 冲突决策,工作注意的注意控制理论

The Effect of working memory "execution" capacity on basketball players' conflicting decisions

Miao xiuying Chilizhong
Beijing Sport University, Beijing, 100084

Abstract: When making basketball passing decisions, players typically form an intention to pass the ball to whom in advance, or the coach provides tactical guidance. The best decision-making results occur when the passing scenario at this time is consistent with the player's formed decision; however, when the passing scenario does not conform to the existing decision, a conflict will arise between the adaptive decision suitable for the current passing scenario and the existing decision. This paper focuses on how to resolve conflicts and prevent decision-making bias. According to the attention control hypothesis of working memory, the "executive" function of working memory has the ability to not only block impulsive errors and remove interference from irrelevant components, but also to resolve competing responses, the larger the execution capacity, the stronger the ability to solve the

competitive response. At present, there are few studies on the causal relationship between conflict decision in sport situations and executive capacity in working memory. Based on the real characteristics of basketball passing decision-making, this paper distinguishes basketball players with high execution capacity and low execution capacity by creating conflict situation and regular situation, and compares the difference in decision-making quality between completed conflict scenarios and regular scenarios to investigate the application of attentional control theory of working memory in sports decision. Setting the conflict scenario: Before the basketball pass video is presented, a picture marked with a number will appear, telling the participant that this is the recommended option provided to you, for example, presenting the number "3" means recommending you to pass to teammate No. 3, but you need to make the best choice according to the actual game scenario. In order to ensure the success of the conflict setting, the recommendation option picture and the final pass decision result are 33% inconsistent. Results: (1) ANOVA analysis of working memory capacity (high and low) was performed on the working memory capacity score, and the results showed that the score of the high working memory capacity group (54.29±2.39) was significantly higher than that of the low working memory capacity group (34.43±3.82) ($F(1,40)=408.48$, $p. <0.001$, $\eta_p^2=0.91$). (2) Repeated ANOVA of sport situation (regular, conflict) × working memory capacity (high, low) for the correct rate showed that the interaction between sport situation (regular, conflict) × working memory capacity (high, low) was significant ($F(1, 40)=4.59$, $p<0.05$, $\eta_p^2=0.10$), further simple effect analysis showed that there was no significant difference between the decision accuracy rate (0.76±0.14) of high working memory capacity and the decision correction rate (0.71±0.12) of low working memory capacity ($p=0.230$) under the regular situation. Under the conflict situation, the decision accuracy rate of high working memory capacity (0.68±0.15) was significantly higher than that of low working memory capacity (0.54±0.13, $p<0.01$, $d=1.00$). Conclusion: working memory capacity plays an important role in solving competitive responses, which can improve the quality of conflict decision-making to a certain extent, and support the application of attentional control theory of working memory in sport decision.

Keywords： working memory, execution capacity, sport decision, conflicting decisions, the attentional control theory of working memory

无用之用，方为大用:仪式化行为提升竞赛压力下的自我控制

员东婷[1,2]　张力为[2]（通讯作者）　仇悦[2]　Robert Schinke[2,3]　刘娇[2]

1 西南财经大学体育学院，成都，611130

2 北京体育大学心理学院，北京，100084, E-mail: liweizhang@hotmail.com

3 Laurentian University, Canada

摘 要　背景：运动员竞赛压力下的竞技表现常成为运动心理学关注的重要课题，既有超常发挥的“Clutch”现象，也有失常失准的“Choking”现象，无论何者都与自我控制有密切关联(e.g., 王进 等, 2018; 张力为, 2013; Beilock et al., 2002)。针对仪式化行为与自我控制关系的研究中，出现了正性影响(e.g., Koole et al., 2010; Tian et al., 2018; Yun et al., 2023)、负性影响(e.g., Hobson et al., 2017; Vohs et al., 2013)及无影响(Hobson et al., 2016)等相矛盾的结果。根据控制论(Rappaport, 1971)，导致以往研究结果不一致的原因是：仪式化行为是一种针对个人和群体行为的控制论系统，如同恒温器的反馈系统(Carver et al., 1982; Friston, 2002)。当不稳定的社会心理状态首先被监测到，然后与理想中的目标状态进行比较，如果发现存在差异，仪式化行为才会被触发，通过不断地监控和校正心理和行为从而缩小与目标间的差异。目的：本文从压力诱发的赤字角度出发，来深入探讨仪式化行为对运动员压力下自我控制的影响及其心理机制，以弥补该方向研究的缺陷。方法：随机选取 146 名大学生运动员，采用 3（行为类型:仪式化行为组 vs.随机行为组 vs.控制组）*2（压力类型：

无压力 vs.有压力）的组间实验设计，因变量为 VR 下信号射击任务的平均环数及错误率。结果：仪式化行为可以提升平均环数[$F(1, 140) = 5.13$, $p = .007$, $\eta_p^2 = 0.068$]并降低错误率[$F(2, 140) = 11.29$, $p < .001$, $\eta_p^2 = 0.139$]，且竞赛压力下仪式化行为的提升效益更大[$F(2, 140) = 3.18$, $p = .045$, $\eta_p^2 = 0.043$]，自上而下机制的自我效能感和自主动机在仪式化行为提升自我控制中起中介作用。结论：仪式化行为可提升运动员在竞赛压力下的自我控制，自上而下的心理属性可作为其提升自我控制的关键成分。未来可基于具身认知设计专门化的仪式化行为，以帮助不同项群的运动员。
关键词　竞赛压力，仪式化行为，自我控制，运动表现

The Usefulness of the Useless: How Ritualized Behavior Improves Self-control Under Competition Pressure

Dongting Yun[1,2] Liwei Zhang[2] Yue Qiu[2] Robert Schinke[2,3] Jiao Liu[2]
Southwestern University of Finance and Economics, China
Beijing Sport University, China
Laurentian University, Canada

Abstract：Athletic performance under competition pressure is often an important subject of sports psychology. There is both Clutch and Choking phenomenon, which is closely related to self-control (e.g., Wang et al., 2018; Zhang, 2013; Beilock et al., 2002). Studies on the relationship between ritualized behavior and self-control have shown positive effect (e.g., Koole et al., 2010; Tian et al., 2018), negative effect (e.g., Hobson, Bonk, et al., 2017; Hobson & Inzlicht, 2016; Vohs et al., 2013) or no effect (Hobson et al., 2016). According to the cybernetics (see Friston, 2002), the consequence has been, leading to inconsistent evidence of about the influence of ritualized behavior on self-control. Ritualized behavior is a cybernetic system for individual and group behavior, analogous to the feedback system of a thermostat (Friston, 2002). Unstable psychosocial states are first monitored and then compared to the desired goal state. Ritualized behavior is triggered if discrepancy and deficit are found, and the discrepancy with the goal is reduced by continuously monitoring and correcting psychology and behavior (Rappaport, 1971). A deficit context of competition anxiety was constructed in the present study to investigate in depth the enhancement of self-control by ritualized behavior and the corresponding psychological mechanisms from the perspective of competition pressure. The aim of this study was to explore the effect of athletes' ritualized behavior on self-control under competition pressure. One hundred and forty-six college athletes were recruited. This study used a two-factor between design 2 (competition pressure: low vs. high) × 3 (behavior type: ritualized behavior vs. random behavior vs. control group). Based on the Shooter-type Go/No-go task, the dependent variable was the average number of loops and the error rates of 10-meter air pistol task in virtual reality. We found that ritualized behavior had a moderate impact on the average number of loops [$F(1, 140) = 5.13$, $p = .007$, $\eta_p^2 = 0.068$] and error rates [$F(2, 140) = 11.29$, $p < .001$, $\eta_p^2 = 0.139$], and it was more beneficial for error rate under competition pressure [$F(2, 140) = 3.18$, $p = .045$, $\eta_p^2 = 0.043$], while the symbolic meaning of ritualized behavior promotes self-control by improving self-efficacy and autonomous motivation via a top-down processing system. The psychological feature of ritualized behavior may serve as an important explanatory mechanism for its enhancing effect on self-control under competition pressure. This study supports and integrates the Precaution Theory and Self-determination Theory. In the future, researchers can design unique ritualized behaviors based on embodied cognition to help athletes in different sports groups.

Keywords：ritualized behavior, competition pressure, self-control, athletic performance

信息量对不同水平排球运动员发球落点预判的影响

徐杨[1] 王文增[2]（通讯作者）
沈阳体育学院研究生部，沈阳，110102
沈阳体育学院运动人体科学学院，沈阳，110102，wangwz993@163.com

摘 要 目的：采用眼动记录技术与事件相关电位技术相结合的手段，通过比较信息量对不同水平排球运动员发球落点预判的行为指标、眼动指标及其脑神经活动水平的差异，探究高水平排球运动员预判的优势特征及其可能的神经机制，为今后专项知觉训练的参数设置提供理论依据。

方法：本文采用“专家—新手”范式，选取体育学院 12 名具有国家二级运动员水平及以上证书的排球运动员为专家组；12 名排球专修班且无运动等级的学生为新手组。采用 2（运动水平）×3（信息量）混合实验设计。运动水平为组间变量，包括专家组和新手组；信息量为组内变量，分为三个水平：T1 为击球前 120ms；T2 为击球前 80ms；T3 为击球前 40ms。运用时间阻断技术截取近几年世界顶级排球比赛中技术分析这一视角的发球视频，要求被试对发球落点做出即快又准的判断，同步采集其行为指标（反应时、准确率）、眼动指标（注视时间、注视次数、眼跳距离）和脑电指标（ERPs 的峰潜伏期、峰波幅）。

结果：（1）行为结果显示，反应时与准确率的组别主效应显著（P＜0.01；P＜0.05），信息量主效应显著（P＜0.05；P＜0.05），表现为专家组的反应时短且准确率高于新手组。

（2）眼动结果显示，注视时间、注视次数、眼跳距离的组别主效应显著（P＜0.05；P＜0.01；P＜0.05），注视时间、注视次数的信息量主效应显著（P＜0.05；P＜0.05），表现为专家组注视时间长、注视次数少、眼跳距离小于新手组。

（3））脑电结果显示，N1、P2、P300 峰波幅的组别主效应显著（*P*＜0.05；*P*＜0.05；*P*＜0.05），信息量主效应显著（*P*＜0.05；*P*＜0.05；*P*＜0.05），表现为专家组诱发出的 N1、P3 峰波幅低于新手组，P2 峰波幅高于新手组。P300 峰潜伏期的组别与信息量主效应均显著（P＜0.05；P＜0.05），专家组 P300 潜伏期短于新手组。

结论：（1）信息量与运动水平对预判发球落点有显著影响。随着信息量的不断增加，专家组显现出既快又准的行为优势。

（2）不同水平的排球运动员运用不同的视觉搜索策略。专家采用集中、简洁、高效的视觉搜索模式，具备搜索关键信息速度快，信息加工能力强的优势特征。

（3）高水平运动员有着高效预判行为的神经机制。专家在预判前期高度集中注意力，搜索关键信息，心理资源消耗较多，并与大脑中记忆系统迅速进行应答，预判后期出现资源“节省化”现象。

关键词 信息量，排球运动员，发球落点，预判，神经机制

Influence of information content on the prediction of serving point of volleyball players at different levels

Yang Xu[1] Wenzeng Wang[2]
1.Graduate Department, Shenyang Institute of Physical Education, Shenyang 110102, China
2.School of Exercise and Human Science, Shenyang Institute of Physical Education, Shenyang 110102, China，wangwz993@163.com

***Abstract*:** Objective :Combining eye movement recording technology with event related potential technology, this paper compares the difference of the information content in predicting the serve point of volleyball players at different levels of behavior index, eye movement index and cranial nerve activity level, explores the advantages and possible neural mechanism of high-level volleyball players' prediction, and provides theoretical basis for the

parameter setting of special perceptual training in the future.
Methods: This paper adopted the "expert-novice" paradigm, and selected 12 volleyball players with national second-level athletes and above certificate from physical Education Institute as the expert group; 12 volleyball students with no sports level are beginners. A mixed experimental design of 2 (exercise level) ×3 (information content) was adopted. Exercise level was an intergroup variable, including expert group and novice group. The amount of information was an intra-group variable and was divided into three levels: T1 was 120ms before the shot; T2 is 80ms before hitting the ball; T3 is 40ms before the shot. The time blocking technique was used to intercept the serving video from the perspective of technical analysis in the world's top volleyball matches in recent years. The subjects were asked to make quick and accurate judgments on the serving point, and the behavioral indicators (reaction time and accuracy rate), eye movement indicators (fixation time, fixation number, sapping distance) and EEG indicators (peak latency and peak amplitude of ERPs) were collected simultaneously.
Results: (1) Behavioral results showed that the group main effect of response and accuracy was significant ($P < 0.01$; $P < 0.05$), the main effect of information volume was significant ($P < 0.05$; $P < 0.05$) showed that the response time of the expert group was shorter and the accuracy was higher than that of the novice group.
(2) Eye movement results showed that the main effects of fixation time, fixation number and saccadic distance were significant ($P < 0.05$; $P < 0.01$; $P < 0.05$), the main information effect of fixation time and fixation number was significant ($P < 0.05$; $P < 0.05$) showed that the expert group had longer fixation time, less fixation times and less saccade distance than the novice group.
(3) EEG results showed that the main effect of peak amplitude of N1, P2 and P300 was significant ($P < 0.05$; $P < 0.05$; $P < 0.05$), the main effect of information volume was significant ($P < 0.05$; $P < 0.05$; $P < 0.05$), the peak amplitude of N1 and P3 induced by the expert group was lower than that of the novice group, and the peak amplitude of P2 was higher than that of the novice group. The group of peak latency of P300 and the main effect of information volume were significant ($P < 0.05$; $P < 0.05$), the incubation period of P300 in expert group was shorter than that in novice group.
Conclusion: (1) The amount of information and movement level have significant influence on the prediction of serve landing. With the increasing amount of information, the expert group showed the advantage of fast and accurate behavior.
(2) Volleyball players at different levels use different visual search strategies. Experts adopt a focused, concise and efficient visual search mode, with the advantages of fast search for key information and strong information processing ability.
(3) High-level athletes have efficient neural mechanisms for predicting behavior. Experts are highly focused in the early stage of prediction, search for key information, consume more psychological resources, and respond quickly with the memory system in the brain, and there is a phenomenon of resource "saving" in the late stage of prediction.
***Keywords*:** Information, Volleyball player, Serve landing, Anticipation, Neural mechanism

认知与运动任务的自我损耗对运动表现的影响

张晨晖[1]　邵韵如[1]　张力为[1]（通讯作者）
1 北京体育大学心理学院，北京，100084，liweizhang@hotmail.com

摘 要　在竞技运动领域，自我控制是运动员发挥最佳运动表现的关键因素(Englert, 2017; 张力为, 2013)。自我控制的力量模型提出(Baumeister et al., 1994)，所有的自我控制行为都基于一种有限的共用能量。在完

成一项自我控制任务后，如果消耗的能量未得到及时补充，个体就会出现自控能力下降的现象，即“自我损耗”效应(Baumeister et al., 2007; 高科 等, 2012)。然而，以往研究通常仅将自我损耗效应归因于认知任务引起的能量消耗，忽略了运动任务也可能会产生自我损耗效应 (Brown et al., 2020; Hunte et al., 2022)。此外，自我控制力量模型并未涉及不同类型任务引发的自我消耗效应是否存在差异，以及这种差异是否会对自我控制能力产生不同的影响(Baumeister et al., 2007; Forestier et al., 2022)。

基于上述观点，本研究采用“双任务”范式探讨认知与运动任务的自我损耗对运动表现的影响是否不同。本研究分为两个实验，分别探讨不同类型的自我损耗对技能性和体能性运动表现的影响。实验均采用 3(自我损耗类型：认知任务的自我损耗，运动任务的自我损耗，控制组)×2(测量顺序：前测，后侧)混合实验设计。认知任务为不一致的 stroop 任务，运动任务为功率自行车任务，控制组观看中性纪录片，时间均为 15 分钟。

实验一选取 48 名大学生运动员(国家二级及以上)，自我损耗的检测任务为技能性运动任务，指标为 12 次飞镖投掷任务的平均成绩。实验二选取 48 名大学生运动员(国家二级及以上)，自我损耗的检测任务为体能性运动任务，指标为测量参与者持续 50%最大握力的坚持时长。实验一、二的结果解释基本一致。操纵检查结果表明，认知组和运动组在完成自我损耗诱发任务后，报告的主观用力感(RPE)和难度明显高于控制组，而认知组和运动组之间没有显著差异。结果表明，认知组和运动组产生了自我损耗效应，但认知组和运动组的运动表现并没有显著差异。

综上所述，自我损耗效应可能与诱发任务类型无关，在控制任务难度和 RPE 相同的情况下，自我损耗效应对运动表现的影响也相同。

关键词　自我损耗，运动表现，自我控制，自我控制的力量模型

The Effect of Cognitive and Physical Self-Control Exertion on Sport Performance

Chenhui Zhang, Liwei Zhang
School of Psychology, Beijing Sport University, Beijing 100084

***Abstract*：** In the field of competitive sports, self-control is a key factor for athletes to achieve their best performance (Englert, 2017; Zhang, 2013). The strength model of self-control proposed by Baumeister et al. (1994) suggests that all self-control behaviors are based on a limited shared resource. After completing a self-control task, if the expended energy is not promptly replenished, individuals may experience a decrease in self-control ability, known as the "ego depletion" effect (Baumeister et al., 2007; Gao et al., 2012). However, previous research has often attributed the ego depletion effect solely to the energy consumption caused by cognitive tasks, neglecting the possibility that physical tasks may also lead to ego depletion (Brown et al., 2020; Hunte et al., 2022). Furthermore, the strength model of self-control has not addressed whether there are differences in ego depletion effects between different types of tasks and whether such differences may have varying impacts on self-control ability (Baumeister et al., 2007; Forestier et al., 2022).

Based on the above perspectives, this study adopted a "dual-task" paradigm to investigate whether the impact of ego depletion from cognitive and physical tasks differs on sports performance. The study consisted of two experiments, exploring the effects of different types of ego depletion on skill-based and endurance-based sports performance. Both experiments used a 3 (task of ego depletion types: cognitive task, physical task, control group) × 2 (measurement order: pre-test, post-test) mixed experimental design. The cognitive task involved an incongruent Stroop task, the physical task involved a power-based stationary cycling task, and the control group watched a neutral documentary, with each task lasting for 15 minutes.

In Experiment 1, 48 university-level athletes (national second-level and above) participated, and the detection task for ego depletion was a skill-based sports task, with the average score of 12 darts throwing tasks as the indicator. In Experiment 2, 48 university-level athletes (national second-level and above) were selected, and the detection task for ego depletion was an endurance-based sports task, with the duration of maintaining 50% of maximum grip strength as the indicator. The results of Experiments 1 and 2 were essentially consistent.

Manipulation check results indicated that both the cognitive group and the physical group reported significantly higher levels of subjective effort (RPE) and difficulty after completing the ego depletion-inducing tasks compared to the control group, with no significant difference between the cognitive group and the physical group. The results suggest that both the cognitive group and the physical group experienced ego depletion effects, but there was no significant difference in sports performance between them.

In conclusion, the ego depletion effect may not be dependent on the type of inducing task, and under conditions where task difficulty and RPE are the same, the impact of ego depletion on sports performance is also similar for cognitive and physical tasks.

Keywords：ego depletion, sport performance, self-control, the strength model of self-control

余暇体育锻炼与大学生手机低头行为的变化：基于潜变量增长和交叉滞后模型

吴静涛[4] 季靖岚[1] 迟晓丹[1] 胡军[1]

（乐山师范学院藏羌彝走廊体质健康促进研究中心，四川乐山 614000）

摘 要 **目的：**通过交叉滞后回归分析和平行潜变量增长模型进行分析，全面考察大学生余暇体育锻炼与手机低头行为的动态发展关系和轨迹特征以及相互作用机制。**方法：**采用简单抽样方法，主要运用体育锻炼等级量表和手机低头行为问卷进行被试，对 585 名大学生进行为期 1 年 3 次的追踪调研。**结果：**（1）前后 3 个时段的余暇体育锻炼水平与大学生低头行为的相关系数矩阵均表现出显著负相关，对应被试阶段相关系数较为稳定（r 系数位于-0.24~-0.28 之间），其他时段呈衰减状态（r 系数位于-0.12~-0.17 之间）；（2）大学生余暇体育锻炼与手机低头行为的交叉滞后效应，模型整体拟合指数良好，x2/df=2.07、p=0.04、CFI=0.93、TLI=0.95、RMSEA=0.02、SRMR=0.05；（3）观测余暇体育锻炼与大学生低头行为的潜变量平行发展趋势，将性别作为协变量加以控制，模型整体拟合指数达标，x2/df=1.72、p=0.02、CFI=0.93、TLI=0.91、RMSEA=0.04、SRMR=0.03，初始余暇体育锻炼水平越高的群体，其低头行为越少，初始余暇体育锻炼水平显著负向预测余暇体育锻炼的增长速率（β=-0.10，P＜0.001），初始体育锻炼水平高的个体，其后期的增长速率越慢，呈现出补偿效应，初始低头行为显著正向影响低头行为的增长速率，个体低头行为越严重后期发展速度则越快（β=-0.18，P＜0.001），起到保护作用。**结论：**较高的手机低头行为可能会遏制后续体育锻炼水平的增高，为大学生手机低头行为的研究提供了新的实证参考。

关键词 余暇体育锻炼；手机低头行为；交叉滞后模型；潜变量增长模型

[4] **作者简介：**吴静涛（1989-），男，河南新野人，硕士，讲师，主要从事体育锻炼心理学研究。
通讯作者：胡军，E-mail:1204879427@qq.com。
基金：教育部人文社会科学研究青年基金项目（(21YJC890001），四川省社科联项目（TY2021303），自贡市社科联项目（GT-02202104）阶段性成果。

Changes in Leisure Physical Exercise and Smartphone Bending Behavior among College Students: Based on Latent Growth and Cross-Lagged Models

Jingtao Wu,Jinglan Ji, Xiaodan Ch,Jun Hu

***Abstract*: Objective:** This study aims to comprehensively examine the dynamic development relationship, trajectory characteristics, and interaction mechanisms between leisure physical exercise and smartphone bending behavior among college students through cross-lagged regression analysis and parallel latent growth models.**Methods:** A simple sampling method was used. The main tools used were a physical exercise grading scale and a questionnaire on smartphone bending behavior. A total of 585 college students were tracked and surveyed three times over a period of one year.**Results:** (1) Leisure physical exercise levels were significantly negatively correlated with college students' smartphone bending behavior at all three stages, with the correlation coefficients for corresponding stages being relatively stable (r values between -0.24 and -0.28) and showing a decrease at other stages (r values between -0.12 and -0.17); (2) The cross-lagged effect of leisure physical exercise and smartphone bending behavior among college students showed good overall model fit indices: x2/df=2.07, p=0.04, CFI=0.93, TLI=0.95, RMSEA=0.02, SRMR=0.05; (3) Observing the parallel development trend of latent variables of leisure physical exercise and smartphone bending behavior among college students, with gender controlled as a covariate, the overall model fit indices met the standard: x2/df=1.72, p=0.02, CFI=0.93, TLI=0.91, RMSEA=0.04, SRMR=0.03. The higher the initial level of leisure physical exercise, the less smartphone bending behavior was observed. The initial level of leisure physical exercise significantly negatively predicted the growth rate of leisure physical exercise (β=-0.10, P＜0.001), indicating a compensatory effect: individuals with a high initial level of physical exercise had a slower growth rate later. The initial level of smartphone bending behavior significantly positively affected the growth rate of smartphone bending behavior (β=-0.18, P＜0.001). Individuals with more severe smartphone bending behavior had a faster development speed later, playing a protective role.
Conclusion: Higher levels of smartphone bending behavior might inhibit the subsequent increase in physical exercise levels, providing new empirical references for the study of smartphone bending behavior among college students.

Keywords: Leisure Physical Exercise; Smartphone Bending Behavior; Cross-Lagged Model; Latent Growth Model

运动干预对携带、未携带 APOE ε4 基因大学生有氧运动能力和执行功能的影响

朱丽娜[1]　殷恒婵[2]　陈爱国[1]（通讯作者）
1 扬州大学体育学院，江苏扬州，225127，通讯作者 agchen@yzu.edu.cn
2 北京师范大学体育与运动学院，北京，100875

摘 要　探究9周运动干预对携带、未携带APOEε4大学生有氧运动能力和执行功能各子功能的影响，为采用运动手段降低携带APOEε4基因成年早期人群执行功能受损提供理论基础和实践依据。方法：以84名在校大学生为研究对象，采用2（组别：运动组、对照组）×2（APOEε4基因：携带、未携带）×2（时间：干预

前、干预后）混合实验设计，采用三因素重复测量方差分析比较运动干预前后各组有氧运动能力和执行功能各子功能（反应时、正确率）的变化及差异，结果：（1）在有氧运动能力上，干预前携带APOEε4运动组的有氧运动能力显著低于未携带APOEε4运动组，干预后携带、未携带APOEε4运动组大学生的有氧运动能力均显著提高，且组间无显著差异，表明运动干预能够提升携带、未携带APOEε4大学生有氧运动能力，且携带APOEε4运动组效果更好。（2）在执行功能各子功能上，干预前携带APOEε4运动组的抑制、转换功能反应时显著大于未携带APOEε4运动组，干预后携带、未携带APOEε4运动组大学生抑制、刷新、转换功能反应时显著缩短，且干预后携带APOEε4运动组大学生抑制、转换功能与未携带APOEε4运动组无显著性差异，但携带APOEε4对照组大学生抑制、转换反应时显著增加；运动干预后携带、未携带APOEε4运动组大学生执行功能各子功能正确率均无显著性变化。表明运动干预能够促进携带、未携带APOEε4大学生抑制、刷新、转换功能，且携带APOEε4大学生在抑制、转换功能上干预效果更好，携带APOEε4对照组大学生抑制和转换功能随时间变差。结论：运动干预能够提升携带、未携带APOEε4基因大学生有氧运动能力和执行功能各子功能，且对携带APOEε4大学生有氧运动能力和抑制、转换功能的提升效果更好；运动干预能够降低APOEε4基因对大学生抑制、转换功能的负面影响。
关键词　APOE ε4 基因，有氧运动能力，执行功能，大学生

Effects of Exercise Intervention on Aerobic Fitness and Executive Function of College Students With and Without APOE ε4 Gene

Zhu Lina[1]　Yin Hengchan[2]　Chen Aiguo[1]
1 College of Physical Education, Yangzhou University, Yangzhou 225127, China
2 College of P.E. and Sports, Beijing Normal University, Beijing, China

***Abstract*：** Objective: This study is to examine the impact of a 9-week exercise intervention on the aerobic exercise ability and executive function of college students, taking into consideration the presence or absence of the APOE ε 4 gene. The findings of this study aim to contribute to the development of both theoretical and practical strategies for mitigating executive function impairment in young adults with the APOE ε 4 gene through exercise. Methods: A total of 84 college students were selected as participants for this study. The research design employed a mixed experimental approach, utilizing a 2 (group: exercise group, control group) × 2 (APOE ε 4 gene: carriers, non-carriers) × 2 (time: pre-intervention and post-intervention) framework. The study employed a three-factor repeated measurement analysis of variance to compare the variations and disparities in aerobic exercise capacity and executive function sub-functions (specifically, reaction time and accuracy) prior to and following an exercise intervention. Results: (1) The pre-intervention aerobic fitness levels of the group with APOE ε 4 were found to be significantly lower compared to the group without APOE ε 4. However, following the intervention, both groups experienced significant improvements in their aerobic fitness levels. Furthermore, there was no significant difference observed between the two groups post-intervention, suggesting that exercise intervention can effectively enhance the aerobic fitness of college students, regardless of their APOE ε 4 status. (2) Before intervention, the exercise group with APOE ε 4 exhibited a significantly longer reaction time for inhibition and shifting function compared to the exercise group without APOE ε 4. However, after intervention, both the exercise group with and without APOE ε 4 experienced a significant reduction in reaction time for inhibition, updating, and shifting function among college students. Following the intervention, there was no notable disparity observed in the

inhibition and shifting capabilities between college students in the exercise group with APOE ε 4 and those in the exercise group without APOE ε 4. However, the reaction time associated with inhibition and shifting exhibited a significant increase among college students in the control group with APOE ε 4. Furthermore, subsequent to the exercise intervention, the accuracy pertaining to each sub-function of executive function among college students in both the exercise group with and without APOE ε 4 did not undergo any significant alterations. The findings of the study indicate that exercise intervention has the potential to enhance the inhibition, updating, and shifting abilities in both college students with and without APOE ε 4. Moreover, the intervention appears to have a more pronounced positive impact on the inhibition and shifting abilities of college students with APOE ε 4. However, it is worth noting that over time, the inhibition and shifting function of college students with APOE ε 4 tended to deteriorate. Conclusion: The implementation of exercise intervention has been found to enhance the aerobic fitness and executive function among college students, regardless of their possession of the APOE ε 4 gene. Moreover, it has been observed that exercise intervention yields superior outcomes in terms of improving aerobic fitness, inhibition, and shifting function specifically among college students with the APOE ε 4 gene. Additionally, exercise intervention has been shown to mitigate the detrimental effects of the APOE ε 4 gene on the inhibition and shifting function of college students.

Keywords：APOE ε4, Aerobic Fitness, Executive Function, Young Adults

认知参与型身体活动影响儿童青少年执行功能的 Meta 分析

闻嘉宁[1] 金秋艳[1] 张琦[2] 李杰[3] 司琦[1]（通讯作者）

1. 浙江大学教育学院体育学系，浙江 杭州 310058，通讯作者 Email：tyxsq@zju.edu.cn

2. 北京体育大学心理学院，北京 100084

3. 杭州师范大学附属医院认知与脑疾病研究中心，浙江 杭州 311121

摘 要 目的 系统评价认知参与型身体活动（cognitively engaging physical activity, CEPA）影响儿童青少年执行功能（executive function, EF）的干预效果，探究 CEPA 干预与 EF 变化之间的量效关系，为后续制定更为有效的干预方案提供参考。

方法 检索 Web of Science、PubMed、Medline、EBSCO 和中国知网等数据库，根据纳入排除标准筛选文献，并对文献进行质量评价与数据提取，对提取的数据经过编码后，采用 Comprehensive Meta-Analysis V3.0 进行 Meta 分析。

结果 共纳入 21 篇文献，653 个样本。元分析发现：单次（*SMD*=0.255，95% CI 0.11～0.40，$p<0.001$）和长期 CEPA（*SMD*=0.67，95% CI 0.34～1.00，$p<0.001$）均比不进行额外身体活动对儿童青少年的 EF 影响积极；单次（*SMD*=0.22，95% CI 0.05～0.40，$p=0.013$）和长期 CEPA（*SMD*=0.44，95% CI 0.32～0.56，$p<0.001$）均比低认知需求身体活动对儿童青少年 EF 影响积极。亚组分析发现：长期 CEPA 每次干预的持续时间在 30～45min 对 EF 的影响效果最佳，超过 45min 后，影响效果逐渐降低；每周干预频率在 3 次及以下时的效果略微优于 3 次以上时；持续 8 周以上的干预效果约是 8 周以下的两倍；体感游戏和自编运动方案对儿童青少年的 EF 均具有积极影响，且后者的效果略优于前者；长期 CEPA 对健康和非健康儿童青少年的 EF 均有积极影响，且对健康儿童青少年的干预效果更优。

结论 认知参与型身体活动比低认知需求的身体活动对儿童青少年执行功能的积极影响更大，其中含有的认知需求对儿童青少年执行功能具有额外增益。每次持续时间在 30min～45min、每周 3 次及以下、共计 8 周以上的中高强度自编认知参与型身体活动方案更有可能取得最大执行功能收益。

关键词认知参与型身体活动，儿童青少年，执行功能，Meta 分析

Meta-analysis of the Effect of Cognitively Engaging Physical Activity on Executive Function in Children and Adolescents

Jianing Wen[1], Qiuyan Jin[1], Qi Zhang[2], Jie Li[3], Qi Si[1](corresponding author)

1. Dept. of Sport and Exercise Science, Zhejiang University, Hangzhou 310028, China;
2. School of Psychology, Beijing Sport University, Beijing 10084, China
3. Center for Cognition and Brain Disorders, the Affiliated Hospital, Hangzhou Normal University, Hangzhou 311121, China;

Abstract:Objective The purpose of this study was to systematically evaluate the intervention effect of cognitively engaging physical activity (CEPA) on children and adolescents' executive function (EF), and explore the dose-effect relationship between intervention and changes in children and adolescents' executive function, to provide a reference for formulating intervention program in future research.

Methods Searched Web of Science, PubMed, Medline, and CNKI database data. The literature was screened according to the inclusion and exclusion criteria, and quality evaluation and data extraction were conducted. After coding the extracted data, Comprehensive Meta-Analysis V3.0 was adopted for Meta-analysis.

Results A total of 21 pieces of literature with 653 sample sizes were included. Compared with no additional exercise, single cognitively engaging physical activity (*SMD*=0.255, 95%CI 0.11-0.40, p=0.001) and longitudinal cognitively engaging physical activity (*SMD*=0.67, 95%CI 0.34-1.00, p<0.001) had positive effects on the executive function of children and adolescents. Compared to physical activity with low cognitive need, single cognitively engaging physical activity (*SMD*=0.22, 95%CI 0.05-0.40, p=0.013) and longitudinal cognitively engaging physical activity (*SMD*=0.44, 95%CI 0.32-0.56, p<0.001) had a greater positive effect on executive function in children and adolescents. Subgroup analysis showed that the effect of CEPA on EF was the best when the duration of each intervention was 30-45 min, and the effect gradually decreased after 45 min. When the frequency of intervention was less than 3 times per week, the effect was slightly better than that when the frequency was more than 3 times per week. Interventions lasting more than 8 weeks were about twice as effective as those lasting less than 8 weeks. Both exergaming and self-designed CEPA programs had positive effects on EF of children and adolescents, and the latter was slightly better than the former. Long-term CEPA had positive effects on EF in both healthy and unhealthy children and adolescents, and the intervention effect on healthy children and adolescents was better.

Conclusions Cognitively engaging physical activity has a greater positive impact on children and adolescents' executive function than physical activity with low cognitive needs. The cognitive need implied in the process of cognitive participation physical activity has an additional gain on children and adolescents' executive function. The moderate-to-vigorous intensity cognitively engaging physical activity intervention with a duration of 30 min to 45 min, three times a week or less, for a total of more than 8 weeks is more likely to achieve the maximum executive function benefits.

.Keywords: cognitively engaging physical activity, children, adolescents, executive function, Meta-analysis

不同程度认知参与的身体活动对学龄儿童抑制控制干预效果的元分析

张晨[1]　郑玮琦[1]（通讯作者）

1 北京体育大学心理学院，北京，100084，通讯作者 weiqi71@126.com

摘 要　对于青少年儿童，抑制控制作为过滤无关信息、抑制自身习惯性反应的能力，在学业表现等方面具有重要意义。而小学阶段是身体、认知和运动发育快速发展的关键时期，身体活动因其对认知参与、运动技能学习和复杂动作协调中固有认知的需要，有利于儿童认知功能的发展。以往使用了不同运动方式的研究初步表明身体活动对抑制控制具有促进作用，但不同认知参与程度的运动干预效果差异尚不明确，超重儿童身体活动干预的量效关系也还有待进一步检验。因此，本项元分析研究从认知参与程度的不同这一角度系统评价身体活动对学龄儿童抑制控制的干预效果，对中国知网、万方数据、PubMed、Web of Science、ScienceDirect 等数据库中的相关文献进行检索，检索期限为 2013 年至今，纳入标准为针对学龄儿童高认知参与或低认知参与身体活动的随机对照干预试验相关文献。共纳入 10 篇文献，包含 2635 名参与者，17 个效应量，涉及 1 个结局指标。分别采用 Rev Man 5.4 和 CMA V3 软件进行文献质量评价和元分析，并进行亚组分析进一步探究认知参与程度和体重指数对抑制控制的影响。结果显示，身体活动对学龄儿童的抑制控制具有显著促进作用(SMD = -0.74, 95%CI [-1.17, -0.30])。认知参与程度存在调节作用，高认知参与身体活动对学龄儿童抑制控制存在显著改善和提高 (SMD = -1.04, 95% CI [-1.78, -0.30])，而低认知参与身体活动对抑制控制作用不显著(SMD = -0.42, 95% CI [-0.85, 0.02]), 体重和年龄对于身体活动对抑制控制的回归系数不显著(b = 0.11, 95% CI [-0.04, 0.27], p = 0.16；b = 0.45，95%CI [-0.29，1.18]，p = 0.23)。经偏倚性分析，存在发表偏倚的可能性较小。本研究首次使用元分析的方法，比较了不同程度认知参与的身体活动在改善学龄儿童抑制控制上的效应，并进一步得出该效应在正常体重和超重肥胖儿童之间一致，且在不同年龄之间一致，启示学校体育教学及相关工作者可以在体育课中设计如定向运动、篮球等高认知参与程度的身体活动。未来研究应探讨不同认知参与程度身体活动干预对抑制控制的更长期影响，找出最有效的身体活动处方，从而提高学龄儿童的抑制控制能力。

关键词　认知参与身体活动，学龄儿童，抑制控制，干预，元分析

Effects of different cognitive engaging physical activities on inhibitory control of school-age children: A Meta-analysis

Zhang Chen[1]　Zheng Weiqi[1]

1 School of Psychology, Beijing Sport University, Beijing100084, China

***Abstract*：** For adolescents and children, inhibitory control, as the ability to filter irrelevant information and inhibit their habitual reactions, is of great importance in academic performance. Primary school is a critical period for the rapid development of physical, cognitive and motor skills. Physical activity is conducive to the development of children's cognitive functions because of its inherent cognitive needs in cognitive engagement, motor skill learning and complex motor coordination. Previous studies using different exercise modes have preliminarily shown that physical activity can promote inhibitory control, but the difference in the effect of exercise intervention with different levels of cognitive engagement is not clear, and the dose-effect relationship of

physical activity intervention for overweight children needs to be further tested. Therefore, this meta-analysis systematically evaluated the intervention effect of physical activity on inhibitory control of school-age children from the perspective of different levels of cognitive engagement and searched relevant literature in CNKI, Wanfang Data, PubMed, Web of Science, ScienceDirect and other databases. The search period was from 2013 to the present, and the inclusion criteria were randomized controlled intervention trials with high cognitive engagement or low cognitive engagement in physical activity for school-age children. A total of 10 articles were included, including 2635 participants, 17 effect sizes, and 1 outcome measure. The Rev Man 5.4 and CMA V3 were used for literature quality evaluation and meta-analysis, and subgroup analysis was conducted to further explore the effects of cognitive engagement and body mass index on inhibitory control. The results showed that physical activity significantly promoted inhibitory control in school-age children (SMD = -0.74, 95%CI [-1.17, -0.30]). Cognitive engagement has a moderating effect and high cognitive engagement in physical activity significantly improves inhibitory control in school-age children (SMD = -1.04, 95% CI [-1.78, -0.30]). However, low cognitive engagement in physical activity had no significant effect on inhibitory control (SMD = -0.42, 95%CI [-0.85, 0.02]), and weight and age had no significant regression coefficients for physical activity on inhibitory control (b = 0.11, 95%CI [-0.04, 0.27]. p = 0.16; b = 0.45, 95%CI [-0.29, 1.18], p = 0.23). According to the bias analysis, the possibility of publication bias is small. This study is the first to use a meta-analysis to compare the effects of different levels of cognitive engagement in physical activity on improving inhibitory control in school-age children, and further show that the effect is consistent between normal weight and overweight and obese children, and across ages. It is suggested that physical education teachers and related workers in schools can design physical activities with high cognitive engagement such as orienteering and basketball in physical education. Future studies should explore the longer-term effects of physical activity interventions at different levels of cognitive engagement on inhibitory control and identify the most effective physical activity prescriptions to improve inhibitory control in school-age children.

Keywords：cognitively engaging physical activity, children, inhibitory control, intervention, Meta-analysis

急性应激损害乒乓球运动员主动性控制：来自 ERP 的证据

徐琳[1]　邵永聪[1]（通讯作者）

1 北京体育大学心理学院，北京，100084，budeshao@bsu.edu.cn

摘 要　在乒乓球运动中，由于隔网对抗、技术打法多变等运动特点，要求运动员必须在有限时间内根据不同的线索信息对来球的动作、方向、旋转、落点等信息进行快速准确的观察和预判，这都依赖于良好的认知控制能力。而对运动员来说，赛前的巨大压力等情况都会引发比赛过程中不同程度的应激，对运动员的认知控制和运动表现产生不良影响。本研究以双重认知控制理论为依据，探讨了急性应激对乒乓球运动员主动性控制和反应性控制的影响，以期帮助运动员更好地认识急性应激对认知控制的影响。研究使用马斯特里赫特急性应激任务诱发乒乓球运动员急性应激，以 AX-CPT 范式为测验任务，共有 25 名男性乒乓球运动员(年龄：20.240±1.943 岁)参加实验。实验为二因素被试内设计，自变量为心理状态(控制/急性应激)和刺激类型(AX/AY/BX/BY)；因变量为完成 AX-CPT 任务的反应时、正确率，以及脑电 ERP 成分波幅，选取 P3b 和 CNV 成分为主动性控制指标，N2 和 P3a 成分为反应性控制指标。研究结果发现，乒乓球运动员在急性应激状态下和控制条件下的反应速度相似，但在急性应激状态下 AY 试次的正确率显著高于控制条件；急性应激状态下比控制条件诱发出了更小的 CNV 波幅和更大的 N2 波幅，但 P3b 和 P3a 成分在两个条件间没有发现显著差异。研究结果表明，急性应激对乒乓球运动员认知控制的两种方式产生了不同影响，急性应激状态下乒乓球运动员更倾向于采用反应性控制而非主动性控制。急性应激对主动性控制的削弱更

多地表现在对反应准备的影响而非前期对刺激的注意和加工，对反应性控制的增强则更多地体现在对冲突信息的检测与监控。

关键词　乒乓球运动员，急性应激，主动性控制，反应性控制，事件相关电位

Acute stress impairs proactive control in table tennis athletes: Evidence from ERPs

Lin Xu[1]　Yongcong Shao[1]

1 School of Psychology, Beijing Sport University, Beijing 100048, China

***Abstract*:** In table tennis, due to the versatility of technical play, athletes are required to make quick and accurate observations and prejudgments of the incoming ball's movement, direction, rotation, and landing point based on different cue information within a limited time, which relies on excellent cognitive control. As for athletes, situations such as intense pre-competition stress can trigger varying degrees of stress during competition, adversely affecting cognitive control and athletic performance. Based on the Dual Cognitive Control Theory, this study investigated the effects of acute stress on proactive and reactive control in table tennis athletes, with the aim of helping athletes better recognize the influence of acute stress on cognitive control. The study used Maastricht Acute Stress Test to induce acute stress in table tennis athletes, with the AX-CPT paradigm as a cognitive testing task, and a total of 25 male table tennis players (age: 20.240 ± 1.943 years) participated in the experiment. The study design was a two-factor within-subjects design, with the independent variables being mental state (control/acute stress) and stimulus type (AX/AY/BX/BY); the dependent variables being reaction time and accuracy in completing the AX-CPT task, and the amplitude of the four ERP components P3b, CNV, N2, and P3a. The behavioral results showed that table tennis players had similar response times in the acute stress condition and the control condition, but the accuracy of AY trials was significantly higher in the acute stress condition than in the control condition. The ERP results showed that the CNV component of the proactive control indicator induced smaller CNV amplitudes in the acute stress condition and the N2 component of the reactive control indicator induced larger N2 amplitudes in the acute stress condition than in the control condition in table tennis players. In contrast, no significant differences were detected between the P3b and P3a components under acute stress and control conditions. The results of the study show that acute stress had different effects on the two modes of cognitive control in table tennis athletes, with table tennis players preferring reactive control to proactive control under acute stress conditions. The weakening of proactive control by acute stress was more evident in the effect on response preparation rather than attentiveness and processing of stimuli, and the enhancement of reactive control was more evident in the detection and monitoring of conflict information.

***Keywords*:** Table tennis athletes, acute stress, proactive control, reactive control, ERP

体感游戏对健康儿童青少年执行功能的影响：一项三水平元分析

张美玥[1]　郭璐[2]（通讯作者）

1 北京体育大学心理学院，北京，100084

2 北京体育大学心理学院，北京，100084，guol@bsu.edu.cn

摘 要　目的：体感游戏是一种将身体活动和视频游戏结合起来的运动形式。与常规身体活动相比，体感游戏结合了更多来自环境的认知刺激。执行功能是一种高级认知过程，包含抑制控制，工作记忆和认知灵

活性三种核心成分。近年来，体感游戏对执行功能的影响受到越来越多研究者的关注。本研究旨在采用元分析技术考察体感游戏对健康儿童青少年执行功能的影响以及潜在的调节变量。方法：在 Web of Science, PubMed, EBSCO 和中国知网四个数据库中检索于 2008 年 1 月至 2023 年 6 月发表的文献。由于多数研究中包含多个效应量，为了处理来自同一研究的效应量之间的依赖性问题，最大化保留信息的完整性，本研究采用三水平元分析的方法检验主效应和调节效应。结果：通过系统检索和筛选文献，共纳入 9 篇研究，被试量为 537 人，包含 52 个效应量。主效应检验的结果表明，与对照组相比，体感游戏显著提高了健康儿童青少年的执行功能，具有小效应量(Hedge's g = 0.454, 95%CI = [0.204, 0.703])。亚组分析结果表明，(1) 体感游戏的认知需求程度有显著的调节作用(F(1, 50) = 15.526, p < .001)，认知需求高的体感游戏对健康儿童青少年执行功能有显著影响且达到中等效应量(Hedge's g = 0.548, 95%CI = [0.282, 0.815])，认知需求低的体感游戏对健康儿童青少年执行功能的影响不显著；(2) 对照组的类型有显著的调节作用(F(3, 48) = 3.908, p = .014)，体感游戏对健康儿童青少年执行功能的影响显著好于常规身体活动(小效应量：Hedge's g = 0.380, 95%CI = [0.109, 0.652])和日常活动(中等效应量：Hedge's g = 0.714, 95%CI = [0.395, 1.032])，但与认知训练和静坐相比未见显著差异；(3) 执行功能子成分、年龄阶段、体感游戏干预时间(一次性 vs 长期)、一次性体感游戏时长、长期体感游戏干预的频率、干预时长、持续时间的调节作用均不显著。结论：体感游戏能够有效改善健康儿童青少年的执行功能，未来研究要进一步检验体感游戏改善执行功能的机制以及其他变量的调节作用。

关键词　执行功能，体感游戏，儿童，青少年，三水平元分析

Effects of Exergame on Executive Function in Healthy Children and Adolescents: A Three-Level Meta-Analysis

Zhang Meiyue, Guo Lu
School of Psychology, Beijing Sport University, Beijing, 100084

Abstract: Objectives: Exergame is one type of physical activity which combines physical activity with video games. Compared with traditional physical activity, people receive more cognitive stimuli from environments while experiencing exergame. Executive function is a high-level cognitive process, which is composed of inhibitory control, working memory and cognitive flexibility as three core components. In recent years, the effects of exergame on executive function are attracting more and more attention. This study aims to examine the effects of exergame on executive function in healthy children and adolescents and some potential moderators with meta-analysis. Methods: Literature published between January 2008 and June 2023 was searched in Web of Science, PubMed, EBSCO and CNKI. Since most studies contain several effect sizes, in order to deal with the dependency among effect sizes from the same study and to maximize the integrity of information, a three-level meta-analysis was used in this study to examine the main effect and the moderating effect. Results: After systematically searching and screening, 9 studies and 537 participants were included, containing 52 effect sizes. The results of main effect showed that compared with control groups, exergame significantly improved executive function in healthy children and adolescents with a small effect size (Hedge's g = 0.454, 95%CI = [0.204, 0.703]). Subgroup analysis showed that (1) the moderating effect of the cognitive demand of exergame was significant (F(1, 50) = 15.526, p < .001), exergame with high cognitive demand had significant effect on executive function in healthy children and adolescents with a medium effect size (Hedge's g = 0.548, 95%CI = [0.282, 0.815]), while exergame with low cognitive demand did not show significant effect; (2) the moderating effect of the type of control group was significant (F(3, 48) = 3.908, p = .014), the effect of exergame was significantly better than that of physical activity with a small effect size (Hedge's g = 0.380, 95%CI = [0.109, 0.652]) and regular activity with

a medium effect size (Hedge's g = 0.714, 95%CI = [0.395, 1.032]), but no significant difference was found when comparing exergame with cognitive training or sitting. (3) core components of executive function, stage of age, type of exergame (acute vs chronic), time of acute exergame as well as frequency, time per session and duration of chronic exergame intervention did not show significant moderating effect. Conclusions: Exergame can effectively improve executive function in healthy children and adolescents. Future studies are supposed to further investigate the mechanisms by which exergame improves executive function and examine more moderators.
Keywords：executive function, exergame, children, adolescents, three-level meta-analysis

轴向旋转经验影响运动员空间能力的脑认知特征——来自行为和fNIRS的证据

冯甜[1]（通讯作者）刘锦钊[2]　张富春[2]　梁曼琪[2]　刘李艳[2]
1 郑州大学体育学院，郑州，450044，maefeng@vip.126.com
2 郑州大学体育学院（校本部），郑州，450001

摘 要　空间能力是指生成、保留、提取和转换视觉图像的能力。心理旋转作为空间能力的重要组成部分，对运动员专项水平提升具有不可忽视的作用。经研究发现轴向旋转经验影响运动员的心理旋转能力，根据前人研究证据，对于不同轴向的练习量的差异或能引起运动员专家优势特征的轴向特征。研究目的：用空间能力测试和 fNIRS 技术对不同轴向旋转经验运动员的进行测试，并分析其行为数据和 fNIRS 数据以期解释不同轴向旋转经验运动员空间能力的认知机制。方法：本研究选择 15 名冰雪运动员年龄为（年龄：14.60±1.02，训练时间：2.13±0.34 年）、15 名径赛运动员（年龄：14.60±1.78 岁，训练时间：1.27±0.44 年）以及 16 名球类运动员（年龄：13.31±0.79 年，训练时间：2.23±1.43 年）进行心理旋转测试，采用 3(运动类型：封闭多轴、封闭单轴、开放单轴)×2(旋转角度：45°、90°)×3（旋转轴向：横轴、竖轴、纵轴）的三因素混合实验设计。对其行为数据和 fNIRS 数据进行重复测量方差分析。行为数据结果发现冰雪运动员心理旋转能力在横轴大角度和竖轴大角度的任务中的反应时和横轴大角度的准确率优于径赛运动员。在 fNIRS 结果中发现冰雪运动员相对于径赛运动员在左侧背外侧额上回、两侧中央前回、两侧中央后回、两侧顶上回、左侧角回、左侧楔前叶和两侧枕上回产生较高脑区激活。结论：通过对不同项目类型、不同旋转角度和不同旋转轴向的青少年运动员进行研究，来对青少年运动员的认知特征进行探索，以期加大对各个运动的了解，从而使运动员的成绩有所提高。研究结果为我们在探究身体旋转经验影响运动者空间认知的脑机制研究提供了实证支撑，有利于今后对不同运动项目的进一步研究。
关键词　心理旋转，轴向经验，fNIRS，额顶区，顶枕区。

Axial rotation experience influences brain cognitive characteristics of spatial ability in athletes - evidence from behavioural and fNIRS

Tian Feng[1]　Jinzhao Liu[2]　Fuchun Zhang[2]　Manqi Liang[2]　Liyan Liu[2]
1.Physical Education College of Zhengzhou University, Zhengzhou, China, 450044
2.School of Physical Education, Zhengzhou University, Zhengzhou, China, 450001

Abstract：Spatial ability refers to the ability to generate, retain, extract and transform visual images. Mental rotation, as an important component of spatial ability, has a significant role to play in improving athletes' specialist

performance. It has been found that axial rotation experience affects athletes' mental rotation ability, and based on evidence from previous studies, differences in the amount of practice for different axes may elicit axial characteristics of athletes' expert dominance traits. Aims: To test the spatial ability of athletes with different axial spin experience using the spatial ability test and fNIRS technique, and to analyse their behavioural data and fNIRS data in order to explain the cognitive mechanisms of spatial ability in athletes with different axial spin experience. METHODS: In this study, 15 ice athletes aged (age: 14.60 ± 1.02, training years: 2.13 ± 0.34), 15 track athletes (age: 14.60 ± 1.78 , training years: 1.27 ± 0.44) and 16 ball athletes (age: 13.31 ± 0.79 , training years: 2.23 ± 1.43) underwent a mental rotation test using a three-factor mixed experimental design of 3 (type of movement: closed multi-axis, closed single-axial, open single-axial) × 2 (rotation angle: 45°, 90°) × 3 (rotation axis direction: horizontal, vertical, longitudinal). Repeated measures ANOVAs were conducted on their behavioural data and fNIRS data. The behavioural data results found that the ice athletes' mental rotation ability was better than that of the track athletes in terms of reaction time and accuracy in the task with large angles on the horizontal axis and large angles on the vertical axis. In the fNIRS results it was found that snow and ice athletes produced higher brain area activation in the left dorsolateral superior frontal gyrus, both precentral gyri, both postcentral gyri, both superior parietal gyri, left angular gyrus, left precuneus and both superior occipital gyri relative to track athletes. CONCLUSION: The study of young athletes with different sport types, different rotation angles and different rotation axes was conducted to explore the cognitive characteristics of young athletes with the aim of increasing the understanding of each sport and thus the performance of the athletes. The findings provide empirical support for our research in exploring the brain mechanisms by which body rotation experience affects spatial cognition in athletes, and facilitate further research in different sports in the future.

Keywords：Mental rotation, axial experience, fNIRS, frontoparietal area, parieto-occipital area

高强度间歇运动对大学生负性情绪信息有意遗忘的影响：来自 fNIRS 的证据

孙潇　金雨薇 刘荣 宋耀武（通讯作者）

河北大学教育学院，保定，071002，hbusyw@163.com

摘 要　有意遗忘是指由主试的“忘记”指令引起被试记忆内容受损的现象。负性情绪信息的有意遗忘有助于个体减少负性情绪，保持心理健康。来自 fNIRS 研究表明，高强度间歇运动通过调节前额叶皮层氧合血红蛋白浓度（HbO）对抑制控制和积极情绪调节有促进作用。为了解高强度间歇运动对负性情绪信息有意遗忘的影响及其脑机制，本研究招募 52 名大学本科生被试，随机分为运动组和无运动组。运动组在进行有意遗忘学习任务前进行 10 分钟高强度间歇跑步机运动，并通过心率监测和速度控制运动的强度（高强度达到 80-90%最大心率值，速度 9km/h），无运动组则静坐观看中性视频。记忆材料选自汉语情感词系统（CAWS）,包括负性和中性词。有意遗忘范式的学习阶段采用组块设计，以七个同类别词为一组，共 16 组，每组词呈现后进行“记忆”或“忘记”的指令。结果比较不同组别被试自由回忆的正确回忆数量及指令呈现后前额叶皮层 HbO 的变化。结果显示：（1）在正确回忆数量上，指令的主效应显著 $F(1, 50)=43.56$, $p=.000$, $\eta^2=.47$，记忆指令下的正确回忆数量显著高于忘记指令（$p=.000$）；情绪和组别的交互作用显著 $F(1, 50)=4.15$, $p=.047$, $\eta^2=.08$，简单效应分析发现，运动组负性词的正确回忆数量显著低于中性词（$p=.01$），而无运动组对于负性词和中性词的正确回忆数量则没有差异（$p=.85$）。（2）近红外数据以指令呈现前 5s 的 HbO 平均值为基线，比较指令呈现后 5-20s 的 HbO 平均值的变化。采用重复测量方差分析发现，运动组比无运动组在眶额叶皮层有更高水平的激活，忘记指令比记忆指令在左侧腹外侧前额叶、左侧背外侧前额叶和额极区有更强的负激活，负性词比中性词有在右侧腹外侧前额叶有更强的负激活。结果表明，高强度间歇运动通

过激活眶额叶皮层，减少了个体对负性信息的记忆加工；有意遗忘加工过程中的抑制主要来源于左侧腹外侧前额叶、左侧背外侧前额叶和额极区的负激活；情绪词的编码加工主要与右侧腹外侧前额叶有关。综上，高强度间歇运动可在一定程度上减少个体对负性信息的编码加工，但并没有对有意遗忘中的抑制控制产生影响。
关键词　高强度间歇运动，负性情绪，有意遗忘，fNIRS

Effect of high-intensity interval exercise on the directed forgetting of negative emotional information among college students: A fNIRS study

Xiao Sun, Yuwei Jin, Rong Liu, Yaowu Song
School of Education, Hebei University, Baoding, 071002

Abstract: Directed forgetting refers to the phenomenon that the subject's memory content is damaged caused by the "forgetting" instruction. The directed forgetting of negative emotional information helps individuals to reduce negative emotions and maintain mental health. Studies from the fNIRS showed that high-intensity intermittent exercise promotes inhibitory control and positive emotion regulation by regulating the oxyhemoglobin (HbO) concentration in the prefrontal cortex. To explore the effects of high-intensity interval exercise on the intentional forgetting of negative emotional information and its brain mechanisms, 52 college undergraduate students were randomly assigned to exercise or no-exercise groups. The exercise group performed 10 minutes of high-intensity intermittent treadmill exercise before the learning task of directed forgetting , and the intensity of the exercise was controlled by heart rate monitoring and speed, while the no-exercise group sat quietly and watched the neutral video. The memory material includes negative and neutral words, selected from the Chinese affective word system (CAWS). The directed forgetting paradigm adopts blocks design, with seven words of the same category, and each block of words is followed by "remember" or "forget" instructions. Results compare the number of correct recall and the change in HbO in the prefrontal cortex after the instruction was rendered (5-20s) in different groups. The results are as follows. (1) In the number of correct recall, the main effect of the instruction is significant, $F(1,50) =43.56$, $p=.000$, $\eta 2=.47$, and the number of correct recall under the memory instruction was significantly higher than the forgetting instruction ($p=.000$).The interaction of emotion and group was significant $F(1,50) =4.15$, $p=.047$, $\eta 2=.08$, and the simple effect analysis found that the number of correct recall of negative words in the exersice group was significantly lower than that of neutral words ($p=.01$), and there was no difference in no-exersice group ($p=.85$). (2) Data of fNIRS mainly observed the changes of the prefrontal cortex HbO. The results found that exercise group has a higher level of activation in the orbitofrontal cortex than no-exercise group. Forget instruction have stronger negative activation in the left ventrolateral prefrontal lobe, left dorsolateral frontal and frontal polar region than memory instruction. Negative words have stronger negative activation in the right ventral lateral prefrontal lobe than neutral words. The results show that high-intensity intermittent exersice reduces the processing of negative information by activating the orofrontal cortex, inhibition during directed forgetting processing is mainly derived from negative activation in the left ventrolateral prefrontal lobe, left dorsolateral prefrontal lobe and frontal polar region, and the processing of emotional words is mainly related to the right ventrolateral prefrontal lobe. In conclusion, high-intensity intermittent exercise can reduce the encoding processing of negative information to some extent, but it has no impact on the inhibitory control in directed forgetting.
Keywords：high-intensity interval exercise, negative emotion, directed forgetting, fNIRS

乒乓球运动员的知觉信息加工：基于自上而下的层级预测编码

彭子伊[1]　邵永聪[1]（通讯作者）
1 北京体育大学心理学院，北京，100084，budeshao@bsu.edu.cn

摘 要　经过过度学习以后的知觉加工更偏向于自上而下的加工，感知过程更像一个预测-匹配的过程。只有当向下的预测与向上传入的感觉信号相匹配时，感知才会在多个处理层次上形成。乒乓球运动要求运动员在短暂的时间内对复杂信息进行认知加工，长期训练诱发了运动员视觉认知加工皮层的神经可塑性，乒乓球运动员在进行运动项目相关的认知加工时以一种资源节约化的方式进行。但目前对于乒乓球运动员的空间加工优势究竟是体现在认知加工的早期的感觉输入、信息整合阶段还是晚期的注意部署、认知控制阶段，还需要进一步讨论。本研究主要通过事件相关电位技术，探讨乒乓球运动员在非运动领域的知觉信息加工特点，厘清乒乓球运动员认知加工的神经特点，为全面理解高水平运动员加工专项相关信息过程中的脑机制提供依据。研究共有 48 名被试（普通大学生 28 人，二级乒乓球运动员 20 人）参与实验，所有受试者均需完成结合乒乓球专项特色的空间认知任务，同时记录事件相关电位。结果显示：乒乓球组的任务表现优于普通组，反应时更短，正确率更高；乒乓球组 N1 成分的波幅显著低于普通组；乒乓球组 P2、P3 波幅大于普通组，P3 潜伏期短于普通组。研究结果表明与普通大学生相比，乒乓球运动员对专项相关信息的具有加工优势，表现为更好的注意资源部署和认知控制能力。乒乓球运动员进行空间知觉信息加工时更多地以自上而下的方式进行，大脑利用已经储存的运动经验，以一种层级的更精细的方式预测当前感官刺激所引发的多层神经元反应模式，以层级预测编码的方式进行加工。
关键词　乒乓球运动员，空间认知，事件相关电位，层级预测编码

Perceptual information processing in table tennis players: based on top-down hierarchical predictive coding

Peng Ziyi Shao Yongcong
School of Psychology, Beijing Sport University, Beijing, China

Abstract **：** Perceptual processing after overlearning is more biased toward top-down processing, and the perceptual process is more like a prediction-matching process. Percepts here take shape only when downward predictions match the incoming sensory signal, at multiple levels of processing. Table tennis requires athletes to cognitively process complex information in a short period of time, and long-term training induces neural plasticity in the visual cognitive processing cortex of athletes, who perform sport-related cognitive processing in a resource-conserving manner. However, further discussion is needed as to whether the spatial processing advantage of table tennis players is manifested in the early stage of sensory input, or in the late stage of attention deployment and cognitive control. In the present study, we utilized event-related potentials (ERPs) to investigate the perceptual information processing characteristics of table tennis players in non-motor domains, to elucidate the neural characteristics of cognitive processing in table tennis players, to provide evidence for a comprehensive understanding of the brain mechanisms during the processing of specialization-related information in high-level athletes. A total of 48 participants (28 college students and 20 second-level table tennis players) participated in the experiment, all subjects were required to complete spatial cognitive tasks combined with table tennis-specific features. Electroencephalography (EEG) data were recorded during the task. The results showed that: the table

tennis group performed better on the task than the normal group, with shorter response times and higher correct rates; the amplitude of the N1 components of the table tennis group was significantly lower than those of the normal group; the amplitudes of the P2 and P3 in the table tennis group were greater than that of the normal group, and the P3 latency was shorter than that of the normal group. The results of the study suggest that table tennis players have a processing advantage over general college students for specialized relevant information, as evidenced by better deployment of attentional resources and cognitive control. Table tennis players process spatial perceptual information in a more top-down manner. The brain uses stored motor experience to predict, in a progressively more refined manner, the patterns of multilayer neuronal response elicited by the current sensory stimulation, processing in a hierarchical predictive coding manner.

Keywords：Table tennis player, Spatial Cognition, Event-related Potentials, hierarchy predictive coding

睡眠剥夺对乒乓球运动员和非运动员海马功能连接影响的差异

代慈敏[1]　邵永聪[1]（通讯作者）

1 北京体育大学心理学院，北京，100084

通讯作者 E-mail: budeshao@aliyun.com

摘 要　目的：海马既是认知地图的核心脑区，又是记忆的重要脑区。因此海马在涉及运动经验和空间位置信息的乒乓球落点预判任务中可能具有重要作用。睡眠是一种重要的恢复手段，睡眠不足会导致运动认知损伤，这种损伤可能与海马有关。本研究旨在通过静息态 fMRI，探讨睡眠剥夺对运动预判的影响，及其与海马功能连接的关系。

方法：本研究纳入 28 名非运动员（男，年龄：22.71 ± 2.21）和 20 名二级乒乓球运动员被试（男，年龄：20.55 ± 1.36）。被试在基线和 36 小时睡眠剥夺后各进行一次静息态 fMRI 扫描和乒乓球预判任务。以海马为兴趣区，计算海马和全脑体素的功能连接。采用重复测量方差分析对海马功能连接、预判任务的正确率和反应时进行分析，并计算行为和海马功能连接之间的皮尔逊相关。

结果：（1）乒乓球运动员的预判正确率比非运动员高 (F (1, 43) = 6.62, p < 0.05,)，基线预判正确率比睡眠剥夺后高 (F (1, 43) = 10.35, p < 0.01), 且基线反应时比睡眠剥夺后的反应时更短 (F (1, 43) = 4.17, p < 0.05)。

（2）睡眠剥夺对两组被试双侧海马功能连接的影响存在差异 ($p_{\text{uncorrected}}$ < 0.001, cluster size > 30)。在乒乓球运动员中，右侧海马与双侧壳核、右侧丘脑的功能连接以及左侧海马与右侧苍白球的功能连接在睡眠剥夺后增强，右侧海马与右侧颞中回、右侧枕外侧皮层、右侧角回和左侧颞上回的功能连接在睡眠剥夺后减弱。在非运动员中，睡眠剥夺后双侧海马的功能连接变化与乒乓球运动员相反。

（3）在皮尔逊相关分析中发现乒乓球运动员睡眠剥夺后正确率的变化与海马和右侧丘脑功能连接的增加正相关 (r = 0.49, p < 0.05)，非运动员睡眠剥夺后反应时的变化与右侧海马和右侧颞中回功能连接的增加正相关（r = 0.57, p < 0.01）、左侧海马和右侧苍白球功能连接的下降负相关 (r= -0.46, p < 0.05)。

结论：（1）乒乓球运动员睡眠剥夺后海马与苍白球、壳核等躯体运动有关的脑区的功能连接增强，而非运动员减弱。

（2）睡眠剥夺会损伤运动预判任务表现，且这种影响可能与海马的功能连接有关。

关键词　运动预判，乒乓球，静息态 fMRI，功能连接，海马

Differences in the effects of sleep deprivation on the functional connectivity of hippocampus between table tennis players and non-athletes

Dai Cimin[1], Shao Yongcong[1]
School of Psychology, Beijing Sport University, 100084

***Abstract*:** Objectives: The hippocampus is not only the core region of cognitive map, but also an important brain area of memory. Therefore, the hippocampus may play an important role in predicting the landing point of table tennis involving exercise experience and spatial information. Sleep is an important means of recovery, and insufficient sleep can lead to motor cognitive impairment, which may be related to the hippocampus. The purpose of this study was to explore the effect of sleep deprivation (SD) on sport-related anticipation and its relationship with functional connectivity (FC) of hippocampus through resting-state fMRI.

Methods: twenty-eight non-athletes (male, age: 22.71 ± 2.21) and twenty National Level II table tennis players (male, age: 20.55 ± 1.36) were included in this study. Participants were given a resting state fMRI scan and a table tennis anticipation task at baseline and after 36 hours of SD, respectively. FC between the hippocampus and the whole brain was calculated. Repeated measures analysis of variance was used to analyze FC of hippocampus and the accuracy and reaction time of anticipation task. And Pearson correlation between behavior and FC of hippocampus was made.

Results: (1) Table tennis players had a higher accuracy than non-athletes (F (1, 43) = 6.62, p < 0.05). Accuracy at baseline was higher than that after SD (F (1, 43) = 10.35, p < 0.01). And reaction time at baseline was shorter than that after SD (F (1, 43) = 4.17, p < 0.05).

(2) There were differences in the effect of SD on bilateral FC of hippocampus between the two groups of participants ($p_{\text{uncorrected}}$ < 0.001, cluster size > 30). In table tennis players, the FC $_{\text{the right hippocampus - the right putamen}}$, FC $_{\text{the right hippocampus - the left putamen}}$, FC $_{\text{the right hippocampus - the right thalamus}}$, and FC $_{\text{the left hippocampus - the right pallidum}}$ increased after SD, while the FC $_{\text{the right hippocampus - the right middle temporal gyrus}}$, FC $_{\text{the right hippocampus - the right lateral occipital cortex}}$, FC $_{\text{the right hippocampus - the right angular gyrus}}$, and FC $_{\text{the right hippocampus - the left superior temporal gyrus}}$ decreased after SD. In non-athletes, the FC changes in the bilateral hippocampus after SD were opposite to those in table tennis players.

(3) Pearson correlation analysis found that the change of accuracy of table tennis players after SD was positively correlated with the increasement of FC $_{\text{the right hippocampus - the right thalamus}}$ (r = 0.49, p < 0.05), while the change of reaction time of non-athletes after SD was positively correlated with the increasement of FC $_{\text{the right hippocampus - the right middle temporal gyrus}}$ (r = 0.57, p < 0.01), and negatively correlated with the decline of FC $_{\text{the left hippocampus - the right pallidum}}$ (r = -0.46, p < 0.05).

Conclusion: (1) After SD, the FC between the hippocampus and pallidum, putamen increased in table tennis players, rather than in non-athletes. The pallidum and putamen are brain regions related to physical movement.

(2) SD might impair the performance of sport-related anticipation task, and this impact may be related to FC of the hippocampus.

***Keywords*:** sport-related anticipation, table tennis, resting-state fMRI, functional connectivity, hippocampus

定向运动员心理旋转的空间认知优势及脑加工特征研究

肖涵[1]，刘阳[2]（通讯作者）

1.陕西师范大学体育学院，陕西 西安 710119

2.陕西师范大学运动学习科学实验室，陕西 西安 710119，Liuyang0330@snnu.edu.cn

摘 要：目的：定向运动（orienteering）被称为是一项具有高认知成分的有氧运动项目，是指利用地图和指北针进行导航，按规定完成比赛任务的运动项目。在定向运动比赛过程中，运动员得到的地图往往与实际方向有所差异。因此，面对不断变化的方向，参赛选手需不断调节地图和自身方位，通过心理旋转革新与参照物的位置关系，完成自我定位任务。心理旋转是辅助定向运动员进行空间定位的关键，其能力直接影响定向运动员的成绩。因此，关注定向运动员的心理旋转能力对提升专项竞技能力有着重要意义。方法：采用单因素实验设计，选取 21 名一级及以上高水平定向运动员（平均年龄 20.10±1.41，训练年限 4.048±0.86）作为专家组和 21 名定向运动社团的体教专业大学生，均为定向运动业余爱好者，无运动员等级（平均年龄 20.10±1.26，训练年限 0.76±0.25）作为新手组，比较两组在心理旋转任务中的行为绩效及大脑激活的差异性，并评估脑区间的功能连接。研究结果：（1）在心理旋转任务中，专家组的正确率显著高于新手组，反应时显著短于新手组；（2）专家组的正确率与脑血氧激活呈显著相关，专家组在右侧背外侧前额叶（R-DLPFC）、左侧背外侧前额叶（L-DLPFC）、右侧额极区（R-FOA）、左侧额极区（L-FOA）、右侧腹外侧前额叶（R-VLPFC）、左侧腹外侧前额叶（L-VLPFC）的脑血氧激活显著低于新手组，脑间功能连接协同更强。结论：专家组定向运动员在心理旋转任务中表现出行为绩效和脑活动的双重认知优势，背外侧前额叶、额极区、腹外侧前额叶在心理旋转任务中起到重要作用，这种优势可能是长期定向运动训练改变了练习者的心理旋转认知加工模式，从而促进了相关脑自发神经活动的优化。

关键词 定向运动，心理旋转，近红外脑功能成像(fNIRS)，前额叶皮层

A study of spatial cognitive dominance and brain processing characteristics of mental rotation in orienteering athletes

XIAO Han[1]， LIU Yang[2]

1. College of Physical Education, Shaanxi Normal University, Xi 'an, Shaanxi, China
2. Laboratory of Sports Learning Science, Shaanxi Normal University, Xi 'an, Shaanxi, China

***Abstract*:** Objective: orienteering is known as an aerobic exercise project with high cognitive components, which refers to the use of maps and north pins to navigate and complete the task of the game according to the regulations. In the course of orienteering competition, the map obtained by the athletes is often different from the actual direction. Therefore, in the face of changing directions, contestants need to constantly adjust the map and their own orientation, and complete the self-positioning task by innovating the position relationship between the mental rotation and the reference object. Mental rotation is the key to assist orienteers in spatial positioning, and its ability directly affects the performance of orienteers. Therefore, it is of great significance to pay attention to orienteers' mental rotation ability to improve their special competitive ability. How: A single-factor experimental design was used to select 21 first-class and above high-level orienteers (average age 20.10±1.41, training years 4.048±0.86) as the expert group and 21 college students majoring in sports education of orienteering associations, all of whom were amateurs of orienteering and had no athlete grade (average age 20.10±1.26, training years 4.048±0.86).

Training years 0.76±0.25) As a novice group, the behavioral performance and brain activation of the two groups in the mental rotation task were compared, and the functional connectivity of brain regions was assessed. Results: (1) In the mental rotation task, the expert group's correct rate was significantly higher than that of the novice group, and the reaction time was significantly shorter than that of the novice group; (2) The correct rate of the expert group was significantly correlated with cerebral blood oxygen activation. Cerebral blood oxygen activation in the right dorsolateral prefrontal lobe (R-DLPFC), left dorsolateral prefrontal lobe (L-DLPFC), right frontal polar region (R-FOA), left frontal polar region (L-FOA), right ventrolateral prefrontal lobe (R-VLPFC), and left ventrolateral prefrontal lobe (L-VLPFC) was significantly lower in the expert group than in the beginner group. The functional connections between the brain are more synergistic. Conclusion: In the expert group, orienteering athletes showed dual cognitive advantages of behavioral performance and brain activity in mental rotation tasks, and the dorsolateral prefrontal lobe, the frontal pole area and the ventrolateral prefrontal lobe played an important role in mental rotation tasks. This advantage may be due to the fact that long-term orienteering training changed the participants' mental rotation cognitive processing mode, thus promoting the optimization of related brain spontaneous neural activities.

Keywords: orienting movements; mental rotation; near-infrared functional brain imaging (fNIRS); prefrontal cortex

运动员心理旋转与姿势控制的认知-动作耦合机制

冯甜[1]（通讯作者） 张富春[2] 刘锦钊[2] 梁曼琪[2] 刘李艳[2]

1 郑州大学体育学院（校本部），郑州，450001，maefeng@vip.126.com

2 郑州大学体育学院，郑州，450044

摘 要 姿势控制是保持身体重心在一定支撑面内的活动。姿势控制是神经系统和肌肉协调配合的产物，增加认知任务的难度姿势控制能力将会受到影响。本研究旨在揭示心理旋转任务影响运动员动作控制执行的生物力学及认知神经机制。方法：招募 17 名武术运动员（平均年龄为 21±0.77 岁），训练年限为 6.81±4.49 年；17 名非运动员（平均年龄为 21±1 岁）。采用双任务研究范式测试专家和新手在主体和客体心理旋转任务时动作平衡的变化情况，记录被试在心理旋转任务下的准确率和反应时、身体重心变化（COP）动摇情况（球长度 mm、椭圆面积 mm2、平均 X mm 和平均 Y mm）和氧血红蛋白浓度变化情况。结果：（1）专家组准确率显著高于新手组。（2）在单脚支撑状态，专家组身体重心变化的球长度变化幅度显著低于新手组；专家组身体重心变化的椭圆面积变化幅度显著低于新手组；在单脚支撑状态下，专家组身体重心变化的平均 Y 变化幅度显著低于新手组；在双脚支撑状态下，专家组身体重心变化的平均 Y 变化幅度显著低于新手组。（3）在单脚和双脚支撑状态下，专家组在左侧前额叶的脑区激活程度显著高于新手组；专家组在左运动区的脑区激活显著高于新手组；在单脚和双脚支撑状态下，专家组在右运动区的脑区激活程度显著高于新手组。结论：（1）在心理旋转任务当中专家组更具优势。（2）在心理旋转任务的刺激下，专家组在单脚和双脚支撑状态下比新手组展现出更好的动作控制能力。（3）在左侧前额叶和左、右运动区专家组大脑的激活程度高于显著新手组，专家组展现出认知-动作耦合机制。

关键词 心理旋转，运动员，姿势控制，fNIRS

Cognitive-motor coupling mechanisms of mental rotation and postural control in athletes

Tian Feng[1] Fuchun Zhang[2] Jinzhao Liu[2] Manqi Liang[2] Liyan Liu[2]

1.School of Physical Education, Zhengzhou University, Zhengzhou, China, 450001
2.Physical Education College of Zhengzhou University, Zhengzhou, China, 450044

***Abstract*:** Postural control is the activity of keeping the center of gravity of the body within a certain support surface. Postural control is a product of coordination between the nervous system and muscles, and increasing the difficulty of cognitive tasks postural control will be affected. The aim of this study was to reveal the biomechanical and cognitive-neurological mechanisms by which a mental rotation task affects the execution of movement control in athletes. METHODS: Seventeen wushu athletes (mean age 21 ± 0.77 years) with 6.81 ± 4.49 years of training and 17 non-athletes (mean age 21 ± 1 years) were recruited. A dual-task research paradigm was used to test the changes in motor balance of experts and novices during a egocentric and object mental rotation task, and to record the subjects' accuracy and reaction time, change in center of gravity (COP) sway (ball length mm, ellipse area mm2, mean X mm, and mean Y mm), and changes in oxyhaemoglobin concentration under the mental rotation task. RESULTS: (1) Expert group accuracy was significantly higher than the novice group. (2) In the single-legged support condition, the magnitude of ball length changes in body center of gravity (COP) of the expert group was significantly lower than that of the novice group; the magnitude of ellipse area changes in body center of gravity (COP) of the expert group was significantly lower than that of the novice group; the magnitude of mean Y changes in body center of gravity (COP) of the expert group was significantly lower than that of the novice group; and the magnitude of mean Y changes in body center of gravity (COP) of the expert group was significantly lower than that of the novice group in the two-legged support condition. (3) In the single- and double-footed support condition, the expert group's brain area activation in the left prefrontal lobe was significantly higher than that of the novice group; the expert group's brain area activation in the left motor area was significantly higher than that of the novice group; and the expert group's brain area activation in the right motor area was significantly higher than that of the novice group in the single- and double-footed support condition. CONCLUSIONS: (1) The expert group was more dominant in the mental rotation task. (2) Under the stimulation of the mental rotation task, the expert group showed better motor control than the novice group in the one-legged and two-legged support condition. (3) The brain activation level of the expert group was higher than that of the novice group in the left prefrontal and left and right motor areas, and the expert group demonstrated cognitive-motor coupling mechanisms.

***Keywords*:** Mental rotation, athletes, postural control, fNIRS

公开标记安慰剂干预对锻炼情感反应的影响

仇悦[1] 毛志雄[1]（通讯作者） 员东婷[2] 刘娇[1]
1 北京体育大学心理学院，北京，100084, E-mail: zhxmao@bsu.edu.cn
2 西南财经大学体育学院，成都，611130

摘 要 **目的**：安慰剂效应指排除锻炼本身带来的情感效益后，由实验者诱发的积极预期而引起的额外的情感效益。现有研究均采用传统安慰剂的研究范式，即个体参与锻炼前，告知其“锻炼十分有效”的安慰剂信息，然而这种设计近乎“完美”的运动方案实则并无确凿和统一的科学证据，虽然锻炼具有身心效益已成为大众共识，但其有效程度确是因人而异。相关研究发现，故意夸大运动的益处，会增加个体的心理抗拒感，带来负面影响。鉴于此，本研究引入公开标记安慰剂干预，将干预信息的重点放在阐述安慰剂效应的科学原理和背后机制上，探讨安慰剂效应是否能在不欺骗的条件下产生，及其中的心理机制和边界条件，采用一项基于 fNIRS 的随机对照实验回答上述科学问题。**方法**：随机选取 89 名大学生，采用 3(安慰剂类型：传统安慰剂 vs. 公开安慰剂 vs.控制组) × 3(测量次序：前测 vs.中测 vs.后测)的混合实验设计，其中安慰剂类

型为组间变量。因变量为运动中和运动后的情感反应，运动后前额叶的静息态功能连接(RSFC)。**结果**：在一次短时 20 分钟中等强度的跑步运动中，传统安慰剂和公开安慰剂干预均能有效改善锻炼中和锻炼后情感反应，公开安慰剂干预的效果量更大；预期是有效的中介变量，即安慰剂干预通过增加正向的预期带来积极的锻炼情感反应；锻炼强度容忍度是有效的调节变量，低锻炼强度容忍度的个体更能从安慰剂效应中获益；fNIRS 结果显示，与控制组相比，传统安慰剂组和公开安慰剂组右侧前额叶局部脑区 RSFC 更低，锻炼后愉悦感更高。**结论**：本研究是结合公开安慰剂干预和近红外技术的首次尝试，研究发现揭示了公开标记的安慰剂干预对锻炼参与者的心理和生理具有正向影响，还为其在锻炼指导中的应用价值提供了证据支持。
关键词　安慰剂效应，公开标记安慰剂效应，预期，锻炼情感反应

Effects of Open-Label Placebo Interventions on Exercise Affective Responses

Yue Qiu[1] Zhi-xiong Mao[1] Dong-ting Yun[2] Jiao Liu[1]
1 Beijing Sport University, China
2 Southwestern University of Finance and Economics, China

Abstract：This current study operationally defined the placebo effect as additional affect benefit caused by the experimenter's induced positive expectations after excluding the affect benefit of exercise itself. Studies of the "placebo effect" have generally focused on experimentally manipulating expectations and adopting a traditional paradigm of verbal instructions to convey a positive message, such as "the exercise you will perform often results in a good affect". However, there is no conclusive scientific evidence for this almost "perfect" exercise program, and although there is a public consensus that exercise has physical and mental benefits, the degree of effectiveness varies from person to person. Related studies have found that intentionally exaggerating the benefits of exercise can increase psychological resistance and have negative consequences. Accordingly, this study introduces an open-label placebo intervention, focuses the intervention message on articulating the scientific rationale and mechanisms, and explores whether the placebo effect can be produced under conditions of non-deception, and the psychological mechanisms and boundary conditions therein. A randomized controlled experiment based on fNIRS was used to answer the above scientific questions. Methods: eighty-nine undergraduates were recruited. This study used a three-factor mixed design 2 (placebo types: low vs. high) × 3 (measurement order: pre vs. during vs. post). Placebo type was the between-group variable. Predictor variables were affective responses during and after exercise, and resting-state functional connectivity (RSFC) in the prefrontal lobe after exercise. Results: Both open-label placebo and traditional placebo significantly improved affective responses during and after exercise, with open-label placebo having a larger effect. Expectancy was a significant mediating variable. In particular, deceptive and non-deceptive placebo interventions led to positive affective responses during exercise by increasing participants' positive expectations. Exercise tolerance was an effective moderating variable. Especially, individuals with low exercise tolerance benefited more from the placebo effect. At the neural level, resting functional connectivity in the right prefrontal region was weaker in the deceptive placebo and non-deceptive placebo groups than in the control group. In addition, resting functional connectivity was associated with pleasure after exercise. Conclusion: The present study combines open-label placebo intervention and near-infrared technology in a first attempt, and the findings reveal that open-label placebo interventions have a positive effect on exercise affect, and also provide evidence to support their application value.

Keywords：placebo effect; open-label effect; expectancy; exercise affective response;

无意识成就目标启动对自我控制的影响

吕承颖[1]　张力为[1]（通讯作者）
1 北京体育大学心理学院，北京，100084，liweizhang@hotmail.com

摘 要　已有研究表明无意识目标对人心理和行为的影响十分广泛，根据其作用原理，有意地施加积极刺激以启动相应目标，就能够在潜移默化中影响人在学习和工作中的表现。在竞技运动领域，运动员在单调重复的训练环境中始终坚持训练需要良好的自我控制，因此如何帮助运动员提高自我控制能力是该领域的核心问题之一。依据心理控制点理论，正确的心理定向原则强调对过程的关注，但在运动情境下个体对结果的关注不可避免，因此本研究拟采用图片材料无意识启动大学生运动员的过程目标与结果目标以探究其对自我控制任务表现的影响。实验采用 3（启动内容：过程目标/结果目标/中性启动）×2（测试次序：前测/后测）两因素混合设计，其中测量次序为组内变量，每组各有 12 名运动等级为国家二级及以上的大学生运动员，自变量的启动通过以不同类型图片为背景的视觉搜索任务实现，不同组完成该任务时的背景图片分别体现过程、结果与中性目标，因变量为状态自我控制量表得分与握力任务坚持时长，实验任务完成后进行操控检查以保证后续纳入分析的被试均为未意识到真正实验目的的个体。重复测量方差分析发现，在状态自我控制量表得分和握力任务坚持时长上，三组在无意识启动前后无显著差异(ps>0.163)。本研究结果提示，未来研究需要选取启动效果更佳的启动任务，并进一步控制实验参与人群特点（如仅为某一专项的运动员），以探究无意识目标启动对自我控制的影响。

关键词　无意识目标启动，运动员，自我控制

The influence of unconscious achievement goal priming on self-control

Chengying Lyu[1], liwei Zhang[1]
1 School of Psychology, Beijing Sport University, Beijing 100084, liweizhang@hotmail.com

***Abstract*：** Previous studies have shown that unconscious goals have a wide range of effects on people's psychology and behavior. According to the principle of its action, intentionally applying positive stimuli to activate corresponding goals can subtly affect people's performance in study and work. In competitive sports, the athletes in the repetitive training environment always adhere to the training and need good self-control, so how to help athletes improve their self-control ability is one of the core problems in this field. According to the locus of control theory, the correct principle of psychological orientation emphasizes the attention to the process, but the individual's attention to the result is inevitable in the sports situation. Therefore, this study intends to use picture materials to unconsciously activate the process goal and outcome goal of college athletes to explore their influence on the performance of self-control tasks. The experiment adopts a 3 (starting content: process goal/result goal/neutral start) ×2 (test order: Pre-test/post-test) two-factor mixed design, in which the measurement order is the intra-group variable, and each group has 12 college athletes with national level 2 and above. Independent variables are activated by visual search tasks with different types of pictures as the background. When completing the task, the background pictures of different groups reflect the process, result, and neutral goal respectively. The dependent variables were the State self-control scale score and the grip task's persistence time. The control check was carried out after the completion of the experimental task to ensure that the subjects included in the subsequent analysis

were individuals who did not realize the real purpose of the experiment. Repeated measures analysis of variance found that there were no significant differences between the three groups in the score of state self-control scale and the duration of grip task persistence before and after unconscious initiation (*p*s>0.163). The results of this study suggest that future studies need to select priming tasks with better effects, and further control the characteristics of the participants in the experiment (such as only athletes of a certain specialty) to explore the influence of unconscious goal priming on self-control.

Keywords：Unconscious goal priming, Athlete, self-control

正念运动对焦虑症状的干预效果——基于随机对照试验的系统综述和元分析

林 萱[1] 郑佳鑫[2] 张 倩[3] 李佑发[1,*]（通讯作者）

1 北京师范大学中国基础教育质量监测协同创新中心，北京，100875

2 中国政法大学社会学院，北京，10088

3 北京体育大学心理学院，北京，100084

* 通讯作者 E-mail：liyoufa@bnu.edu.cn

摘 要 **重要性：**正念运动（Mindfulness-based movement, MBM）能够同时锻炼个体的身体和心理，具有低受伤风险、促进身心合一、对运动环境要求小等诸多优点。越来越多的证据显示，正念运动有潜在的抗焦虑效应。然而，目前仍缺少检验长期正念运动训练对焦虑影响的相关综合量化研究。**目标：**本研究旨在评估正念运动的抗焦虑效果，并试图识别可能因研究区域、实验参与者特征和干预的剂量效应而产生的效应差异。**方法：**本研究基于 PRISMA 指南进行了系统综述和元分析，系统性地搜索和评估了在 2023 年 2 月 30 日之前发布在 Web of Science, PsycINFO, PubMed, 和 Google Scholar 四个网络数据库中的随机对照试验（Randomized controlled trials, RCTs）。利用 CMA 3.0 软件进行了效应量 SMD 的计算和调节因素分析。**结果：**元分析最终纳入 66 项研究，82 项效应。与对照组（n = 3,695）相比，正念运动干预组（n = 3,692）显著减轻了焦虑，有较小的效应量（SMD = 0.440，95% CI：0.345 - 0.535，p < 0.001，I^2 = 72.48%）。正念运动类型，研究区域，参与者的性别，年龄，健康状况，干预的时长，频率和总项目长度等都是影响抗焦虑效果的调节因素。持续时间超过 8 周，每周至少两次，每次超过 60 分钟的干预措施在缓解焦虑症状方面最为有效。研究设计的整体质量（PEDro 分数）也对效应大小产生重要影响。**结论：**正念运动已显示出作为单独或辅助干预手段管理焦虑症状的潜力，其效益在不同参与者特征和研究区域中均有体现。未来的研究需要提高研究方法质量和设计，并比较不同类型正念运动以及正念运动与其他干预方式的抗焦虑效果，进一步探索正念运动干预的剂量-效应关系。

关键词 正念运动，焦虑，元分析，随机对照试验

The Effects of Mindfulness-Based Movement Training on Anxiety: A Meta-Analysis and Moderator Analysis of Randomized Controlled Trials

Xuan Lin[1], Jiaxin Zheng[2], Qian Zhang[3], Youfa Li[1,*]

[1] Collaborative Innovation Center of Assessment for Basic Education Quality, Beijing Normal

University, Beijing 100875, China
[2] Community College, China University of Political Science and Law, Beijing 10088, China
[3] School of Psychology, Beijing Sport University, Beijing 100084, China
[*] Correspondence: liyoufa@bnu.edu.cn (Y.L.)

***Abstract*: Importance:** Mindfulness-based movement (MBM) has emerged as a significant therapeutic approach, amalgamating physical and mental training that carries a low risk of injury, promotes holistic well-being, and necessitates minimal environmental constraints. An increasing body of evidence has highlighted the potential of MBM in exerting anxiolytic effects. However, comprehensive evaluation of the long-term impact of MBM training on anxiety has remained elusive. **Objective:** To assess the anxiolytic effects of MBM, whilst considering potential variation introduced by study area, participant attributes, and intervention factors. **Methods**: This study was designed according to the Systematic Review and Meta-Analysis (PRISMA) guidelines. Randomized controlled trials (RCTs) published from online databases (Web of Science, PsycINFO, PubMed, and Google Scholar) before 30 February 2023 were systematically searched and assessed. Comprehensive Meta-Analysis Version(CMA) 3.0 was utilized for the computation of pooled standardized mean differences and the execution of moderator analyses. **Results**: 66 studies (k = 82) were included in the meta-analysis. Compared with control groups(n = 3,695), MBM intervention groups(n = 3,692) significantly reduced anxiety with a small effect (SMD = 0.440, 95% CI: 0.345 to 0.535, $p < 0.001$, $I^2 = 72.48\%$). Moderator analysis showed that MBM type, research area, sex, age, health, session, frequency and program length played moderating roles. Interventions with more than 8 weeks of length, 2 times a week, and over 60 minutes each session, were most effective in reducing anxiety symptoms. The overall quality of the research design (PEDro score) also plays an important role of the effect size. **Conclusion**: MBM is an effective alternative or adjuvant intervention for anxiety symptoms across different participant characteristics and research area. Future research should improve quality and design, as well as compare the anxiolytic effects between different types of MBM and between MBM and other types of interventions. It is also necessary to delve into the dose effects of MBM interventions.

***Keywords*:** Mindfulness Based Movement, Anxiety, Meta-Analysis, Randomized Controlled Trials

正念训练对运动员运动倦怠的干预作用

王润泽[1,2] 陈润木[1] 张倩怡[1] 曾永竣[3] 杨寅[1]（通讯作者）
1 北京体育大学心理学院，北京，100084，yangyin@bsu.edu.cn
2 曲阜师范大学心理学院，曲阜，273100
3 北京体育大学体能学院，北京，100084

摘 要　运动倦怠是指一种综合征，泛指情绪和体力耗竭、成就感的降低和运动被贬值的综合表现。研究发现，对于专业运动员而言运动倦怠与正念水平有关，而正念水平能够通过正念训练得到提升。因此，本研究采用五因素正念问卷(FFMQ)、运动员倦怠量表(ABQ)，对 258 名中国专业运动员（男性为 168 名，女性为 87 名，年龄范围在 18~36 岁）进行施测。筛选出 60 名轻度倦怠以上的被试进行实验。实验采用 2x3 混合设计，分别对实验组以及对照组进行前测（t0）正念训练八周后的后测（t1）以及干预结束后八周的追踪测量（t2）。结果发现：(1)观察维度与组别的交互作用显著，$F_{(2, 49)} = 3.489$, $p = 0.034$, $\eta_p^2 = 0.065$ 简单效应分析显示：观察维度在 t1 时，实验组（28.083±1.062）边缘显著高于对照组（25.607±0.984），$F_{(1, 50)} = 2.925$, $p = 0.093$；观察维度在 t2 时实验组（28.708±1.015）显著高于对照组（25.571±0.940），$F_{(1, 50)} = 5.145$, $p = 0.028$, $\eta_p^2 = 0.093$；(2)运动倦怠与组别的交互作用边缘显著，$F_{(2, 49)} = 3.077$, $p = 0.0504$, $\eta_p^2 = 0.058$。简单效应分析

显示：运动倦怠总分在 t2 时，实验组（35.917±1.627）显著低于对照组（41.679±1.548），$F_{(1, 50)} = 2.591$, $p = 0.114$, $\eta_p^2 = 0.049$。(3)将后测正念五因素中描述、有觉知的行动作为自变量，后测运动倦怠总分作为因变量进行回归分析，模型中 $F_{(4, 47)} = 23.468$ ($p < 0.001$), 调整 $R^2 = 0.638$。其中后测描述标准化β=-0.186，t=-2.119 ($p = 0.039$) 能够显著预测后测运动倦怠的得分。结论：正念训练能够提升运动员的正念水平并改善他们的运动倦怠，同时正念中的“描述”维度能够正向预测运动员的运动倦怠。研究结果有助于理解正念在运动倦怠上的作用及其机制，同时也为开发针对运动员运动倦怠的正念训练提供一定的启发与实证支持。

关键词　正念；正念训练；运动倦怠

The effect of mindfulness training on athletes’ burnout

Runze Wang, Qianyi Zhang, Runmu Chen, Yongjun Zeng, Yin Yang
School of Psychology, Qufu Normal University, Jingxuan West Road 57, Qufu 273100, China

Abstract： Athletes’ burnout is a syndrome that generally refers to the combination of emotional and physical exhaustion, reduced sense of accomplishment and devalued sports. Research has found that for professional athletes, burnout is associated with levels of mindfulness, which can be improved by mindfulness training. Therefore, the five-factor Mindfulness Questionnaire (FFMQ) and Athlete Burnout Inventory (ABQ) were used in this study to measure 258 Chinese professional athletes (168 male and 87 female, aged 18-36). 60 subjects with mild burnout or above were selected for the experiment. A 2x3 hybrid design was used in the experiment. The experimental group and control group were respectively subjected to pre-test (t0) mindfulness training for eight weeks after the post-test (t1) and follow-up measurement for eight weeks after the intervention (t2). The results showed that: (1) the interaction between observing dimension and group was significant, F (2, 49) = 3.489, p = 0.034, η_p^2= 0.065. At t1, the experimental group (28.083±1.062) had a significantly higher margin than the control group (25.607±0.984), F (1, 50) =2.925, p = 0.093. At t2, the experimental group (28.708±1.015) was significantly higher than the control group (25.571±0.940), F (1, 50) = 5.145, p = 0.028, η_p^2 = 0.093. (2) The interaction margin between athletes' burnout and group was significant, F (2, 49) = 3.077, p = 0.0504, η_p^2 = 0.058. Simple effect analysis showed that the total score of athletes' burnout in the experimental group (35.917±1.627) was significantly lower than that in the control group (41.679±1.548) at t2, F (1, 50) = 2.591, p = 0.114, η_p^2 = 0.049. (3) The .describing and acting with awareness among the five factors of posttest mindfulness was taken as the independent variable, and the total score of posttest athletes' burnout was taken as the dependent variable for regression analysis. In the model, F (4, 47) = 23.468 ($p < 0.001$), and $R^2 = 0.638$ was adjusted. The standardized β=-0.186, t=-2.119 (p = 0.039) could significantly predict the score of posttest athlete burnout. Conclusion: Mindfulness training can improve the level of athletes' mindfulness and improve their athlete burnout. Meanwhile, the "describing" dimension of mindfulness can positively predict athletes' burnout. The results are helpful to understand the role of mindfulness in athletes' burnout and its mechanism, and also provide some inspiration and empirical support for the development of mindfulness training for athletes' burnout.

Keywords: mindfulness; mindfulness training; athletes’ burnout

协同思维训练对足球专修大学生点球表现影响的实验研究

程新月[1]　杨阿丽[2]（通讯作者）
1 沈阳体育学院研究生部，沈阳，11010
2 沈阳体育学院运动健康学院，沈阳，110102，1019923564@qq.com

摘 要　目的：协同思维是指整合了成长型思维和压力可以有益思维的思维模式，它的中心思想是压力事件和压力反应是可控和有帮助的。已有研究表明约 30 分钟的协同思维干预可以有效缓解青少年压力，改善青少年面对压力时产生的不良身心反应。这对长期处于繁重的学业以及紧张的训练和比赛中，时常需要承受多重压力的体育专业大学生而言极为重要。但这种短时高效的干预方法在运动领域的应用还较少，协同思维对体育专业大学生的影响也还不明确。故本研究从足球项目的专项特点出发，旨在探究协同思维训练对足球专修大学生点球表现的影响，为足球训练的发展提供新的实践方法。方法：选取沈阳体育学院足球专修大学生 60 名，采用 2 组别（实验组、对照组）×3 时间（前测/后测/追踪）混合实验设计。对实验组进行 30 分钟左右的协同思维训练，对照组进行 30 分钟左右的大脑知识培训。实验任务为三次模拟足球点球，要求正面距离练习墙约 11 米处，听到哨声响起后 10s 内完成踢点球任务。球击中不同区域得分不同，三次分数相加作为点球表现指标，同时使用《协同思维量表》测量个体协同思维水平。结果：（1）前测中实验组对照组各指标差异不显著；（2）协同思维训练组，点球表现前后测差异显著，后测成绩高于前测($p<0.001$)，协同思维水平也显著提升，大脑知识培训组的点球表现和协同思维水平前后测无显著差异，后测得分都显著低于实验组($p<0.001$)；（3）协同思维训练组，点球表现前测和追踪测试差异显著，追踪成绩高于前测($p<0.001$)，协同思维水平高于前测($p<0.001$)，大脑知识培训组的点球表现和协同思维水平前测和追踪测试无显著差异，追踪测试得分显著低于实验组($p<0.001$)。结论：协同思维训练可以有效提高足球专修大学生的协同思维水平，对其压力下的运动表现具有即时效果和一定的延时效果。这启示足球专修大学生课程中可引入协同思维训练，辅助技能教学，培养其转变思维，正确认识和运用压力，从而提高运动表现。

关键词　协同思维训练，足球专修大学生，点球表现，实验

An Experimental Study on the Influence of Synergistic Mindsets Intervention on the Performance of Penalty Kick of College Students Majoring in Football

Cheng Xinyue, Yang Ali

Shenyang Sport University, No.36 jinqiansong east road, sujiatun district, Shenyang

Abstract：Purpose: Synergistic mindsets refers to a thinking mode that integrates growth mindsets and stress-can-be-enhancing mindsets. Its central idea is that stress events and stress responses are controllable and helpful. Previous studies have shown that about 30 minutes of synergistic mindsets intervention can effectively alleviate adolescent stress and improve the adverse physical and mental reactions that adolescents experience when facing stress. This is extremely important for sports major college students who are often under multiple pressures due to long-term heavy academic workload and intense training and competition. However, the application of this short-term and efficient intervention method in the field of sports is still limited, and the impact of synergistic mindsets on sports major college students is also unclear. Therefore, starting from the specific characteristics of football projects, this study aims to explore the impact of synergistic mindsets intervention on the performance of penalty kick of college students majoring in football, and provide new practical methods for the development of football training. Methods: 60 football majors from Shenyang Sport University were selected. Using 2 groups (experimental group and control group) × 3 time (pre test/post test/tracking) mixed experimental design. Give the experimental group about 30 minutes of synergistic mindsets intervention, and the control group about 30 minutes of brain knowledge training. The experimental task consists of three simulated football penalty kicks, which are required to be completed within 10 seconds after hearing the whistle at a distance of approximately 11 meters from

the practice wall. The score varies when the ball hits different areas, and the sum of the three scores is used as the performance indicator of penalty kicks. At the same time, the synergistic mindsets scale is used to measure the individual's level of synergistic mindsets. Result: (1) In the pre test, there was no significant difference in various indicators between the experimental group and the control group; (2) In the synergistic mindsets intervention group, there was a significant difference in penalty performance between the pre and post tests, and the post test score was higher than the pre test ($p<0.001$). The level of synergistic mindsets also significantly improved. The brain knowledge training group had no significant difference in penalty performance and synergistic mindsets level between the pre and post tests, and the post test scores were significantly lower than those of the experimental group ($p<0.001$); (3) In the synergistic mindsets intervention group, there was a significant difference in penalty performance between the pre test and the tracking test, with tracking scores higher than the pre test ($p<0.001$) and synergistic mindsets levels higher than the pre test ($p<0.001$). The brain knowledge training group had no significant difference in penalty performance and synergistic mindsets levels between the pre test and tracking test, and the tracking test score was significantly lower than the experimental group ($p<0.001$). Conclusion: Synergistic mindsets intervention can effectively improve the Synergistic mindsets level of football majors, and has immediate effect and certain delay effect on their sports performance under pressure. This enlightens that synergistic mindsets intervention can be introduced into football majors' courses to assist skill teaching, cultivate their thinking transformation, correctly understand and apply pressure, and thus improve their sports performance.

Keywords：synergistic mindsets intervention, college students majoring in football, performance of penalty kick, experiment

神经反馈训练对 MCI 老年人认知神经功能的影响

蒋长好[1]（通讯作者） 黄辰[2]

1 首都体育学院运动脑成像研究中心，北京，100191，jiangchanghao@cupes.edu.cn

2 首都体育学院运动科学与健康学院，北京，100191

摘 要 神经反馈(neurofeedback, NF)是一种无创性的神经调控的技术，被试通过学习和控制仪器所提供的反馈信号，学会自我调节内部心理生理变化，从而达到康复治疗特定疾病或改善生理状态的目的。轻度认知功能障碍(Mild Cognitive Impairment, MCI)是介于正常老化和痴呆之间的一种临床状态。主要表现为记忆损害和执行功能下降，向老年痴呆转化的风险较高且缺乏有效的药物治疗手段。尽管 MCI 人群的认知功能衰退更为严重，但是大脑可塑性依然存在。

已有研究表明，NF 训练可改善 MCI 老年人的认知功能。而且较之于普通的老年人，NF 训练对 MCI 老年人的认知表现的促进效果更好，表现出干预效益的选择性。NF 训练改善 MCI 老年人的认知功能还存在“剂量效应”，表现出剂量依赖性。将锻炼和 NF 训练结合起来使用，还发现联合干预效果优于单一训练效果。脑影像研究表明，NF 训练不仅可以调控 MCI 老年人大脑的激活程度，还可增强不同脑区的功能连通性，提高大脑的整体协调能力。追踪研究还发现，NF 训练增加 MCI 老年人海马等相关脑区的体积，对大脑结构有着可塑性影响。

然而已有研究也存在缺乏对老年 MCI 老年人认知效益的系统分析、NF 训练的剂量效应关系不明确、训练后会让被试产生非训练目标之外的改变即训练效果非特异性、以及 NF 训练改善 MCI 老年人认知效益的机制尚未厘清等问题。进一步的研究，首先要采用多种认知任务，系统考察 NF 训练对 MCI 老年人的认知功能的影响，并揭示 NF 剂量效应关系特征及时间累积效应。其次，通过改进实验设计，扩大研究样本，控制无关因素等，提高研究的生态效度及训练效果的针对性。第三，应结合行为实验和多模态脑影像技术，

并整合运动生理学的相关指标（如皮质醇、儿茶酚胺、血液乳酸、耗氧量等），系统探讨 NF 训练改善 MCI 老年人脑认知功能的机制。

关键词　NF 训练；MCI；老年人；认知；脑可塑性

Physical and mental exercise improves cognition and brain function in older adults with mild cognitive impairment

Changhao Jiang[1]　Chen Huang[2]

1 The Center of Neuroscience and Sports, Capital University of Physical Education and Sports, Beijing

2 School of Kinesiology and Health, Capital University of Physical Education and Sports, Beijing

Abstract：Neurofeedback (NF) is a non-invasive technique of neural regulation, in which participants learn to self-regulate internal psycho-physiological changes by receiving feedback signals from the instrument. This aims to achieve the rehabilitation of specific disorders or improve physiological states. Mild Cognitive Impairment (MCI) is a clinical condition that lies between normal aging and dementia. It is characterized by memory impairment and decline in executive function, with a higher risk of progressing to dementia and a lack of effective pharmacological treatment. Despite the cognitive decline in MCI individuals, brain plasticity remains intact.

Existing studies have shown that NF training can improve cognitive function in elderly individuals with MCI. Moreover, compared to regular elderly individuals, NF training has a greater promoting effect on cognitive performance in MCI elderly individuals, displaying selective intervention benefits. The improvement in cognitive function in MCI elderly individuals through NF training also exhibits a "dose-response effect," indicating a dose-dependency. Combining exercise with NF training has been found to result in better combined intervention effects than single training. Brain imaging studies have shown that NF training not only modulates the activation level of the brain in MCI elderly individuals but also enhances functional connectivity between different brain regions, thus improving overall brain coordination. Longitudinal studies have also discovered that NF training increases the volume of brain regions such as the hippocampus in MCI elderly individuals, demonstrating structural plasticity effects on the brain.

However, existing research still lacks a systematic analysis of cognitive benefits in elderly MCI individuals, and the dose-response relationship of NF training is not yet clear. Training effects beyond the training goals, i.e., nonspecific training effects, are also observed. Moreover, the mechanisms underlying the cognitive benefits of NF training in MCI elderly individuals remain unclear. Further research should employ a variety of cognitive tasks to systematically investigate the impact of NF training on cognitive function in MCI elderly individuals and reveal the characteristics of the dose-response relationship and time-accumulation effects of NF training. Improving experimental design, expanding the study sample, and controlling confounding factors are necessary to enhance the ecological validity of the research and the specificity of training effects. Additionally, integrating behavioral experiments and multimodal brain imaging techniques, along with relevant measures from exercise physiology (such as cortisol, catecholamines, blood lactate, oxygen consumption, etc.), can systematically explore the mechanisms underlying the improvement of cognitive function in MCI elderly individuals through NF training.

Keywords：Neurofeedback training, Mild Cognitive Impairment, Elderly, Cognition, Brain plasticity

MICE 和 HIIE 对不同心肺适能

肥胖青少年工作记忆和 HRV 的时程效应

冯展涛 1,2　张月艳 3　毛志雄 1（通讯作者）
1 北京体育大学心理学院，北京，100101，通讯作者 zhxmao@bsu.edu.cn
2 山东体育学院运动与健康学院，山东济南，250100
3 曲阜师范大学附属实验学校，山东日照，276826

摘 要　研究目的：青少年肥胖可能会影响工作记忆，急性锻炼可以改善认知控制，但急性效应可能受不同强度的锻炼方式、认知测试时间以及心肺适能等因素的影响。因此，本研究通过实验 1 探究肥胖青少年工作记忆特点。实验 2 探究中等强度持续锻炼(MICE)和高强度间歇锻炼(HIIE)对不同心肺适能肥胖青少年工作记忆和心率变异性(HRV)的时程效应。

研究方法：实验 1 选取 12-14 岁青少年 80 人(正常体重 40 人，肥胖 40 人)，使用 1-back、2-back 实验范式评估工作记忆。实验 2 选取 12-14 岁肥胖青少年 120 人，采用 2 心肺适能水平(高心肺适能组，HCF、低心肺适能组，LCF)×3 锻炼方式(MICE、HIIE、CON)×3 测试时间(锻炼前、锻炼后即刻、锻炼后 20min)混合实验设计，在锻炼前、锻炼后即刻和锻炼后 20min 分别进行 HRV(RMSSD、LF/HF)和 2-back 任务测试。

研究结果：实验 1：肥胖组 1-back、2-back 的反应时都显著高于正常体重组，两组在 1-back 正确率上无显著差，但在 2-back 正确率上正常体重组显著高于肥胖组。实验 2：1)HCF 的 2-back 任务表现显著优于 LCF。2)对于 LCF，2-back 任务反应时在 MICE 后即刻和锻炼后 20min 都显著降低，且锻炼后 20min 时正确率显著提高；2-back 任务反应时在锻炼后即刻无显著变化，但在 HIIE 后 20min 显著降低。对于 HCF，2-back 任务反应时 MICE 和 HIIE 后即刻及 20min 时都显著降低，尤其在 HIIE 后 20min 时。3)与干预前相比，MICE 和 HIIE 后即刻和延迟 20min，HRV 的时域指标(RMSSD)显著降低，频域指标(LF/HF)显著提高，且 HIIE 对 RMSSD 和 LF/HF 的影响显著大于 MICE。

研究结论：1)肥胖影响青少年的工作记忆；2)急性 MICE 和 HIIE 可以改善不同心肺适能肥胖青少年的工作记忆，但 MICE 对 LCF 的益处更大，HIIE 对 HCF 的益处更大，尤其在锻炼后延迟阶段；3）急性运动后从平衡的 HRV 到交感神经活动占优势的转变反映了唤醒水平的提高，这可能是急性运动对工作记忆有益效应的潜在机制之一。

关键词　MICE，HIIE，工作记忆，HRV，心肺适能，肥胖青少年

Time Course Efficiency of MICE and HIIE on Working Memory and HRV in Adolescents with Obesity and Different Cardiorespiratory Fitness

Zhan-Tao Feng1,2　Yue-Yan Zhang3　Zhi-Xiong Mao1(Corresponding author)
1 School of Psychology, Beijing Sport University, Beijing, China
2 College of Sports and Health, Shandong Sport University, Jinan, Shandong Province, China
3 Experimental School affiliated to Qufu Normal University, Rizhao, Shandong Province, China

Abstract：Objective: Adolescent obesity may affect working memory. Acute exercise can improve cognitive control, but the acute effect may be affected by different intensity of exercise, cognitive test time, and

cardiorespiratory fitness. Therefore, this study explored the working memory characteristics of obese adolescents through experiment 1. Experiment 2 investigated the temporal effects of moderate-intensity sustained exercise (MICE) and high-intensity interval exercise (HIIE) on working memory and heart rate variability (HRV) in obese adolescents with different cardiopulmonary fitness.

Methods: In experiment 1, 80 adolescents aged 12-14 (40 normal weight and 40 obese) were selected to assess working memory using 1-back and 2-back experimental paradigms. In experiment 2, 120 obese adolescents aged 12-14 were selected, and a mixed experimental design of 2 cardiopulmonary fitness levels (high cardiopulmonary fitness group, HCF, low cardiopulmonary fitness group, LCF)×3 exercise methods (MICE, HIIE, CON)×3 test time (before exercise, immediately after exercise, 20min after exercise) was adopted. HRV(RMSSD, LF/HF) and 2-back tasks were tested before, immediately after, and 20 minutes after exercise.

Results: Experiment 1: The 1-back and 2-back responses of the obese group were significantly higher than those of the normal weight group, and there was no significant difference in the 1-back accuracy between the two groups, but the 2-back accuracy of the normal weight group was significantly higher than that of the obese group. Experiment 2:1)HCF performed significantly better than LCF in the 2-back task. 2) For LCF, the response time of the 2-back task was significantly decreased immediately after MICE and 20min after exercise, and the accuracy was significantly increased at 20min after exercise; The 2-back task response time had no significant change immediately after exercise, but significantly decreased 20 minutes after HIIE. For HCF, the 2-back task response was significantly reduced both immediately after MICE and at 20min after HIIE, especially at 20min after HIIE. 3) Compared with before intervention, the time domain index (RMSSD) of HRV was significantly decreased and the frequency domain index (LF/HF) was significantly increased immediately after MICE and HIIE and after a delay of 20min, and the effect of HIIE on RMSSD and LF/HF was significantly greater than that of MICE.

Conclusions: 1) Obesity affects adolescents' working memory; 2) Acute MICE and HIIE can improve the working memory of obese adolescents with different cardiopulmonary fitness, but MICE has greater benefits on LCF, HIIE has greater benefits on HCF, especially in the delayed stage after exercise; 3) The shift from balanced HRV to the predominance of sympathetic activity after acute exercise reflects increased arousal levels, which may be one of the underlying mechanisms for the beneficial effects of acute exercise on working memory.

***Keywords*：** moderate-intensity continuous exercise (MICE); high-intensity interval exercise (HIIE); working memory; HRV; cardiorespiratory fitness; obese adolescents

不同时间压力下射击运动员情绪调节策略的选择和使用

刘慧敏 周路路 王欢 姜媛（通讯作者）

北京体育大学心理学院，北京，100084，jiangyuan97@sina.cn

摘 要 运动情境下的时间特征明显。根据情绪调节时间影响模型和情绪调节选择、优化和补偿理论，策略的选择和使用依赖于个人内部可用资源，有时间压力的运动员内部可用资源匮乏，进行判断的时间大幅度减少，进而影响其策略选择和使用。因此，研究旨在探讨不同时间压力下，射击运动员在不同负性情绪强度影响下，对认知重评和分心这两种策略的选择和使用效果的差异。预实验采用“情绪调节策略选择”范式，取策略选择时间的正负 1 个标准差的临界值作为时间压力设定依据。正式实验以 30 名射击运动员为研究对象，采用 2 时间压力（有、无）x 2 负性情绪强度（高、低）x 2 策略（认知重评、分心）三因素被试内设计，因变量为策略选择（策略选择百分比）和策略使用效果（负性情绪评分）。结果发现，以策略选择为因变量，时间压力、情绪强度和策略的交互作用显著($F(1, 29) = 4.74$, $p = .038$, $\eta^2 = .14$)。简单效应分析发现，有时间压力条件下，高、低情绪强度下选择分心策略的比例均大于认知重评策略($F(1, 29) = 3.86$, $p = .059$,Cohen's $d = .72$; $F(1, 29) = 4.19$, $p = .05$, Cohen's $d = .75$)；无时间压力条件下，高情绪强度下选择分心

策略的比例显著大于认知重评策略($F(1, 29) = 5.29$, $p = .029$, Cohen's $d = .83$)。以负性情绪感受评分为因变量，时间压力的主效应显著，相比较于有时间压力，无时间压力时的负性情绪评分显著高($F(1, 29) = 7.17$, $p = .012$, $\eta^2 = .19$)；情绪强度的主效应显著，相比较于低情绪强度，高情绪强度下的负性情绪评分显著高 ($F(1, 29) = 5.94$ $p = .021$, $\eta^2 = .17$)；策略的主效应不显著($F(1, 29) = .19$, $p = .664$)。交互作用均不显著。结果表明，有时间压力时，射击运动员不受负性情绪强度变化的影响，均更多地选择分心策略；无时间压力时，高负性情绪强度导致射击运动员更多地选择分心策略。同时，相较于无时间压力，射击运动员在有时间压力时的策略使用效果更好。
关键词 射击运动员，情绪调节，策略选择，时间压力，情绪强度

Time Pressures Influence the Emotion Regulation Choice and Effectiveness in Shooting Athletes

LIU Huimin, ZHOU Lulu, WANG Huan, JIANG Yuan (Corresponding author)
School of Psychology, Beijing Sport University, Beijing, 100084

Abstract：The sport context's temporal qualities are clear to see. According to the Temporal Influence Model of Emotion Regulation (TIMER) and Selection, Optimization, and Compensation with Emotion Regulation (SOC-ER) framework, the choice and effectiveness of emotion regulation strategies are dependent on the internal resources available to the individual. When athletes are under time pressure, they have a scarcity of internal resources, leading to a reduction in the time available to make judgments, which in turn affects their choice and effectiveness of strategies. This study aimed to investigate the differences in cognitive reappraisal and distraction strategies' selection and effectiveness by shooting athletes under different time pressures and negative emotion intensities. The pre-experiment involved the "emotion regulation choice" paradigm, and the critical value of plus or minus one standard deviation of strategy selection time was used to set the time pressure. The formal experiment included 30 shooting athletes, using a 3-factor within-subjects design of 2 time pressures (yes vs no) x 2 negative emotion intensities (high vs low) x 2 strategies (cognitive reappraisal vs distraction), with the dependent variables being strategy choice (percentage of strategy choice) and strategy effectiveness (negative emotion score). Results showed a significant interaction of time pressure, emotional intensity, and strategy with strategy choice as the dependent variable($F(1, 29) = 4.74$, $p = .038$, $\eta^2 = .14$). Simple effect analysis revealed that the proportion of distraction chosen at both high and low emotional intensity was greater than cognitive reappraisal in the time pressure condition ($F(1, 29) = 3.86$, $p = .059$,Cohen's $d = .72$; $F(1, 29) = 4.19$, $p = .05$, Cohen's $d = .75$), and that the proportion of distraction strategies chosen at high emotional intensity was significantly greater than cognitive reappraisal in the no time pressure condition($F(1, 29) = 5.29$, $p = .029$, Cohen's $d = .83$). Using negative affective feeling scores as the dependent variable, there was a significant main effect of time pressure, with negative affect scores being significantly higher in the absence of time pressure compared to the presence of time pressure($F(1, 29) = 7.17$, $p = .012$, $\eta^2 = .19$); and there was a significant main effect of emotional intensity, with negative affect scores being significantly higher in the presence of high emotional intensity compared to low emotional intensity($F(1, 29) = 5.94$ $p = .021$, $\eta^2 = .17$); the main effect of strategy was not significant($F(1, 29) = .19$, $p = .664$). None of the interactions were significant. The results indicated that with time pressure, under time pressure, shooters are more likely to choose distraction regardless of negative affective intensity. Without time pressure, high negative affective intensity leads shooters to choose the distraction more often. Moreover, the shooters' effect of strategy is better when there is time pressure compared to no time pressure.

Keywords：shooting athletes, emotion regulation, choice, time pressure, emotional intensity

短时有氧运动对社会排斥后情绪及攻击倾向的改善

张跃菲　张国礼（通讯作者）
北京体育大学心理学院，北京，100084，guoli_zhang@126.com

摘 要　背景：社会排斥对情绪造成消极影响，增加个体攻击倾向，而短时有氧运动作为积极的行为策略，具备丰富的身心效益，因此，本研究拟探究短时有氧运动对社会排斥后情绪及攻击倾向的改善作用。方法：实验 1 旨在验证社会排斥对个体情绪及攻击倾向的影响，采用单因素组间设计，自变量为社会排斥（排斥组 vs.控制组），因变量为消极情绪（愤怒、悲伤、受伤感）、积极情绪及攻击倾向，使用 Cyberball 范式操纵社会排斥，攻击倾向采用 Buss-Warren 攻击问卷中文修订版测量，招募 75 名研究对象（排斥组 35 人，控制组 40 人）。实验 2 旨在探究社会排斥情境下，不同强度短时有氧运动对情绪及攻击倾向的改善作用，采用单因素组间设计，自变量为运动类型（低强度 vs.中强度 vs.静坐组），招募 83 名研究对象（低强度 29 人、中强度 27 人、静坐组 27 人），被试在 Cyberball 游戏后，对情绪及攻击倾向进行第 1 次测量，在干预后进行第 2 次测量，对两次测量分数的差值进行分析。结果：实验 1 验证先前研究结论，社会排斥组的消极情绪各维度（愤怒、悲伤、受伤感）均高于控制组，$p< 0.001$，积极情绪低于控制组，$p< 0.001$，攻击倾向高于控制组，$p< 0.05$。实验 2 发现，消极情绪方面，愤怒情绪差值的运动类型组间效应显著，$F(2,80)=4.691$，$p< 0.05$，悲伤情绪差值及受伤感差值的运动类型组间效应均不显著，$p>0.05$，积极情绪差值的运动类型组间效应显著，$F(2,80)=16.254$，$p< 0.001$，攻击倾向差值的运动类型组间效应显著，$F(2,80)=3.554$，$p< 0.05$；事后检验的多重比较显示，在愤怒情绪差值方面，中强度运动组与静坐组之间差异显著，$p< 0.01$，在积极情绪差值方面，低强度运动组与静坐组、中强度运动组与静坐组之间差异显著，$p< 0.001$，在攻击倾向差值方面，低强度运动组与静坐组、中强度运动组与静坐组之间差异显著，$p< 0.05$。结论：社会排斥增加个体的消极情绪、减少积极情绪，并提高攻击倾向，而短时有氧运动对社会排斥后的情绪和攻击倾向具有改善作用，具体表现为中强度有氧运动减少愤怒情绪，中强度及低强度有氧运动均能增加积极情绪并降低攻击倾向。

关键词　社会排斥，短时有氧运动，情绪，攻击倾向

The Improvement of Short-term Aerobic Exercise on Emotion and Aggression Tendency after Social Exclusion

Yuefei Zhang, Guoli Zhang*
School of Psychology, Beijing Sport University, Beijing 100084, guoli_zhang@126.com

***Abstract*：** Background: Social exclusion has a negative impact on individual emotions and increases their tendency to attack. As a positive behavioral strategy, short-term aerobic exercise has rich physical and mental benefits. Therefore, this study aims to explore the improvement effect of short-term aerobic exercise on emotions and aggression after social exclusion. Method: Experiment 1 aims to verify the impact of social exclusion on individual emotions and aggression tendencies. A univariate inter group design was used, with the independent variable being social exclusion (exclusion group vs. control group) and the dependent variable being negative emotions (anger, sadness, sadness), positive emotions, and aggression tendencies. Cyberball paradigm was used to manipulate social exclusion, and aggression tendencies were measured using the Chinese revised version of the Buss-Warren aggression questionnaire, Recruit 75 research subjects (35 in the exclusion group and 40 in the

control group). Experiment 2 aims to explore the improvement effect of short-term aerobic exercise of different intensities on emotions and aggression tendencies in social exclusion situations. A univariate inter group design was used, with the independent variable being the type of exercise (low intensity vs. medium intensity vs. sedentary group). 83 study subjects (29 low intensity, 27 medium intensity, and 27 sedentary group) were recruited. After playing Cyberball, the participants measured their emotions and aggression tendencies for the first time, and the second time after the intervention, Analyze the difference between two measurement scores. Result: Experiment 1 confirmed the previous research conclusion that the negative emotions (anger, sadness, and sadness) of the social exclusion group were higher than those of the control group in all dimensions, $p<0.001$, and the positive emotions were lower than those of the control group, $p<0.001$. The aggression tendency was higher than that of the control group, $p<0.05$. Experiment 2 found that in terms of negative emotions, the inter group effect of the exercise type with a difference in anger was significant, with $F(2,80)=4.691$, $p<0.05$. The inter group effect of the exercise type with a difference in sadness and sadness was not significant, $p>0.05$. The inter group effect of the exercise type with a difference in positive emotions was significant, with $F(2,80)=16.254$, $p<0.001$. The inter group effect of the exercise type with a difference in attack tendency was significant, with $F(2,80)=3.554$, $p<0.05$; Multiple comparisons of post hoc tests showed that there was a significant difference in anger difference between the moderate intensity exercise group and the sedentary group, $p<0.01$. In terms of positive emotion difference, there was a significant difference between the low intensity exercise group and the sedentary group, and between the moderate intensity exercise group and the sedentary group, $p<0.001$. In terms of aggression tendency difference, there was a significant difference between the low intensity exercise group and the sedentary group, and between the moderate intensity exercise group and the sedentary group, $p<0.05$. Conclusion: Social exclusion increases individuals' negative emotions, reduces positive emotions, and increases their tendency to attack. Short term aerobic exercise has an improvement effect on the emotions and tendency to attack after social exclusion, specifically manifested as moderate intensity aerobic exercise reducing anger emotions. Both moderate intensity and low intensity aerobic exercise can increase positive emotions and reduce their tendency to attack.

Keywords：social exclusion, short-term aerobic exercise, emotion, aggression tendency

积极情绪状态与运动经验影响不同站立方式姿势控制的认知机制

冯甜[1]（通讯作者） 梁曼琪[2] 刘锦钊[2] 张富春[2] 刘李艳[2]

1 郑州大学体育学院（校本部），郑州，450001，maefeng@vip.126.com

2 郑州大学体育学院，郑州，450044

摘 要 积极情绪是指指个体由于体内外刺激、事件满足个体需要而产生的伴有愉悦感受的情绪，积极情绪状态会直接影响运动员运动水平的发挥。研究目的：采用专家-新手范式，探讨积极情绪状态与运动经验影响不同站立方式姿势控制的认知机制。方法：本研究从郑州大学体育学院选取 34 名本科生被试。专家组为武术套路大学生[n=17,平均年龄为（21.02±0.78）岁]，新手组为普通大学生[n=17，平均年龄为（21.36±1.10岁）]。采用 2（运动等级：专家组和新手组）×2（不同站立支撑方式：单脚支撑和双脚支撑）×4（积极情绪等级：1 级、2 级、3 级、4 级）三因素混合设计。对其足底压力变化（COP）数据，分别是球长度、外周面积、 Delta X 以及 Delta Y 数据进行重复测量方差分析。结果：COP 结果发现专家组（1414.70±136.58）的球长度小于新手组（1799.69±114.70）；单脚（1358.74±75.81）的球长度小于双脚（1854.65±147.39）；单脚(16.51±1.1.28)的 X 轴摆动幅度明显小于双脚(64.81±8.00)摆动幅度；新手组在积极情绪等级 4 时，单脚（20.33±2.77）的 X 轴摆动幅度小于双脚（33.16±17.31）；专家组在积极情绪等级 3 时，单脚（14.56±2.52）的 X 轴摆动幅度小于双脚（28.16±15.80）X 轴。结论：1）专家组的姿势控制能力优于新手组。2）专家组在较低的积极情绪等级下，即可保持姿势稳定；新手组则需要在较高的积极情绪等级下保持姿势稳定。3）在积极情绪状态下，专家组和新手组在双脚支撑中的姿势控制均好于单脚支撑。

关键词　积极情绪，运动经验，站立方式，姿势控制

Cognitive mechanisms by which positive emotional states and motor experience influence postural control across standing styles

Tian Feng[1]　Manqi Liang[2]　Jinzhao Liu[2]　Fuchun Zhang[2] Liyan Liu[2]
1.School of Physical Education, Zhengzhou University, Zhengzhou, China, 450001
2.Physical Education College of Zhengzhou University, Zhengzhou, China, 450044

***Abstract*:** Positive emotion refers to the emotion accompanied by pleasurable feelings produced by an individual as a result of internal and external stimuli and events that satisfy the individual's needs. Positive emotional state will directly affect the athletes' performance of their sport level. Aims: To explore the cognitive mechanisms by which positive emotional state and sports experience affect postural control in different standing styles using the expert-neophyte paradigm. Methods: Thirty-four （undergraduate subjects were selected from the School of Physical Education of Zhengzhou University for this study. The expert group consisted of college students in martial arts routines [n=17, age: (21.02±0.78)], and the novice group consisted of general college students [n=17, age:(21.36±1.10)]. A three-factor mixed design of 2 (exercise level: expert group and novice group) × 2 (different standing support modes: single-footed support and double-footed support) × 4 (positive mood level: level 1, level 2, level 3, level 4) was used. Repeated-measures ANOVA was performed on their plantar pressure change (COP) data, ball length, peripheral area, Delta X, and Delta Y data, respectively. Results: The COP results found that the ball length of the expert group (1414.70±136.58) was smaller than that of the novice group (1799.69±114.70); the ball length of the single foot (1358.74±75.81) was smaller than that of the bipedal foot (1854.65±147.39); and the amplitude of X-axis oscillations of the single foot (16.51±1.1.28) was significantly smaller than that of the bipedal foot (64.81±8.00) swing amplitude; the novice group's X-axis swing amplitude of single foot (20.33±2.77) was smaller than that of double foot (33.16±17.31) at positive mood level 4; the expert group's X-axis swing amplitude of single foot (14.56±2.52) was smaller than that of double foot (28.16±15.80) X-axis at positive mood level 3. Conclusions: 1) The expert group had better postural control than the novice group. 2) The expert group could maintain postural stability at lower positive mood levels; the novice group needed to maintain postural stability at higher positive mood levels. 3) Both the expert group and the novice group had better postural control in two-legged bracing than in one-legged bracing in the positive mood state.

***Keywords*:** positive mood, motor experience, standing style, postural control

虚拟现实体感运动的锻炼体验与情感反应

李春铖[1]　杨寅[1]（通讯作者）
1 北京体育大学心理学院，北京，100084，yangyin@bsu.edu.cn

摘 要　随着科学技术和电子设备的不断发展，一种新兴的运动方式——体感运动——正在步入人们的视野，其中虚拟现实技术因其极高的沉浸性和娱乐性受到越来越多年轻人的追捧。探讨虚拟现实体感运动（Virtual Reality Exercise）这一运动形式对个体的身心影响具有重要意义。目的：本研究旨在考察大学生在进行虚拟现实体感运动时的身体活动量，以及相同运动强度下虚拟现实体感运动与传统单车运动在运动体验和情感反应上的差异。方法：在 PICO 游戏上商城中根据运动类型和方式选取两款运动类游戏作为实验材料，分两批随机招募 38 名被试。实验一被试佩戴 POLAR 表和 ActiGraph GT3X 三轴加速度计进行两款

游戏的测试，所有被试接受两款运动游戏的顺序随机，运动结束后记录心率和活动量。实验二被试进行单次的 VR 体感运动和单车运动，接受两种运动的顺序随机，运动中佩戴 POLAR 表，运动前后填写正负性情绪量表、运动后填写沉浸感量表和身体活动愉快感量表并询问被试后续参与同类型运动的意愿。结果：在实验一发现两款游戏在平均心率和代谢当量上无显著差异，且运动强度能够达到中等强度下限。实验二未发现 VR 和单车在运动强度上存在显著差异；发现时间和运动类型在消极情绪上存在显著交互作用,参与者在两类运动前消极情绪得分上没有差别，但 VR 运动后消极情绪得分显著低于单车，提示被试在 VR 运动后消极情绪的改善效果比单车运动更好。此外，被试在 VR 运动条件后的身体活动愉快感、沉浸感、后续锻炼意愿分数都显著高于单车运动条件。结论：VR 运动强度能够达到中等强度，并且相较传统单车运动能够获得更高的愉快感、沉浸感，提升后续锻炼意愿并且改善负性情绪。本研究结果提示，VR 运动可以作为日常身体活动量不足的一种补充，且可能带来更积极的运动情感体验，进而提升个体的锻炼意愿，促进锻炼行为。
关键词　虚拟现实，体感游戏，运动，体验，情感

Exercise Experience and Emotional Response to Virtual Reality Exercise

LI Chuncheng[1],YAN Yin[1]
1 Beijing Sport University, Beijing, 100084, yangyin@bsu.edu.cn

Abstract：With the continuous development of science and technology and electronic devices, an emerging form of exercise, exergaming, is coming into the limelight, and virtual reality technology is increasingly sought after by young people for its high immersion and entertainment. It is important to understand the physical and psychological effects of Virtual Reality Exercise on people. OBJECTIVE: This study aims to explore the physical activity of general students when playing virtual reality exergames and to compare the similarities and differences between virtual reality exercise and traditional cycling sports in terms of exercise experience and emotional response under the same exercise intensity. METHODS: Two exergames were selected as experimental materials according to the type and mode of exercise in the PICO Game Mall, and 38 subjects were randomly recruited in two batches. Experiment 1 subjects wore a POLAR and ActiGraph GT3X tri-axial accelerometer for the two games, all subjects performed the two games in random order, and heart rate and activity data were recorded after the exercise. Experiment 2 subjects performed a single session of VR exergame and cycling exercise, received sequential randomization of the two exercises wearing a POLAR, filled out the Positive and Negative Affect Scale before and after exercise, the Igroup Presence Questionnaire, and the Physical Activity Enjoyment Scale after exercise and asked about the intention to subsequently participate in the same type of exercise. RESULTS: In experiment 1 no significant differences were found between the two exergames in mean heart rate and metabolic equivalents, and the exercise intensity was able to reach the lower limit of moderate intensity. Experiment 2 did not find a significant difference between VR and cycling in terms of exercise intensity; however, a significant interaction between time and exercise type was found in negative mood scores, participants did not differ in negative mood scores before the two types of exercise, but negative mood scores were significantly lower than cycling, suggesting that subjects showed better improvement in negative emotions after VR exercise than cycling exercise. In addition, subjects' scores of physical activity enjoyment, immersion, and intention to exercise after the VR exercise condition were significantly higher than those of the cycling condition. CONCLUSION: VR exercise can reach moderate intensity and be more enjoyable and immersive than traditional cycling, enhancing the willingness to follow up exercise and improving the bad mood. This makes VR exercise can be used as a

supplement to the lack of daily physical activity and may improve people's awareness of exercise through positive emotional feedback and exercise experience, and develop the habit of regular exercise.
***Keywords*:** virtual reality, exergame, exercise, experience, emotion

简体中文版运动依赖量表在大学生群体中的纵向等值性

吴静涛5　张晓林 2　胡军 1

（乐山师范学院藏羌彝走廊体质健康促进研究中心，四川乐山 614000；四川师范大学 体育学院，四川成都，610066 ）

摘 要 **目的：**检验简体中文版运动依赖量表在我国大学生群体中跨时段的测量等值性。**方法：**以四川省乐山市和成都市的 2225 名某在校大学生为调查对象，时间间隔 6 个月，使用运动依赖量表对同一批次调查群体进行 2 次跟踪调查。**结果：**（1）T1 时段各维度载荷系数在 0.674~0.930 之间，T2 时段各维度载荷系数在 0.706~0.971，运动依赖量表在 T1 和 T2 观测时段上的 CFI、TLI 均大于 0.9，RMSEA＜0.08；（2）形态等值性检验中发现，各项模型拟合指数良好，分别为 CFI=0.915，TLI=0.915,BIC=2400.258,SRMR=0.048,RMSEA=0.061,形态等值性成立;（3）弱等值结果显示，△CFI 和△TLI 均为-0.002，远小于 0.01 界定范围，BIC 和 RMSEA 分别为 2432.910、0.059，同比减少了 32.652、0.002，衰减指数皆在模型等值范围内；（4）数值模型严格等值显示，△CFI 和△TLI 均为-0.003，BIC 和 RMSEA 分别为 2424.652、0.058，同比强等值模型减少 2.486、0.000；（5）潜变量方差的跨时段等值显示，△CFI 和△TLI 均为 0.000，BIC 和 RMSEA 分别为 2404.356、0.058，同比严格等值性模型减少了 20.296、0.000；（6）模型跨时段的稳定性显示，△CFI 和△TLI 均为-0.007，BIC 和 RMSEA 分别为 2315.566、0.058，同比因子方差等值模型减少了 88.79、0.000;（7）潜变量均值跨时段的等值性显示，△CFI 和△TLI 分别为 0.009、0.036，BIC 和 RMSEA 分别为 131.382、0.052，同比因子协方差等值模型减少了 31.382、0.006。**结论：**简体中文版运动依赖五因子模型具备跨时段的测量等值性。
关键词 运动依赖；纵向等值；大学生；测量等值；结构等值

Longitudinal Equivalence of the Simplified Chinese Version of the Physical Activity Dependence Scale in a University Student Population

Jingtao Wu，XiaoLin Zhang,Jun Hu

Physical Health Promotion Research Center for Tibetan, Qiang, and Yi Corridors, Leshan Normal University, Leshan, Sichuan, 614000; School of Physical Education, Sichuan Normal University, Chengdu, Sichuan, 610066

***Abstract*: Objective:** To verify the cross-temporal measurement equivalence of the Simplified Chinese version of the Physical Activity Dependence Scale (PADS) in the Chinese university student population. **Methods:** A survey was conducted among 2225 university students in Leshan and Chengdu, Sichuan Province, with an interval of six

[5] **作者简介：**吴静涛（1989-），男，河南新野人，硕士，讲师，主要从事体育锻炼心理学研究。
通讯作者：胡军，E-mail:1204879427@qq.com。
基金：教育部人文社会科学研究青年基金项目（(21YJC890001），四川省社科联项目（TY2021303），自贡市社科联项目（GT-02202104）阶段性成果。

months, using the PADS for two follow-up surveys on the same cohort. **Results:** (1) The factor loadings for each dimension in the T1 period ranged from 0.674 to 0.930, and from 0.706 to 0.971 in the T2 period. The Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) for the PADS were all above 0.9 in both T1 and T2 observation periods, with the Root Mean Square Error of Approximation (RMSEA) below 0.08; (2) In the configural invariance test, all model fit indices were satisfactory: CFI = 0.915, TLI = 0.915, Bayesian Information Criterion (BIC) = 2400.258, Standardized Root Mean Square Residual (SRMR) = 0.048, RMSEA = 0.061, thus establishing configural invariance; (3) The weak invariance results showed that both ΔCFI and ΔTLI were -0.002, far less than the defined range of 0.01, with BIC and RMSEA being 2432.910 and 0.059, respectively, both of which had decreased by 32.652 and 0.002 respectively, indicating that all decay indices were within the model equivalence range; (4) The strict invariance of the scalar model showed that ΔCFI and ΔTLI were both -0.003, with BIC and RMSEA being 2424.652 and 0.058 respectively, a decrease of 2.486 and 0.000 respectively compared to the strong invariance model; (5) The cross-time invariance of the latent variable variance showed that both ΔCFI and ΔTLI were 0.000, with BIC and RMSEA being 2404.356 and 0.058 respectively, a decrease of 20.296 and 0.000 respectively compared to the strict invariance model; (6) The cross-time stability of the model showed that both ΔCFI and ΔTLI were -0.007, with BIC and RMSEA being 2315.566 and 0.058 respectively, a decrease of 88.79 and 0.000 respectively compared to the model of factor variance invariance; (7) The cross-time invariance of the latent variable mean showed that ΔCFI and ΔTLI were 0.009 and 0.036 respectively, with BIC and RMSEA being 131.382 and 0.052 respectively, a decrease of 31.382 and 0.006 respectively compared to the model of factor covariance invariance. **Conclusion:** The five-factor model of the Simplified Chinese version of the PADS demonstrates cross-temporal measurement equivalence.

Keywords: Physical Activity Dependence; Longitudinal Equivalence; University Students; Measurement Equivalence; Structural Equivalence

不同配对方式的评价性条件反射对大学生内隐锻炼态度的影响

张琪 张国礼（通讯作者）

北京体育大学心理学院，北京，100084，guoli_zhang@126.com

摘 要 目的 评价性条件反射（EC）是指将条件刺激（CS）与非条件刺激（US）反复进行配对，使 CS 获得 US 的效价。本研究探究不同配对方式的 EC 对大学生内隐锻炼态度改变的差异，为提升内隐锻炼态度提供更有效的实验范式。方法 52 名（$M_{年龄}$=20.210 ± 1.293 岁）大学生参与实验，采用 3（配对方式）× 2（测量次序）的混合实验设计，配对方式为组间变量，分为积极配对（锻炼词语+积极图片：配对 200 次）、消极配对（非锻炼词语+消极图片：配对 200 次）和混合配对（锻炼词语+积极图片：配对 100 次，非锻炼词语+消极图片：配对 100 次），测量次序为组内变量，分为前测和后测。使用内隐联想测验测量个体的内隐锻炼态度。结果（1）重复测量的方差分析结果显示，测量次序的主效应显著（$F_{(1, 49)}$ =12.929，p = 0.001< .05，partial η^2 = 0.209），参与者后测的内隐态度态度显著优于前测。配对方式与测量次序的交互作用显著（$F_{(1, 49)}$ = 3.347，p = 0.043<.05，partial η^2 = 0.120）。简单效应分析发现，积极配对和消极配对的内隐锻炼态度后测显著优于前测，混合配对后的内隐锻炼态度无显著性变化。（2）以每组参与者内隐锻炼态度后测与前测的差值为因变量，进行单因素方差分析，结果显示不同配对方式的 EC 对大学生内隐锻炼态度的提升效果有显著性差异（$F_{(2, 49)}$ = 3.347， p = 0.043<.05）。多重比较结果显示，积极配对显著优于混合配对，而混合配对与消极配对没有显著性差异。 结论 （1）评价性条件反射能使大学生的内隐锻炼态度发生显著改善。（2）积极配对的评价性条件反射能够更有效的改善大学生的内隐锻炼态度，以期提高大学生的锻炼行为，促进个体的身心健康。后续研究者可以在本研究的基础上，采用积极配对的评价性条件反射，探究个体内隐锻炼态度与身体活动之间的变化关系。

关键词 评价性条件反射，内隐锻炼态度，配对方式，条件刺激，非条件刺激

The effect of evaluative conditioning on implicit attitude toward exercise of college students in different matching modes

Qi Zhang, Guoli Zhang (Corresponding author)
School of Psychology, Beijing Sport University, Beijing, 100084, guoli_zhang@126.com

Abstract: Objective Evaluative conditioning (EC) refers to the repeated pairing of a conditioned stimulus (CS) with an unconditioned stimulus (US), so that CS obtains the valence of US. This study explores the difference of EC with different matching modes on the change of implicit attitude toward exercise of college students, provides a more effective experimental paradigm for improving implicit attitude toward exercise. Methods Fifty-two college students (M_{age}= 20.210 ± 1.293 years old) participated in the study. A mixed experimental design of 3 (matching modes) × 2 (measurement order) was adopted. The matching modes was the between-group variable, which was divided into positive matching (exercise words + positive pictures: pairing 200 times) and negative matching (non-exercise words + negative pictures: pairing 200 times) and mixed matching (exercise words + positive pictures: paired 100 times, non-exercise words + negative pictures: paired 100 times), the measurement order was within-group variable, which was divided into pre-test and post-test. The implicit association test was used to measure the individual's implicit attitude toward exercise. Results 1) The repeated-measurements ANOVA results showed that the main effect of measurement order was significant ($F_{(1, 49)}$ =12.929，p = 0.001< .05，partial η^2 = 0.209), and participants' implicit attitude toward exercise was significantly better in the post-test than in the pre-test. The interaction between matching modes and measurement order is significant ($F_{(1, 49)}$ = 3.347，p = 0.043<.05，partial η^2 = 0.120). Simple effect analysis found that the implicit attitude toward exercise of positive and negative matching was significantly better than that of pre-test, and there was no significant change in implicit attitude toward exercise after mixed matching. 2) Using the difference between the post-test and pre-test of implicit attitude toward exercise as the dependent variable, univariate analysis of variance was performed. The results showed that EC with different matching modes had significant difference on the improvement effect of implicit attitude toward exercise of college students ($F_{(2, 49)}$ = 3.347，p = 0.043<.05). The results of multiple comparisons showed that positive matching was significantly better than mixed matching, while mixed matching had no significant difference from negative matching. Conclusion 1) Evaluative conditioning can significantly improve the implicit attitude toward exercise of college students. 2) The evaluative conditioning of positive matching can improve implicit attitude toward exercise of college students more effectively, so as to improve their exercise behavior and promote their physical and mental health. On the basis of this study, subsequent researchers can use positive matching evaluative conditioning to explore the changing relationship between individuals' implicit attitude toward exercise and physical activity.

Keywords: evaluative conditioning, implicit attitude toward exercise, matching modes, conditioned stimulus, unconditioned stimulus

身体活动中“习惯性启动”与“习惯性执行”的历史溯源、现实审视和未来展望

朱良昊　侯君利　王井强（通讯作者）
湖北商贸学院体育学院，武汉 430079，E-mail：zlhzhupipi@163.com

摘 要　习惯被视为一种过程或心理结构的当代观点盛行，致使身体活动习惯的概念化和运行机制不断接受挑战。特别是身体活动中习惯的两种表现形式：习惯性启动、习惯性执行，引发 Hagger、Phillips、Gardner 等学者于 2019 年在《运动与锻炼心理学》杂志上批判性地讨论这种区分的基本原理及证据，试图更准确地描述个体产生习惯性行为的过程。本文采用叙述性综述，对身体活动中习惯性启动与习惯性执行的历史溯源进行回顾，系统梳理该领域最新理论和实证资料，审视现有研究的成就与不足，并面向未来提出基于习惯的行为改变干预措施的相关建议。首先，文献资料呼吁我们重新认识习惯，完成三重转向：1）由过去行为频率的同义词转向重复响应形成的自动性；2）由脱离认知机制的行为形式转向产生行为冲动的总体过程；3）由目标追求的对立竞争者转向特定行为的默认合作者。将习惯理论应用于复杂行为（身体活动）需要对行为进行解构，研究认为：身体活动是由多个简单子动作依次串联且有意识参与调节的行为序列，习惯性行为是由习惯性启动与习惯性执行独立控制的行为或行为反应。其次，习惯性启动描述了从一系列替代方案中自动选择且承诺实施某项行动的习惯，习惯性执行描述了完成高阶行动所涉及至少一个低阶步骤序列的自动进展，是一种促进流畅表现的习惯。然而，以层次结构为基础的二维分析视角存在逻辑缺陷，需要围绕研究背景和目的，借助相对不适宜分析水平产生的直觉判断，确定一个最适当分析水平理解身体活动的启动点。值得注意的是，这种区分与习惯准备和习惯表现的二分法相似但不等同，分离后的习惯性执行与行为一致性、模式化行动在程序上出现重合，尽管习惯性启动与执行在测量方法上具有独特性。传统观点认为习惯的决定因素与线索、行为、行动者相关，先前的诸多论断都无保留地指向习惯性启动，而忽视这些决定因素与习惯性执行的可能解释。在行为预测方面，习惯对行为的两种典型影响机制都归结于习惯性执行，“固定的习惯性启动”和“多变的习惯性执行”的结合体是预测行为最理想的状态。最后，我们建议：1）应使用传感器数据（例如，GPS）或密集的自我报告数据（例如，日记法、生态瞬时评估）捕捉习惯性启动与习惯性执行，以获取更高的测量精确度；2）如果出于促进参与者形成有益的身体活动习惯，应强调干预对习惯性启动的效果提升；3）针对习惯强度已经趋于稳定的参与者，如果目的是消退有害的身体活动习惯，应优先考虑从结构上打破原有行动序列的自动关联。

关键词　习惯性启动，习惯性执行，习惯性行为，自动性，无意识控制过程

The history, practice, and future of “habitual instigation” and “habitual execution” in physical activity

ZHU Lianghao, HOU Junli, WANG Jingqiang
School of Physical Education, Hubei Business College, Wuhan 430074

***Abstract*:** The prevalence of contemporary perspectives on habit as a process or psychological structure has led to a continuous challenge to the conceptualization of physical activity habits and the mechanisms by which they operate. In particular, the two manifestations of habit in physical activity: habitual instigation, and habitual execution, prompted the critically discussed rationale and evidence for this distinction in the Psychology of Sport and Exercise in 2019 by scholars such as Hagger, Phillips, Gardner, and others, in an attempt to more accurately characterise the processes by which individuals produce habitual behaviors. Using a narrative review, this paper

reviews the historical origins of habitual instigation and execution in physical activity, systematically compiles the latest theoretical and empirical information in the field, further examines the achievements and shortcomings of the existing research, and makes recommendations related to habit-based behavior change interventions for the future. First, the literature calls on us to reconceptualise habits and accomplish a triple shift: 1) from synonyms of past behavioral frequencies to automaticity formed by repetitive responses; 2) from forms of behavior divorced from cognitive mechanisms to overarching processes generating behavioral impulses; and 3) from antagonistic competitors in the pursuit of a goal to default co-operators in specific behaviors. Applying habit theory to complex behavior (physical activity) requires a deconstruction of behavior, with research suggesting that physical activity is a sequence of behaviors consisting of a number of simple sub-movements sequentially linked and consciously regulated, and that habitual behaviors are behaviors or behavioral responses that are independently controlled by habitual instigation and execution. Second, habitual instigation describes the habit of automatically selecting and committing to an action from a range of alternatives, and habitual execution describes the automatic progression through a sequence of at least one lower-order step involved in completing a higher-order action, and is a habit that promotes fluent performance. However, a two-dimensional analytical perspective based on a hierarchical structure suffers from logical deficiencies and requires the identification of a point of initiation for understanding physical activity at the most appropriate level of analysis by drawing on intuitive judgements generated by the relatively inappropriate level of analysis around the context and purpose of the study. It is worth noting that this distinction is similar but not equivalent to the dichotomy of habitual preparation and habitual performance, and that separated habitual performance overlaps procedurally with behavioral consistency and patterned action, despite the uniqueness of habitual initiation and performance in terms of measurement methods. The traditional view of the determinants of habits as related to cues, behaviors, and actors, with many previous assertions pointing unreservedly to habitual instigation, ignores possible explanations of these determinants in relation to habitual execution. In terms of behavioral prediction, the two typical mechanisms of habitual influence on behavior are attributed to habitual execution, and the combination of "fixed habitual instigation" and "variable habitual execution" is the most desirable state for predicting behavior. Finally, we suggest that: 1) using sensor data (e.g., GPS) and dense self-reported data (e.g., diary methods, ecological instantaneous assessments) to capture habitual initiation and execution can achieve higher accuracy; 2) If it is to promote the formation of beneficial physical activity habits among participants, emphasis should be placed on enhancing the effectiveness of intervention in habitual initiation; 3) For participants whose habit intensity has stabilized, if the goal is to eliminate harmful physical activity habits, priority should be given to breaking the automatic connection of the original action sequence structurally.

Keywords：Habitual instigation, Habitual execution, Habitual behavior, Automaticity, Non-conscious regulatory processes

体育锻炼与大学生主观幸福感的关系：有调节的中介模型

王迎晨[1]、邹容[1]（通讯作者）

武汉体育学院运动医学院，武汉，43000，通讯作者 E-mail:zourong4035@qq.com

摘 要 以往研究表明经常性的体育锻炼行为可以改善个体的精神健康，使其可能采用更多的适应性的情绪调节策略，从而有利于提高主观幸福感，然而性别角色规范限制了个体在特定情景下选择合适的情绪调节策略，因此，需要对体育锻炼与主观幸福感之间的关系及作用机制进行探究。

目的：本研究通过检验一个有调节的中介模型，探讨在体育锻炼与主观幸福感之间的关系，情绪调节策略的中介作用以及性别角色的调节作用。

方法：采用问卷法对 896 名大学生进行调查研究，使用体力活动评定量表(PARS-3)、性别角色(PARS-3)、情绪调节问卷（ERQ）并以抑郁、人际关系质量和生活满意度量表的分值作为主观幸福感指标的问卷，采用 SPSS 26.0 软件及 PROCESS 宏程序对数据进行中介和调节效应分析。

结果:（1）体育锻炼显著预测大学生的主观幸福感；（2）控制额外变量后，认知重评和表达抑制在体育锻炼对主观幸福感维度上的抑郁、人际关系质量以及生活满意度起部分中介作用;（3）体育锻炼和主观幸福感各维度上的间接效应前半段受到性别角色的调节；（4）性别角色类型在体育锻炼预测认知重评和表达抑制中其调节作用，具体而言，性别角色类型中男性化和女性化的大学生参与体育锻炼对认知重评的影响作用加强，对表达抑制的影响作用减弱；然而性别角色类型中双性化和未分化的大学生参与体育锻炼对认知重评和表达抑制的产生影响作用不显著。

结论：情绪调节策略在体育锻炼对主观幸福感的影响中起部分中介作用，且这一中介作用的前半段受到性别角色类型的调节。

关键词　体育锻炼；性别角色；情绪调节策略；主观幸福感

The relationship between physical exercise and subjective well-being of college students: a moderated mediation model

WANG Yingchen[1] ,ZOU Rong[1] (corresponding author)

College of Sports Medicine, Wuhan University of Physical Education, Wuhan 430000, China.

Corresponding author E-mail:zourong4035@qq.com

Abstract：Previous studies have shown that regular physical exercise can improve the mental health of individuals and enable them to adopt more adaptive emotion regulation strategies, thus helping to improve subjective well-being. However, gender role norms limit the selection of appropriate emotion regulation strategies in specific situations. Therefore, It is necessary to explore the relationship and mechanism between physical exercise and subjective well-being.

Objective: This study examined a moderated mediation model to explore the relationship between physical exercise and subjective well-being, the mediating role of emotion regulation strategies, and the moderating role of gender roles.

Methods: A questionnaire was used to investigate 896 college students. Physical Activity Rating Scale (PARS-3), gender Role Scale (PARS-3), emotional regulation questionnaire (ERQ) and depression, interpersonal relationship quality and life satisfaction scale were used as indicators of subjective well-being. SPSS 26.0 software and PROCESS macros were used to analyze the mediating and moderating effects of the data.

Results: (1) Physical exercise significantly predicted the subjective well-being of college students; (2) After controlling for additional variables, cognitive reappraisal and expression inhibition partially mediated the effects of physical exercise on depression, interpersonal relationship quality and life satisfaction in the subjective well-being dimension; (3) The indirect effects of physical exercise and subjective well-being were regulated by gender roles in the first half; (4) Gender role type has a moderating effect on the prediction of cognitive reappraisal and expression inhibition by physical exercise. Specifically, male and female college students with gender role type participate in physical exercise has a stronger effect on cognitive reappraisal, but a weaker effect on expression inhibition; However, the effects of intersex and undifferentiated college students participating in physical exercise on cognitive reappraisal and expression inhibition were not significant.

Conclusion: Emotion regulation strategy plays a partial mediating role in the influence of physical exercise on subjective well-being, and the first half of this mediating role is regulated by gender role type.

Keywords: physical exercise; Gender roles; Emotion regulation strategies; Subjective well-being

抑制控制对假动作情景下预判表现的影响

刘艳艳[1] 杨楠[2] 王晓婷[1] 高娅卓[2] 周辰[1] 迟立忠[1]（通讯作者）

1 北京体育大学心理学院，北京，100084，chilizh3804@163.com

2 北京体育大学足球学院，北京，100084

摘 要 假动作是运动员寻找时机、创造合适的传球机会的一个必要措施。与非假动作相比，假动作通常诱导运动员利用错误的线索，做出错误的动作反应。如果运动员能够对错误的诱导信息进行抑制，是否可以较少受假动作的影响，从而提高预判表现。研究采用 2(运动情景：假动作、非假动作) × 2 (抑制控制：高、低) × 3(动作序列：t0、t1、t2)混合实验设计。通过 Stroop 任务将 84 名足球运 动员的抑制控制得分进行高、低分组，抑制控制得分在前 27%的运动员为高抑制控制组，后 27%的运动员为低抑制控制组，每组运动员各 22 名。正确率的结果发现，运动情景和抑制控制的主效应显著 (F (1, 42) = 241.058, p < .001, η^2_p = .852；F (1, 42) = 7.631, p = .008, η^2_p = .154)，动作序列与抑制控制的交互作用显著，F (1, 42) = 6.049, p = .004, η^2_p = .126，在 t1(0.71vs. 0.58, p <. 001)和 t2 (0.82 vs. 0.75, p =. 046)动作序列上，高抑制控制组的正确率高于低抑制控制组。动作类型与抑制控制的交互作用显著，F (1, 42) = 11.916, p = .001, η^2_p = .221，在假动作上，高抑制组的正确率高于低抑制组 (0.55 vs. 0.37, p =. 002)；非假动作下无显著差异。动作序列与运动情景的交互作用显著，F (1, 42) = 12.620, p < .001, η^2_p = .231，三个动作序列上假动作的正确率低于非假动作 (0.38 vs.0.86, p <. 001; 0.38 vs. 0.92, p <. 001; 0.62 vs. 0.95, p <. 001)。反应时结果发现，动作序列的主效应显著，F (1, 42) = 58.284, p < .001, η^2_p = .581。运动情景的主效应显著，F (1, 42) = 157.943, p < .001, η^2_p = .790：假动作的反应时 (567.71±27.48) 大于非假动作 (354.62±17.01)。动作序列与运动情景的交互作用显著，F (1, 42) = 4.750, p = .011, η^2_p = .102，三个动作序列的假动作反应时显著大于非假动作。结果表明，抑制控制影响假动作情景下的预判表现，随着动作序列的延申，可用信息变多，促进运动员在假动作情景下的预判表现。

关键词 假动作，抑制控制，预判，足球

The Effect of Inhibitory Control on the Performance of Anticipation in Deception

Liu yanyan[1] Yang nan[2] Wang xiaoting[1] Gao yazhuo[2] Zhouchen[1] Chi lizhong[1](corresponding author)

1 School of Psychology, Beijing Sprot University, Beijing, 100084, chilizh3804@163.com

2 School of Soccer, Beijing Sprot University, Beijing, 100084

Abstract ：Deceptions are a necessary technical for athletes to find the right moment and create the right passing opportunity. In contrast to geniune movements, deception usually induce athletes to utilize false cues and make incorrect movement responses. If athletes are able to inhibit error-inducing information, could they be less affected by deception and thus improve anticipation performance. The study utilized a 2 (motion scenarios: deception, non-deception) × 2 (inhibition control: high, low) × 3 (action sequences: t0, t1, t2) mixed experimental design. The 84 soccer athletes were grouped into high and low groups by the Stroop task according to the inhibitory control scores. Athletes with inhibitory control scores in the top 27% were in the high inhibitory control group, and athletes in the bottom 27% were in the low inhibitory control group, with 22 athletes in each group. Results for correctness found a significant main effect of movement scenario and inhibition control (F (1, 42) = 241.058, p

< .001, η^2_p = .852; *F* (1, 42) = 7.631, *p* = .008, η^2_p = .154). A significant interaction between movement sequence and inhibition control, *F* (1, 42) = 6.049, *p* = .004, η^2_p = .126 was significant at t1 (0.71 vs. 0.58, *p* < . 001) and t2 (0.82 vs. 0.75, *p* =. 046) action sequences. The high inhibition control group was more correct than the low inhibition control group in deception. The interaction between action type and inhibition control was significant, *F* (1, 42) = 11.916, *p* = .001, η^2_p = .221, with the high inhibition control group having a higher rate of correctness than the low inhibition control group on deception (0.55 vs. 0.37, *p* =. 002). there were no significant differences under non-deception. The interaction between action sequences and motor scenarios was significant, *F* (1, 42) = 12.620, *p* < .001, η^2_p = .231, with lower correct rates than non-deception on the three action sequences (0.38 vs. 0.86, *p* <. 001; 0.38 vs. 0.92, *p* <. 001; 0.62 vs. 0.95, *p* <. 001). Reaction time results found a significant main effect of action sequence, *F* (1, 42) = 58.284, *p* < .001, η^2_p = .581. A significant main effect of movement scenario, *F* (1, 42) = 157.943, *p* < .001, η^2_p = .790. The reaction time to the non-deception (567.71 ± 27.48) was greater than the deception (354.62 ± 17.01). The interaction between action sequences and motor scenarios was significant, *F* (1, 42) = 4.750, *p* = .011, η^2_p = .102, with response times significantly longer for deception than non-deception for all three action sequences. The results suggest that inhibitory control influences anticipatory performance in the deception scenario. As the movement sequences are extended, more information becomes available to facilitate athletes' anticipatory performance in the deception.

Keywords ：deception, inhibitory contory, anticipation, soccer

强迫运动量表在大学生群体中的性别和纵向等值性

吴静涛[6] 胡军 [1]

（乐山师范学院藏羌彝走廊体质健康促进研究中心，四川乐山 614000 ）

摘 要 **目的：**验证强迫运动量表在大学生群体中的性别和纵向等值性。**方法：**借助强迫运动量表（CET）对乐山市和成都市 8 所在校的 1431 名大学生进行两次纵向调查，间隔时间为 6 个月。**结果：**（1）比以第 1 次观测数据，总分和控制体重的运动维度上男生和女生没有显著性差异（P＞0.05），情绪改善、缺乏运动乐趣、回避和规则驱动等 3 个维度上男女生表现出显著的差异（P＜0.01），且女生得分高于男生，情绪改善维度男生高于女生且表现显著（P＜0.01）。第 2 次观测的各项数值均大于第 1 次，且数据的独立样本检验显著（P＜0.01）；（2）跨性别间的模型拟合度对比，CET 量表在总分、男女生模型的 TLI、CFI 指数均达到大于 0.90 的标准，RMSEA 位于置信区间内（90%）且都小于 0.08 规定数值；（3）模型拟合度的跨性别间比较，对比四个模型校验的拟合度指数，发现 TLI、CFI 指数均大于 0.90，RMSEA 数值落在置信区间内（90%）且均小于 0.08，△CFI 的指数均小于 0.01 界定范围；（4）纵向组别间模型等值性检验，发现△CFI 的指数均小于 0.01，其他观测指标均达标（TLI、CFI、RMSEA），达到了观测模型的要求。**结论：**强迫运动量表（CET）的五因子结构在大学生男女群体、不同观测时段中测量等值性成立。

关键词 强迫运动量表；情绪性障碍；大学生；等值性

Gender and Longitudinal Equivalence of the Compulsive Exercise Test in a University Student Population

[6] **作者简介：**吴静涛（1989-），男，河南新野人，硕士，讲师，主要从事体育锻炼心理学研究。
通讯作者：胡军，E-mail:1204879427@qq.com。
基金：教育部人文社会科学研究青年基金项目（(21YJC890001），四川省社科联项目（TY2021303），自贡市社科联项目（GT-02202104）阶段性成果。

Jingtao Wu,Jun Hu
(Center for physical health promotion in Leshan Normal University Tibetan, Qiang and Yi Corridor, Leshan 614000）

Abstract： **Objective:** To verify the gender and longitudinal equivalence of the Compulsive Exercise Test (CET) in a university student population. **Methods:** The CET was used to conduct two longitudinal surveys among 1431 university students from eight schools in Leshan and Chengdu cities, with an interval of six months. **Results:** (1) Compared with the first observation data, there were no significant differences in the total score and the dimension of exercise for weight control between males and females (P＞0.05), but there were significant differences in the dimensions of mood improvement, lack of exercise enjoyment, avoidance and rule-driven exercise (P＜0.01), with females scoring higher than males in the former three, but males scoring significantly higher in mood improvement (P＜0.01). The values of all items in the second observation were higher than in the first, and the independent sample test was significant (P＜0.01); (2) Comparing the model fit across genders, the CET showed that the Tucker-Lewis Index (TLI) and Comparative Fit Index (CFI) of the total score and gender models all met the standard of >0.90, and the Root Mean Square Error of Approximation (RMSEA) fell within the confidence interval (90%) and were all below the set value of 0.08; (3) Comparing the model fit across genders, the fit indices of the four models' validation showed that TLI, CFI were all above 0.90, RMSEA fell within the confidence interval (90%) and were all below 0.08, and the ΔCFI were all within the defined range of 0.01; (4) In the test of model equivalence across longitudinal groups, all ΔCFI were below 0.01, and other observed indices (TLI, CFI, RMSEA) all met the standard, fulfilling the requirements of the observation model. **Conclusion:** The five-factor structure of the CET demonstrated measurement equivalence in both male and female university students, and across different observation periods.

***Keywords*:** Compulsive Exercise Test; Emotional Disorders; University Students; Equivalence

5.9 法律心理学专业委员会

强制隔离戒毒人员复吸风险性问题分析与矫治对策

王春光[1,2]，陈天宇[4],李勇辉[2,3]

（[1]中央司法警官学院，河北省保定市，071000;2.中国科学院心理健康重点实验室，中国科学院心理研究所，北京 100101；3.中国科学院大学心理系，北京 100049;[4]西交利物浦大学，江苏省苏州市，215100.通讯作者 E-mail: liyonghui@pscy.ac.cn.）

摘 要 **目的：**预防复吸行为仍是强制隔离戒毒工作的关键性问题。本研究旨在分析传统型与新型戒毒人员的复吸风险性存在的问题，并有针对性地提出矫治对策，从而降低强制隔离戒毒人员的复吸风险性。**方法：**研究采用《戒毒人员复吸倾向性量表》对 186 名戒毒人员进行评估测试，对测试数据进行独立样本 t 检验和线性回归分析，比较新型毒品人员与传统型毒品人员在复吸风险因素上的异同。**结果：**戒毒人员的生理唤醒问题最为明显，90%以上的戒毒人员存在此方面的问题。在戒毒效能感方面，传统型的得分高于新型

毒品，达到了显著性差异（t=2.11，P<0.05）。在生理唤醒方面，传统型的得分高于新型毒品，且达到了极其显著性差异（t=2.84，P<0.01）。戒毒效能感（β=0.832，p<0.001）成为预测传统型毒品人员复吸风险的首要因素，戒毒行动（β=0.909，p<0.001）成为预测新型毒品人员复吸风险的首要因素。**结论：**根据两种类型戒毒人员复吸倾向性的问题表现，本研究提出了四个方面的矫治对策，即防复吸心理训练应加强对测试未通过戒毒人员诚信教育、防复吸心理训练应共性和区别对待相结合、防复吸心理训练应分阶段开展、防复吸心理训练应形成“模块化”，通过团体干预与个体干预相结合的方式，降低影响不同类型戒毒人员复吸的主要风险性因素，以促进戒毒人员防复吸矫治工作的科学化发展。
关键词　戒毒人员，复吸风险，问题，矫治，对策

Analyzing Relapse Risk Question and Intervention Strategies for Compulsory Isolated Drug Rehabilitation Participants.

Wang Chunguang[1,2],Chen Tianyu[4],Li Yonghui[2,3]

(1.The National Police University for Criminal Justice, Hebei, 071000, China;2.Key Laboratory of Mental Health,Institute of Psychology,CAS,Beijing 100101,China;3.Department of Psychology,University of Chinese Academy of Sciences,Beijing 100049,China;4.Xi'an Jiaotong-Liverpool University, Jiangsu, 215100, China)

Abstract **：** **Objective:** Preventing relapse remains a key issue in compulsory isolation and drug rehabilitation The aim of this study is to analyze the problems in the risk of relapse among traditional and new types of drug addicts, and to propose targeted corrective measures to reduce the risk of relapse among compulsory isolation drug addicts.**Methods:** The study used the "relapse tendency scale for drug addicts" to evaluate and test 186 drug addicts, and conducted independent sample t-tests and linear regression analysis on the test data to compare the similarities and differences in relapse risk factors between new drug addicts and traditional drug addicts.**Results:** Physiological arousal was found to be the most significant problem for drug addicts, with over 90% of drug addicts experiencing this problem. In terms of drug abstinence self-efficacy, traditional drug addicts scored higher than new drug addicts, with a significant difference (t=2.11, P<0.05). In terms of physiological arousal, the score of traditional drugs was higher than that of new drugs, and reached an extremely significant difference (t=2.84, P<0.01). Drug abstinence self-efficacy (β=0.832, p<0.001) was found to be the primary factor in predicting the risk of relapse for traditional drug addicts, while drug abstinence behavior (β=0.909, p<0.001) was the primary factor in predicting the risk of relapse for new drug addicts.**Conclusion:** Based on the symptoms of relapse tendency in two types of drug rehabilitation personnel, this study proposes four corrective measures: strengthening integrity education for drug rehabilitation personnel who had not passed the test, combining common and differential treatment in anti relapse psychological training, conducting staged anti relapse psychological training, and forming a "modular" anti relapse psychological training.By combining group intervention with individual intervention, the main risk factors affecting relapse among different types of drug addicts can be reduced, in order to promote the scientific development of the prevention and treatment of relapse among drug addicts.

Keywords**:** Drug Rehabilitation Participants, Relapse Risk, Question, Intervention, Strategies

亲密伴侣暴力风险评估工具研究

张佳佳[1 2]

1. 四川警察学院 警察管理系 四川泸州 646000

2.中国人民公安大学 犯罪学学院 北京 100038

摘 要：[研究背景]亲密伴侣暴力(Intimate Partner Violence，以下简称 IPV)是指当前或曾经的亲密伴侣所实施的躯体、性、或情感上的伤害或虐待，通过威胁或强迫的手段来获取权力和对受暴者的控制。IPV 风险评估工具已被引入到多个国家监管和防治家庭暴力实践中，多项研究证明 IPV 风险评估工具可准确识别暴力者及受害者所处的风险等级及确定适当的响应措施，以减少暴力行为的发生。我国 IPV 事件普遍发生且后果严重，但有关部门对 IPV 案件的处置和防治仍处于被动响应状态，缺少客观有效的风险评估、监控、回访和受害者后续安全管理等跟进措施，不利于家庭暴力防治与社会安全治理。[研究目的]旨在为我国选择 IPV 风险评估工具或构建本土化家庭暴力风险评估工具提供参考和借鉴，通过构建或选择符合中国式家庭暴力特点的风险评估工具应用于研究及警务司法实践，为反家庭暴力工作中合理分配资源、受害者保护、司法量刑及开展精准有效的预防干预提供依据。[研究内容及方法]首先介绍了目前 IPV 风险评估的三种方法，包括非结构化临床评估、精算风险评估和结构化专业评估；其次详细阐述了广泛应用于多个国家公安、司法、保护机构实践活动中且预测效度良好的 IPV 风险评估工具及其开发背景、评估方法、评估内容、预测准确性及应用情况等特点，包括危险评估量表(DA)、配偶攻击风险评估指南(SARA)、安大略省家庭暴力风险评估(ODARA)、家庭暴力筛查工具(DVSI)、配偶暴力风险评估清单(SVRA-I)以及家庭虐待、跟踪及基于荣耀的暴力风险评估模型(DASH)和警方风险评估(VPR)、警方风险演变评估(VPER)等，并对这些工具评估的内容和风险因素进行了分析、比较和讨论；最后展望了亲密伴侣暴力风险评估工具的未来研究与发展趋势，包括将继续整合尖端技术以提升风险评估的准确性和高效性，将充分考虑文化多样性以提升工具的适用性和可行性，将进一步完善风险管理策略以产生更有效的风险评估与管理效果，以及重视评估人员专业性培训以提升评估工具的预测效能和可靠性。

关键词：亲密伴侣暴力,风险评估工具,风险因素,心理测量

Research on Intimate Partner Violence Assessment Tools

ZHANG Jia-jia[1 2]

1. Department of Police Management, Sichuan Police College, Sichuan, Luzhou 646000, China

2. School of Criminology, People's Public Security University of China, Beijing 10038, China

Abstract: [Research Background] Intimate partner violence (IPV) includes physical violence, sexual violence, stalking and psychological aggression (including coercive tactics) by a current or former intimate partner (i.e., spouse, boyfriend/girlfriend, dating partner, or ongoing sexual partner). IPV risk assessment tools have been introduced into regulatory and prevention practices of domestic violence in multiple countries. Through IPV risk assessment, it is possible to accurately identify the risk level of the violent person and the victim and determine the appropriate response measures to reduce the occurrence of violence. In China, IPV incidents are widespread and have serious consequences, but the handling and prevention of IPV cases by relevant departments were still in a passive responsive state. There was a lack of objective and effective risk assessment, monitoring, follow-up visits, and subsequent safety management for victims, which hinders domestic violence prevention and social security governance. [Research Objective] The objective of this study was to provide references and guidance for the

selection of IPV risk assessment tools in China or the development of localized domestic violence risk assessment tools. By constructing or selecting risk assessment tools that align with the characteristics of Chinese-style domestic violence, they can be applied in research and law enforcement practices. This will facilitate the rational allocation of resources in combating domestic violence, protection of victims, judicial sentencing, and the implementation of precise and effective preventive interventions. [Research Content and Methods] Firstly, this study introduced three methods of IPV risk assessment, including unstructured clinical judgment, actuarial risk assessment, and structured professional judgment. Furthermore, a detailed explanation was provided on IPV risk assessment tools that have been widely applied in the practices of law enforcement, judiciary, and protection agencies in multiple countries, and have shown good predictive validity. The characteristics of these tools were discussed, including their development background, assessment methods, assessment content, predictive accuracy, and application status. These tools included the Danger Assessment Scale (DA), Spousal Assault Risk Assessment Guide (SARA), The Ontario Domestic Assault Risk Assessment (ODARA), Domestic Violence Screening Instrument (DVSI), The Spousal Violence Risk Assessment Inventory (SVRA-I), Domestic Abuse, Stalking, and Honor-Based Violence Risk Identification and Management Model (DASH), Police Risk Assessment (VPR), and Police Assessment of the Evolution of Risk (VPER). The content and risk factors assessed by these tools were analyzed, compared, and discussed. Lastly, future research and development trends for IPV risk assessment tools were discussed. Firstly, the cutting-edge technologies will be integrated to improve the accuracy and efficiency of risk assessment. Secondly, the cultural diversity will be fully considered to improve the applicability and feasibility of the tools. Thirdly, it will further improve the risk management strategies to yield more effective risk assessment and management outcomes, and emphasize on professional training for assessors to enhance the predictive efficacy and reliability of assessment tools.

Keywords: Intimate partner violence, Risk assessment tools, Risk factors, Psychometrics

脑发育视角下罪错未成年人分级处遇机制构建研究

谷超[1]（通讯作者）朱丽娜[2]

1 扬州大学法学院，江苏扬州，225127，通讯作者 guchao@yzu.edu.cn

2 扬州大学体育学院，江苏扬州，225127，

摘 要 《中华人民共和国预防未成年人犯罪法》对未成年人不良行为和严重不良行为的内涵和外延作出相应调整，但是当下对未成年人罪错行为的基本内涵、分级标准、分级体系以及处遇措施等还存在较大争议，针对上述问题，需要回归分级的客观标准——未成年人大脑发育情状构建相应的客观标准。未成年阶段，个体大脑发育的三个重要维度——灰质结构、白质结构、人脑自发神经活动在不断变化：灰质中前额叶皮层的不成熟使得青少年比成年人更容易受到冲动行为和风险决策的影响，也更容易受到情绪和社会唤醒对认知功能的影响。白质作为连接脑区的粗大纤维束，是神经元信号传递的载体，青春期期间微观结构通路发育不完善，导致大脑解剖结构临近或相距较远的脑区之间未能形成有效且精确的信息交换，使得未成年人自我控制、决策、执行功能这些高级且复杂的功能也未能发育完善。未成年人大脑中与扣带回相关的5个功能不同的内在连接网络 (涉及运动控制、注意力/认知控制、冲突监控和错误处理、心理化和社会处理以及情绪调节的5个自我控制网络区域)表现为在儿童期和青春期观察到弥散的局部功能连接模式。因此，未成年人脑结构和功能发育的矛盾特征，造就了未成年人出现了高冲动、情绪波动、自我控制能力较低和寻求奖励行为的“风暴时期”。基于前述客观存在，构建罪错未成年人分级处遇机制需初步构建未成年人脑

质发育数据库，为个案中评估未成年人大脑发育水平以及大脑中相应部位的发育状态以服务个别化的人身危险性判断提供样本基础，进而针对未成年人不良行为（不良行为、严重不良行为、犯罪行为）提出针对性的处遇方法：针对不良行为和严重不良行为，以前述个别化的人身危险性判定结果为前提，结合未成年人大脑发育不全的区域可能造成的结果，进行针对性教育；针对犯罪行为，需坚持教育和改造相结合，包括依据大脑发育状况而提出的针对性课程。
关键词　脑发育，未成年人，罪错行为，分级处遇

An Examination of the Establishment of a Mechanism for Assessing and Addressing Juvenile Offenders through the Lens of Brain Development

Gu Chao[1] Zhu Lina[2]
1 Law School, Yangzhou University, Yangzhou 225127, China
2 College of Physical Education, Yangzhou University, Yangzhou 225127, China

Abstract：The Law of China on the Prevention of Juvenile Delinquency has made revisions to the definition and scope of juvenile misbehavior and serious misbehavior. Nevertheless, significant controversies persist regarding the fundamental definition, criteria for classification, grading system, and intervention strategies for juvenile misbehavior. Given these aforementioned issues, it is imperative to establish objective standards based on the developmental status of juveniles' brains in order to address these concerns effectively. During the juvenile stage, the dynamic nature of individual brain development encompasses three crucial dimensions, namely gray matter structure, white matter structure, and spontaneous neural activity within the human brain. Notably, the immaturity of the prefrontal cortex in gray matter renders adolescents more vulnerable to impulsive behavior and risky decision-making compared to adults. Additionally, emotional and social arousal significantly influences cognitive function in this population. White matter, serving as a substantial fiber bundle facilitating interconnectivity among brain regions, plays a crucial role in the transmission of neuronal signals. In the period of adolescence, the maturation of microstructural pathways remains unfinished, resulting in the inability to establish efficient and precise information exchange between anatomically proximate or distant brain regions. Consequently, this incomplete development hampers the acquisition of sophisticated and intricate cognitive abilities, including self-regulation, decision-making, and task execution, among minors. The cingulate gyrus in the brains of minors is associated with five functional internal connectivity networks, which encompass regions involved in motor control, attention/cognitive control, conflict monitoring and error handling, psychological and social processing, and emotional regulation. These networks demonstrate diffuse local functional connectivity patterns that are observed throughout childhood and adolescence. Hence, the incongruous attributes pertaining to the brain's structure and functional maturation in individuals under the age of majority have given rise to a phase known as the "storm period," characterized by heightened impulsivity, emotional volatility, diminished self-regulation, and a propensity for seeking rewards. In light of the aforementioned objective reality, the establishment of a framework for the categorization and intervention of juvenile offenders necessitates the preliminary construction of a database encompassing the neurological development of minors. This database will serve as a foundational resource for assessing the level of brain development in minors and the corresponding developmental state of specific brain regions in individual cases, thereby facilitating personalized risk assessment. Moreover, this study suggests

specific intervention strategies for addressing minors' negative conduct, encompassing general misbehavior, severe misbehavior, and criminal acts. Specifically, tailored educational interventions are recommended for addressing general misbehavior and severe misbehavior, taking into account the results of individualized risk assessments and considering the potential impact of underdeveloped brain regions in minors. Additionally, a comprehensive approach involving both education and rehabilitation is deemed essential for addressing criminal behavior, which includes targeted interventions aligned with brain development.

Keywords：Brain development, Minors, Criminal behavior, Graded treatment

5.10 学校心理专业委员会

大学生自杀行为影响因素的分类决策树分析

薛朝霞 1　任子媛 1　荆雷 1　李慧 2

1. 山西医科大学人文社会科学学院，太原，030001，xuezhaoxia2006@163.com

2.山西财贸职业技术学院，太原，030602

摘 要： 自杀一直是全球大学生群体中一个重要的公共卫生问题，已成为大学生非正常死亡的重要原因。探查自杀意念向自杀行为转变过程中的风险因素和保护因素，对降低大学生自杀风险具有重要现实意义。自杀的动机意志模型认为，自杀意念和自杀行为隶属两个不同的认知加工过程，自杀意念的形成更容易受到上行冲动系统的影响，自杀行为的发生更容易受到下行控制系统的影响。感恩的拓展建构理论认为，感恩的人社会适应能力更强，遇到逆境悲观绝望时，低感恩的人可能更容易出现自杀意念和行为。为此，本研究运用分类决策树模型，对 11288 名职校大学生施测感恩问卷、自我控制双系统量表、自杀问卷及人口学信息，分析过去一年内自杀意念及感恩、自控等变量对近半年内自杀行为的预测效应。结果显示：大学生近一年内自杀意念发生率 17.1%，近半年内自杀行为发生率 3.8%。分类决策树分析发现，自杀意念为根节点，感恩、冲动、控制、家庭阶层、是否独生均为重要的子节点(AUC=0.959)。得出如下结论：自杀意念是大学生自杀行为最重要的近端风险因素，年内单次和多次自杀意念学生的自杀行为发生率分别为 14.1%和 30.6%。对年多次自杀意念学生而言：冲动为重要风险因素，高冲动学生自杀行为发生率（40.2%）是中低冲动者（17.8%）的 2.26 倍。在中低冲动的多次自杀意念学生中，感恩特质是自杀行为的远端保护因素，低感恩者的自杀行为发生率（27.7%）是中高感恩者（9.7%）的 2.86 倍。而在高冲动的多次自杀意念学生中，适度控制是自杀行为的远端保护因素（27.2%），过高或过低控制均增加自杀行为风险（44.6%）。而对单次自杀意念学生而言，经济社会地位下层家庭的自杀行为发生率（18.0%）明显高于中上家庭（11.9%）。中上阶层家庭中，非独生子女大学生的自杀行为发生率（15.7%）高于独生子女（7.7%）。

关键词：大学生，自杀行为，感恩，自我控制，分类决策树

The Classification Decision Tree Model on College Students' Suicide Behavior

XUE Zhaoxia[1] REN Ziyuan[1] JING Lei[1] LI Hui[2]

1. *School of Humanities and Social Sciences*, *Shanxi Medical University*, *Taiyuan* 030001;

2. *Shanxi Vocational and Technical College of Finance and Trade*, *Taiyuan* 030602

***Abstract*:** Suicide is a pressing public health issue among college students worldwide. Understanding the risk and

protective factors associated with the transition from suicidal ideation to suicidal behavior is crucial for prevention efforts. This study used a classification decision tree model to investigate the impact of gratitude, self-control, and demographic factors on suicidal behavior among 11,288 vocational colleges. The results indicated that 17.1% of students reported suicidal ideation in the past year, and 3.8% engaged in suicidal behavior in the past six months. Suicidal ideation emerged as the most important proximal risk factor for suicidal behavior. Gratitude, impulse, control, family class, and whether the student was an only child were identified as important factors in the classification decision tree analysis (AUC=0.959).Among students with single or multiple instances of suicidal ideation during the year, the incidence of suicidal behavior was 14.1% and 30.6%, respectively. For students with multiple instances of suicidal ideation, impulsivity was a significant risk factor. The incidence of suicidal behavior among students with high impulsivity (40.2%) was 2.26 times higher than that among students with medium and low impulsivity (17.8%). Gratitude trait acted as a distal protective factor for students with multiple instances of suicidal ideation and low or moderate levels of gratitude. The incidence of suicidal behavior among students with low gratitude (27.7%) was 2.86 times higher than that among students with medium or high gratitude (9.7%). Among students with high impulsiveness and multiple instances of suicidal ideation, moderate control was a distal protective factor for suicidal behavior (27.2%), while both excessively high and low control increased the risk of suicidal behavior (44.6%).For students with single instances of suicidal ideation, the incidence of suicidal behavior was significantly higher among those from families with lower socioeconomic status (18.0%) compared to those from families with upper or middle socioeconomic status (11.9%). Among college students from upper-middle class families, the incidence of suicidal behaviors was higher among students with siblings (15.7%) compared to those from only child families (7.7%).

In conclusion, this study emphasizes the importance of addressing suicidal ideation as a significant risk factor for suicidal behavior among college students. It highlights the role of impulsivity, gratitude, self-control, and family background in influencing the likelihood of engaging in suicidal behavior. These findings provide valuable insights for suicide prevention strategies targeting college students.

***Key words*:** college students, suicide behavior, gratitude, self-control, classification decision tree

大学生孤独感与智能手机问题性使用间关系的网络分析

任垒[1,2]　陈晨[3]　周喻[1,2]　刘旭峰[4]（通讯作者）

1 武警后勤学院军事心理学教研室，天津，300309

2 军队心理健康服务与研究中心，天津，300309

3 中国人民解放军 95455 部队，遵义，563000

4 空军军医大学军事医学心理学系，西安，710032，lxf_fmmu@163.com

摘 要　孤独感（Loneliness）被认为是智能手机问题性使用（Problematic smartphone use ，PSU）的重要风险因素之一。目前研究大多使用自我报告量表总分来探究孤独感与 PSU 之间的关系。然而，现有研究表明 PSU 可能反映了一种由异质性症状组成的综合症，且每种 PSU 症状可能与其风险因素存在不同的关联模式。另外，孤独感是由不同成分所组成的心理学构念。到目前为止，还没有研究检验大学生孤独感不同成分与 PSU 不同症状间的关联模式。本研究使用网络分析，旨在探究：1）大学生孤独感的内部网络结构及其核心成分；2）大学生 PSU 的内部网络结构及其核心症状；3）大学生孤独感不同成分与 PSU 不同症状间的关联模式及关联两者的桥变量。以陕西省五所大学 1849 名大学生为研究对象。孤独感采用简版 UCLA 孤独感量表（ULS-6）进行评估。PSU 采用中文版九项网络游戏障碍量表简表（CIGD-SSF-9）进行评估。使用软件 R 中 qgraph 包的 EBICglasso 方法构建三个正则化偏相关网络（Regularized partial correlation network），

即孤独感网络、PSU 网络以及孤独感-PSU 网络。使用预期影响（Expected influence）量化孤独感网络和 PSU 网络中每个变量的中心性。使用桥预期影响（Bridge expected influence）量化孤独感-PSU 网络中每个变量的桥中心性。在孤独感网络中，所有关联均为正性。成分“我感到被人冷落”具有最大的预期影响值，意味着其是孤独感网络中的核心成分。在 PSU 网络中，所有关联均为正性，症状“尽管你因为过度使用手机遭遇心理与社会问题，却仍然过度使用”具有最大的预期影响值，意味着其是 PSU 网络中的核心症状。在孤独感-PSU 网络中，所有关联均为正性，孤独感成分“我对自己如此地不善交际感到不快”和 PSU 症状“你使用手机来逃避或缓解负面心境”具有最大的桥预期影响值，意味着其是连接孤独感和 PSU 的桥变量。本研究揭示了大学生孤独感和 PSU 各自内部网络结构和核心变量以及孤独感-PSU 的网络结构和桥变量。这些结果可能会为大学生相关的预防和干预提供了潜在的靶点，如针对过度使用智能手机来降低整体 PSU 的严重程度以及针对不善交际而感到不快来防止从孤独感引发 PSU。
关键词　大学生，孤独感，智能手机问题性使用，网络分析

The Relations between Loneliness and Problematic Smartphone Use in College Students: A Network Analysis

REN Lei[1,2], CHEN Chen[3], ZHOU Yu[1,2], LIU Xufeng[4,*]
1Military Psychology Section, Logistics University of PAP, Tianjin, 300309
2 Military Mental Health Services & Research Center, Tianjin, 300309
3The 95455 unit of People's Liberation Army, Zunyi, 563000
4Department of Military Medical Psychology, Air Force Medical University, Xi’an, 710032,
lxf_fmmu@163.com

***Abstract*:** Loneliness is considered as an important risk factor for Problematic smartphone use (PSU). Researches have investigated the relations between loneliness and PSU using total scores on self-report measures. However, existing research has demonstrated that PSU may reflect a composition of heterogeneous symptoms, with individual PSU symptoms uniquely related to risk factors. Moreover, loneliness is a psychological construct, consisting of different components. Yet, no studies to date have examined the association between the different components of loneliness and symptoms of PSU. Using a network analysis approach, we aimed to explore: 1) the internal network structure and core components of loneliness in college students; 2) the internal network structure and core symptoms of PSU in college students; and 3) the association between different components of loneliness and symptoms of PSU, and bridge variables bridging them in college students. We estimated three regularized partial correlation networks (i.e., loneliness network, PSU network, and Loneliness-PSU network) among 1,849 college students from five universities in Shaanxi Province via Package qgraph (EBICglasso) in software R. Loneliness was assessed via the short-form UCLA Loneliness Scale (ULS-6). PSU was assessed via the modified Chinese translated nine-item Internet Gaming Disorder Scale-Short Form. Expected influence was used to quantify the centrality of each variable in the loneliness and PSU network. Bridge expected influence was used to quantify the bridge centrality of each variable in the Loneliness-PSU network. Within the loneliness network, all associations are positive. The component “I feel left out” has the highest expected influence, indicating this component is the core component of the loneliness network. Within the PSU network, all associations are positive. The symptom “Continuing smartphone use despite knowing it was causing problems between you and other people” has the highest expected influence, indicating this symptom is the core symptom of the PSU network. Within the Loneliness-PSU network, all associations are positive. The component “I am unhappy being so withdrawn” of loneliness and the symptom “Using smartphone in order to temporarily escape or relieve a negative

mood" of PSU have the highest bridge expected influence, indicating these two variables are bridge variables bridging loneliness and PSU. This study reveals internal network structure and core variables of loneliness and PSU, and structure and bridge variables of loneliness-PSU network in college students. These results may provide potential targets for related prevention and intervention of college students, such as focusing on "Continuing smartphone use despite knowing it was causing problems between you and other people" to reduce the severity of PSU and targeting "I am unhappy being so withdrawn" to prevent the PSU from being caused by loneliness.
Keywords：College students, Loneliness, Problematic smartphone use, Network analysis

主动性人格与网络自我调节学习：领悟社会支持和适应能力的链式中介效应

陈丹[1]，孙红梅[1]（通讯作者）

1 天津中医药大学管理学院，天津，301617，shm1029@126.com

摘 要 目的：为探讨主动性人格对网络自我调节学习的影响及领悟社会支持、适应能力在其中的作用。方法：采用主动性人格量表、适应能力量表、领悟社会支持量表和网络自我调节学习量表对 511 名在校大学生进行调查。结果：①主动性人格与领悟社会支持、适应能力呈显著正相关（r=0.55, 0.62; P＜0.001），与网络自我调节学习呈正相关（r=0.48, P＜0.001）；领悟社会支持与适应能力呈显著正相关（r=0.49, P＜0.001），与网络自我调节学习显著正相关（r=0.38, P＜0.001）；适应能力与调节学习显著正相关（r=0.44, P＜0.001）；②领悟社会支持和适应能力在主动性人格和网络自我调节学习之间具有显著部分中介作用，总中介效应量为 36.80%。领悟社会支持起单独部分中介作用，相对中介效应量 15.40%；适应能力起单独部分中介作用，相对中介效应量 15.40%；领悟社会支持和适应能力也起到链式中介作用，相对中介效应量 6.00%。结论：网络主动性人格不仅能够正向预测网络自我调节学习，而且还能通过领悟社会支持、适应能力的单独中介作用及领悟社会支持-适应能力的链式中介作用预测网络自我调节学习。
关键词 主动性人格，网络自我调节学习，适应能力，领悟社会支持，大学生

Proactive Personality and Online Self-Regulated Learning: The Chain Mediation Effect of Perceived Social Support and Adaptability

CHEN Dan[1], SUN Hong-mei[1]

1 School of Management, Tianjin University of Traditional Chinese Medicine, Tianjin 301617, China

Abstract: **Objective:** To explore the relationship of proactive personality, perceived social support, adaptability, online self-regulated learning and its mechanism. **Methods:** A total of 511 college students were tested by using Proactive Personality Scale, Adaptability Scale, Perceived Social Support Scale and Online Self-Regulated Learning Scale. **Results:** ①The proactive personality was positively correlated with perceived social support and adaptability (r=0.55, 0.62; P < 0.001), positively correlated with Online self-regulated learning (r=0.48, P< 0.001), and perceived social support was positively correlated with adaptability and online self-regulated learning(r=0.49, 0.38; P< 0.001), and adaptability was positively correlated with online self-regulated learning (r=0.44, P< 0.001). ②Perceived social support had a significant mediating effect between proactive personality and online self-regulated learning, and the total mediating effect size was 36.80%. Perceived social support plays a partial mediating role, with the relative mediating effect size of 15.40%; Adaptability played a partial mediating role, with

the relative mediating effect size of 15.40%. Perceptive social support and adaptability also play a chain mediating role, with the relative mediating effect size of 6.00%. **Conclusion:** Proactive personality can not only directly affect Online self-regulated learning, but also indirectly affect it by the individual mediating effect of perceptive social support or adaptability and the chain mediating effect of perceptive social support and adaptability.
Keywords: Proactive personality, Online self-regulated learning, Adaptability, Perceived social support, College student

童年期虐待、网络成瘾与大学生社会退缩的关系：同伴依恋的调节作用

钟沛枝　陈佳榕　萧慧仪　聂衍刚（通讯作者）

1 广州大学教育学院青少年心理与行为研究中心，广州，510006，nie-yangang@gzhu.edu.cn

摘 要 社会退缩（social withdrawal）是个体因为其潜在的社交恐惧和焦虑从而抑制其社交动机，使得个体长期避免于同伴互动并在同伴面前表现出孤独行为的一种现象，对大学生的学业发展、身心健康发展、及其毕业后的社会适应具有明显的不利影响。童年期虐待（child maltreatment）是指父母或其它有监管权和法定监护、抚养义务的人，由于一定的行为或疏忽，导致有意或无意地对儿童造成潜在伤害、潜在威胁或实质性伤害的行为。童年期虐待作为一种早期生活不良事件，与个体社会退缩的形成与发展密切相关。然而，当前童年期虐待对大学生社会退缩的研究仍有不足。因此，基于生态系统理论，本研究构建了一个有调节的中介模型，旨在探讨网络成瘾在大学生童年期虐待与其社会退缩关系间的中介作用，以及同伴依恋在这一中介的路径中的调节作用。本研究选取了广东省 449 名大学生（$Mean_{age}$ = 20.20 岁，SD = 1.42）作为研究对象，所有被试匿名完成了童年期虐待量表、网络成瘾量表、社会退缩量表和同伴依恋量表。研究结果发现：（1）童年期虐待、大学生网络成瘾、社会退缩、同伴依恋两两之间显著关联；（2）网络成瘾显著中介童年期虐待与社会退缩的关系（*indirect effect* = 0.07, SE = 0.02, 95%CI = [0.03, 0.11]）；（3）同伴依恋可显著调节中介路径“童年期虐待→网络成瘾→社会退缩”的前半段（β = 0.09, SE = 0.04, p < 0.05）。本研究将有助于我们了解新成人大学生社会退缩的形成机制、减少新成人大学生出现网络成瘾问题及为帮助新成人大学生解决社会退缩问题提供实证支持与理论指导。
关键词 大学生, 童年期虐待, 社会退缩, 网络成瘾, 同伴依恋

The Relationship Between Child Maltreatment, Social Withdrawal and Internet Addiction among College Students: The Moderating Role of Peer Attachment

Peizhi Zhong, Jiarong Chen, Huiyi Xiao, Yangang Nie*

Research Center of Adolescent Psychology and Behavior, School of Education, Guangzhou University, Guangzhou 510006

***Abstract*:** Social withdrawal is a phenomenon in which individuals suppress their social motivation due to their potential social fear and anxiety, leading to long-term avoidance of peer interaction and solitary behavior in front of peers. It has a significant adverse impact on the academic development, physical and mental health development, and social adaptation of college students after graduation. Childhood maltreatment refers to the behavior of parents

or other individuals with regulatory power and legal guardianship and upbringing obligations, intentionally or unintentionally causing potential harm, threat, or substantial harm to children due to certain behaviors or omissions. Childhood maltreatment, as an early life adverse event, is closely related to the formation and development of individual social withdrawal. However, there is still insufficient research on the impact of childhood maltreatment on social withdrawal among college students. Therefore, based on the ecological systems theory, this study examined the mediating role of Internet addiction in the relationship between childhood maltreatment and social withdrawal of college students, and the moderating role of peer attachment in this mediation path. This study selected 449 college students ($Mean_{age}$=20.20 years old, *SD*=1.42) from Guangdong Province as the research subjects. All participants anonymously completed the Childhood Maltreatment Scale, Internet Addiction Scale, Social Withdrawal Scale, and Peer Attachment Scale. The research results found that: (1) there is a significant correlation between childhood maltreatment, college students' internet addiction, social withdrawal, and peer attachment; (2) Internet addiction significantly mediates the relationship between childhood abuse and social withdrawal (*indirect effect t*= 0.07, *SE* = 0.02, 95% CI = [0.03, 0.11]); (3) Peer attachment can significantly regulate the first half of the mediating pathway "childhood abuse → internet addiction → social withdrawal" (β = 0.09, *SE* = 0.04, $p < 0.05$). This study will help us understand the formation mechanism of social withdrawal among new adult college students, reduce the problem of internet addiction among new adult college students, and provide empirical support and theoretical guidance for helping new adult college students solve social withdrawal problems.

Key words：college student, child maltreatment, social withdrawal, Internet addiction, peer attachment

家庭功能对大学生职业决策困难的影响——核心自我评价与职业探索的链式中介作用

王芬芬[1]　李芃森[1]　孙翠翠[2]（通讯作者）王霞[3]

1 西南交通大学希望学院，成都，610400

2 四川师范大学心理学院，成都，610068，1003572791@qq.com

3 成都体育学院，成都，610041

摘 要　近年来，在全球新冠疫情反复爆发的背景下，国内就业环境的不稳定性和不确定性显著增加，大量的高校毕业生出现了“慢就业”的心理状态，这种现象与学生自身的职业决策困难有关。本研究重点关注家庭功能这一微观环境因素对大学生职业决策困难的影响，并揭示这一影响的内在机制。研究采用方便取样的方式，采用家庭功能评定量表、核心自我评价量表、职业探索量表和职业决策困难问卷分别对 680 名大学生施测了。结果显示：（1）大学生职业决策困难分别与家庭功能（$r = –.28$, p=.000）、核心自我评价（$r = –.44$, p=.000）和职业探索（$r = –.29$, p=.000）存在显著负相关；家庭功能分别与核心自我评价（$r = –.51$, p=.000）、职业探索（$r = –.30$, p=.000）呈显著负相关；核心自我评价与职业探索呈显著正相关（$r = –.28$, p=.000）（2）家庭功能对大学生的职业决策困难有显著的负向预测作用（β= –.28,　p=.000）；（3）家庭功能对核心自我评价（β = .17, p = .000）与职业探索（β=.07, p=.007）具有显著的正向预测作用，而对职业决策困难（β=–.14, p=.134）不具有直接的预测作用；核心自我评价对职业探索（β=.47, p=.000）具有显著正向预测作用，对职业决策困难（β=–2.51, p=.000）具有显著的负向预测作用；职业探索对职业决策困难（β=–.58, p=.000）也具有显著的负向预测作用。结论：核心自我评价和职业探索在家庭功能与职业决策困难之间起链式完全中介作用。本研究从外在的家庭因素及内在核心自我评价的认知角度为职业决策困难的形成机制提供了理论参考。

关键词　家庭功能，职业决策困难，核心自我评价，职业探索

The Influence of Family Function on College Students' Career Decision–making Difficulty: The Chain Mediating Effect of Core Self–evaluation and Career Exploration

Wang Fenfen[1] Li Pengsen[1] Sun Cuicui [2] (corresponding author) Wang Xia[3]
1 Southwest Jiaotong University Hope College, Chengdu 610400, China
2 School of Psychology, Sichuan Normal University, Chengdu 610068, China,
1003572791@qq.com
3 Chengdu Sport University, Chengdu 610041, China

Abstract：In recent years, in the context of the repeated outbreak of the global novel COVID-19 epidemic, the instability and uncertainty of the domestic employment environment has increased significantly, and a large number of college graduates have a psychological state of "slow employment", which is related to the difficulties of students' career decision-making. This study focuses on the influence of family function on career decision-making difficulties of college students, and reveals the internal mechanism of this influence. In this study, 680 college students were tested by family function rating scale, core self-assessment scale, career exploration Scale and career decision Difficulty questionnaire. The results show that: (1) Career decision difficulty was negatively correlated with family function (r = -.28, p=.000), core self-evaluation (r = -.44, p=.000) and career exploration (r = -.29, p=.000). Family function was negatively correlated with core self-evaluation (r = -.51, p=.000) and career exploration (r = -.30, p=.000), respectively. There was a significant positive correlation between core self-evaluation and career exploration (r = -.28, p=.000) (2) Family function had a significant negative predictive effect on career decision difficulty of college students (β= -.28, p=.000). (3) Family function positively predicted core self-evaluation (β=.17, p=.000) and career exploration (β=.07, p=.007), but did not directly predict career decision difficulty (β= -.14, p=.134). Core self-evaluation had a significant positive predictive effect on career exploration (β=.47, p=.000), and a significant negative predictive effect on career decision difficulty (β= -2.51, p=.000). Career exploration also had a significant negative predictive effect on career decision difficulty (β= -.58, p=.000). Conclusion: Core self-evaluation and career exploration play a complete intermediary role in the chain between family function and career decision difficulty. This study provides a theoretical reference for the formation mechanism of career decision-making difficulties from the perspective of external family factors and internal core self-evaluation.

Keywords：family function， career decision difficulty， core self–evaluation， career exploration

大学生对就业环境的认知和不确定条件下的职业决策

高山川　李晓婧

复旦大学心理学系，上海，200433，tracygao@fudan.edu.cn

摘 要　解决大学生就业困难需了解其对环境的认知和风险评估是否合理。根据竞争性生态理论，选项的回报及其获得概率（风险）存在负相关。大学生对工作机会的认知是否符合这一规律？能否根据回报大小推测风险？个人就业胜任力与不同城市环境如何共同影响风险评估与求职？聚焦工作的薪酬回报，进行了两个子研究：研究一考察大学生对各级城市中不同月薪的工作选项之机会多少与竞争程度的认知；研究二设置了 4 种选择情境，各包括两个月薪有高有低的工作选项（差距为 2000~10000 元），考察不同就业胜任力的学生在不确定工作的录取概率时是否愿意申请更高月薪的工作，又如何估计录取概率。

通过预研究编制了不同城市的介绍材料。研究一为 4（工作地点：一线、新一线、二线、三线城市）× 5（月薪：3000、5000、8000、10000、15000 元）的混合设计，因变量为对工作选项的机会多少和竞争程度的主观估计，被试为 124 名大学生。研究二为 2（就业胜任力：强、弱）× 4（工作选择情境：5000 vs. 3000 元、8000 vs. 5000 元、10000 vs. 5000、15000 vs. 5000 元）× 4（工作地点：一线、新一线、二线、三线城市）的混合设计，因变量为申请更高月薪工作的意愿，被试为 87 名大学生。结果发现：

(1)工作地点和月薪对工作机会多少的估计有显著影响，对处于更发达城市或月薪更低的工作，估计有更多机会；二者还有交互作用，学生们认为不同月薪的工作在不同城市的机会不等；(2)工作地点和月薪对工作选项的竞争程度估计有交互作用，学生们认为不同月薪的工作在不同城市的竞争程度有别；(3)就业胜任力和工作选择情境对申请意愿有显著影响，胜任力强的人更愿申请更高月薪工作，随着工作的月薪差距加大，申请更高月薪工作的意愿降低；二者还有交互作用，随着工作的月薪差距加大，比起胜任力强的人，胜任力弱的人申请更高月薪工作的意愿降幅更大；(4)工作的月薪能负向预测主观估计的录取概率。

总之，大学生对就业环境的认知能反映风险与回报的负相关，但对不同城市有高估或低估之处，胜任力弱的人在风险评估方面有待提升。

关键词　就业环境，风险-回报关系，就业胜任力，竞争，城市等级

College Students' Perception of Employment Environment and Career Decision-making under Uncertainty

Gao Shanchuan, Li Xiaojing

Department of Psychology, Fudan University, Shanghai 200433

Abstract：To facilitate college students' job search, it is of great importance investigating how they perceive the world of work and evaluate the risk. According to the Competitive risk–reward Ecology Theory (CET), the payoff of an option often relates inversely to the probability of obtaining it (i.e., risk). Have college students acquired such regularity in the employment environment? If so, do they exploit this association to infer the chance of getting a job by how well it's paid? Will individuals with different competency make different inferences and decisions under uncertainty? To address these questions, two studies were conducted. Study 1 aimed to investigate how college students would estimate the opportunities and competition of job options with different pay and located in various cities. Study 2 further explored the difference between students with high or low competency when they chose between four pairs of potential job options, with the pay gap ranging between 2000-10000 yuan, and the success probabilities had to be estimated.

Prior to Study 1, paragraphs describing four kinds of cities were prepared and validated. A sample of 124

college students participated in Study 1, utilizing a 4 (location: first-tier city, emerging first-tier city, second-tier city, third-tier city) × 5 (monthly pay: 3000, 5000, 8000, 10000, 15000 yuan) mixed design. Participants were asked to estimate both the opportunity and the competition of each job option. Another sample of 87 college students participated in Study 2, utilizing a 2 (competency: high vs. low) × 4 (choice situation: 5000 vs. 3000 yuan, 8000 vs. 5000 yuan, 10000 vs. 5000 yuan, 15000 vs. 5000 yuan) × 4 (location: first-tier city, emerging first-tier city, second-tier city, third-tier city) mixed design. Participants were asked to choose between each of the four pairs of job options and rate their willingness to apply. Then they estimated the chance of getting an offer for each option.

The results showed that, first, both the location and monthly pay had significant main effect on the estimated job opportunities. Specifically, the lower the pay or the more developed the city, the more the subjective opportunities. There was also significant interaction between them, suggesting that participants learned the distribution of jobs with different pay varied across cities. Second, the location and monthly pay had significant interaction effect on the estimated competition of job options, suggesting that participants learned the competition for jobs with different pay also varied across cities. Third, both the competency and choice situation had significant main effect on participants' willingness to apply for the jobs with higher pay. Specifically, competent participants were more willing to apply for the jobs with higher pay than the incompetent. And the willingness would decrease as the pay gap grew larger. There was also significant interaction between the two factors, indicating that, compared with competent participants, the incompetent ones were much less willing to apply for the jobs with higher pay as the pay gap grew larger. Last, it was found that the monthly pay of job options predicted the probability estimates negatively.

In sum, the studies showed that college students may have learned that the inverse relationship between risk and reward also prevails in the employment environment. However, they may not have unbiased perception about how the jobs and competitors are distributed across cities. Additionally, individuals with lower competency may need more career guidance on risk evaluation.

Keywords：employment environment, employment competency, competition, city level

中学生亲社会行为与童年创伤经历、心理资本、社会支持的关系及其干预研究

梁筱宇[1]　姚本先[1,2]（通讯作者）

1 合肥师范学院教师教育学院，合肥，230061，通讯作者 E-mail:ybx7756@126.com

2 安徽省学生心理健康教育指导中心

摘 要 亲社会行为是个体发自内心愿意给予他人需要的、符合社会期望的行为。缺乏亲社会行为不仅会影响个人的心理健康，而且还会导致他们无法适应社会环境。中学阶段是个体亲社会行为形成的关键期，拥有较高水平的亲社会行为是个体迈向成熟及适应社会的关键因素。童年创伤经历是导致各种负面心理和行为的重要风险因素，其势必会对中学生的亲社会行为产生影响，而关于童年创伤经历对亲社会行为影响的研究仍处于起步阶段，因此本研究拟考察中学生亲社会行为的现状，以及童年创伤经历如何对其产生影响，并在此基础上进行团体辅导活动，提高中学生的亲社会行为水平。 本研究包括两部分，研究一采用问卷研究，对安徽省、山东省共 1544 名中学生进行调查，探讨中学生亲社会行为与童年创伤经历、心理资本、社会支持的关系。研究二采用团体辅导活动，依据研究一的调查数据，筛选 40 名亲社会行为水平和心理资本

水平较低的高一年级学生作为研究对象，随机分为实验组和对照组，实验组 20 人进行心理资本团体辅导，对照组 20 人不进行任何干预。研究结果如下：（1）中学生亲社会行为、心理资本、社会支持均处于中等偏上水平，童年创伤经历处于中等偏下水平。（2）童年创伤经历与中学生亲社会行为、心理资本、社会支持之间存在显著负相关。（3）心理资本在童年创伤经历与亲社会行为的关系之间起中介作用，即中学生遭受童年创伤经历会影响其心理资本水平进而导致亲社会行为的缺失。（4）社会支持在童年创伤经历与亲社会行为的关系之间起中介作用，即中学生遭受童年创伤经历会通过影响其社会支持水平而导致亲社会行为的缺失。（5）心理资本和社会支持在童年创伤经历与亲社会行为的关系之间起链式中介作用，即中学生遭受童年创伤经历会通过影响其心理资本和社会支持水平而导致亲社会行为的缺失。（6）中学生的亲社会行为和心理资本水平通过心理资本团体辅导均有显著改善。
关键词 亲社会行为，童年创伤经历，心理资本，社会支持，团体辅导

A study of the relationship between pro-social behavior and childhood traumatic experiences, psychological capital, and social support among middle school students and its intervention

Liang XiaoYu[1] Yao BenXian[1,2] (Corresponding author)
1 Hefei Normal University,HeFei AnHui 230061,China
2 Anhui Mental Health Education and Guidance Center for Student

Abstract： Pro-social behavior is the willingness of individuals to give to others what they need from the bottom of their hearts and in line with social expectations. Lack of pro-social behavior not only affects an individual's mental health, but also leads to their inability to adapt to the social environment. Secondary school is a critical period for the formation of pro-social behavior, and having a high level of pro-social behavior is a key factor for individuals to mature and adapt to society. Childhood traumatic experience is an important risk factor leading to various negative psychological and behavioral factors, which will inevitably have an impact on the pro-social behavior of secondary school students, while the research on the impact of childhood traumatic experience on pro-social behavior is still in its infancy, so the present study intends to examine the current situation of pro-social behavior of secondary school students and how childhood traumatic experience affects it, and on the basis of which we will carry out group counseling activities to improve the level of pro-social behavior of secondary school students. level of pro-social behavior. The study consisted of two parts. Study 1 used a questionnaire to investigate the relationship between pro-social behavior and traumatic childhood experiences, psychological capital, and social support among 1,544 middle school students in Anhui Province and Shandong Province. Study two used group counseling activities, based on the survey data of study one, 40 senior high school students with low levels of pro-social behavior and psychological capital were screened as the research subjects, and randomly divided into experimental and control groups, 20 people in the experimental group underwent group counseling on psychological capital, and 20 people in the control group did not undergo any intervention. The results of the study are as follows: (1) The pro-social behavior, psychological capital, and social support of middle school students are at the medium-high level, and the childhood trauma experience is at the medium-low level. (2) There was a significant negative correlation between childhood trauma experience and middle school students' pro-social behavior, psychological capital, and social support. (3) Psychological capital mediates the relationship between childhood trauma experiences and pro-social behaviors, i.e., the childhood trauma experiences of middle school students will affect their psychological capital level and thus lead to the lack of pro-social behaviors. (4) Social

support mediates the relationship between childhood trauma and pro-social behavior, i.e., exposure to childhood trauma affects secondary school students' level of social support and leads to deficits in pro-social behavior. (5) Psychological capital and social support play a chain mediating role in the relationship between childhood traumatic experiences and pro-social behavior, i.e., secondary school students' exposure to childhood traumatic experiences can lead to deficits in pro-social behavior by affecting their levels of psychological capital and social support. (6) Secondary school students' pro-social behavior and psychological capital levels were significantly improved through psychological capital group counseling.
Keywords：pro-social behaviour,traumatic childhood experiences,psychological capital,social support,group counselling

高中生公正世界信念与问题行为的关系：一项纵向数据的研究

郁嘉铭[1] 高美慧[1] 甄瑞[1,2]（通讯作者）

1 杭州师范大学经亨颐教育学院，杭州，311121，zhenrui1206@126.com

2 浙江省哲学社会科学培育实验室“杭州师范大学婴幼儿发展与托育实验室”

摘　要　公正世界信念理论认为当人们认为他们所处的世界是公正有序的时候，为了维护世界的规范运行、减少不公正感，人们会自发地减少问题行为的产生。不过，在世界观验证理论看来，当经验和信念之间出现不一致时，可能会导致消极的行为出现。例如，当拥有高水平公正世界信念地个体遭遇不公待遇时，可能会出现更多的问题行为。为此，以往的研究开始关注公正世界信念对问题行为的影响。不过，以往的研究主要采用横断研究设计，难以明晰两者之间的因果关系；研究对象也主要集中在成年人群体。相对成年人，青少年由于认知和情绪管理能力相对不成熟，更可能表现出较多的问题行为。因此，本研究拟以青少年为研究对象，考察公正世界信念与问题行为之间的关系。研究采用自陈式问卷对 789 高中学生进行调查（T1），并于一年后进行追踪（T2）。为确保研究的可靠性，最后保留同时参加两次调查的 684 名学生的数据并进行交叉滞后模型分析。结果发现：公正世界信念与问题行为的纵向不变性测量皆达到了结构不变性的要求；T1 公正世界信念不能显著预测 T2 问题行为，T1 问题行为可以显著负向预测 T2 公正世界信念。上述结果说明了，问题行为是公正世界信念的危险因素，问题行为水平越高，其公正世界信念水平越低。
关键词　高中生，公正世界信念，问题行为，交叉滞后模型

Relations between senior high school students’ belief in a just world and problem behavior: A longitudinal study

Jiaming Yu[1] Meihui Gao[1] Rui Zhen[12]

1 Jing Hengyi School of Education, Hangzhou Normal University, Hangzhou, 311121, China

2 Zhejiang Philosophy and Social Science Laboratory for Research in Early Development and Childcare, Hangzhou Normal University

Abstract：The belief theory of just world holds that when people think that the world they live in is just and orderly, in order to maintain the normal operation of the world and reduce the sense of injustice, people will spontaneously reduce the occurrence of problem behaviors. However, according to the world view verification theory, when there is inconsistency between experience and belief, it may lead to negative behavior. For example, when individuals with high-level belief in a just world encounter unfair treatment, more problem behaviors may occur. Therefore, previous studies began to pay attention to the influence of the belief in a just world on problem behavior. However, previous studies mainly used cross-sectional research design, and it was difficult to clarify the

causal relationship between them. The research objects are mainly concentrated in the adult population. Compared with adults, teenagers are more likely to show more problem behaviors because their cognitive and emotional management skills are relatively immature. Therefore, this study intends to take teenagers as the research object to investigate the relationship between belief in a just world and problem behavior. The self-administered questionnaire was used to investigate 789 senior high school students (T1) and followed up one year later (T2). In order to ensure the reliability of the study, the data of 684 students who participated in two surveys at the same time were retained and analyzed by Cross-Lagged Panel Model. The results show that the vertical invariance measurement of just world belief and problem behavior meets the requirements of structural invariance; T1 just world belief can not significantly predict T2 problem behavior, but T1 problem behavior can significantly negatively predict T2 just world belief. The above results show that problem behavior is a risk factor of belief in a just world, and the higher the level of problem behavior, the lower the level of belief in a just world.
Keywords：senior high school students, belief in a just world, problem behavior, Cross-Lagged Panel Model

唉，老师刚刚又批评我了：教师负面反馈和压力如何影响学生任务表现

王泽燊[1]　钟建安[1]（通讯作者）

1 浙江大学心理与行为科学系，杭州，310027，jiananzhong@zju.edu.cn

摘 要　教师负面反馈对学生任务表现的影响在学界一直没有统一的定论。一方面，社会学习理论认为教师负面反馈会加强学生任务解决能力，提升任务表现；另一方面，期望效价理论认为，教师负面反馈会使学生进行自我怀疑并放弃努力，降低任务表现。本文将矛盾的理论组织在一个全面的理论框架下，探讨教师负面反馈对学生任务表现的影响以及成就动机的中介作用和压力的调节作用。根据权变理论，教师的教学风格需随个体变化才能提升教学有效性；反馈干预理论提出，只有被个体意识到的反馈干预结果与标准之间的差异才会对个体行为产生调节。学生压力的大小分别通过两种不同的机制决定了教师负反馈和学生任务表现之间关系：追求成功的动机和避免失败的动机。在学生低压力状态下，教师负面反馈提升了学生的任务表现，因为激发了学生追求成功的成就动机，从而使学生专注于生成更好的任务策略以缩小自己表现与标准的差距。相反，在学生高压力状态下，教师负面反馈使得学生产生避免失败的成就动机，从而阻碍了学生的任务表现。研究一采用 PISA 全球学生的调研数据进行大数据分析，探索教师负反馈对学生任务表现的影响，发现在不同国家结果都显著。在研究二中，我们使用压力检测设备来捕捉学生日常压力情况，采用 30 名学生连续一周（7 天）的每日日记法进行研究，研究结果支持我们的中介调节模型。研究三在一所大型高校招募 30 名研究生，采用 2（教师反馈：负反馈、中性反馈）× 2（压力：高、低）的被试间设计操纵变量，再次支持了研究假设。研究四采用准现场实验，通过两个学期 350 名学生和导师的数据验证结果。本研究具有一定的理论和实践意义，为教师负面反馈对学生任务表现的不同影响结果给出解释框架，提示教师要根据不同学生的情况因材施教，调整教学策略。

关键词　教师负面反馈，压力，成就动机，学生任务表现

Alas, the teacher just criticized me again: How teacher's negative feedback and pressure shape students' task performance

Wang Zeshen[1]　Zhong jianan[1]（Corresponding author）

1 Department of Psychology and Behavior Sciences, Zhejiang University, Hangzhou，310027，
jiananzhong@zju.edu.cn

***Abstract*:** The influence of teachers' negative feedback on students' task performance has not been uniformly concluded in academic circles. On the one hand, social learning theory holds that teachers' negative feedback will strengthen students' task solving ability and improve their task performance. On the other hand, expected valence theory holds that negative teacher feedback will make students self-doubt and give up efforts, which will reduce task performance. In this paper, contradictory theories are organized under a comprehensive theoretical framework to explore the influence of negative feedback on students' task performance, the mediating role of achievement motivation and the moderating role of stress. According to contingency theory, teachers' teaching style should change with individual to improve teaching effectiveness. Feedback intervention theory proposes that only the difference between the feedback intervention result and the standard that the individual is aware of can regulate the individual behavior. The level of student pressure determines the relationship between teachers' negative feedback and students' task performance through two different mechanisms: the motivation to pursue success and the motivation to avoid failure. In the state of low pressure, teachers' negative feedback can improve students' task performance, because it stimulates students' achievement motivation to pursue success, so that students can focus on generating better task strategies to narrow the gap between their performance and the standard. On the contrary, when students are under high pressure, teachers' negative feedback makes students produce achievement motivation to avoid failure, thus hindering students' task performance. In the first study, big data analysis was conducted using the survey data of global PISA students to explore the impact of teachers' negative feedback on students' task performance, and it was found that the results were significant in different countries. In study 2, we used a stress detection device to capture students' daily stress, and daily diaries were kept by 30 students for one week (7 days). The results supported our mediation model. In study 3, 30 graduate students were recruited from a large university, and the inter-subject design of 2 (teacher feedback: negative feedback, neutral feedback) × 2 (pressure: high, low) was used to manipulate variables, which again supported the research hypothesis. Study 4 used a quasi-field experiment to validate the results with data from 350 students and supervisors over two semesters. This study has certain theoretical and practical significance. It provides an explanation framework for the different effects of teachers' negative feedback on students' task performance, and suggests that teachers should adjust teaching strategies according to different students' aptitude.

***Keywords*:** Teacher’s negative feedback, Stress, Achievement motivation, Student’s task performance

中学生粉丝的群体自恋与饭圈暴力：

群际威胁敏感性和道德推脱的中介作用

徐泽静[1]　　何宁[2]（通讯作者）

1 陕西师范大学心理学院，西安，710062

2 陕西师范大学心理学院，西安，710062，通讯作者 E-mail：hening@snnu.edu.cn

摘 要　饭圈文化是近年来兴起的基于新媒体的一种以追星为核心特征文化现象。饭圈有着惊人的舆论动员、集体行动和战斗能力，其群体极化特征极易使粉丝通过编造谣言、歪曲真相、人肉搜索产生人身攻击、丑化他人形象等网络霸凌行为，即饭圈暴力行为。在我国追星的人群大多为青少年，饭圈暴力行为不仅能引发攻击行为，且严重影响青少年的身心健康。群体自恋是一种对于“自身所属群体是卓越的并值得优待，却未充分被他者承认的信念”，或者一种展现了自大(grandiose)、夸大(inflated)的内群体形象的态度取向，而这种形象的维护极大依赖于外界对内群体价值的认可。由此，群体自恋者可能通过敌视与攻击外群体来维护内群体的形象，从而表现出典型的饭圈粉丝行为。但目前对饭圈群体自恋与饭圈暴力行为之关系的研究尚不多见。

本研究旨在探讨青少年的群体自恋与饭圈暴力行为的关系，以及群际威胁敏感性和道德推脱的中介作用。采用问卷法对陕西省西安市和四川省成都市 6 所中学共 600 名中学生进行调查，使用 SPSS 26.0 和 Mplus 8.3 进行数据分析和结构方程建模。结果显示:（1）青少年群体自恋、群际威胁敏感性和饭圈暴力存在性别差异，男性在群体自恋、群际威胁敏感性和饭圈暴力行为上高于女性；（2）青少年群体自恋、群际威胁敏感性和道德推脱均显著正向预测饭圈暴力行为；（3）群际威胁敏感性和道德推脱均在群体自恋和饭圈暴力之间起部分中介作用，且道德推脱和群际威胁敏感性在群体自恋和饭圈暴力之间起并行中介作用。研究揭示了青少年群体自恋对饭圈暴力的影响及其内在心理机制，为青少年饭圈暴力行为的干预提供了实证支持。

关键词　群体自恋，饭圈暴力，群际威胁敏感性，道德推脱

Group narcissism and violence of fan’s group: The mediating role of inter group threat sensitivity and moral disengagement

XuZejing　HeNing

Department of Psychology, Shaanxi Normal University, Xi’an

Abstract: The fan’s group culture is a cultural phenomenon based on new media that has emerged in recent years with celebrity-chasing as its core feature. The majority of fans in China are teenagers. fan’s group has astonishing public opinion mobilization, collective action, and combat capabilities, and its Group polarization feature is very easy for fans to create personal attack, vilify the image of others and other online bullying behaviors through fabricating rumors, distorting the truth, and cyber manhunt, that is, violence of fan’s group. The majority of fans in China are teenagers, and violent behavior can not only trigger aggressive behavior, but also seriously affect the physical and mental health of teenagers. Group narcissism is a belief that one's own group is outstanding and deserving of treatment, but not fully recognized by others, or an attitude that displays an arrogant and inflated image of the inner group, and the maintenance of this image greatly relies on external recognition of the value of the inner group. As a result, group narcissists may maintain the image of the inner group through hostility and attacks on the outer group, thereby exhibiting typical violence of fan’s group. However, there is currently limited research on the relationship between narcissism and violence of fan’s group

The aim of this study is to explore the relationship between group narcissism and violence of fan's group , as well as the mediating role of intergroup threat sensitivity and moral disengagement. A questionnaire survey was conducted on 600 middle school students from 6 high schools in Xi'an, Shaanxi Province and Chengdu, Sichuan Province. SPSS 26.0 and Mplus 8.3 were used for data analysis and structural equation modeling. The results show that: (1) there are gender differences in group narcissism, intergroup threat sensitivity, and moral disengagement among adolescents. Males are higher in group narcissism, intergroup threat sensitivity, and moral disengagement behavior than females; (2)group narcissism, intergroup threat sensitivity, and moral disengagement of teenager all significantly positively predict the violence of fan's group; (3) Both intergroup threat sensitivity and moral disengagement play a partial mediating role between group narcissism and violence of fan's group, and moral disengagement and intergroup threat sensitivity play a parallel mediating role between group narcissism and the violence of fan's group. The study reveals the impact of group narcissism among adolescent on the violence of fan's group and its internal psychological mechanisms, providing empirical support for intervention in adolescent violence of fan's group.

Keywords：group narcissism, violence of fan's group, Intergroup threat sensitivity, moral disengagement

疫情前后初中生网络社交时长的变化对其网络受害及家庭学习适应的影响——一项短期追踪研究

林彤[1]　刘雨婷[1]　高婷[2] 李蓓蕾[1]（通讯作者）

1 北京师范大学教育学部，北京，100875

2 中国人民大学教育学院，北京，100872，通讯作者 beileili@bnu.edu.cn

摘 要　目的：考察疫情前后初中生网络社交时长的变化和网络受害的关系及对其家庭学习适应的影响。方法：采用整群取样法，使用网络受害量表、网络使用行为调查问卷、病人健康问卷抑郁量表、家庭学习适应量表对北京市两所中学 651 名初一至初三学生分别于 2019 年 11 月和 2020 年 3 月进行前后两次相隔 4 个月的（T1、T2）问卷调查。结果：（1）37.2%以及 34.6%的学生分别在 T1 和 T2 阶段有过网络受害经验；T1 和 T2 的网络受害与 T2 的家庭学习适应及抑郁等各变量之间均显著相关；（2）疫情期间初中生的网络社交时长相较于疫情前显著增加，但是网络受害水平显著降低，疫情前后网络社交时长减少、不变和增加的学生分别为 7%、28%、65%，其中时间减少组学生的网络受害显著下降；（3）在控制性别和年级后，T1 和 T2 的网络受害均显著负向预测 T2 家庭学习适应，T2 抑郁在 T1 及 T2 网络受害和 T2 家庭学习适应之间分别具完全中介和链式中介作用；（4）T2 网络社交时长过度组学生的网络受害显著高于适度组学生，网络社交时长与网络受害在过度组学生中边缘显著正相关而在适度组学生中不相关，且网络社交时长对抑郁的中介作用具调节效应，过度组初中生的 T1 网络受害会显著提高 T2 抑郁进而影响疫情期间的家庭学习适应。结论：疫情期间，学生的网络社交时长显著增加，但网络受害反而显著降低。疫情前的网络受害会增加疫情期间的网络受害水平，且疫情前后的初中生网络受害均间接通过提升疫情期间的抑郁情绪进而损害其家庭学习适应。疫情期间日均网络社交时长过度的初中生（超过 1 小时）的网络受害水平显著高于适度组的学生（1 小时以内），网络社交时长对提升网络受害的风险作用仅在过度组学生中存在，且适度组学生的疫情前网络受害对疫情期间的抑郁不具有显著提升作用，从而不会对疫情期间的家庭学习适应产生消极影响。

关键词　新冠疫情，网络社交时长，网络受害，抑郁，家庭学习适应

Social Media Use, Cyber Victimization, and Adjustment during COVID-19 Virtual Learning: A Short-Term Longitudinal Study among Chinese Middle School Students

LIN Tong[1] LIU Yuting[1] GAO Ting[2] LI Beilei[1]

1. Faculty of Education, Beijing Normal University, Beijing 100875
2. School of Education, Renmin University of China, Beijing 100872

Abstract：This study investigated the changes in social media use and cyber victimization before (November 2019) and during the COVID-19 pandemic (March 2020) among Chinese middle school students. It also examined the relation between cyber victimization and school adjustment overtime, and whether depressive symptoms mediated this relation and whether the social media use moderated this relation. We collected two waves of survey data from 651 7th to 9th grade students (M_{age} = 13.93, SD_{age} = 1.17, 50.5% male) from two middle schools in Beijing, China over four months. Results indicated that middle school students spent more time on social media during the pandemic than before COVID-19 (d = 0.55). Cyber victimization was prevalent among Chinese middle school students at both time points (37.2% of students at T1 and 34.6% of students at T2 experienced some cyberbullying). Among the students, 7% reported a decrease, 28% reported no change, and 65% reported an increase in their social media use. Notably, students who reported a decrease in time also experienced a significant decrease in cyber victimization. The relationships between cyber victimization at T1 and T2 and school adjustment at T2 were fully mediated by depressive symptoms at T2. The indirect effects were -.06 (T1, 95% CI [-0.12, -0.01], p < .05) and -.07 (T2, 95% CI [-0.11, -0.04], p < .001). Students' social media use also moderated this mediation. Specifically, for students who used social media excessively (more than one hour per day), cyber victimization at T1 directly predicted depressive symptoms at T2. However, this relation was not significant among students who used social media moderately (one hour or less per day). These results highlight the importance of collaboration between educators and parents to monitor students' social media use, cyber victimization, and depressive symptoms in order to promote adjustment during COVID-19 virtual learning.

Keywords：COVID-19, social media use, cyber victimization, depressive symptoms, adjustment during virtual learning

学校归属感对初中生网络使用问题的影响：自尊与应对方式的链式中介作用

刘子怡[1] 姚宇[1] 李梦茹[1] 苏艳青[2]（通讯作者）

1 山东中医药大学健康学院应用心理学，山东，250000

2 山东中医药大学健康学院，山东，250000，yanqingsu@126.com

摘 要 随着数字时代互联网的日渐普及，初中生对网络的依赖性也越来越高，甚至产生了一系列问题性网络使用问题。因此在此数字化时代下，心理健康服务方面的创新和发展显得尤为重要。初中生作为我国心理健康教育较为薄弱的群体，关注他们在这个时代下所受的影响以及由此引发的一系列数字化问题仍然是

一个很新且具有重要研究意义的课题。学校作为社会环境中的一部分，是对青少年发展影响最大的微观系统，既往研究已经表明，初中生学校归属感与问题性网络使用存在显著的相关性，自尊作为其中的中介变量，其中介作用也已经被国内外研究人员证实。本研究采用学校归属感量表、应对方式量表、Rosenberg 自尊量表和初中生问题性网络使用量表对 750 名初中生进行调查，探讨初中生学校归属感、自尊、应对方式和生活满意度之间的关系。结果发现：学校归属感、自尊、应对方式两两之间呈显著正相关；学校归属感、自尊、应对方式均与初中生问题性网络使用存在显著负相关；自尊、应对方式在学校归属感对初中生问题性网络使用的影响中均起部分中介作用；自尊和应对方式在学校归属感对问题性网络使用的影响中起链式中介作用。这表明学校归属感既可以直接影响初中生的问题性网络使用，也通过自尊的中介作用、应对方式的中介作用、自尊和应对方式的链式中介作用等间接影响初中生的问题性网络使用。
关键词　学校归属感，自尊，应对方式，初中生，问题性网络使用

The impact of school belonging on junior high school students' internet usage issues:The chain mediating effect of self-esteem and coping styles

Liu Ziyi　Yao Yu　Li Mengru　Su Yanqing
Applied psychology, School of Health, Shandong University of Traditional Chinese Medicine, Shandong, 250000
School of Health, Shandong University of Traditional Chinese Medicine, Shandong, 250000,yanqingsu@126.com

Abstract: With the growing popularity of the Internet in the digital era, junior high school students are increasingly dependent on the network, and even a series of problems have arisen, such as the use of Sexual network. Therefore, in this digital era, innovation and development in mental health services are particularly important. As a relatively weak group in China's mental health education, it is still a new and significant research topic to pay attention to the impact and a series of digital issues that junior high school students are facing in this era. As a part of the social environment, school is the micro system that has the greatest impact on the development of young people. Previous studies have shown a significant correlation between junior high school students' sense of belonging to school and problematic network use, with self-esteem as a mediating variable and its mediating role confirmed by domestic and foreign researchers. In this study, 750 junior high school students were investigated with the School Belonging Scale, Coping Style Scale, Rosenberg Self esteem Scale and Problem Sexual network Use Scale for Junior High School Students, to explore the relationship among junior high school students' sense of school belonging, self-esteem, coping style and life satisfaction. The results showed that there was a significant positive correlation between school belonging, self-esteem, and coping styles; School sense of belonging, self-esteem and coping style are significantly negatively correlated with junior high school students' problem Sexual network use; Self esteem and coping style play a partial mediating role in the impact of school belonging on junior high school students' problem Sexual network use; Self esteem and coping style play a chain mediating role in the impact of school belonging on the use of problematic Sexual network. This shows that the sense of school belonging can not only directly affect junior high school students' problem Sexual network use, but also indirectly affect junior high school students' problem Sexual network use through the mediating role of self-esteem, the mediating role of coping styles, self-esteem and the chain mediating role of coping styles.

Keywords: School sense of belonging, Self esteem, Response methods, Junior high school students, Problem Sexual network use

青少年欺凌受害与自我伤害:情绪调节与欺凌班级规范的作用

陈嘉慧[1]　任萍[1]（通讯作者）
1 北京师范大学中国基础教育质量监测协同创新中心，北京，100875
通讯作者 E-mail：renping@bnu.edu.cn

摘 要　**背景：**校园欺凌在学校、文化和国家中无处不在。因此，校园欺凌常常是研究儿童青少年同伴关系的研究者首先关注的问题行为、是国家教育部等重点关注的热点问题。欺凌受害会引发较高程度的心理健康问题，如故意自我伤害。过往研究表明，欺凌受害是故意自我伤害的一个风险因素，但尚不清楚可能中介或者调节二者关系的潜在过程。本研究考察了情绪调节（包括认知重评和表达抑制）在欺凌受害与自我伤害之间的中介作用，以及欺凌描述规范和欺凌受欢迎规范在欺凌受害与自我伤害之间的调节作用。**方法：**本研究以陕西省 3,545 七年级学生（52.4%男生；Mage=12.36；SD=0.50）为研究对象,采用同伴提名和自我报告问卷进行为期半年的 2 次追踪调查。**结果：**多层线性模型分析发现，欺凌受害直接或间接地通过表达抑制增加了半年后故意自我伤害的风险。此外，欺凌描述性规范和欺凌受欢迎规范以不同的方式调节欺凌受害对情绪调节和故意自我伤害的影响。具体表现为，当班级的欺凌描述性规范较低时，高欺凌受害会增加个体使用表达抑制的可能性，进而增加半年后故意自我伤害的风险，反之中介不成立；当班级的欺凌受欢迎规范较高时，高欺凌受害会增加个体使用表达抑制的可能性，进而增加半年后故意自我伤害的风险，反之不成立。这些发现揭示了欺凌班级规范为何以及如何对受害青少年的情绪调节和故意自我伤害产生负面影响，为改进现有的反欺凌干预措施提供了信息，从而防止欺凌受害者产生心理健康问题。
关键词　欺凌受害，故意自我伤害，表达抑制，认知重评，欺凌班级规范，青少年

Bullying victimization and deliberate self-harm in adolescents: The roles of emotion regulation and bullying peer norms

Jiahui Chen[1]　Ping Ren[1] *
1 Collaborative Innovation Center of Assessment toward Basic Education Quality, Beijing Normal University, 100875

***Abstract*：** **Background:** School bullying is ubiquitous in schools, cultures, and nations. As a result, school bullying is often the first problematic behavior of concern for researchers studying the peer relationships of adolescents, and a topical issue of concern for state ministries of education and others. The experience of bullying victimization during childhood or adolescence has long-lasting deleterious effects on psychological and social adjustment. Deliberate self-harm is a complex and important psychological and social maladjustment related to bullying victimization. Although previous literature has indicated that bullying victimization is a risk factor for deliberate self-harm, it is unclear about the underlying processes that may mediate or moderate this association. This study examined the mediating effects of cognitive reappraisal and expressive suppression and the moderating effect of bullying descriptive and popularity norms on the association between bullying victimization and deliberate self-harm. **Methods:** Using a short-term longitudinal design, two-wave data were obtained from 3,545 Chinese adolescents (52.4% boys at Time 1 (T1); Mage = 12.36; SD = 0.50) from 76 classes over 6 months. Participants were asked to completed peer nomination and self-report questionnaires. **Results:** Results indicated

that bullying victimization directly or indirectly increased later deliberate self-harm through expressive suppression. Furthermore, both bullying descriptive and popularity norms matter in diverging ways. The mediating effects of expressive suppression were exacerbated in classrooms with low bullying descriptive norms or high bullying popularity norms. **Conclusions:** These findings shed light on why and how bullying peer norms negatively impact victimized adolescents' emotion regulation and deliberate self-harm, demonstrating the importance of both bullying descriptive and popularity norms on victims' psychosocial adjustment.

Keywords：bullying victimization, deliberate self-harm, expressive suppression, cognitive reappraisal, bullying descriptive norms, bullying popularity norms, adolescents

新冠疫情下青少年焦虑和手机依赖的纵向关系与作用机制

李天昶[1],孙月仙[1],甄瑞[1,2]（通讯作者）

1. 杭州师范大学经亨颐教育学院，杭州，311121，zhenrui1206@126.com

2. 浙江省哲学社会科学培育实验室"杭州师范大学婴幼儿发展与托育实验室"

摘 要 2019 年底，新冠疫情爆发和蔓延，我国及时采取长期居家等方式进行防控，有效控制住了疫情蔓延，但在这个背景下青少年群体的焦虑和手机依赖问题凸显。焦虑是个体对即将到来的或正在进行的伴随有一定压力、威胁的任务所产生的紧张、不安、忧虑、烦恼等不愉快的复杂情绪状态。手机依赖是指个体过度沉迷于以手机为媒介的各种活动，对手机产生强烈且持续的依赖和渴求，并导致其出现明显的社会和心理功能损害。回顾以往研究和相关理论，发现二者的关系方向不一致，一方面，根据补偿性网络使用模型（Compensatory Internet Use Model），个体的焦虑可能通过网络使用行为缓解，从而促成网络使用相关的成瘾行为；另一方面，根据资源保存理论（conservation of resources theory, COR），长时间使用手机会消耗个体的时间资源可能导致没有充足的资源处理学习和生活中的任务和困难，带来焦虑。同时疫情背景下焦虑和手机依赖问题都处于加剧状态，可能表现出新的特点。基于此，研究一采用手机依赖量表和焦虑量表对嘉兴市的 594 名中小学生进行两次追踪问卷调查，利用交叉滞后模型，探究焦虑和手机依赖的预测关系。结果发现，T1 时间点的手机依赖可以显著正向预测 T2 时间点的焦虑($\beta = 0.17$，$p < 0.001$)，而 T1 时间点的焦虑不能预测 T2 时间点的手机依赖($\beta = 0.034$，$p = 0.425$)。这个结果说明，在新冠疫情流行背景下，手机依赖问题可能预测个体的焦虑。进一步，我们基于研究一加入表达抑制、学业拖延建立结构方程模型，以探究手机依赖预测焦虑的纵向机制。结果发现，T1 时间点的手机依赖可以通过增加 T2 时间点的表达抑制进而正向预测 T2 时间点焦虑($\beta = 0.043$，$p < 0.05$); T1 时间点的手机依赖可以通过增加 T2 时间点的学业拖延进而正向预测 T2 焦虑($\beta = 0.042$，$p < 0.05$); T1 时间点的手机依赖可以通过 T2 表达抑制到 T2 学业拖延的两步路径正向预测 T2 焦虑($\beta = 0.043$，$p < 0.001$)。这些结果说明了，手机依赖不仅可以直接预测焦虑，且手机依赖也会通过表达抑制、学业拖延进一步预测焦虑。

关键词: 焦虑，手机依赖，交叉滞后，表达抑制，学业拖延

Longitudinal association between adolescents' anxiety and mobile phone dependence and influencing mechanisms in the context of COVID-19 pandemic

Tianchang Li[1], Yuexian Sun[1], Rui Zhen[1,2*]（Corresponding Author）

1Jing Hengyi School of Education, Hangzhou Normal University, Hangzhou, 311121, China

2 Zhejiang Philosophy and Social Science Laboratory for Research in Early Development and

Childcare, Hangzhou Normal University

***Abstract*:** At the end of 2019, COVID-19 's epidemic broke out and spread. China timely adopted long-term home prevention and control, which effectively controlled the epidemic, but in this context, the anxiety and mobile phone dependence of young people are very serious. Anxiety is an unpleasant complex emotional state, such as tension, uneasiness, anxiety, and trouble, caused by an individual's upcoming or ongoing task accompanied by a certain stress and threat. Mobile phone dependence refers to individuals addicted to various activities using mobile phones as media, resulting in strong and continuous dependence and desire for mobile phones, which leading to obvious social and psychological function damage. Reviewing previous studies and related theories, it is found that the relationship between them is inconsistent. On the one hand, according to the Compensatory Internet Use Model, individual anxiety may be alleviated through Internet use behavior, thus contributing to Internet use related addictive behavior; On the other hand, according to the conservation of resources theory (COR), using mobile phones for a long time will consume individual time resources, which may predict insufficient resources to deal with tasks and difficulties in study and life, and increase anxiety. At the same time, under the background of the Covid-2019 pandemic, anxiety and mobile phone dependence are both in an exacerbated state, which may show new characteristics. Based on this, we used study 1 to conduct two follow-up questionnaires on 594 primary and secondary school students in Jiaxing, and used the cross-lagged analysis to explore the predictive relationship between anxiety and mobile phone dependence. We found Time 1 mobile phone dependence could significantly and positively predict Time 2 anxiety(β = 0.17， p < 0.001), while anxiety at Time 1 could not predict Time 2 mobile phone dependence(β = 0.034， p = 0.425). This result shows that mobile phones dependence on one-way prediction of anxiety. Based on Study 1 and in order to further explore the mechanism of the relationship between mobile phone dependence and anxiety, study 2 added expression inhibition and academic procrastination to establish a structural equation model to further explore the longitudinal mechanism of mobile phone dependence in predicting anxiety. We found that the Time 1 mobile phone dependence could positively predict Time 2 anxiety by increasing the Time 2 expression inhibition(β = 0.043，p < 0.05); Time 1 mobile phone dependence can positively predict T2 anxiety by increasing Time 2 academic procrastination(β = 0.042， p < 0.05); Time 1 mobile phone dependence can positively predict T2 anxiety through a two-step path from T2 expression inhibition to T2 academic procrastination(β = 0.043， p < 0.001). These results showed that mobile phone dependence one-way predicts anxiety, and mobile phone dependence can further predict anxiety through expression inhibition and academic procrastination.

Keywords: Anxiety, mobile phone dependence, cross-lagged analysis, expression suppression, academic procrastination

通过干预身体意象改善青少年人际关系困扰的实践研究

顾心语[1]（通讯作者） 陈雅菁[1] 李宁静[1]

1 复旦大学社会发展与公共政策学院，上海，200433 guxy21@m.fudan.edu.cn

摘 要 人际关系困扰是青少年时期的重要心理问题。身体意象是青少年对身体的自我态度，在青春期随身体外貌变化发生波动，会对其人际交往产生重要影响，引发人际关系困扰。本研究根据认知行为理论，将外国身体意象著名学者 Cash 的身体意象个体自助手册改编为适合中学生群体的团体干预方案，并通过随机对照研究探讨了通过干预身体意象减少初中生人际关系困扰的效果。

目的：改编国外身体意象的个体自助干预手册，并将其运用于国内青少年身体意象干预的团体活动，探讨

其对改善中学生人际关系困扰的效果。**方法：**研究为干预研究，首先依据认知行为理论改编完成身体意象团体活动方案，使其切合青少年认知水平。随后，上海市某中学 6、7 年级自愿报名的 22 名同学进入实验组，参与为期 6 周的身体意象团体活动；随机抽选 24 名同学进入对照组，不接受相关干预。在实验前后对身体意象、人际关系困扰等指标进行测量，以验证和比较干预效果。**结果：**(1)将 Cash 的身体意象个体自主手册进行改编，得到为期 6 周的切合国内青少年认知水平的团体干预方案；(2)通过该身体意象团体干预方案进行活动，显著改善了实验组青少年的身体意象、降低了人际关系困扰，并在一定程度上提升了自我接纳，对照组各项指标均无显著变化。

结论：本研究完成了对青少年身体意象团体干预方案的初步编制和实践，成果对帮助青少年降低人际关系困扰，丰富中学心理健康教育课程等方面有积极实践意义，并拓展了认知行为理论的应用。

关键词　青少年，认知行为理论，身体意象，人际关系困扰

Research on the practice of improving adolescent interpersonal disturbance by intervening body image

Gu Xinyu[1] Chen Yajing[1] Li Ningjing[1]

1 School of Social Development and Public Policy, Fudan University ,Shanghai,200433

***Abstract*：** Interpersonal disturbance is an important psychological problem in teenagers. Body image is the self-attitude towards the body of adolescents, which fluctuates with the change of physical appearance during adolescence, which will have an important impact on their interpersonal communication and cause interpersonal relationship troubles. Based on the cognitive behavior theory, this study adapted the body image individual self-help manual of foreign famous body image scholar Cash into a group intervention program suitable for middle school students, and explored the effect of body image intervention on reducing the interpersonal disturbance of middle school students through a randomized controlled study.

Objective: To adapt the foreign body image self-help intervention manual, and apply it to the domestic adolescent body image intervention group activities, to explore its effect on improving the interpersonal disturbance of middle school students. **Methods:** This study is an intervention study. Firstly, the body image group activity program is adapted according to the cognitive behavior theory to make it fit the cognitive level of adolescents. Subsequently, 22 students in grade 6 and 7 of a middle school in Shanghai voluntarily enrolled in the experimental group and participated in the body image group activity for 6 weeks; 24 students were randomly selected to enter the control group and did not receive relevant intervention. Indicators such as body image and interpersonal disturbance were measured before and after the experiment to verify and compare the intervention effect. **Results :** (1) The body image manual of Cash was adapted to obtain a 6-week group intervention program suitable for the cognitive level of domestic adolescents; (2) The body image group intervention program significantly improved the body image of adolescents in the experimental group, reduced interpersonal distress, and improved self-acceptance to a certain extent, while there were no significant changes in the indicators of the control group.

Conclusion: This study completed the preliminary preparation and practice of adolescent body image group intervention program, and the results have positive practical significance in helping adolescents reduce interpersonal disturbance, enriching middle school mental health education curriculum, and expanding the application of cognitive behavioral theory.

***Keywords*:** adolescents, cognitive-behavioral theory, body image, interpersonal disturbance

青少年问题行为的类别特征及其影响因素

王靖茜[1]　陈展洁[1]　高美慧[1]　甄瑞[1,2]（通讯作者）

1. 杭州师范大学经亨颐教育学院，杭州，311121，zhenrui1206@126.com

2. 浙江省哲学社会科学培育实验室“杭州师范大学婴幼儿发展与托育实验室”

摘　要　青少年期是个体的心理和生理趋向成熟、个性趋于稳定、人生观和世界观形成的关键时期，这一时期的青少年也容易受到外在环境的影响，出现各种问题行为。研究发现，问题行为不仅会对青少年的学业成绩、人际关系等方面产生严重的负面影响，而且会影响青少年的身心健康发展，如果不加以引导和干预，可能会出现违法犯罪行为，给其心理健康与社会发展带来巨大的影响。对于青少年而言，常见的问题行为主要表现在向外暴力行为和向内自杀行为两个方面。尽管以往的研究对这两种行为进行了大量的研究，不过研究主要采用了变量为中心的方法，难以有效地考察这两种行为在不同青少年身上的具体表现。为此，本研究将采用以个体为中心的方法，利用潜在剖面分析来探讨问题行为在青少年群体中的类型特征，进一步分析家庭、学校和个体因素对不同类型问题行为的影响。研究采用自陈式问卷，对 2173 名青少年的问题行为、暴力媒体接触程度、社会支持、抑郁、受欺凌情况、孤独感进行调查。潜在剖面分析结果显示，青少年的问题行为可以分为问题行为组（2.9%）自杀倾向组（5.8%）和健康组（91.3%）。多元 logistic 回归结果显示，相对于问题行为组，抑郁水平高、暴力媒体接触程度高的青少年更可能属于自杀倾向组；社会支持水平较高的个体更可能属于健康组。相对于自杀倾向组，孤独感水平高的青少年更可能属于问题行为组。相对于健康组，受欺凌程度高的青少年更可能属于问题行为组。这些结果说明了青少年的问题行为存在异质性特征，抑郁、暴力媒体接触、受欺凌程度、社会支持和孤独感可以显著地区分不同的问题行为类型。

关键词　青少年，问题行为，受欺凌，潜在剖面分析

Category characteristics and influencing factors of adolescents' problem behaviors

Jingxi Wang[1]　Zhanjie Chen[1]　Meihui Gao[1]　Rui Zhen[1,2]

1 Jing Hengyi School of Education, Hangzhou Normal University, Hangzhou, 311121, China

2 Zhejiang Philosophy and Social Science Laboratory for Research in Early Development and Childcare, Hangzhou Normal University

Abstract: Adolescence is a critical period in which the individual's psychology and physiology tend to mature. During this period, adolescents' personality tends to be stable, their outlook on life and world start forming. In this time, they are also susceptible to the influence of external environment and appear various problem behaviors. Studies have found that problem behaviors will not only have a serious negative correlation with adolescents' academic performance, interpersonal relationships and other aspects, but also influence their physical and mental health development. If there is no guidance and intervention, adolescents may engage in illegal and criminal behavior, which will have a huge impact on their mental health and social development. For adolescents, the common problem behaviors are mainly manifested in two aspects: violent behavior and suicide. Previous studies

have mainly used a variable-centered approach to conduct extensive research on these two behaviors, but it is difficult to effectively investigate the specific performance of these two behaviors among different adolescents. To this end, an person-centered approach will be adopted in this study. Latent profile analysis is used to explore the category characteristics of problem behaviors in adolescents. The influences of family, school and individual factors on different categories of problem behaviors were further analyzed. Self-report questionnaires were used to survey 2173 adolescents on problem behaviors, exposure to violent media, social support, depression, bullying, and loneliness. The results of the latent profile analysis showed that the problem behavior of adolescents could be divided into the problem behavior group (2.9%), the suicidal tendency group (5.8%) and the health group (91.3%). Multiple logistic regression results showed that compared with the problem behavior group, adolescents with high depression level and high exposure to violent media were more likely to belong to the suicidal tendency group. Individuals with high levels of social support were more likely to belong to the health group. Compared with the suicidal tendency group, adolescents with high levels of loneliness were more likely to belong to the problem behavior group. Compared with the health group, adolescents with high bullying levels were more likely to belong to the problem behavior group. These results indicate the heterogeneity of problem behaviors among adolescents. Besides, the depression, violent media exposure, bullying, social support and loneliness could significantly differentiating different categories of problem behaviors.

Keywords：adolescent, problem behaviors, bullying, latent profile analysis

人际支持网络和青少年内外化问题：基于潜在剖面分析

陈佳榕[1] 罗浩诚[2] 利振华[1] 何嘉杰[1] 聂衍刚[1*]

[1]广州大学教育学院，青少年心理与行为研究中心，广州，510006

[2]华东师范大学心理与认知科学学院，上海市心理健康与危机干预重点实验室，上海，200062

[*]通讯作者：nie-yangang@gzhu.edu.cn

摘 要 作为青少年互动的主要环境，家庭和学校系统共同影响青少年的心理和行为健康发展。来自父母、教师和同伴的人际支持资源是青少年抵御内外化问题的保护因素，而不同来源的人际支持可以相互补偿、相互作用，共同构成青少年个体抵御内外化问题的人际支持网络。本研究采用潜在剖面分析，对青少年个体的人际支持网络水平进行分类，探讨人际支持网络水平与青少年内外化问题的关系。研究采用问卷调查的方法，使用父母教养量表中父母情感温暖分量表、学校氛围量表中师生关系、学生关系分量表，长处与困难量表对 1049 名青少年(M_{age} = 13.86, SD = 1.52)进行测查。结果显示：（1）青少年的人际支持网络水平存在三个潜在剖面(AIC = 4606.08, BIC = 4675.44, aBIC = 4630.98, Entropy = 0.93, LMR(p) < 0.05, BLRT(p) < 0.001)：低人际支持组(6.49%)、中人际支持组(57.92%)和高人际支持组(35.59%)。（2）性别、年龄以及学段对青少年人际支持网络潜在分组无显著影响。（3）不同类型的人际支持网络剖面在内外化问题总得分(χ^2 = 97.49, p＜0.001)、内化问题得分(χ^2 = 93.59, p < 0.001)、外化问题得分(χ^2 = 49.62, p < 0.001)均存在显著差异，高人际支持组的内外化问题显著低于中人际支持组和低人际支持组。中人际支持组的内外化问题显著低于低人际支持组。研究结果有助于深化理解人际支持对青少年心理和行为健康发展的影响，并为启示构建父母、教师、同伴全方位人际支持网络提供理论证据。

关键词 人际支持网络，内外化问题，青少年，潜在剖面分析

The protective role of interpersonal support network in internalizing and externalizing problems among adolescents: A latent profile

analysis

Jiarong Chen[1], Haocheng Luo[2], Zhenhua Li, Jiajie He, Yangang Nie[1*]

[1]Department of Psychology & Psychological and Behavioral Research Center of Adolescent, School of Education, Guangzhou University, Guangzhou 510006, China

[2]Shanghai Key Laboratory of Mental Health and Psychological Crisis Intervention, School of Psychology and Cognitive Science, East China Normal University, Shanghai 200062, China

* Corresponding author: nie-yangang@gzhu.edu.cn

***Abstract*:** As main environment which adolescents interact with, family and school systems jointly influence the psychological and behavioral development of adolescents. Interpersonal support from parents, teachers and peers are important protective factors for adolescents to resist internalizing and externalizing problems. Meanwhile, these interpersonal supports from different significant others can compensate and influence each other, and together constitute the interpersonal support network for adolescents to defend against internalizing and externalizing problems. The current study classified the level of interpersonal support networks among adolescents using latent profile analysis (LPA) and explored the relationship between the level of interpersonal support networks and internalizing and externalizing problems. In this study, we conducted a questionnaire survey among 1049 adolescents (M_{age} = 13.86, *SD* = 1.52) on their parent warmth, teacher-student relationship and peer relationship. The results indicated that (1) There are three latent profiles of interpersonal support network level (AIC = 4606.08, BIC = 4675.44, aBIC = 4630.98, Entropy = 0.93, LMR(*p*) < 0.05, BLRT(*p*) < 0.001): low interpersonal support group (6.49%), medium interpersonal support group (57.92%), and high interpersonal support group (35.59%). (2) Gender, age, and education level have no significant impact on the classification of interpersonal support level. (3) The profiles of interpersonal support level have significant effects on adolescents' internalizing and externalizing problems (*ps*＜0.001). Specifically, the internalizing and externalizing scores of the high interpersonal support group were significantly lower than medium and low groups. The internalizing and externalizing scores of the medium group was significantly lower than low interpersonal support group. These findings contribute to deepen the understanding of the impact of interpersonal support on psychological and behavioral development of adolescents, and provide theoretical evidence for inspiring the construction of a comprehensive interpersonal support network.

***Keywords*:** interpersonal support network, internalizing problem, externalizing problem, adolescent, latent profile analysis

父母教育焦虑的测量、类型及其与中小学生学业倦怠的关系

赵晖　贾绪计(通讯作者)
天津师范大学心理学部，天津，300387

摘 要　随着 2021 年“双减”政策的实施和推进，学生的学业负担有所减轻，父母的教育焦虑有所缓解，但父母的教育焦虑总体还比较严重，甚至衍生出新的教育焦虑内容。父母的教育焦虑不仅损害父母的身心健康，而且这种消极影响会产生“代际效应”，影响孩子的学习、人际关系以及情绪等，危及孩子身心健康发展。本研究目的有三个：（1）“双减”背景下，父母可能衍生出新的教育焦虑内容，因此第一个目的是编制高信效度的父母教育焦虑问卷，为更加科学、全面地评估新形势下父母的教育焦虑提供测量工具。（2）“双减”背景下，父母教育焦虑水平有很大的异质性，因此第二个目的是采用个体为中心的方法探索“双减”背景下父母教育焦虑的特点和群体类型，为父母教育焦虑干预的精准性和实效性提供实证支持。（3）中小学生学业倦怠现象普遍，那么学生学业倦怠与父母的教育焦虑是否有关？第三个目的旨在探讨父母教育焦虑的“代际效应”，即父母的教育焦虑是否影响孩子的学业倦怠，以及学业情绪在其中的作用。

研究一：分为初测和正式施测，初测对象是 454 名中小学生父母、正式施测对象是 474 名中小学父母。结果表明：父母教育焦虑分为机会和竞争焦虑、学习焦虑、健康安全焦虑、网络接触焦虑和教养效能焦虑五个维度；区分度分析中所有项目均显著；信度分析中，总量表及其分量表的克隆巴赫 a 系数在 0.807 到 0.953 之间；结构效度分析中，量表五因素模型的验证性因素分析结果为 c^2 / df=2.88，RMSEA=0.064，CFI=0.941，TLI=0.933，SRMR=0.043；量表与校标的关联效度均在 0.210-0.544 之间；测量等值性检验结果表明父母教育焦虑量表在不同的性别、户籍地中有较好的跨群体稳定性。

研究二：采用潜在剖面分析（Latent profile anlaysis）对 474 名中小学生父母的教育焦虑状况进行分析。结果表明：根据父母教育焦虑状况，可以将父母分为五种不同潜在群体类型：整体高焦虑组（13.5%）、整体中-高焦虑组（26.7%）、整体中焦虑组（31.8%）、低网络焦虑组（11.3%）和低学习焦虑组（16.7%）；多项 logistic 回归分析表明，父母教育焦虑群体分布类型受性别影响显著，母亲的教育焦虑较高。

研究三：采用亲子配对的方法，调查了 680 对中小学生与其父母的配对组，其中调查了学生的学业倦怠和学业情绪和父母的教育焦虑。结果表明：父母的教育焦虑显著正向预测学生的学业倦怠；学生学业情绪（积极、消极）做为中介变量，在父母教育焦虑与学生学业倦怠的关系中起中介作用；中介模型的跨群组检验表明，中介模型的性别差异不显著，学段（小学 VS 初中）差异显著，小学生组的中介效应显著高于初中生组。

综合以上研究，主要结论如下：

（1）编制的《父母教育焦虑问卷》具有较高的信度和效度，可以作为测量工具调查“双减”背景下父母的教育焦虑状况。

（2）父母教育焦虑有较高的异质性，可以将父母分为整体高焦虑组、整体中-高焦虑组、整体中焦虑组、低网络焦虑组、低学习焦虑组五种群体类型，其中整体中焦虑组的父母占比最高。

（3）父母教育焦虑有代际传递效应，父母教育焦虑会影响学生的学业倦怠，学业情绪（积极学业情绪、消极学业情绪）在父母教育焦虑与学生学业倦怠的关系中起中介作用。

关键词　父母教育焦虑 学业情绪 学业倦怠

The assessment and type of parental educational anxiety and its relations with academic burnout

Zhao Hui Jia Xu-ji (corresponding author)
Tianjin Normal University Faculty of Psychology, Tianjin, 3003.87

***Abstract*:** With the implementation of the "double reduction" policy in 2021, students' academic burden has been reduced, and parents' education anxiety has been alleviated, but parents' education anxiety is still relatively serious overall, and even new education anxiety content has been derived. Parents' educational anxiety not only affects their selves, but also produces "intergenerational effects", affecting children's learning, interpersonal relationships and emotions, etc., endangering children's physical and mental health development. Therefore, the purpose of this study is threefold: (1) Under the background of "double reduction", parents may derive new educational anxiety content, so the first purpose is to compile a high-reliability and validity parent education anxiety questionnaire to provide measurement tools for a more scientific and comprehensive assessment of parents' educational anxiety in the new situation. (2) Under the context of "double reduction", parental education anxiety is very heterogeneous, so the second purpose is to explore the characteristics and group types of parental education anxiety in the context of "double reduction" by using an individual-centered approach, and provide empirical support for the accuracy and effectiveness of parental education anxiety intervention. (3) Primary and secondary school students have serious burnout, so is students' academic burnout related to parents' educational anxiety? The third objective aims to explore the "intergenerational effect" of parents' educational anxiety, that is, whether parents' educational anxiety affects children's academic burnout, and the role of academic emotions in it.

In the first study, 454 parents of primary and middle school students were initially tested, and 474 parents of primary and middle schools were officially tested. The results showed that parents' education anxiety was divided into five dimensions: opportunity and competition anxiety, learning anxiety, health and safety anxiety, online contact anxiety and parenting effectiveness anxiety. degree of differentiation; In the reliability analysis, the cronbach's alpha of the aggregate scale and its subscale was between 0.807 and 0.953; the confirmatory factor analysis results of the model werec²/df=2.88, RMSEA=0.064, CFI=0.941, TLI=0.933, SRMR=0.043; the correlation validity between the scale and the calibration standard was between 0.210-0.544; the measurement equivalence test showed that the parental education anxiety scale was of different genders There is good cross-group stability in the household registration area.

In the second study，Latent profile analysis was used to analyze the educational anxiety of 474 parents. The results showed that parents could be divided into five different potential groups according to their educational anxiety: overall high anxiety group (13.5%), overall medium-high anxiety group (26.7%), overall medium anxiety group (31.8%), low Internet anxiety group (11.3%) and low learning anxiety group (16.7%). A number of logistic regression analyses showed that the distribution type of parents' education anxiety group was significantly affected by gender, and mothers' education anxiety was higher than father.

In the third study， using the parent-child matching method, 680 pairs of primary and secondary school students and their parents' pairing groups were investigated, in which students' academic burnout and academic emotions were investigated, and parents' educational anxiety was investigated. The results showed that parents' educational anxiety significantly positively predicted students' academic burnout. Students' positive academic emotions and negative academic emotions play a mediating role in the relationship between parents' educational anxiety and students' academic burnout. The cross-group test of the mediation model showed that the gender difference of the mediation model was not significant, the difference in school segment was significant, and the mediation effect of the primary school student group was significantly higher than that of the junior middle school student group.

Based on the above research, the main conclusions are as follows:

(1) The "Questionnaire on Parents' Education Anxiety " has high reliability and validity, and can be used as a

tool to investigate the educational anxiety of parents under the background of "double reduction".

(2) Parental education anxiety has high heterogeneity, and parents can be divided into five groups: overall high anxiety group, overall medium-high anxiety group, medium anxiety group, low Internet anxiety group, and low learning anxiety group, among which the parents in the overall anxiety group account for the highest proportion.

(3) Parental education anxiety has intergenerational transmission effects, parental education anxiety will affect students' academic burnout, and academic emotions play a mediating role in the relationship between parental education anxiety and students' academic burnout.

Keywords：Parental educational anxiety，Academic emotions，Academic burnout

童年情感忽视对社交焦虑的影响：一个有调节的中介模型

万玥[1]　罗品超[1]（通讯作者）
华南师范大学心理学院，广州，510631

摘 要　童年情感忽视是指监护人缺失对孩子的爱、养育和支持，令其缺少归属感，未能满足孩子基本情感和心理需求的现象，已有研究结果显示，童年情绪忽视对包括共情发展、社交焦虑形成在内的社会问题产生了深远的影响。然而，其潜在的机制在很大程度上仍不清楚。因此，本研究基于生态系统理论和依恋理论，采用问卷法对 1198 名大学生进行研究，运用儿童期创伤问卷、人际反应指针量表、共情理论量表、交往焦虑量表对童年情感忽视、共情、共情思维、社交焦虑进行测评，构建出一个有调节的中介模型，分析童年情感忽视对社交焦虑的影响路径。结果显示：（1）童年情感忽视能够正向预测大学生的社交焦虑水平，童年情感忽视程度越严重，社交焦虑水平越高。（2）情感共情、认知共情在童年情感忽视与社交焦虑之间起部分中介作用，但作用机制不一样。童年情感忽视程度越严重，情感共情水平更高，认知共情水平更低，社交焦虑更严重。（3）共情思维仅调节认知共情中介模型的后半段，对情感共情中介模型没有调节作用。具体表现为共情思维越符合成长型，童年情感忽视造成的低认知共情导致的社交焦虑程度越弱。研究揭示了共情和共情思维的中介和调节作用，为社交焦虑的发展机制、共情的工作机制提供更多解释路径。
关键词　社交焦虑，童年情感忽视，认知共情，情感共情，共情思维

Relationship between Childhood Emotional Neglect and Social Anxiety: A Moderated Mediation Model

Yue Wan1, Pinchao Luo1*
South China Normal University, China

Abstract：Childhood emotional neglect refers to a lack of availability and responsiveness from parents, leaving the child without a sense of belonging and failing to meet their basic emotional needs. Prior studies have found that childhood emotional neglect exert a far-reaching influence on social problems, including social anxiety and the development of empathy. However, the underlying mechanisms remains largely unknown. Thus, Based on ecosystem theory and attachment theory, the current study built a moderated mediation model exploring the combined effects of the childhood affective neglect on social anxiety, and a total of 1198 college students (480 boys, 718 girls; average age = 21.33 ± 1.87 years) participated in this investigation, assessing in terms of childhood emotional neglect, empathy, empathy mind-set, social anxiety using Childhood Trauma Questionnaire,

Interpersonal Reactivity Index, Theories of Empathy Scale, and Interaction Anxiousness Scale. The results indicated that: (1) Childhood affective neglect can positively predict the level of social anxiety of college students. Compared to individuals with a low childhood affective neglect, students with a high childhood affective neglect had higher levels of social anxiety. (2) Affective empathy and cognitive empathy partially mediate the relationship between childhood affective neglect and social anxiety, but their mechanisms are different. Higher levels of childhood affective neglect were associated with higher levels of emotional empathy but lower levels of cognitive empathy, and they led to higher levels of social anxiety. (3) Empathy mind-set only moderates the latter half of the cognitive model. Specifically, the more malleable view of empathy that someone has, the lower level of social anxiety will be affected by low cognitive empathy which caused by childhood affective neglect.This study reveals the mediating and moderating effects of empathy and empathy mind-set, providing more explanations for the development and working mechanism of social anxiety and empathy.
Keywords: social anxiety, childhood affective neglect, cognitive empathy, affective empathy, empathy mind-set

基于多维项目反应理论的幼儿绘画潜能家长评定量表开发

马骏驰[1] 邢秋连[1] 郑方晓[1] 耿绯[1] 郑元欣[1] 张明珠[1] 王鹏[2]

1 山东师范大学心理学院，济南，250399

2 山东师范大学心理学院，济南，250399，pengsdnu@163.com

摘 要 目的：利用多维项目反应理论编制适合我国幼儿的绘画潜能家长评定量表，并检验其信效度。方法：在文献分析的基础上参考教育部下发的《3-6 岁儿童学习与发展指南》，进一步通过与幼儿家长和教师的访谈以及专家评定，形成具有 20 个题项的初始量表。通过问卷星对幼儿家长进行施测，最终回收并经过数据清洗后获得有效样本 819 份，将有效样本随机分为数据集 A（n=409）和数据集 B（n=410）。对数据集 A 进行项目分析、探索性因素分析和构建多维等级反应（MGR）模型进行参数估计；利用数据集 B 对数据集 A 的模型参数估计结果进行验证分析，并对被试能力参数进行估计，改编了幼儿绘画过程行为观察表作为效标测量工具并利用数据集 B 进行了效标关联效度的分析。结果：经过项目分析和探索性因子分析，形成具有 18 个题项的最终量表，包括绘画技能、绘画见识、绘画思维三个因子。数据集 A 的 MGR 模型参数估计良好，所有项目难度参数均在[-3.2276，2.4878]之间，区分度参数的估计结果均在[0.7747，3.0218]之间，因此不需要删除任何题项；数据集 B 的验证分析结果显示项目的难度参数在[-3.8488，2.9892]之间，项目的区分度参数在[0.6877，2.3604]之间，也均在可接受的的范围之内。由此可知，数据集 a 所得出的模型具有较高的可靠性。量表总分与效标问卷总分之间呈显著正相关（r=0.524，p<0.01），且量表各维度与效标问卷也呈正相关（r=0.250～0.554，p<0.01）,说明编制的幼儿绘画潜能家长评定量表具有良好的效标关联效度。量表总分及三个因子的内部一致性系数分别为 0.934、0.918、0.848 和 0.742，表明问卷具有良好的同质性信度。此外，基于多维项目反应理论构建的 MGR 模型可以获得被试在各个维度上的能力信息，可以更全面的进行认知诊断。结论：本研究编制的幼儿绘画潜能家长评定量表具有良好的信效度，符合心理测量学的特性，可以用来评估幼儿绘画潜能。
关键词 幼儿绘画潜能，多维项目反应理论，量表编制，信度，效度

Development of the Parent Rating Scale for Young Children's Drawing Potential Based on Multidimensional Item Response Theory

Junchi Ma，Qiulian Xing，Fangxiao Zheng ，Fei Geng，Yuanxin Zheng，Mingzhu Zhang，Peng Wang

School of Psychology, Shandong Normal University, jinan, 250399，
Email：pengsdnu@163.com

Abstract： Objective： This paper aimed to develop a drawing potential parent rating scale suitable for young children in China using multidimensional item response theory and to test its reliability and validity. Methods: On the basis of literature analysis, the initial questionnaire with 20 items was designed with reference to the Learning and Development Guidelines for Children Aged 3-6 issued by the Ministry of Education, and further through interviews with parents and teachers of young children as well as expert evaluation. The questionnaire was administered to parents of young children through the Wenjuanxing, and finally 819 valid samples were recovered and obtained after data cleaning. The valid samples were randomly divided into dataset A (n=409) and dataset B (n=410). Item analysis, exploratory factor analysis and the construction of Multidimensional Graded Response (MGR) model for parameter estimation were performed on dataset A. The results of the model parameter estimation of dataset a were validated using dataset B. The parameters of the subjects' abilities were estimated, and the Behavioral Observation Scale of Young Children's Drawing Process was adapted as a validity scale measurement tool and dataset B was used to measurement calibration validity. Results: After item analysis and exploratory factor analysis, a final scale with 18 items was formed, including the three factors ： drawing skills, drawing insight, and drawing mindset. The parameters of the MGR model for dataset A were well estimated, with all the item difficulty parameters between [-3.2276, 2.4878] and the estimation results of the differentiation parameter between [0.7747, 3.0218], so there was no need to delete any question items; the results of the validation analysis for dataset B showed that the item difficulty parameter was between [-3.8488, 2.9892] and the item differentiation parameter is between [0.6877, 2.3604], which are also within the acceptable range. It can be seen that the model derived from dataset a has high reliability. There was a significant positive correlation between the total score of the scale and the total score of the validity questionnaire ($r=0.524$, $p<0.01$), and the dimensions of the scale were also positively correlated with the validity questionnaire ($r=0.250\sim0.554$, $p<0.01$), indicating the Drawing Potential Parent Rating Scale of young children had good calibration validity. The internal consistency coefficients of the total score of the questionnaire and the three factors were 0.934, 0.918, 0.848 and 0.742 respectively, indicating the scale had good homogeneity reliability. In addition, the MGR model constructed on the basis of multidimensional item response theory can obtain information about the subjects' abilities in various dimensions, which make cognitive diagnosis more comprehensive. Conclusion: The Young Childhood Drawing Potential Parent Rating Scale developed in this study has good reliability and validity , and can be utilized as an effective tool for drawing potential of young children.

Keywords： Drawing potential of young children ， Multidimensional Item Response Theory ， Scale development ，Reliability ，Validity

女生不容易学工科？--基于专业认同感调节的教育增值性评价研究

左利华[12] 聂衍刚[2]（通讯作者）
1 广东海洋大学心理健康与咨询中心，广东 湛江，524088
2 广州大学教育学院青少年心理与行为研究中心，广东 广州，510006，nie-yangang@gzhu.edu.cn

摘 要 高等教育中的专业性别隔离问题一直以来都是教育心理学研究的重点，中国的女大学生较少报考及录取到工科专业。大学生对所学专业的认同程度决定了是否主动学习的态度，是大学生教育增值的重要影响因素。以大学生教育增值性评价中最为重要的两个要素——个人素质和专业能力的提升情况为因变量，探讨性别隔离是如何通过专业认同感影响大学生教育增值的，实证检验男女生就读工科专业的异质性。个人素质主要包括法

治道德、创新思维、责任素养等要素，专业能力主要包括专业思维、解决问题、职业规划等要素。本研究对广东省某高校的 35550 名大学生开展问卷调查，同时收集了被试的学业成绩。自编专业认同感问卷、个人素质发展情况问卷、专业能力发展情况问卷，问卷信度较高（Cronbach's α≥0.842）。问卷检出男生 20350 人、女生 15200 人，其中工科男生 10953 人、工科女生 6132 人。研究结果表明：（1）女生的学业成绩高于男生的（F=645.43, p<0.001）,工科生的学业成绩低于非工科生的（F=189.22, p<0.001）,两者交互作用显著（F=13.81, p<0.001）。（2）工科生有较低的专业认同感（F=13.08, p<0.001），女生的专业认同感、个人素质和专业能力均高于男生（F≥22.48, p<0.001），两者交互作用不显著。（3）专业认同感、个人素质和专业能力相互呈显著正相关（r≥0.196, p<0.001），以上三个变量与学业成绩呈显著正相关（r≥0.104, p<0.001）。（4）将专业认同感作为中介调节变量，探讨两因素（性别、是否就读工科专业）对个人素质、专业能力的影响，分析发现专业认同感对个人素质没有调节作用，个人素质受性别因素影响（R^2=0.13, F=155.15, p<0.001），专业认同感显著调节了性别因素对专业能力的影响（R^2=0.259, F=3111.41, p<0.001），是否就读工科专业对个人素质、专业能力的影响不显著。女生就读工科专业与男生的困难程度无差异，专业认同感主要影响大学生的专业能力发展，学业成绩可以较好的预测大学生教育增值性评价。

关键词　性别隔离，专业认同感，教育增值性评价，工科专业

Girls Are Not Easy to Learn Engineering?

--Research on the Evaluation of Educational Value-added Based on the Regulation of Professional Identity

Lihua Zuo[1,2]　Yangang Nie [2]

1 Mental Health and Counseling Center, Guangdong Ocean University, Zhanjiang 524088

2 Department of Psychology/Research Center of Adolescent Psychology and Behavior, School of Education, Guangzhou University, Guangzhou 510006

Abstract*:** The issue of professional sex segregation in higher education has always been the focus of Educational psychology research, and female college students in China rarely apply for exams and enroll in engineering majors. The degree of professional identity determines their attitude towards active learning, which is an important influencing factor for the value-added of college education. There are two most important elements in the value-added evaluation of college education: personal qualities and professional abilities. Personal qualities mainly include elements such as legal ethics, innovative thinking, and responsibility literacy. Professional abilities mainly include elements such as professional thinking, problem-solving, and career planning. We need to explore how sex segregation affects the education value-added of college students' through professional identity, and empirically test the differences between male and female students in engineering majors. ***Method: We have developed our own professional identity questionnaire, personal quality development questionnaire, and professional ability development questionnaire, which have high reliability (Cronbach's α≥0.842). The questionnaire survey on 35550 college students from a university in Guangdong Province, and collected their academic performance. The questionnaire detected 20350 male students and 15200 female students, including 10953 engineering male students and 6132 engineering female students. ***Result***: (1) The academic performance of female students is higher than that of male students (F=645.43, p<0.001), while the academic performance of engineering students is lower than that of non engineering students (F=189.22, p<0.001). The interaction between the two is significant (F=13.81,

p<0.001). (2) Engineering students have a lower sense of professional identity (F=13.08, p<0.001), while female students have a higher sense of professional identity, personal qualities, and professional abilities than male students (F≥22.48, p<0.001), and the interaction between the two independent variable is not significant. (3) Professional identity, personal qualities, and professional abilities are significantly positively correlated with each other (r≥0.196, p<0.001), and the above three variables are significantly positively correlated with academic performance (r≥0.104, p<0.001). (4) Using professional identity as a mediating variable, we explores the effects of two factors (gender and whether engineering major students) on personal quality and professional ability. We found that professional identity has no moderating effect on personal quality, and personal quality is mainly influenced by gender factors (R^2=0.13, F=155.15, p<0.001). Professional identity significantly moderates the impact of gender factors on professional ability (R^2=0.259, F=3111.41, p<0.001). The impact of studying engineering majors on personal quality and professional abilities is not significant. **Conclusion:** There is no difference in the difficulty level between girls studying engineering majors and boys. Professional identity mainly affects the development of college students' professional abilities, and academic performance can better predict the value-added evaluation of college education.

Keywords：Sex segregation, Professional identity, Evaluation of educational value-added, Engineering

校园氛围与网络欺凌实施的元分析

林一瑾[1]　巩宁宁[1]　张佳静[1]　尤若男[1]　李森[1]（通讯作者）

1 河北大学教育学院，保定，071000，1447123652@qq.com

摘 要　网络欺凌逐渐成为公共社会中严重的人际交往问题。而在以往的相关研究中，校园氛围与网络欺凌实施的关系并不一致。本研究旨在通过元分析方法，进一步澄清校园氛围与网络欺凌实施之间的关系，并探讨性别与文化在二者关系中的调节作用。经过对文献的检索与筛选，本研究共纳入 28 篇包含校园氛围与网络欺凌实施相关关系的量化文章，共 33 个效应值，总样本量为 82,580。使用 Comprehensive Meta-Analysis (CMA 3.0)软件，基于随机效应模型对数据进行分析。结果表明：校园氛围与网络欺凌实施行为存在显著的负相关（r = -0.20，p < 0.001）；亚组分析表明，校园氛围与网络欺凌实施间的关系受到文化的调节作用（Q = 6.49，p < 0.05），即个人主义文化中的学生（r = -0.26, 95% CI = [-0.32，-0.19]）比集体主义文化中的学生（r = -0.13, 95% CI = [-0.20，-0.06]）更易受到学校氛围的影响实施网络欺凌行为；元回归分析表明，校园氛围与网络欺凌实施间的关系并不受性别的调节作用（b = 0.022, p = 0.534）。本研究澄清了校园氛围与网络欺凌实施间相关性大小的分歧，揭示了学校氛围与网络欺凌实施间存在的显著性负相关，并且阐明了二者之间的关系受到文化的调节作用。这些发现为网络欺凌行为的预防和干预工作提供了新的科学依据。

关键词　校园氛围，网络欺凌实施，文化，性别

School climate and cyberbullying perpetration: A meta-analysis

Yijin Lin[1]　Ningning Gong[1]　Jiajing Zhang[1]　Ruonan You[1]　Sen Li[1*]

1 School of Education, Hebei University, No. 180 Wusi Dong Road, Lian Chi District, Baoding City, Hebei Province, China, 071002, Email: 1447123652@qq.com

Abstract: Cyberbullying perpetration has become a severe interpersonal issue in public society. Since the association between school climate and cyberbullying perpetration remains inconsistent in previous studies. This article aimed to report a meta-analysis of the relationship between school climate and cyberbullying perpetration, and explore the moderating effects of gender and culture. Examination of the literature containing quantitative measurements of both school climate and cyberbullying perpetration produced a sample of 33 effect sizes (N = 82,580) for review. Results based on random-effects model indicated a significant negative relation between school climate and cyberbullying perpetration (r = -0.20, p < .001). Moreover, the moderation analyses revealed that the association between school climate and cyberbullying perpetration was stronger for students in individualistic culture than those in collectivist culture (Q = 6.49, p < .05). However, this relation was not moderated by gender (b = 0.022, p = .534). In conclusion, there is an significant association between school climate and cyberbullying perpetration, and it is moderated by culture.

Keywords: School climate, Cyberbullying perpetration, Culture, Gender

童年中晚期父亲与母亲教养的联合发展轨迹与儿童学校适应的关系

王芳[1]　洪松岳[2]　王美芳[2]（通讯作者）

1 首都师范大学心理学院，北京，100048

2 首都师范大学心理学院，北京，100048，meifangw@hotmail.com

摘 要　儿童的学校适应是国内外教育学与心理学研究者关注的重要课题。其中，父母教养是儿童学校适应的重要影响因素。然而，现有研究较少从系统的视角考察父亲和母亲教养的联合发展轨迹对儿童学校适应的影响。本研究以 362 名四年级小学生及其父母为被试，进行为期三年的追踪测查，并采用以个体为中心的方法，分别考察了儿童报告和父母报告的父亲与母亲教养的联合发展轨迹亚组与童年中晚期儿童学校适应（包括学习成绩、师生关系、同伴关系、内外化问题行为以及学校满意度）间的关系。平行过程潜在类别增长模型的结果发现，儿童报告与父母报告的父母教养均存在三组联合发展轨迹。具体而言，儿童报告的父亲与母亲教养存在“慈爱父慈爱母”、“焦虑父焦虑母”与“严厉父严厉母”三个轨迹亚组，父母报告的父亲与母亲教养存在“慈爱父慈爱母”、“严慈父严慈母”与“严厉父严厉母”三个轨迹亚组。除了学习成绩在各个父亲与母亲教养的联合发展轨迹间的差异不显著外，儿童学校适应的其它方面与父亲和母亲教养的联合发展轨迹均存在显著关联。基于儿童报告与父母报告的父母教养识别出的相似的轨迹亚组与儿童学校适应间的关系相同。其中，儿童报告与父母报告识别出的“慈爱父慈爱母”轨迹亚组的儿童学校适应均最好，具体表现为最高水平的师生关系、同伴关系、学校满意度，以及最少的内外化问题行为；而儿童报告与父母报告识别出的“严厉父严厉母”轨迹亚组的儿童学校适应均最差。此外，儿童报告识别出的“焦虑父焦虑母”轨迹亚组中儿童的学校适应较好；父母报告识别出的“严慈父严慈母”轨迹亚组中的儿童学校适应较差。研究结果揭示了父母教养组合对儿童学校适应的影响，并为通过改善父母教养进而提升儿童学校适应的实践干预提供了实证依据。

关键词　父母教养，儿童报告和父母报告，联合发展轨迹，学校适应

The Relationship between Co-developmental Trajectories of Paternal and Maternal Parenting and Children's School Adjustment in Middle to Late Childhood

Fang Wang[1], Songyue Hong[2], Meifang Wang[2]

[1] Department of Psychology, Capital Normal University, Beijing, 100048
[2]College of Elementary Education, Capital Normal University, Beijing, 100048

***Abstract*:** Children's school adjustment is a crucial area of interest for educational and psychological researchers worldwide. Parenting plays a significant role in influencing children's school adjustment; however, existing research has limitedly explored the impact of co-developmental trajectories of paternal and maternal parenting on children's school adjustment from a systemic perspective. This study aimed to explore this issue by conducting a three-year longitudinal study on 362 fourth-grade primary school students and their parents. Using an person-centered approach, the study examined the joint developmental trajectories of paternal and maternal parenting as reported by children and parents, respectively. Furthermore, the study investigated the relationship between these developmental trajectories and various aspects of children's school adjustment during middle to late childhood, including academic performance, teacher-student relationships, peer relationships, internalizing and externalizing behavior problems, and school satisfaction. The results, obtained through parallel process latent class growth modeling, revealed three groups of co-developmental trajectories for both child-reported and parent-reported parenting. Specifically, for child-reported paternal and maternal parenting, the trajectory subgroups of "kind father, kind mother", "anxiety father, anxiety mother", and "strict father, strict mother" were identified. For parent-reported paternal and maternal parenting, the trajectory subgroups of "kind father, kind mother", "kind-strict father, kind-strict mother", and "strict father, strict mother" were identified. Apart from the insignificant differences in academic performance among the co-developmental trajectories of paternal and maternal parenting, the other aspects of children's school adjustment are closely related to co-developmental trajectories of paternal and maternal parenting. For the subgroups of trajectory similar to those identified by child and parent reports, the same relationship was found with children's school adjustment. Children in the "kind father, kind mother" trajectory identified for child- and parent-reported paternal and maternal parenting exhibited the most positive school adjustment outcomes, including the best teacher-student relationship, peer relationship, and school satisfaction, and the least internalizing and externalizing behaviors. Conversely, children in the "strict father, strict mother" trajectory experienced the most challenging school adjustment. Additionally, children in the "anxiety father, anxiety mother" trajectory, as identified by children report, demonstrated better school adjustment, whereas children in the "kind-strict father, kind-strict mother" trajectory, as identified by parents report, reported worse school adjustment. These findings contribute to our understanding of the relationship between co-developmental trajectories of parenting and children's school adjustment. They also provide empirical evidence supporting the implementation of interventions aimed at improving parental caregiving to enhance children's school adjustment.

***Keywords*:** Parental Parenting, Children's and parents' reports, Co-developmental trajectory, School adjustment

教师心理健康素养干预效果的元分析

梁春雨 胡国鹏 陈宇轩 苏怡西 张信勇（通讯作者）
广东外语外贸大学社会与公共管理学院，广州，510006，zhangxinyong@gdufs.edu.cn

摘 要　近年来，鉴于教育工作者的心理健康素养在促进学生的心理健康和福祉方面发挥着关键作用，关于教师和准教师群体的心理健康素养的干预研究日益增多。本研究运用元分析的方法来考察现有针对教师（包括准教师）的心理健康素养的干预措施在改善心理健康知识、污名化态度、求助、助人上的有效性，

并进一步探讨影响其干预效果的因素。2022 年 11 月在 PubMed、PsycINFO、 ERIC、Web of Science 和 Cochrane Controlled Trials Register 5 个数据库上进行检索。本研究共检索到 6186 篇文献，共纳入 18 项研究。结果发现：（1）干预对知识、污名态度和助人的即时效果量达到显著的效果(知识：g = 1.08, 污名态度：g = -0.33，助人：g = 0.48)。（2）在 3 个月内的追踪效果上，仅对知识和助人的干预效果显著，达到中到大的效果（知识：g = 0.73，助人：g = 0.52）。（3）在 3 个月后的干预效果上，知识和助人的干预效果依然显著(知识：g = 0.53，助人：g = 0.55)。（4）在求助这一结果变量并未观察到显著差异。（5）亚组分析结果表明：在知识的干预上，地域、被干预者类型、试验类型、干预者与被干预者之间的互动形式的亚组分析均不显著。在污名态度的干预上，地域、干预者类型、试验类型均显著影响污名态度的即时效果量。具体为：对欠发达国家教师的干预效果显著优于对发达国家教师的干预效果(g :- 0.-79>-0.24 ,p < 0.001); 对职前教师的干预效果显著优于在职教师的干预效果(g :- 0.-95>-0.27, p < 0.01); 非 RCT 研究的干预效果显著优于 RCT 研究(g :- 0.42>-0.04, p < 0.05) 。在助人的干预上，仅有试验类型的亚组结果显著。研究结论和启示：目前教师心理健康素养的干预措施在短期能有效提升其心理健康素养的知识、污名态度、助人 3 个结果变量。但在长期效果上，只有知识的长期效果是有效的。未来的研究应延长随访时间以确定长期的干预效果，并且进一步探索心理健康素养干预的影响因素。
关键词　心理健康素养，教师，干预，系统综述，元分析

Meta-analysis of the effect of mental health literacy intervention on teachers: knowledge, stigma, help-seeking,helping

LIANG Chun-yu, HU Guo-peng, CHEN Yu-xuan, Su Yi-xi, ZHANG Xin-yong

School of Public Administration,Guangdong University of Foreign Studies,Guangdong 510006，China

Abstract： In recent years, given the critical role educators' mental health literacy plays in promoting students' mental health and well-being, there has been an increase in studies on mental health literacy among teachers and pre-servive teachers. A systematic review and meta-analysis regarding the effectiveness of mental health literacy interventions aimed at teachers' (including pre-servive teachers') in improving mental health knowledge, stigmatized, help-seeking, and helping, and further explores the impact of these interventions. Studies were identified by searching five databases (Pub Med, Psyc ARTICLES, ERIC, Web of Science and Cochrane Controlled Trials Register).Of the 6186 identified references, 18 studies were included in the meta-analysis.The results were as the following. (1) The immediate effect of the intervention on knowledge, stigma and helping was significant (knowledge: g = 1.08, stigma : g = -0.33, helping others: g = 0.48). (2) At a 3- month follow-up, only the effect of intervention on knowledge and helping were significant and medium to large (knowledge: g = 0.73, helping: g = 0.52). (3) At longer follow-ups (> 3 month), the effect of intervention on knowledge and helping were still significant (knowledge: g = 0.53, helping: g = 0.55). (4) No significant difference was observed in help-seeking. (5) The results of the subgroup analysis were as the following. In terms of knowledge , the subgroup analysis indicated the types of the region, the types of the participants, the types of experiment, and the types of interaction and contact in intervention were not significant. With respect to stigma, the types of the region, the types of the participants, the types of experiment were significant. In terms of helping, only the types of experiment was significant. The conclusions and implications are as following. The mental health literacy among teachers are effective in augmenting knowledge, stigma, and helping in the short term, but not in improving help-seeking.Intervention effects on knowledge are stable in time, while the intervention effects on stigma, helping

are unstable.Future research should extend the follow-up time to determine the long-term intervention effect, and further explore the influencing factors of mental health literacy intervention.
Keywords：mental health literacy，teacher，intervention，systematic review，meta-analysis

5.11 心理测量专业委员会

二阶段多分属性估计方法：

突破大规模标准化考试中多分属性认知诊断的计算挑战

韩雨婷[1]　江哲涵[2,3]（通讯作者）

1 北京语言大学心理学院，北京，100083

2 北京大学医学教育研究所，北京，100191

3 北京大学全国医学教育发展中心，北京，100191，通讯作者 E-mail：jiangzhehan@gmail.com

摘 要　鉴于知识和技能的多层次性，学界已提出多分属性的认知诊断模型（polytomous Cognitive Diagnosis Model，pCDM），以更细致地评估考生对各项属性的掌握程度。这种多层次的评估方式与布卢姆等人将教育目标中的认知领域划分为记忆、理解、应用等多个层次的观念相契合，进一步提升了诊断反馈的个性化和精细化水平。然而，由于 pCDM 估计参数数量的增加，其在处理大样本、大题量、多认知层次的全国性大规模标准化考试数据时面临计算困难的技术约束。此外，传统考试命题过程中，常在题目水平上对认知层次进行标定，而非对各个属性单独标定。在此种题目水平标定认知层次的情况下，对考生多分属性掌握模式估计结果的准确性尚需进一步审查。

本研究通过创新研发并实证验证了一种二阶段多分属性估计方法，作为面对大样本高题量场景下 pCDM 的有效替代方案，实现了对考生多分属性掌握模式的精准估计。二阶段多分属性估计方法的基本框架是：先将题目根据认知水平分组，并估计考生二分属性掌握模式，然后将多组二分属性掌握模式整合成多分属性掌握模式。通过 Monte Carlo 模拟研究，我们详细探究了在不同属性数量、题目数量以及样本量条件下，采用题目水平认知层次标定的多分 Q 矩阵时，pG-DINA 模型与新方法对考生多分属性掌握模式和题目参数估计的准确性，以及 pG-DINA 和新方法之间估计结果的一致性。结果表明，在题目层面标定认知层次时，pG-DINA 和新方法都能得到准确的参数估计，且两种方法之间估计结果的一致性极高。此外，我们还利用某大规模卫生类考试数据进行了实证研究，以“考核要点”为认知属性，并在题目层面标定了认知层级。实证研究的结果进一步印证了新方法在处理大规模数据时的有效性和实用性。

总结来说，本研究通过开发二阶段多分属性估计方法，克服了在处理全国大规模标准化考试的海量数据时，采用 pCDM 所面临的计算量瓶颈问题。同时，为实际考试应用中在不同属性数量、试题数量以及样本量条件下选择最优方法和策略提供了重要参考，为进一步推动认知诊断更好地服务于实践提供了方法学支持。

关键词　认知诊断，多分属性，二阶段多分属性估计方法，大规模标准化考试

Two-Stage Polytomous Attribute Estimation: Overcoming Computational Challenges in Large-Scale Standardized Testing with Polytomous Cognitive Diagnostic Models

Yuting Han[1] Zhehan Jiang[2,3] (corresponding author)
1 School of Psychology, Beijing Language and Culture University, Beijing, 100083
2 Institute of Medical Education, Peking University, Beijing, 100191
3 National Center for Health Professions Education Development, Peking University, Beijing, 100191, E-mail: jiangzhehan@gmail.com

Abstract: Given the multilevel nature of knowledge and skills, the academic community has proposed the polytomous Cognitive Diagnosis Model (pCDM) to assess students' mastery of various attributes in a more detailed manner. This multilevel assessment aligns with the concept of dividing the cognitive domain of educational objectives into multiple levels such as memory, understanding, and application, as proposed by Bloom et al., thereby enhancing the individualization and refinement of diagnostic feedback. However, due to the increase in the number of parameters to be estimated in pCDM, it faces technical constraints in processing large-scale, large-item, and multi-cognitive level national standardized examination data. Moreover, in traditional exam setting, cognitive levels are usually calibrated at the item level rather than individually calibrating each attribute. Further examination is needed for the accuracy of the estimation results of students' polytomous attribute mastery patterns under this item-level cognitive level calibration.

In this study, a two-stage polytomous attribute estimation method is innovatively developed and empirically validated as an effective alternative to pCDM in scenarios with large samples and a high volume of items, achieving precise estimation of students' polytomous attribute mastery patterns. The basic framework of the two-stage polytomous attribute estimation method is to first group items according to cognitive levels and estimate students' dichotomous attribute mastery patterns, and then integrate multiple groups of dichotomous attribute mastery patterns into polytomous attribute mastery patterns. Through a Monte Carlo simulation study, we thoroughly investigate the accuracy of the pG-DINA model and the new method in estimating the polytomous attribute mastery patterns and item parameters under different attribute quantities, item numbers, and sample sizes, as well as the consistency between the pG-DINA and the new method when using the polytomous Q-matrix calibrated at the item-level cognitive level. The results show that both the pG-DINA and the new method can obtain accurate parameter estimates when calibrating cognitive levels at the item level, and the consistency between the two methods is extremely high. In addition, we conducted an empirical study using large-scale health examination data, using "main points" as cognitive attributes and calibrating cognitive levels at the item level. The results of the empirical study further confirm the effectiveness and practicality of the two-stage polytomous attribute estimation method in handling large-scale data.

In summary, this study develops a two-stage polytomous attribute estimation method to overcome the computational bottleneck faced by pCDM when dealing with the massive data of national large-scale standardized examinations. At the same time, it provides important references for selecting the optimal method and strategy in actual exam applications under different attribute quantities, item numbers, and sample sizes, providing methodological support to further promote cognitive diagnosis to better serve practice.

Keywords: Cognitive Diagnosis, Polytomous Attributes, Two-Stage Polytomous Attribute Estimation Method, Large-Scale Standardized Testing

参数估计误差对多级评分题型测验等值的影响：问题与思考

王少杰[1]（通讯作者） 张敏强[2]
1 广东第二师范学院教育学院，广州，510303，wang021112@126.com
2 华南师范大学心理学院，广州，510631

摘 要 参数估计误差是项目反应理论中重要的概念之一。在测验等值领域常用的 IRT 特征曲线方法并未考虑该误差对测验等值的影响，可能会影响后续结论与决策准确性。为此，Wang 等人（2022）将参数估计误差（信息量）作为权重系数，提出两种项目与测验信息量加权特征曲线方法。经证明，这两种方法在二级评分题型测验等值中具有良好表现。但该类方法在其他测验等值情境中的表现未知，且未有研究探讨参数估计误差在测验等值中的作用。

因此，本文将信息量加权特征曲线方法扩展到多级评分题型测验等值情境。首先，仿照二级评分题型测验等值原理，提出三种新的测验等值方法，分别为等级信息量加权特征曲线方法（CWCC）、项目信息量加权特征曲线方法（IWCC）与测验信息量加权特征曲线方法（TWCC）；并推导出其损失函数的表达式与求解方法。然后，通过蒙特卡洛模拟研究，探究新提出的信息量加权特征曲线方法的表现，以及参数估计误差等因素在此过程中作用的机制。其中，自变量为参数估计误差、考生能力差异、题目数量。在模拟研究中，采用特征曲线类（相对测验特征曲线平方差）与误差类（包括偏差、标准误与均方根误差）两类指标评估等值表现。这两类指标均为绝对值越小，代表测验等值表现越优。整个模拟研究流程重复 1000 次，采用 R 软件自编程序完成。最后，通过实证研究，采用真实考试数据，验证模拟研究结果与结论。

结果发现，在多级评分题型的测验等值情境中新提出的三种方法整体表现较优，均具有较高的准确性与稳定性。同时，三种传统特征曲线方法的测验等值表现亦较为优异。其中，TWCC 方法略优于相应传统方法，CWCC、IWCC 方法与相应传统方法表现相当。参数估计误差与考生能力差异越小，题目数量越大，测验等值的表现越优。同时，在测验等值中，相比于系统误差，随机误差占比更大。本文还发现，上述两类测验等值误差，存在偏差与方差的权衡现象。文中针对测验等值表现、影响因素、两类测验等值误差间的关系展开详细探讨，可为测验等值提供新方向。

关键词 参数估计误差，多级评分题型，测验等值，信息量加权，特征曲线方法

The Impact of Parameter Estimation Error on IRT Linking Methods with Polytomous Items: Issues and Considerations

Wang Shao-jie[1], Zhang Min-qiang[2]
1 College of Education, Guangdong University of Education, Guangzhou, 510303
2 School of Psychology, South China Normal University, Guangzhou, 510631

Abstract： This paper focuses on the impact of parameter estimation error on linking methods in item response theory (IRT). The commonly used IRT characteristic curve linking methods do not consider this error. This can affect the accuracy of conclusions and decisions based on it. To address this problem, Wang et al. (2022) proposed two information-weighted characteristic curve methods. These two methods use parameter estimation error (information) as a weighting coefficient, which are named as the item information-weighted characteristic

curve method and the test information-weighted characteristic curve method. Research showed that these newly proposed methods performed well in the IRT linking with dichotomous items. However, the performance of these IRT linking methods in other contexts is unknown. There is no research exploring the role of parameter estimation error in IRT linking methods.

Therefore, this paper extends these two information-weighted characteristic curve methods to the IRT linking with polytomous items. Firstly, based on the rule of IRT linking methods with dichotomous items, three new IRT linking methods with polytomous items are proposed. These are the category information-weighted characteristic curve method, the item information-weighted characteristic curve method, and the test information-weighted characteristic curve method. The expressions and solving methods of the loss function for IRT linking with polytomous items are derived. Furthermore, this paper explores the performance of the three newly proposed information-weighted characteristic curve methods and the role of the factors such as parameter estimation error in the IRT linking with polytomous items through Monte Carlo simulation research. The independent variables include parameter estimation error, student ability differences, and the number of items in a test. Two types of evaluation criteria are used to evaluate the performance of IRT linking methods. These are the evaluation criterion based on characteristic curve and the evaluation criteria based on error. The former criterion is relative squared test characteristic curve difference (RSTD). The evaluation criteria based on error include bias, standard error (SE), and root mean square error (RMSE). Both types of evaluation criteria represent better IRT linking performance with smaller absolute values. The entire simulation research process was repeated 1000 times and completed using the R software with self-written program and mirt package (Chalmers, 2012). Finally, empirical research was conducted using real test data to verify the results and conclusions of the simulation studies.

The results show that the three newly proposed methods have a better overall performance in the IRT linking with polytomous items. These three IRT linking methods have high accuracy and stability (i.e., small absolute values of bias and SE). Moreover, the performance of the three traditional characteristic curve linking methods is also excellent. Among them, the test information-weighted characteristic curve method is slightly better than the traditional test characteristic curve method. The category information-weighted characteristic curve method, the item information-weighted characteristic curve method, and traditional characteristic curve methods perform equally well. The smaller the parameter estimation error and student ability differences, and the larger the number of test items, the better the performance of IRT linking. In IRT linking, random error has a greater proportion than systematic error. This paper also found a trade-off phenomenon between bias and variance in the two types of IRT linking errors.

In summary, this paper provides new insights into the IRT linking methods with polytomous items by extending the information-weighted characteristic curve methods with dichotomous items. The results of this study can contribute to the development of IRT linking and test equating and improve its accuracy and stability. Additionally, this study found that there is a trade-off between bias and variance in IRT linking errors, and that random error has a greater impact on IRT linking than systematic error. This study fills a gap in the research on the role of parameter estimation error in IRT linking and test equating and provides practical implications for researchers and practitioners in the field of educational measurement.

Keywords：Parameter estimation error, polytomous item, IRT linking, information weighted, characteristic curve methods

简版领悟社会支持量表的开发：基于经典测量理论和项目反应理论

武运筹 1 汤靖琪 2 杜卓然 3 陈珂 3 张鑫懿 3 王飞 4 孙小楠 5 孙昕霎 6 吴一波 6（通讯作者）

1 西南大学心理学部，重庆，400715

2 华东师范大学心理与认知科学学院，上海，200062

3 安徽大学哲学学院心理学系，合肥，230039

4 北京师范大学心理学部认知与学习国家重点实验室，北京，100875

5 哈尔滨医科大学人文社会科学学院，哈尔滨，150081

6 北京大学公共卫生学院，北京，100191，bjmuwuyibo@outlook.com

摘 要 领悟社会支持被定义为对个人与他人建立可靠关系能力的认知评估。其中，最常用的测量工具是 Zimet 等人（1988 年）创建的多维领悟社会支持量表（Multidimensional Scale of Perceived Social Support, MSPSS）。该量表已被广泛应用于国外，在不同群体中应用和验证，并逐步扩展到中国的不同年龄组和人群。该量表虽然只有 12 个条目，但大规模的横断面调查往往包含多种类型的量表，使用较短的量表可以更快、更方便地应用于研究和临床工作。因此，本研究计划在中国居民中对领悟社会支持量表进行简化，并对其心理测量学特性进行检验。本研究采用多阶段分层整群抽样法，收集了全国 120 个城市 10914 名居民的数据。将数据随机分为两部分后，分别进行了探索性分析和验证性分析。在对数据集 1 进行探索性分析时，分别使用经典测量理论（Classical Test Theory, CTT）和项目反应理论（Item Response Theory, IRT）中的 Mokken 模型对量表进行了简化，各得到一个简表。同时，引入其它研究中通过多维项目反应理论得到的领悟社会支持量表简表，共得到三个简版量表。并对三个简版量表的实证效度和效标效度进行测试。随后，使用数据集 2 对领悟社会支持量表两个简版的信度、维度、效度和 Mokken 模型假设进行检验。根据数据分析结果，在所有简表中，基于 Mokken 模型假设编制的 7 条目简表具有最佳的心理测量特性。此外，由各维度因子载荷最高的项目组成的 3 条目简表也表现出良好的心理测量特性。因此，本研究认为，在将来的研究中，如果需要使用领悟社会支持量表的简表进行测量，3 条目简版适用于临床环境、大规模横断面研究或纵向研究，而 7 条目简版则适用于更精确的测量。

关键词 领悟社会支持，量表简化，Mokken 模型

Development of a Short Version of the Perceived Social Support Scale: Based on Classical Test Theory and Item Response Theory

Yunchou Wu[1] Jingqi Tang[2] Zhuoran Du[3] Ke Chen[3] Xinyi Zhang[3] Fei Wang[4] Xiaonan Sun[5] Xinying Sun[6] Yibo Wu[6]

11 School of Psychology, Southwest University, Chongqing, 400715, China

2 School of Psychology and Cognitive Science,East China Normal University,Shanghai,200062,China

3 Department of Psychology, School of Philosophy, Anhui University, Hefei, 230039, China

4 State Key Laboratory of Cognition and Learning, Department of Psychology, Beijing Normal University, Beijing, 100875, China

5 School of Humanities and Social Sciences, Harbin Medical University, Harbin, 150081,China

6 School of Public Health, Peking University, Beijing, 100191,China

***Abstract*：** Perceived social support is defined as the cognitive assessment of an individual's ability to establish reliable relationships with others in society. The most commonly used measurement tool for this construct is the Multidimensional Scale of Perceived Social Support (MSPSS) created by Zimet et al. (1988). This scale has been widely used in foreign countries, applied and validated in different populations, and gradually extended to different age groups and populations in China. Although the MSPSS scale consists of only 12 items, large cross-sectional surveys often include multiple scales of different types. Using shorter scales can make it quicker and more convenient to apply them in research and clinical work. Therefore, this study aims to simplify the MSPSS scale for Chinese residents and examine its psychometric properties. A multi-stage stratified cluster sampling method was employed to collect data from 10,914 residents in 120 cities across the country. After randomly dividing the data into two parts, exploratory analysis and confirmatory analysis were conducted separately. During the exploratory analysis of Dataset 1, the scale was simplified using both Classical Test Theory (CTT) and the Mokken model in Item Response Theory (IRT), resulting in one short form for each approach. Additionally, three short forms were obtained by introducing other short forms of the MSPSS scale derived from multidimensional item response theory in previous studies. The empirical validity and criterion-related validity of the three short forms were tested. Subsequently, the reliability, dimensionality, validity, and assumption of the Mokken model for the two short forms of the MSPSS scale were examined using Dataset 2. Based on the data analysis results, the 7-item short form developed based on the Mokken model assumption exhibited the best psychometric properties among all the short forms. Moreover, the 3-item short form composed of items with the highest factor loadings in each dimension also demonstrated good psychometric properties. Therefore, this study suggests that in future research, if a short form of the MSPSS scale is needed for measurement purposes, the 3-item short form is suitable for clinical settings, large-scale cross-sectional studies, or longitudinal studies, while the 7-item short form is more appropriate for more precise measurements.

***Keywords*：** perceived social support, scale simplification, Mokken model

探究小学生器乐艺术潜能家长评定量表的编制：基于多维项目反应理论

郑元欣[1] 程新宇[1] 张明珠[1] 耿绯[1] 马骏驰[1] 郑方晓[1] 王鹏[2]（通讯作者）
1 山东师范大学，济南，250399
2 山东师范大学心理学院，济南，250399，pengsdnu@163.com

摘 要 目的：基于多维项目反应理论（MIRT）编制小学生器乐艺术潜能家长评定量表，对其进行项目分析和信效度检验，探索其适用性，形成正式量表，考察当前小学生器乐艺术潜能的现状与水平。

方法：采用理论探讨与实践调查分析相结合的方法构建初始量表；一半数据（开发集）用于构建 MIRT 模型，进行对比选择最优模型筛选题目；另一半数据（验证集）用于再次构建模型，进行验证，形成正式量表。采用整体抽样法在山东省内某小学进行抽样，共涉及 36 个班级，共计 1067 位家长参与了本研究。199 名参与者因作答无效（99%的题目都选同一选项的问卷）被剔除，剩余有效参与者为 868 人，其中男性为 470 人，女性 398 人，一至六年级分别为 157、147、133、125、158、148 人。

结果：1.开发集区分度参数位于[1.39，3.05]之间，难度参数位于[-3.03，2.17]之间，此步骤未删除项目，项目 18 提供最大信息函数值 2.40，5 个最大信息函数峰值最低的项目（1，2，3，8，14）在验证集中被删除；验证集区分度参数位于[2.08,2.78]之间，难度参数位于[-2.31，1.52]之间，此步骤未删除项目，项目 18 提供最大信息函数值 3.29，没有项目所提供的最大信息量明显低于其他项目，此步骤未删除项目。2.小学生器乐艺术潜能量表由两个分量表 16 个项目构成。3.CFA 验证性结果显示量表结构较好（$\chi^2/df = 8.84$，$RMSEA = 0.095$，$TLI = 0.908$，$CFI = 0.921$，$SRMR = 0.044$）。

结论：经实验证明，使用 MIRT 模型编制小学生器乐艺术潜能家长评定量表是可行的。并且量表各项测量学指标均符合心理测量学的要求。最后，该量表可以有效地测量小学生器乐艺术潜能。

关键词 器乐艺术，小学生，项目反应理论，量表编制

Exploring the development of instrumental art potential parents assessment scale for elementary school students: a data analysis based on multidimensional item response theory

Yuanxin Zheng[1] Xinyu Cheng[1] Mingzhu Zhang[1] Fei Geng[1] Junchi Ma[1] Fangxiao Zheng[1] Peng Wang[2] (Corresponding author)
1Shandong Normal University, Jinan, 250399
2 School of Psychology, Shandong Normal University, Jinan, 250399, pengsdnu.com

***Abstract*:** Objective: The purpose of this study is to develop an instrumental art potential parents assessment scale for elementary school students based on Multidimensional Item Response Theory (MIRT), conduct item analysis and reliability and validity test, explore its applicability, and finally form a formal scale to examine the current status and level of elementary school students' instrumental art potential.

Methods: The initial scale was constructed using a combination of theoretical exploration and practical survey analysis; half of the data (development set) was used to construct the MIRT model for comparison to select the optimal model for screening questions; the other half of the data (validation set) was used to construct the model again for validation to form the official scale. The cluster sampling method was used to sample an elementary

school in Shandong province, involving 36 classes and a total of 1067 parents participated in this study. 199 participants were excluded due to invalid responses (99% of the questions selected the same option in the questionnaire), leaving 868 valid participants, including 470 males and 398 females, with 157, 147, 133, 125, 158, and 148 participants from Grade 1 to Grade 6, respectively.

Results: 1. The development set differentiation parameter was between [1.39, 3.05], the difficulty parameter was between [-3.03, 2.17], no items were deleted at this step, item 18 provided the maximum information function value of 2.40, and the five items with the lowest maximum information function peak (1, 2, 3, 8, 14) were deleted in the validation set; the validation set differentiation parameter was between [2.08, 2.78] and the difficulty parameter was between [-2.31, 1.52], no items were deleted in this step, item 18 provided the maximum information function value of 3.29, no items provided significantly less maximum information than other items, no items were deleted in this step. 2. The Instrumental Art Potential Scale for elementary school students consists of 16 items on two subscales. 3. The CFA validation results showed that the scale structure was better(χ^2/df = 8.84, *RMSEA* = 0.095, *TLI* = 0.908, *CFI* = 0.921, *SRMR* = 0.044).

Conclusion: Firstly, it is feasible to use the MIRT model to develop an instrumental art potential parents assessment scale for elementary school students. Secondly, each of the scale's measurement indicators meets the requirements of psychometrics. Finally, it is possible to measure the instrumental art potential of elementary school students effectively.

Keywords： Instrumental arts, Elementary school students, Item Response Theory, Scale development

基于机器学习开发短式 Buss-Warren 攻击问卷

姜修　杨依天　李俊一（通讯作者）
四川师范大学心理学院，成都，610066
四川师范大学心理学院，成都，610066，junyili@sicnu.edu.cn

摘 要　背景：Buss-Warren 攻击问卷（Buss-Warren Aggression Questionnaire，BWAQ）是应用最为广泛的攻击性测量和评定的工具之一。虽然 BWAQ 具有良好的心理测量特性，但该问卷包含 34 个项目，使其在施测过程中存在一些局限。例如，长问卷会产生更多的不认真作答，降低测量结果的可靠性；长问卷的施测需要更多的时间和精力，会增加研究成本。目标：本研究旨在使用机器学习（Machine Learning，ML）算法，在保证问卷性能的同时，开发更为简短的 BWAQ，以降低施测成本和减少不认真作答，并为大规模普查提供便利工具。方法：样本为 796 名中学生，高攻击性学生占 51.5%。在简化阶段，使用逐步回归（Stepwise Regression）和 ANOVA F-test 确定了 16 个初始版本短式问卷，然后根据机器学习建模结果确定了短式 BWAQ 的最佳版本 —— BWAQ-ML，简化版本仅包含 4 个 BWAQ 题目，临界值为 11。BWAQ-ML 的 AUC、准确率、召回率、精确率和 F1 分数分别为 0.85、0.85、0.89、0.83 和 0.86，说明简化后的问卷性能较好。在验证阶段，BWAQ-ML 的 Cronbach's Alpha 为 0.84，使用反应性-主动性攻击问卷（Reactive-Proactive Aggression Questionnaire，RPQ）和亲社会倾向问卷（Prosocial Tendencies Measure，PTM）检验了 BWAQ-ML 的效度。BWAQ-ML 与 RPQ 分类结果的重合度为 71%，与 RPQ 和 PTM 的皮尔逊相关系数分别为 0.514（$p < 0.001$）和 -0.042（$p = 0.375$），表明短式问卷具有较好的心理测量学特性。结论：过往的机器学习简化问卷的相关研究多采用 R^2作为性能指标，未创建短式问卷的临界值。本研究使用机器学习分类算法简化问卷，根据 AUC、准确率、召回率、精准率和 F1 分数来评估模型，并据此创建了短式问卷的临界值，使问卷的施测更为便利。BWAQ-ML 比 BWAQ 减少了 88%的项目，信效度较好，能够有效测量个体的攻击性，可以作为 BWAQ 的精简版本使用。

关键词　攻击问卷，短式问卷，机器学习

Developing a short-form Buss-Warren Aggression Questionnaire based on Machine Learning

JIANG Xiuyu, YANG Yitian, LI Junyi
School of Psychology, Sichuan Normal University, Chengdu(610066), China

***Abstract*:** Background: The Buss-Warren Aggression Questionnaire (BWAQ) is one of the most widely used tools for assessing and measuring aggression. Despite its robust psychometric properties, the questionnaire's 34-item length presents certain limitations during deployment. For instance, longer questionnaires tend to elicit higher rates of insufficient effort survey responding, thereby diminishing the reliability of measurement outcomes. Additionally, the lengthier deployment of the questionnaire necessitates more time and effort, consequently escalating research costs. Objective: The purpose of this study is to apply Machine Learning (ML) algorithms to develop a more concise version of BWAQ while ensuring its performance. This initiative aims to reduce administration costs, mitigate insufficient effort in survey responding, and facilitate large-scale surveys. It can effectively reduce testing costs and reduce insufficient effort in survey responding, making it a convenient instrument for large-scale surveys. Methods: The sample was 796 middle school students, and 51.5% were highly aggressive. In the simplification phase, 16 initial versions of the short-form questionnaire were identified using Stepwise Regression and ANOVA F-test. Then the optimal version of the short-form BWAQ was identified based on the results of the machine learning modeling, named BWAQ-ML, which contains only 4 BWAQ items with a cutoff of 11. The AUC, accuracy, recall, precision, and F1 score of BWAQ-ML were 0.85, 0.85, 0.89, 0.83, and 0.86, respectively, indicating that the simplified questionnaire performed well. In the validation phase, the Cronbach's alpha of the BWAQ-ML was 0.84, and the validity of the BWAQ-ML was tested using the Reactive-Proactive Aggression Questionnaire (RPQ) and the Prosocial Tendencies Measure (PTM). The overlap between the BWAQ-ML and the RPQ categorization results was 71%, and the Pearson correlation coefficients with the RPQ and PTM were 0.514 ($p < 0.001$) and -0.042 ($p = 0.375$), respectively, which suggests that the simplified questionnaire has good validity. Conclusion: Past studies on simplified questionnaires for machine learning have mainly used R^2 as a performance metric and have not created a cutoff for short-form questionnaires. This study simplified the questionnaire using a machine learning classification algorithm to evaluate the model based on AUC, accuracy, recall, precision, and F1 scores. Accordingly, the cutoff of the short-form questionnaire was created to make the deployment of the questionnaire more convenient.The BWAQ-ML has 88% fewer items than the BWAQ, has good reliability and validity, can effectively measure individual aggression, and can be used as a short-form version of the BWAQ.

***Keywords*:** Aggression Questionnaire, Short-form Questionnaire, Machine Learning

睡眠障碍与词语选择之间的关系：基于文本分析的探讨

万富裕[1] 高垚杰[1] 刘拓[1,2,3]（通讯作者）

1 天津师范大学心理学部，天津，300387

2 教育部人文社会科学重点研究基地天津师范大学心理与行为研究院，天津，300387

3 学生心理发展与学习天津市高校社会科学实验室，天津，300387

通讯作者: liutuo@tjnu.edu.cn

摘 要 睡眠质量与个体的身心健康状况密不可分，广泛存在的睡眠问题给年轻人带来严重困扰，降低其生活质量。测量睡眠障碍的传统方法是使用问卷进行施测，而随着信息技术的发展，可以获取到个体大量的相关文本，文本中蕴含着大量信息，通过文本分析方法可以直接根据文本信息预测个体的睡眠障碍，使测量更加便捷，并且也可以排除问卷施测中个体易受社会期望效应等影响。本研究的目的在于通过文本分析方法分析出对睡眠障碍具有预测效果的词语。本研究采用匹兹堡睡眠质量指数量表(PSQI)对 1101 名本科生及研究生进行施测，并要求他们用文字描述最近的情绪如何。首先，根据 PSQI 得分将被试分为睡眠障碍组和非睡眠障碍组，之后主要有两个步骤。第一步，旨在验证两类人在正向情绪词和负向情绪词的使用情况上存在差异，具体做法为将被试的文本回答用 Python 进行分词，分词后的文本输入到 LIWC 词频统计软件，得到被试分别使用正向情绪词和负向情绪词的语言特征值，之后采用 t 检验进行验证。第二步，旨在分别选出对睡眠障碍具有预测作用的正向和负向情绪词语，具体做法为将具体的情绪词如“开心”、“低落”等按词频计分当作自变量，睡眠障碍为因变量，采用多重线性回归探索预测睡眠障碍的关键词语。结果：独立样本 t 检验显示，睡眠障碍组和非睡眠障碍组在使用正向情绪词上存在显著差异($t=7.061$, $p<0.001$)，在使用负向情绪词上也存在显著差异($t=-8.903$, $p<0.001$)。具体而言，睡眠障碍组使用的正向情绪词较少，而使用的负向情绪词较多，非睡眠障碍组与此相反。多重线性回归结果显示，对睡眠障碍具有预测效果的词语有“不错”($\beta=0.245$, $t=5.163$, $p<0.001$)、“愉悦”($\beta=0.186$, $t=2.410$, $p<0.05$)等 8 个正向情绪词，以及“悲伤”($\beta=-0.312$, $t=-2.369$, $p<0.05$)、“困倦”($\beta=-0.332$, $t=-2.185$, $p<0.05$)等 5 个负向情绪词。结论：有睡眠障碍的个体倾向于使用更少的正向情绪词和更多的负向情绪词，此外，根据个体在某些特定词语上的使用情况，可以预测出个体的睡眠障碍。未来的研究可进一步探究睡眠障碍与词语使用之间的关系，最终实现通过文本识别和预测个体的睡眠障碍。

关键词 睡眠障碍，文本分析，LIWC，词语选择

The relationship between sleep disorders and word choice: A text-mining approach

Fuyu Wan[1] Yaojie Gao[1] Tuo Liu[1,2,3] (Corresponding author)

1 Faculty of Psychology, Tianjin Normal University, Tianjin 300387, China

2 Key Research Base of Humanities and Social Sciences of the Ministry of Education, Academy of Psychology and Behavior, Tianjin Normal University, Tianjin 300387, China

3 Tianjin Social Science Laboratory of Students' Mental Development and Learning, Tianjin 300387, China

(Corresponding author: liutuo@tjnu.edu.cn)

Abstract: The quality of sleep is closely related to the physical and mental health of individuals. The widespread problem of sleep quality has brought serious troubles to the young people and reduced their quality of life. The traditional method for measuring sleep disorders is to use questionnaires. However, with the development of

information technology, a large number of relevant texts of individuals can be obtained, which contain a large amount of information. The text-mining method can directly predict the sleep disorders of individuals according to the text information, which makes the measurement more convenient, and can also exclude the influence of individuals' social expectation effect in questionnaire measurement. The purpose of this study was to analyze the predictive words of sleep disorders through text-mining. In this study, 1,101 undergraduate and graduate students were measured using the Pittsburgh Sleep Quality Index (PSQI) and asked to write about their recent mood. First, the subjects were divided into sleep disorder group and non-sleep disorder group according to PSQI score, after which there were two main steps. The first step aims to verify the differences between the two types of people in the use of positive emotional words and negative emotional words. The specific approach is to divide the text answers of the subjects into words using Python, input the text after word segmentation into the word frequency statistics software of LIWC, and obtain the linguistic feature values of the subjects' use of positive emotional words and negative emotional words respectively, and then use the T-test for verification. The second step is to select the positive and negative emotion words that have predictive effects on sleep disorders respectively. The specific approach is to take specific emotional words such as "happy" and "low" as independent variables according to word frequency scores, and sleep disorders as dependent variables. Multiple linear regression is used to explore the key words predicting sleep disorders. It was found that: Independent sample T-test showed that there were significant differences in the use of positive emotion words between the sleep disorder group and the non-sleep disorder group ($t=7.061$, $p<0.001$), and there were also significant differences in the use of negative emotion words ($t=-8.903$, $p<0.001$). Specifically, the sleep disorder group used fewer positive emotion words and more negative emotion words, while the non-sleep disorder group used the opposite. The results of multiple linear regression showed that there were 8 positive emotion words, including "good" ($\beta= 0.245$, $t=5.163$, $p<0.001$) and "happy" ($\beta=0.186$, $t=2.410$, $p<0.05$), and there were 5 negative emotion words, such as "sad" ($\beta = 0.312$, $t = 2.369$, $p < 0.05$) and "sleepy" ($\beta = 0.332$, $t = 2.185$, $p < 0.05$), which had predictive effect on sleep disorders. Conclusion: Individuals with sleep disorders tend to use fewer positive emotion words and more negative emotion words, and an individual's sleep disorder can be predicted based on the individual's use of certain words. Future research could further explore the relationship between sleep disorders and word use, with the goal of identifying and predicting individual sleep disorders through text.

Keywords：sleep disorders, text-mining, LIWC, word choice

多维 logistic 题组反应模型

徐玲玲[1] 张敏强[2]（通讯作者）
1 北京大学全国医学教育发展中心，北京，100191
2 华南师范大学心理学院，广州，510631，zhangmq1117@qq.com

摘 要 目前，心理与教育测验出现了由采用独立多项选择题向题组过渡的形式。当测验存在共用同一个背景材料的题组时，这时题组内的项目反应间存在一定的相依性，即违反项目反应理论 (item response theory, IRT)中的局部独立性假设，这种现象称为局部项目依赖性。局部项目依赖性会对参数估计造成影响，忽略题组内的局部项目依赖性会导致参数的不准确估计，因此，由其引发的对测验的可靠性影响值得被关注。此外，在实际测验中，既包含多个目标能力，又包含项目内多维题组的测验也真实存在。目前存在的多维题组反应模型基于 Rasch 模型提出，该类模型仅包含难度参数。在实际研究和应用中，项目参数除考虑难度参数外，也常考虑区分度参数或猜测参数。基于此，本研究在多维 logistic 模型的基础上拓展了多维 logistic 题组反应模型。本文以多维两参数 logistic 题组反应模型 (multidimensional two-parameter logistic testlet response model, M2PL-TRM)为例，通过 Monto Carlo 模拟研究探究 M2PL-TRM 的参数估计精度，考察局部项目依赖性和测验长度对参数估计精度的影响，并与忽略题组效应的多维两参数 logistic 模型 (multidimensional two-parameter logistic model, M2PLM)的参数估计结果进行比较。结果表明：(1) 使用 M2PL-TRM 对项目和能力参数所获得的估计精度明显高于 M2PLM；(2) 随着题组内局部项目依赖性的增大，项目和能力参数的估计精度不断降低；(3) 随着测验长度增大，项目和能力参数的估计精度不断提高。总体来说，M2PL-TRM 在考虑目标能力与题组效应多维情况下参数估计精度高于 M2PLM，为测验分析提供了更广泛的模型结构选择, 具有显著的应用价值。

关键词 多维目标能力，多维题组效应，多维题组反应模型，多维 logistic 模型，估计精度

Multidimensional Logistic Testlet Response Model

Xu Lingling [1], Zhang Minqiang [2] (Corresponding Author)
1 National Center for Health Professions Education Development, Peking University, Beijing, 100191
2 School of Psychology, South China Normal University, Guangzhou, 510631, zhangmq1117@qq.com

Abstract: Testlet design has been widely adopted in psychological and educational assessment. Testlets are sets of items sharing the same stimulus such as a graph, a picture, a reading passage, or other contextual elements. The use of testlet violates local independence, which is one of the fundamental assumptions of item response theory (IRT). Violation of local independence is prone to inaccurate estimation of item and person parameters, and the resulting hazards thus deserve attention. Additionally, in actual testing, there are tests that include multiple target abilities and multidimensional testlets within items. Existing multidimensional testlet response models are based on the Rasch model, which only includes difficulty parameters. In practical research and applications, besides considering difficulty parameters, item parameters often include discrimination parameters or guessing parameters. Based on this, this study extends the multidimensional logistic model to multidimensional testlet response models. Taking the multidimensional two-parameter logistic testlet response model (M2PL-TRM) as an example, this study investigates the parameter estimation accuracy of M2PL-TRM through Monte Carlo simulation, examines the impact of local item dependence (LID) and test length on parameter estimation accuracy, and compares the parameter estimation results with the

multidimensional two-parameter logistic model (M2PLM) that ignores testlet effects. The results show that: (1) the estimation accuracy of item and ability parameters obtained using M2PL-TRM is significantly higher than that of M2PLM; (2) as the degree of LID increases, the estimation accuracy of item and ability parameters decreases; (3) as the test length increases, the estimation accuracy of item and ability parameters improves. Overall, in the context of considering multidimensional abilities and testlet effects, M2PL-TRM exhibits higher parameter estimation accuracy compared to M2PLM. This provides a broader range of model structure choices for test analysis and holds significant practical value.

Keywords **：** multidimensional ability, multidimensional testlet, multidimensional testlet response model, multidimensional logistic model, estimation accuracy

双维心境量表在中国成年人群体中的修订

邵韵如[1]　孟瑞静[1]　赵舒菁[1]　郭璐[2]（通讯作者）
1 北京体育大学心理学院，北京，100084
2 北京体育大学心理学院，北京，100084，guol@bsu.edu.cn

摘 要　背景：心境状态通常是动态变化的，已有研究常存在将持续性心境状态和瞬时心境状态混淆的问题。简式心境状态量表(Profile of Mood States - short form, POMS-SF)是测量心境状态最常用的工具，它基于情绪的维度理论而编制，且条目较多，不适用于测量瞬时的心境状态。双维心境量表(Two-Dimensional Mood Scale, TDMS)基于心理状态的二维模型而编制，包括 8 个条目和 4 个分量表，是一种有效的自我监测心境状态的测量工具。本研究旨在修订适用于中国成年的双维心境量表，检验其信效度及跨性别、跨年龄的测量稳定性。方法：492 名中国成年人在线上完成了双维心境量表和简式心境状态量表(Profile of Mood States - short form, POMS-SF)。由 10 名心理学专业的学生和老师对项目内容和与量表的相关进行四级评定。对数据进行项目分析和信、效度检验。结果：1) 双维心境量表的 8 个条目均具有较好的区分度，各项目的题总相关显著($r = 0.881 \sim 0.968$, $p < .001$)。2) 量表的 4 个分维度(高唤醒高愉悦、低唤醒高愉悦、高唤醒低愉悦、低唤醒低愉悦)的信度良好($\alpha = 0.728 \sim 0.933$)。3) 量表内容效度(scale-level content validity index, S-CVI)为 0.938，单个项目最低项目内容效度(item-level content validity index, I-CVI)为 0.8，表明量表具有良好的内容效度。4) 验证性因素分析显示，一阶相关模型拟合良好($\chi2/df = 3.224$, RMSEA = 0.069, CFI = 0.958, TLI = 0.939, SRMR = 0.041)，因子载荷为 0.751~0.952，表明高唤醒高愉悦、低唤醒高愉悦、高唤醒低愉悦、低唤醒低愉悦四个维度的一阶相关结构清晰。4) 相关分析表明，双维心境量表测量的的愉悦度与 POMS 测量的精力呈正相关，而与紧张、愤怒、疲劳、抑郁、慌乱和自我相关的情绪呈负相关；唤醒度与紧张、精力和自我相关的情绪呈正相关，而与疲劳呈负相关；活力和稳定性均与精力、自我相关的情绪呈正相关，而与紧张、愤怒、疲劳、抑郁和慌乱呈负相关，表明双维心境量表具有较好的区分效度。5) 多组验证性因素分析发现，该量表具有跨性别和跨年龄的完全等值性。结论：中文版双维心境量表具有良好的心理测量学特征，且与 POMS 测量的概念相关但并不完全等价，可作为捕捉中国成年人瞬时心境状态的有效测量工具。

关键词　双维心境量表，修订，成年人，信效度，瞬时心境状态

Chinese Version of the Two-Dimensional Mood Scale (TDMS) for Adults

SHAO YunRu, MENG RuiJing, ZHAO ShuJing, GUO Lu
School of Psychology, Beijing Sport University, Beijing 100084, China

Abstract：Background: Negative mood states may lead to a series of serious consequences (for example, reduced self-efficacy, increased loneliness), and effective self-regulation of negative mood states depends on continuous and accurate monitoring of mood states. Mood states are considered to be dynamic, so it is important to capture the momentary mood states. The Two-Dimensional Mood Scale (TDMS) was developed based on the two-dimensional model of psychological states, and was an effective measurement for self-monitoring of momentary mood states. The purpose of the current study was to revise the two-dimensional mood scale in Chinese adults to test its reliability and validity and its stability across gender and age. Methods: 492 Chinese adults completed the two-dimensional mood scale and the profile of mood states - short form (POMS-SF) online. Furthermore, ten psychology students and teachers evaluated the contents of the items and the relevance of the

scale. Results: 1) 8 items of the two-dimensional mood scale showed good discrimination, and the item-total correlations were significant (r = 0.881 ~ 0.968, p < .001). Internal consistency of each dimension was acceptable (α = 0.728 ~0.933). 2) The scale-level content validity index (S-CVI) was 0.938, and the lowest item-level content validity index (I-CVI) of a single item was 0.8, indicating that the current scale has good content validity. 3) Confirmatory factor analysis showed that the model fit was good (χ^2/df = 3.224, *RMSEA* = 0.069, *CFI* = 0.958, *TLI* = 0.939, *SRMR* = 0.041), and the factor loads ranged from 0.751 to 0.952, which showed that the four-dimension structure of the scale was clear. 4) The correlation analysis showed that the pleasure measured by the two-dimensional mood scale was positively correlated with the energy measured by POMS, but negatively correlated with tension, anger, fatigue, depression, panic and self-related emotions. Arousal was positively correlated with tension, energy and self-related emotions, but negatively correlated with fatigue. Vitality and stability were positively correlated with energy and self-related emotions, but negatively correlated with tension, anger, fatigue, depression and panic. These results revealed that the two-dimensional mood scale had good discriminant validity. 5) Multigroup confirmatory factor analysis confirmed the measurement invariance across gender and age. Conclusion: The Chinese version of the two-dimensional mood scale has good psychometric characteristics, and is related to but not completely equivalent to the concept measured by POMS. To conclude, the two-dimensional mood scale can be used as an effective measurement tool to capture the momentary mood states of Chinese adults.

Keywords：two-dimensional mood scale, momentary mood states, Chinese version, reliability, validity

生涯适应力量表：信度概化分析

徐可晴[1]　张春雨[1]（通讯作者）

1 陕西师范大学心理学院，西安，710062，通讯作者 E-mail（chunyu.zhang@snnu.edu.cn）

摘 要　在迅速变化的全球背景下，人们比以往任何时候都更频繁地面临工作、组织和职业之间的转换，生涯适应力作为一种自我调节的优势或能力可以帮助个体应对职业生涯中当前或预期的变化，因此对其进行测量和研究很有必要。生涯适应力量表-国际版本 2.0（CAAS 2.0）是最常用的测量生涯适应力的量表，然而其内部一致性信度估计在某些研究中偏低，在某些研究中则良好，造成这种差异的来源尚不清楚，并且比单一研究更广泛的不同文化背景下的总体信度情况也尚不清楚。本研究对 CAAS 2.0 进行了信度概化分析，该元分析包括了 441 项来自 39 个国家（代表六大洲）的研究，总样本量为 227923。旨在估计 CAAS 2.0 及其四个分量表（关注、控制、好奇和自信）的平均克隆巴赫α系数。其次，探索哪些研究特征可能影响α系数的变异性。最后，估计 CAAS 2.0 的信度引入率。结果显示：（1）CAAS 2.0 总分和分量表的平均α系数值是良好的，范围从.83（控制分量表）到.93（总分）；（2）年龄和样本类型对四个分量表α系数有显著影响。α系数随着年龄的增加而增大；企业员工得分的α系数最高，大学生次之，中学生最低；职业群体得分的α系数高于非职业群体；（3）总分标准差和国家对总量表α系数有显著影响。总分标准差和总量表得分的α系数之间存在显著正相关；在列入分析的 14 个国家中，中国总量表得分α系数最高（.94），荷兰最低（.88）；（4）在使用了完整版的 CAAS 2.0 的研究中，存在 9.64%的信度引入率。本研究表明，CAAS 2.0 是评估不同文化背景下不同群体的生涯适应力的可靠工具，在年龄较低的非职业群体进行施测可能会出现偏低的信度系数，并且信度系数还会部分地受到文化的影响，这提醒研究者们有必要对量表进行跨文化验证。最后，虽然该量表使用的信度引入率较低，但信度引入作为一种错误的做法必须避免，研究者们应该注意报告自己当前样本测验分数的信度，并且根据研究的特点报告其他类型的信度。

关键词　生涯适应力，元分析，信度，信度概化

Career Adapt-Abilities Scale: A Reliability Generalization Meta-Analysis

Keqing Xu[1], Chunyu Zhang[1*]

1 School of Psychology, Shaanxi Normal University, Xi an, 710062

Abstract **：** In a rapidly changing global context, people are increasingly facing transitions between jobs, organizations, and careers more frequently than ever before. It is necessary to understand and measure career adaptability which refers to a self-regulatory strength or ability that can help individuals cope with current or expected changes in their careers. The Career Adapt-Abilities Scale-International Version 2.0 (CAAS 2.0) is the most commonly used scale to measure career adaptability. However, its internal consistency reliability estimates have been found to be low in some studies but good in others. The reasons which lead to this discrepancy are unclear. Moreover, it is also unclear that how are its overall reliabilities across a wider range of different cultural contexts. The present study conducted a reliability generalization of the CAAS 2.0, a meta-analysis that included 441 studies from 39 countries (representing six continents) with a total sample size of 227923. The aim of this

study was to estimate the average Cronbach's alpha coefficients of the CAAS 2.0 and its four subscales (Concern, Control, Curiosity, and Confidence). Second, we aim to explore which study characteristics may affect the variability of alpha coefficients. Finally, the reliability induction of the CAAS 2.0 was estimated. The results showed that (1) the average alpha coefficients of the CAAS 2.0 total score and subscales were good, ranging from .83 (control subscale) to .93 (total score). (2) age and sample type had a significant effect on the alpha coefficients of the four subscales. That is, alpha coefficients increased with age. Employed adults scored the highest alpha coefficients, university students scored the second highest, and middle school students scored the lowest. The alpha coefficients of scores in working adults were higher than those in non-working groups. (3) the standard deviation of the total score and country have a significant effect on the alpha coefficient of the total scale. There was a significant positive correlation between the standard deviation of the total score and the alpha coefficient of the total score. Of the 14 countries included in the analysis, China had the highest alpha coefficient of the total scale score (.94), and Netherlands had the lowest (.88). (4) in the studies that used the complete version of the CAAS 2.0, there was a 9.64% of reliability induction rate. Our study suggests that the CAAS 2.0 is a reliable instrument for assessing career adaptability in different groups across cultures. However, applying the scale to younger non-working groups may result in relatively lower reliability coefficients. In addition, its reliability coefficients are partially influenced by culture, reminding researchers to examine the cross-cultural validation of the scale. Finally, although the rate of reliability induction in the use of the scale is low, reliability induction as a wrong practice must be avoided Thus, researchers should be careful to report the reliability of the test scores and should report other types of reliability depending on the characteristics of their studies.

Keywords: career adaptability, meta-analysis, reliability, reliability generalization

中小学教师心理健康量表的编制

潘晨晨[1,3] 方平[1] 姜媛[2]（通讯作者）

[1]首都师范大学心理学院，北京，100048

[2]北京体育大学心理学院，北京，100084，jiangyuan97@sina.cn

[3]北京理工大学人文与社会科学学院，北京，100048

摘 要 教师心理健康是指教师个体能够在工作中正确认识自己、保持较高的教学效能感及职业认同感、具有良好的职业品质、职业适应性及情绪调节能力、不断实现自我价值的一种良好状态，是提升教师工作幸福感及工作效率的重要基础。现有研究对中小学教师心理健康的维多集中于对认知和情绪的测量，教师心理健康核心要素测量的关注方向和适用性有待加强。为探究适合我国新教育背景下中小学教师心理健康的结构维度，通过访谈、专家评定并对相关研究进行文献分析，初步确定中小学心理健康的五大维度，分别为教学效能、职业认同、职业品质、职业情绪调节与职业适应 5 个维度，编写了与之对应的 107 个项目。对 504 名来自北京、广东、河南等地的中小学教师发放问卷，进行探索性因素分析，形成 80 个项目组成的正式量表。并采用该量表对 742 名教师进行调查，回收数据并分析其信效度。经过数据分析和处理，最终量表包含 5 个维度 80 道题目，总量表的 Cronbach's α系数为 0.991，各分量表的 Cronbach's α系数在 0.945-0.987 之间，总量表重测信度为 0.985，累计方差解释率为 73.77%。验证性因素分析表明模型拟合良好，χ^2/df =2.927，RMSEA=0.052，RMR =0.012， IFI=0.919，TLI=0.916，CFI=0.919。各个维度之间的相关系数在 0.661-0.827 之间，以《SCL-90 症状自评量表》作为校标，校标关效度为 0.701，效度良好。综上，中小学教师心理健康量表具有良好的信度和效度，符合心理测量学标准要求，可作为测量中小学教师心理健康的有效施测工具。

关键词 心理健康，中小学教师，量表编制

Development of Mental Health Scale for Primary and Secondary School Teachers

Chenchen Pan[1] Ping Fang[1] Yuan Jiang[2](corresponding author)

[1] Department of Psychology, Capital Normal University, Beijing, 100048

[2] Department of Psychology, Beijing Sport University, Beijing, 100084

Corresponding author jiangyuan97@sina.cn

[3] Department of Humanities and Social Sciences, Beijing Institute of Technology, Beijing 100048, China

Abstract： Teachers' mental health refers to a good state in which individual teachers can correctly understand themselves in their work, maintain a high sense of teaching efficacy and professional identity, have good professional quality, professional adaptability and emotional regulation ability, and constantly realize their self-worth. It is an important basis for improving teachers' work happiness and work efficiency. The existing research on the mental health of primary and secondary school teachers mainly focuses on the measurement of

cognition and emotion, and the direction and applicability of the measurement of the core elements of teachers' mental health need to be strengthened. In order to explore the structural dimensions of primary and secondary school teachers' mental health suitable for the new educational background in China, through interviews, expert evaluation and literature analysis of relevant studies, the five dimensions of primary and secondary school mental health were preliminarily identified, namely teaching effectiveness, professional identity, professional quality, occupational emotional regulation and vocational adaptation, and 107 corresponding projects were compiled. 504 primary and secondary school teachers from Beijing, Guangdong, Henan and other places were given questionnaires, and exploratory factor analysis was conducted to form a formal scale consisting of 80 items. This scale was used to investigate 742 teachers, recover the data and analyze its reliability and validity. After data analysis and processing, the final scale contains 80 questions in 5 dimensions. The Cronbach's α coefficient of the total scale is 0.991, the Cronbach's α coefficient of each subscale is between 0.945 and 0.987, the retest reliability of the total scale is 0.985, and the cumulative variance interpretation rate is 73.77%. Confirmatory factor analysis showed that the model fit well, χ^2/df =2.93, RMSEA=0.052, RMR =0.012, IFI=0.919, TLI=0.916, CFI=0.919. The correlation coefficient of each dimension was between 0.661 and 0.827. SCL-90 Symptom Self-Rating Scale was used as calibration criterion, and the criterion validity was 0.701, indicating good validity. To sum up, the mental health scale for primary and secondary school teachers has good reliability and validity, meets the requirements of psychometrics standards, and can be used as an effective measuring tool for primary and secondary school teachers' mental health.

Keywords：mental health, primary and secondary school teachers, scale development

5.12 社会心理学专业委员会

自我客体化对女性自我认知的影响：能力还是热情？

周苇欣　曲琛（通讯作者）

华南师范大学心理学院，广州，510631，fondest@163.com

摘 要　自我客体化是指个体内化观察者视角，忽略自身的内部需求和感受，把自己当作客体来定义和评价。现有研究主要关注自我客体化对女性心理健康的负面影响，但对于这种独特的自我意识对自我认知的影响方向和方式尚不清楚。基于社会认知的双视角模型，本研究设计了三个子研究来探讨自我客体化对女性自我认知维度优势的影响。研究一采用身体监控量表、热情和能力特质重要性评定问卷对 218 名成年女性被试进行了测量，结果显示相较于低自我客体化个体，高自我客体化个体认为热情维度比能力维度更重要。研究二采用 2（自我客体化启动：实验组，控制组）×2（维度：热情，能力）的混合实验设计。将 68 名成年女性被试随机分配到实验组和控制组，然后让被试分别对自我的热情和能力特质以及状态自尊进行自我评估。结果显示自我客体化在热情评分与状态自尊的关系中起到调节作用，即相较于控制组，实验组被试的热情评分显著预测自尊。研究三采用强化学习模型描述个体如何通过外界反馈来更新对不同维度的自我认知，并使用学习率衡量个体通过外界反馈更新自我认识的程度。采用 2（自我客体化启动：实验组，控制组）×2（评价维度：热情，能力）×2（评价情境：积极，消极）的混合实验设计，将 102 名成年女性被试随机分配到实验组和控制组中。结果显示三因素交互效应显著，在控制组中评价维度和评价情境的交互效应不显著。在实验组中，被试在热情积极条件下的学习率显著大于热情消极下的，而在能力维度上没有评价情境的差异。即自我客体化改变了个体对热情维度的信息更新，实验组的被试会根据不同情境调整对热情维度认知的学习率。综上，本研究初步探讨了自我客体化对女性自我认知的影响，有助于进一步理解自我客体化对个体的影响，并进一步拓宽对自我认知维度优势不确定性的理解。

关键词　自我客体化，双视角模型，热情，能力，计算建模

The effects of self-objectification on women's self-cognition: competence or warmth?

Weixin Zhou　Chen Qu
School of Psychology, South China Normal University, Guangzhou 510631

Abstract：Self-objectification refers to the internalization of an observer's perspective, disregarding one's own internal needs and feelings, and defining and evaluating oneself as an object. Existing research has primarily focused on the negative impact of self-objectification on women's psychological well-being, but very little is known about the effect of this form of self-consciousness on self-cognition. Based on the dual perspective model, this study designed three sub-studies to explore the effects of self-objectification on women's self-cognition. In study 1, 218 adult female were surveyed using the Body Surveillance sub-scale of the Objectified Body Consciousness and the Importance of Warmth and Competence Traits Questionnaire. The results showed that, compared with individuals with lower self-objectification, those with higher self-objectification considered warmth as more important than competence. Study 2 employed a 2 (priming of self-objectification: experimental group, control group) ×2 (dimension: warmth, competence) mixed experimental design. Sixty-eight adult female participants were randomly assigned to the experimental and control groups, and they evaluated their own warmth and competence traits as well as state self-esteem. The results indicated that self-objectification moderate the relationship between warmth ratings and state self-esteem, with the experimental group participants' warmth ratings significantly predicting self-esteem compared to those in the control group. In study 3, we develop a reinforcement learning model to describe how individuals update their self-cognition regarding different dimensions through external feedback, using the learning rate as a measure of the extent to which individuals update their self-perception based on external feedback. And this study used a mixed experimental design of 2 (self-objectification priming: experimental group, control group)×2 (evaluation dimension: warmth, competence) ×2 (evaluation situation: positive, negative). One hundred and two adult female participants were randomly assigned to the experimental group and control group. The results showed a significant three-way interaction effect, where the interaction effect between evaluation dimension and evaluation situation was not significant in the control group. In the experimental group, participants had a significantly higher learning rate for the self-view of warmth under positive conditions compared to negative conditions, while there were no significant differences in the competence dimension. This indicated that self-objectification alters the self-view updating of warmth, and participants in the experimental group adjust their learning rate of warmth cognition according to different situations. In conclusion, this study provides a preliminary exploration of the effects of self-objectification on women's self-cognition, contributing to a better understanding of the impact of self-objectification on individuals and further expanding the understanding of uncertainty in self-cognition dimensions.

Keywords：Self-objectification, Dual perspective model, Warmth, Competence, Computational modelling

女权 vs 女拳：女权主义内隐污名效应

章溢 丁凤琴（通讯作者）王丹 张誉瀚
宁夏大学教师教育学院，银川，750021，dingfqin@nxu.edu.cn

摘 要 “女权主义”（feminism），作为一种社会理论和政治运动，旨在改善基于性别的不公平待遇或不利地位，包括结束性别主义、性剥削、性歧视和性压迫。而女权主义污名（feminist stigma）则是对女权主义运动的负面标签，如女拳主义、田园女权主义等，这会对个人造成无法忽略的消极影响。但在本土化的过程中，相关研究更多的集中在法律、政治、社会学和传播学领域，鲜有基于心理学视角对女权主义群体的实证研究。本文通过两个研究探讨个体对女权主义的情感评价特征和内隐污名效应。研究 1 采用网络大数据爬虫技术抓取 174054 条留言，进行文本情感分析并获取关键词词频中消极情绪词和积极情绪词，为研究 2 的内隐污名效应提供词汇材料支撑；研究 2 使用单类内隐联想测验计算女权主义内隐污名的 D 值，并进行性别差异检验。结果发现，在社会网络媒体中的女权主义相关话题在 2017-2018 年产生近 20 倍的增幅；对女权主义的情感评价包含积极、消极和中性三类，其中积极态度占比超 50%，情感倾向偏积极性；进一步研究发现，个体的女权主义内隐污名的 D 值大于 0，即个体对女权主义的内隐态度更为积极。以上研究结果表明，无论是网络媒体平台和实验室实验均倾向于女权主义的积极情感特征评价，并且女权主义的内隐污名效应并不存在。这一研究结果对于了解我国女权主义污名现状具有重要意义，同时拓展研究女权主义的新视角。

关键词 女权主义，污名效应，内隐联想测验，网络爬虫

Feminism vs Femi-fist: feminist implicit stigma effect

Zhang Yi, Ding Fengqin, Wang Dan, Zhang Yuhan
College of teacher education, Ningxia University, Yinchuan, 750021, dingfqin@nxu.edu.cn

Abstract: Feminism, as a social theory and political movement, aims to improve gender-based unfair treatment or disadvantage, including ending sexism, sexual exploitation, sex, and sexual oppression. Feminist stigma, on the other hand, is a negative label for the feminist movement, such as Femi-fist, pastoral feminism, etc., which can have a negative impact on individuals that cannot be ignored. However, in the process of localization, relevant research has focused more on the fields of law, politics, sociology and communication, and there are few empirical studies on feminist groups based on psychological perspectives. This paper explores the characteristics of individual emotional evaluation and the implicit stigma effect of feminism through two studies. Study 1 uses network big data crawler technology to capture 174054 messages, conduct text sentiment analysis and obtain negative emotional words and positive emotional words in keyword word frequency, which provides vocabulary material support for the study of implicit stigma effect in Research 2. Study 2 used a single-class implicit association test to calculate the D score of feminist implicit stigma and performed a sex difference test. The results show that feminism-related topics in social network media increased by nearly 20 times in 2017-2018. The emotional evaluation of feminism includes three categories: positive, negative and neutral, of which positive attitude accounts for more than 50%, and the emotional tendency is more positive; Further research found that the D value of the individual's feminist implicit stigma is greater than 0, that is, the individual's implicit attitude towards feminism is more positive. The above results show that both online media platforms and laboratory experiments tend to evaluate feminist positive emotional characteristics, and the implicit stigma effect of feminism

does not exist. The results of this study are of great significance for understanding the current situation of feminist stigma in China, and at the same time expand the new perspective of feminism.
***Keywords*:** feminism, stigma effect, implicit association test, Web Crawlers

性客体化对女大学生情绪的影响：性别偏见的中介作用

曾榆苏[1]　廖宗卿[2]（通讯作者）

1 同济大学人文学院心理学系，上海，200092

2 四川师范大学心理学院，成都，610068，E-mail：zongqing.liao@sicnu.edu.cn

摘 要　随着女性主义思想的传播，越来越多人开始关注女性的身心健康。长久以来，女性一直在经历性客体化，这一现象对女性造成显性或隐性的影响。以往研究表明，性客体化会影响女性的情绪，同时情绪又与性化享受、性别偏见具有显著相关。因此，本研究从客体化效价和客体化来源入手，探究在不同性客体化条件下对女性的情绪产生的影响，并引入性化享受和性别偏见，深入探讨其影响机制。本研究招募了 96 名女大学生作为被试参加实验，采用性化享受量表、正性负性情绪量表和性别偏见量表来考察其经历性客体化后的情绪体验以及可能的潜在影响因素。结果发现：（1）客体化效价主效应显著，女性在被性客体化时，积极性客体化条件下比消极性客体化条件下有更多的积极情绪。（2）客体化来源主效应显著，相较于客体化来源男性，当客体化行为发出者为女性时，女性有更多的积极情绪。（3）在积极性客体化条件下，敌意性别偏见在性化享受和消极情绪中起到完全中介作用。（4）无论在客体化来源女性还是男性，敌意性别偏见都在性化享受和消极情绪间起到完全中介作用。这说明了相比于性客体化行为来源于女性，女性更容易识别出男性的性客体化行为，这与传统性别刻板印象息息相关。同时，积极性客体化以潜在或更为隐蔽的方式影响女性的身心健康，并且通过性别偏见的中介作用表现出来。

关键词　性客体化，情绪，性化享受，性别偏见

The effect of sexual objectification on female college students' emotions: The mediating role of gender bias

Yusu Zeng[1], Zongqing Liao[2] (corresponding author)

1 Department of Psychology, School of Humanities Tongji University, Shanghai

2 College of Psychology, Sichuan Normal University, Chengdu

***Abstract*:** With the spread of feminism, more and more people begin to pay attention to women's physical and mental health. For a long time, women have been experiencing sexual objectification, which has an explicit or implicit impact on women. Previous studies have shown that sexual objectification affects women's emotions, and emotions are significantly related to the enjoyment of sexualization and gender bias. Therefore, this study explores the influence of different objectification conditions on women's emotions from the perspective of objectification titer and objectification source. At the same time, enjoyment of sexualization and gender bias are introduced, and the influencing mechanism is deeply discussed. In this study, female college students are used as subjects in the imagination experiment (N = 96), and the enjoyment of sexualization scale, positive and negative emotion scale, and gender bias scale are used to test their emotional experiences after experiencing sexual objectification and the potential factors that might potentially influence it. The results showed that: (1) the main effect of objectified titer was significant. Women had more positive emotions under positive objectified conditions than under negative objectified conditions. (2) The main effect of the objectification source was significant. Compared with the

objectification source, when the objectification source was female, women had more positive emotions. (3) Under the positive objectification condition, hostile gender bias played a completely mediating role between the enjoyment of sexualization and negative emotion. (4) Regardless of whether the objectified source was female or male, hostile gender bias played a completely mediating role between the enjoyment of sexualization and negative emotions. The results suggest that women are more likely to recognize male's sexual objectification behavior than female's sexual objectification behavior, which is closely related to traditional gender stereotypes. At the same time, positive objectification affects women's physical and mental health in potential or more hidden ways, and it is manifested through the mediation of gender bias.

***Keywords*:** sexual objectification, emotion, enjoyment of sexualization, gender bias

原生家庭结构和跨期决策偏好对生育意愿和生育结果的影响：一项基于生命史理论的研究

孙榕蔓　王晓田

香港中文大学（深圳）应用心理学系，深圳，518000

摘 要　以往的研究显示，原生家庭的社会经济环境和童年经历可以预测一个人的生育意愿和生育结果。相比于注重现在的快生命史策略，童年时家庭的社会经济地位更高的个体更倾向于形成未来导向的慢生命史策略 (Griskevicius et al., 2011)。然而，人们对这种关系的中介和调节机制知之甚少。基于生命史理论，本研究检验了生命史策略在童年社会经济地位和个体生育意愿之间的中介作用，并探讨了出生顺序和兄弟姐妹的数量是否调节了这一中介过程。此外，还从跨期选择的角度研究了原生家庭社会经济地位（SES）对成人后的子女的生育意愿和行为的影响。405 名已婚并有子女的中国父母参与了研究（平均年龄 33.73 岁，女性 272 人）。其中 214 位参与者是独生子女（自己的原生家庭只有一个孩子）。200 名被试现育有一个孩子，205 名被试现育有两个孩子。参与者在中国在线问卷调研平台 Credamo 上完成了匿名的问卷调查。结果显示，较好的童年 SES 促进个体形成以未来为导向的慢策略，并进而促成个体较高的生育意愿。童年 SES 通过生命史策略的形成的形成影响生育意愿。生命史策略的这一中介效应受到独生子女变量的调节，来自多子女家庭的被试的生育意愿受到这一变量的调节。来自独生子女家庭的父母参与者更有可能形成慢生活策略，并且倾向只生育有一个孩子。另外，个体的延迟折扣率对其生育意愿和实际的子代数量具有显著的预测作用。低延迟折扣率（如对较大和较晚的收益的偏好高于较小和较快的收益）增加了个体的生育意愿和实际子女的数量。除此之外，主观预期寿命也调节了童年家庭 SES 和生育意愿之间的关系。主观预期寿命愈长生育意愿愈高。这些发现有助于我们了解生命史变量对生育意愿和生育行为的影响。这一研究对于当下国家生育政策的调整、宣传和贯彻具有一定的借鉴意义，人们的生育目标和结果不仅和生命史策略相关，还受到主观寿命预期和延迟折扣率等因素的调节。

关键词　童年社会经济地位，生育意向，生命史策略，独生子女，延迟折扣率

Reference

Griskevicius, V., Tybur, J. M., & Delton, A. W. (2011). The influence of mortality and socioeconomic status on risk and delayed rewards: A life history theory approach. *Journal of Personality and Social Psychology, 100* (6), 1015-1026.

支持女性主义可能是男性的求偶策略：基于代价信号理论的视角

王霜[1]　刘姗[1]　贡喆[1]（通讯作者）

1 四川师范大学心理学院，成都，610066，通讯作者 E-mail zhegong@sicnu.edu.cn

摘　要　男性为何会支持女性主义？本研究基于进化心理学代价信号理论(Costly Signaling Theory, CST)认为，男性支持女性主义可能是一种求偶策略。CST 认为，雄性为了提高求偶成功几率可能会尝试表现出被异性所青睐的某种品质并甘愿承担一定风险。据此，本文推测男性支持女性主义(被女性广泛认同)可能是在承担一定代价(被其他男性排斥)的基础上展示出的求偶信号和求偶策略，具体可能表现为男性在择偶情境中更倾向于认同女性主义(假设 1)或更愿意构建起自己作为“女性主义者”的形象(假设 2)。本文通过两个实验验证以上假设，实验一在问卷星平台招募 80 名被试，考察男性求偶动机激发(实验组 vs 控制组)对女性主义/动物保护主义(被试间变量)言论的认同程度以检验假设 1。结果表明主效应及交互作用均不显著($p > 0.05$)，求偶动机并不会提升男性女性主义认同水平。实验二在问卷星平台招募 126 名被试，要求被试在不同网站(婚恋网站 vs 知识问答网站 vs 体育交流网站)中花费固定数额的虚拟货币(100 元虚拟币)建立虚拟形象，该形象包括价值取向、外在特点、内在特点三个方面。其中价值取向包括女性主义类别，被试在该类别中赋予越高虚拟币，意味着被试越倾向于构建自己的女性主义者形象(假设 2)。结果表明网站类型的主效应显著，$F(3, 80)=6.898$，$p<0.05$，$\eta_p^2=0.104$，与知识问答网站($M = 0.201$, $SD = 0.098$)和体育交流网站($M = 0.211$, $SD = 0.087$)相比，被试更倾向于在婚恋网站中($M = 0.272$, $SD = 0.094$)给予女性主义在价值取向分数中更高的权重(权重得分=女性主义得分/价值取向总分)，这意味着男性在择偶情境中倾向于创设自身作为女性主义者的虚拟形象。综上，本研究发现，男性在择偶情境中更愿意营造“女权男”的形象而非实际提升对女性主义观念的认同，这可能是男性传递出的某种代价信号以吸引潜在异性对象的择偶策略。未来研究可进一步借助更具生态效度的实验手段考察该效应的内部机制与边界效应。

关键词　女性主义，代价信号理论，求偶，进化心理学

Supporting Feminism as a Courtship Strategy: A Perspective Based on Costly Signaling Theory

Shuang Wang[1], Shan Liu[1], Zhe Gong[1] *

1 College of Psychology, Sichuan Normal University, E-mail zhegong@sicnu.edu.cn

Abstract:Why do men support feminism? This study, based on the evolutionary psychology Costly Signaling Theory (CST), proposes that male support for feminism may be a courtship strategy. CST suggests that men may attempt to demonstrate certain qualities favored by women and be willing to take on certain risks to increase their opportunities of successful courtship. Accordingly, this study speculates that male support for feminism (widely acknowledged by women) may be a courtship signal and strategy exhibited at the cost of potential exclusion by other men. Specifically, this behavior may manifest as a higher tendency for men to endorse feminism in mate selection scenarios (Hypothesis 1) or a greater willingness to present themselves as "feminists" (Hypothesis 2). Two experiments were conducted to test these hypotheses. Experiment 1 recruited 80 participants through an online crowdsourcing platform to examine the influence of male courtship motivation (experimental group vs. control group) on their endorsement of feminist/animal protectionist statements (inter-subject variable). The results indicated that there were no significant main effects or interactions ($p > 0.05$), and courtship motivation

did not increase male endorsement of feminism. Experiment 2 recruited 126 participants online and asked them to spend a fixed amount of virtual currency (100 virtual coins) to create virtual identities on different websites (matrimonial website vs. knowledge Q&A website vs. sports exchange website). The virtual identity included three aspects: value orientation, external characteristics, and internal characteristics. The value orientation included a feminist category, and the higher the virtual coins assigned to this category, the more participants were inclined to construct their feminist identity. The results showed a significant main effect of website type, $F(3, 80) = 6.898$, $p < 0.05$, $\eta p2 = 0.104$. Compared to the knowledge Q&A website ($M = 0.201$, $SD = 0.098$) and sports exchange website ($M = 0.211$, $SD = 0.087$), participants were more inclined to assign higher weights to feminism in the value orientation score on matrimonial websites ($M = 0.272$, $SD = 0.094$), indicating that men tend to create a virtual identity as feminists in mate selection scenarios. In conclusion, this study found that men are more willing to construct an image of "feminist men" rather than genuinely increasing their endorsement of feminist beliefs in mate selection scenarios. This behavior may represent a certain costly signaling strategy employed by men to attract potential mates. Future research can further explore the internal mechanisms and boundary effects of this effect using more ecologically valid experimental methods.

Keywords: Feminism, Costly Signaling Theory, Courtship, Evolutionary Psychology

“渔与鱼”——赋权帮助对女性自我能力评价的提升及其促进机制

杨千一　董超武　晏碧华　（通讯作者）
陕西师范大学心理学院暨陕西省行为与认知神经科学重点实验室
西安，710062，E-mail：yanbihua@snnu.edu.cn

摘 要　帮助是社会生活的基本组成部分，分为赋权帮助和非赋权帮助。前者表明受助者在指导下主动学习解决问题；后者表明受助者通过被动学习接受解决方案。优于平均水平效应指人倾向于认为自己的能力、属性比一般同龄人优越。内隐能力可塑观能有效引导个体对自我能力产生积极的倾向。已有研究用自陈式问卷发现，女性受助者在非赋权帮助后对自我能力的评分偏低，而男性没有出现这一现象。由此，女性自我能力评价及其改变的研究还缺乏社会生活背景下的系统实验研究。

本研究通过三项实验考察了不同受助类型对男性和女性自我能力评价的影响。实验一让被试分别回忆三周内接受过赋权或非赋权帮助的经历，回忆前后进行能力认知的内隐联想测验（IAT），并用能力特征评价法测量优于平均效应。实验二是在真实的赋权和非赋权帮助情景中，使用 IAT 和能力特征评价考察前后内隐能力认知和优于平均效应。实验三针对女性能力认知过低，在实验二基础上加入内隐能力可塑观操纵手段，探索维护女性自我积极评价的有效途径。

结果：（1）无论在回忆还是真实情景下，男性在赋权和在非赋权帮助下内隐能力认知均无显著变化，且存在外显的优于平均效应；而女性在非赋权帮助下内隐能力认知显著下降，且优于平均效应消失，在赋权帮助下则与男性一致；（2）在内隐能力可塑观操纵干预后，接受非赋权帮助的女性内隐能力认知无显著差异，且存在优于平均效应，在赋权帮助下其内隐与外显能力评价进一步得以提升。

结论：接受赋权帮助使女性受助者维持内隐能力认知，存在优于平均效应。接受非赋权帮助会使女性受助者内隐和外显自我能力评价降低，但内隐能力可塑观能缓解非赋权帮助的消极影响并提升赋权帮助的积极影响。

关键词　赋权帮助，自我能力，内隐能力，优于平均效应

"Fishing and Fish" - Enhancement of women's self-assessment of competence by empowering help and its facilitating mechanism

YANG Qianyi, DONG Chaowu, YAN Bihua
(School of Psychology, Shaanxi Normal University, Xi´an 710062, China)

Abstract: Help is a fundamental part of social life and is categorized into empowering and non-empowering help. The former suggests that recipients actively learn to solve problems with guidance; the latter suggests that recipients receive solutions through passive learning. The better-than-average effect (BAE) refers to a person's tendency to perceive his or her abilities and attributes as superior to those of his or her average peers. Implicit incremental theory is effective in guiding individuals to develop positive dispositions toward their own abilities. It has been found using self-stated questionnaires that female recipients rated their self-competence low after non-empowering help, whereas this phenomenon did not occur in males. As a result, there is a lack of systematic experimental research on female self-efficacy ratings and their change in the context of social life.

The present study examined the effects of different types of assistance on men's and women's self-efficacy ratings in three experiments. Experiment I had subjects separately recall their experiences of receiving empowering or non-empowering help over a three-week period, take the Implicit Association Test (IAT) of competence perceptions before and after the recall, and measure better-than-average effect with the Competence Characteristics Rating Method. Experiment two examined pre- and post-implicit competence perceptions and better-than-average effects using the IAT and ability trait ratings in real empowering and non-empowering help scenarios. Experiment III addressed women's low competence perceptions and added the implicit incremental theory manipulation to Experiment II to explore effective ways to maintain women's positive self-evaluations.

Results: (1) In both recall and real situations, there was no significant change in implicit competence perceptions of males with empowering and non-empowering help, and there was an exogenous better-than-average effect; Whereas, implicit competence perceptions of females declined significantly and the better-than-average effect disappeared with non-empowering help, and were consistent with those of males with empowering help; (2) After the manipulation intervention of implicit incremental theory, women who received non-empowering help had no significant difference in implicit competence perception, and there was a better-than-average effect, and their implicit competence evaluations were further improved under empowering help.

Conclusion: Receipt of empowering help resulted in a better-than-average effect on female recipients' maintenance of implicit competence perceptions. Receiving non-empowering help reduced female recipients' implicit and explicit self-competence ratings, but Implicit incremental theory mitigated the negative effects of non-empowering help and enhanced the positive effects of empowering help.

Keywords: empowering help, self-competence, implicit competence, better-than-average effect

社会不平等引起算法决策偏好？

归因调节和系统合理信念的中介作用*

吴旭瑶[1,2] 李晔[1,2**] 宫剑[1,2] 海曼[1,2] 李现菊[1,2]

1 华中师范大学心理学院，武汉 430079

2 华中师范大学心理学院暨青少年网络心理与行为教育部重点实验室，武汉 430079

摘 要 近年来，在接连不断的突发公共卫生事件的影响下，社会不平等的现象进一步加剧，表现为收入不平等、机会不平等、教育不平等、健康不平等等多种形式的社会不平等现象。人工智能（AI）算法有望减少社会阶层间的不平等现象，因为算法能够忽略个体特征做出无偏的决定。然而，人们宁愿选择容忍不平等，也不愿使用 AI 算法进行人生决策，这阻碍了人工智能在医疗、教育、企业组织等领域的应用。了解人们对社会不平等的认知或许能够推进 AI 算法在社会中的推行应用。本研究在归因理论和系统合理性理论下，构建了一个理解不平等情境下人们对算法决策态度的框架。值得注意的是，本研究试图从人类群体的内部关系出发，而不是探讨算法的特点或情景的特点如何影响人们对算法决策的偏好，强调只有当人们对人类自己构建的社会系统失去信心时，人们才会期望算法这一新的外部技术工具重新建立公平的运行机制。

本研究通过六个实验，探讨了归因在社会不平等与算法决策偏好之间的调节作用和系统合理化信念的中介作用。研究 1 在医疗领域（子研究 1）、组织招聘（子研究 2）和入学考试（子研究 3）三个情境中，验证了只有对不平等的外部归因（而不是内部归因）解释才会引发不平等对算法决策偏好。研究 2 通过采用两点式迫选法和多种因变量指标，再次验证了研究 1 的结果。研究 3 考察了系统合理信念在不平等与算法决策偏好之间的中介作用，以及归因调节不平等与系统合理信念之间的关系。研究 4 通过阻断中介设计，进一步检验系统合理信念和算法决策之间的因果关系，再次验证系统合理信念的中介作用。所有的参与者阅读到来自不同社会阶层的甲型 H1N1 流感患者人数大致相同的新闻后，发现减少系统合理化信念增加了人们对算法决策的偏好，进一步证实了系统合理化信念的中介作用。当社会各界试图借助 AI 算法制定决策，以寻求多方最大化平等时，有必要注意个人认知在其中发挥的重要作用，否则会适得其反。

关键词 社会不平等，算法决策，归因，系统合理信念

The impact of inequality on algorithm decision-making: Moderation by attribution and mediation by system-justifying belief *

Xuyao Wu[1], Ye Li [1**], Jian Gong[1], Man Hai[1], Xianju Li[1]

[1] School of Psychology, Central China Normal University; Key Laboratory of Cyberpsychology and Behavior, Ministry of Education, Wuhan 430079, China.

***Abstract*:** With the succession of public health emergencies in recent years, social inequalities which mainly dominated by economic inequalities, are also manifesting increasing in health care, opportunity, and education. Artificial intelligence (AI) algorithm hold promises to reduce inequalities across socioeconomic. Algorithms ignore individual characteristics to make unbiased decisions. Unfortunately, people generally tolerate inequality and are averse to algorithm making important decision, which hinders the adoption of AI in healthcare, education, and organization. Therefore, it is particularly important to understand people's cognitive explanations for inequality. This study draws on the attribution theory and system justification theory to construct a framework for understanding people's attitude towards to algorithm decision-making in inequality situation. Notably, this study focuses on intra-human relations, emphasizing that people expect algorithms, a novel external technological tool, to re-establish a fair operating mechanism only when they have lost confidence in the social system constructed by human beings themselves. Six studies were conducted to examine the moderating role of attribution and the mediating role of system-justifying belief in the relationship between social inequalities and preferences for algorithm decision-making. Study 1, through three experiments in healthcare (Study 1a), organizational recruitment (Study 1b), and entrance exams (Study 1c), verified that an external attributional explanation for inequality drives inequality to increase preferences for algorithm decision-making, whereas internal attribution did not. Study 2 replicated the results of Study 1 by adopting various measurements of algorithm preferences. Study 3 not only re-validated the results of Study 1, but also investigated the mediating role of system-justifying belief between inequality and preferences for algorithm decision-making, as well as attributions moderating the relationship between inequality and system-justifying belief. Specifically, when people make external attributions about inequality, inequality reduces the system-justifying beliefs and thus increases preferences for algorithm decision making. However, when people make internal attributions about inequality, inequality increase the system-justifying beliefs and thus reduces preferences for algorithm decision making. In study 4, all participants read the news with an approximately equal number of people suffering from influenza A (H1N1) across socioeconomic, and the results showed that reducing system-justifying belief increased the preference for algorithm decision-making, further confirming the mediating role of system-justifying belief. Overall, these findings indicated that when inequality is externally attributed, inequality increases a preference for algorithm decision-making, however, not when it is caused by internal factors. Importantly, we also find that the mediating role of system justifying-belief in the relationship between inequality and preference for algorithm decision-making. Instead of focusing on how the characteristics of the algorithm or situation change people's attitudes towards algorithm decision-making, we infer algorithm aversion from the perspective of intra-human relations. These studies suggest that it's necessary to recognize the significant role of individual cognition when promoting AI to reduce inequality in healthcare, education, and organizations, so that AI is not implemented in a counterproductive way.

Keywords: inequality, algorithm decision-making, attribution, system justification

死亡提醒对消费者怀旧消费偏好的影响及其作用机制

崔锦圣[1] 陈皓云[1] 钟建安[2]（通讯作者）

1 浙江大学心理与行为科学系，杭州，310063

2 浙江大学心理与行为科学系，杭州，310063，jiananzhong@zju.edu.cn

摘 要 在当下社会背景中，随着信息媒体的普及，消费者越来越频繁地接触到与死亡相关的信息，唤醒对死亡的思考，即产生了死亡提醒。死亡提醒会导致消费者进行心理防御，如文化世界观防御、自尊寻求、亲密关系寻求和怀旧。怀旧消费作为怀旧的一种消费行为表现，可以提供怀旧的心理价值。本研究基于恐惧管理理论和意义维持模型展开了 3 项研究，探究死亡提醒对怀旧消费偏好的影响及其机制。研究一招募了 209 名被试，采用单因素被试间（死亡提醒组，对照组）实验设计，运用协方差分析和中介模型分析，结果：(1)经历死亡提醒的消费者对怀旧消费的偏好更强；(2)死亡提醒通过提升意义寻求增强对怀旧消费的偏好。研究二招募了 215 名被试，采用 2（死亡提醒组，对照组）×2（过去积极，过去消极）被试间实验设计，运用协方差分析和调节中介模型分析，结果：(1)时间取向在意义寻求和怀旧消费偏好之间起调节作用，对于过去积极取向的消费者，死亡提醒导致的高意义寻求令消费者更偏好怀旧消费。研究三招募了 220 名被试，采用 2（死亡提醒组，对照组）×2（高社会支持，低社会支持）被试间实验设计，运用协方差分析和调节中介模型分析，结果：(1)社会支持在死亡提醒和意义寻求之间起调节作用，死亡提醒只会令低社会支持的个体提高意义寻求。研究结果初步揭示了意义寻求是死亡提醒增加怀旧消费的潜在机制，并为死亡提醒下的消费者决策行为干预提供了一定参考。

关键词 死亡提醒，怀旧消费，意义寻求，时间取向，社会支持

The Effect of Mortality Salience on Consumers' Nostalgic Consumption Preferences and Its Mechanism

Jinsheng Cui[1] Haoyun Chen[1] Jianan Zhong[2]（Corresponding author）

1 Department of Psychology and Behavioral Science, Zhejiang University; 866 Yuhangtang Rd., Hangzhou, 310058, China.

2 Department of Psychology and Behavioral Science, Zhejiang University; 866 Yuhangtang Rd., Hangzhou, 310058, China. E-mail：jiananzhong@zju.edu.cn

Abstract： Study 1 investigated the effects of mortality salience on consumers' preference for nostalgic consumption and the underlying mechanism. A total of 209 participants were recruited and a single-factor between-subjects experimental design (mortality salience vs. control) was used. Data were analysed using analyses of covariance and mediation models. The results showed that consumers exposed to a death reminder showed a stronger preference for nostalgic consumption. Furthermore, the death reminder was found to enhance the preference for nostalgic consumption by increasing the sense of meaning. In Study 2, we extended the findings of Study 1 by examining the moderating role of time orientation (past positive vs. past negative) on the relationship between meaning seeking and nostalgic consumption preferences. A total of 215 participants were recruited using a 2 (mortality salience vs. control) × 2 (past positive vs. past negative) between-subjects experimental design. Data were analysed using analysis of covariance (ANCOVA) and moderated mediation models. The results indicated that temporal orientation moderated the relationship between meaning-seeking and nostalgia consumption preferences. Specifically, for consumers with a positive orientation towards the past, the increased level of meaning-seeking resulting from the death reminder led to a stronger preference for nostalgia consumption. Study 3 aimed to investigate the moderating role of social support (high vs. low) on the relationship between death reminders and meaning-seeking. A total of 220 participants were recruited, and a 2 (death reminder vs. control) × 2 (high social support vs. low social support) between-subjects experimental design was used. Data were analysed using analysis of covariance and moderated mediation models. Results indicated that social support moderated the relationship between death reminders and meaning seeking. Specifically, death reminders led to increased meaning-seeking only among individuals with low social support. Overall, the results of these studies provide preliminary evidence that meaning-seeking serves as a potential mechanism through which death reminders increase nostalgia consumption. These findings provide valuable insights for interventions targeting consumer decision-making behaviour in the context of death reminders.

Keywords： Mortality salience, Nostalgic consumption, Searching for meaning, Time orientation, Social support

经济水平差异对社会困境中合作行为的影响

凌晓丽[1] 吴相珍[1] 林之斌[1] 孙鹏[2]（通讯作者）

1 山东师范大学心理学院，济南，250358

2 山东财经大学心理健康教育与研究中心，济南，250014，sunpengsdufe@yeah.net

摘 要 合作是个体或群体之间为了共同的目标而协同活动，促使结果得以实现的社会性行为或意向，是人类社会生存发展的基石。然而，由于合作双方或多方存在着的诸多差异以及信任问题，合作共赢局面的达成并非易事。近年来，经济发展所引发的贫富差距在日益增大，合作领域的研究者也将目光聚焦在了经济水平的差异对合作行为的影响上，但目前的研究结果存有争议。在社会困境中，富裕群体表现出较高的合作倾向，贫穷群体则较低。但也有研究发现了相反的结果。目前对该问题的研究主要分别采用了“双人困境”或“多人困境”，但现实中两种困境可能同时嵌套出现，尚不明确在该情况下被试会如何选择。因此本研究结合两种困境，通过给予不同的初始被试费用设置有贫富差距的贫富两组（每组 4 人）、无贫富差距的中等组，且组间存在利益冲突，探讨多人在混合困境的合作行为。本研究共设置两个实验，实验一以公共物品博弈为基础，通过不同的初始被试费来操纵经济水平，分设贫穷、富有、中等组，并单设损益账户（损人利己），被试可以将初始资金中的部分或全部投放到公共账户中获得更多利益，从而探讨贫富群体合作水平的差异。结果发现，贫穷组较富有组、中等组投入更多的资金到损益账户中，中等组与富有组则没有显著差异。然而，贫穷群体高合作动机，是单纯地为了集体收益还是产生了仇富心理而抱团合作尚不清楚。因此，实验二在实验一基础上增设收益账户（利己不损人），采用迫选法。结果发现，贫穷组选择投入损益账户的人数显著多于中等组，而中等组与富有组则无显著差异。综上，这一定程度上表明贫穷组会表现出损人利己的行为，产生了仇富心理。本研究为贫富差距对合作的影响提供了新证据，当存在贫富差距时，这种经济不平等可能使个体具有竞争性，进而产生损人利己的行为。

关键词 收益账户，损益账户，合作，社会困境

The effect of economic level differences on cooperative behavior in social dilemmas

Xiaoli Ling[1] Xiangzhen Wu[1] Zhibin Lin[1] Peng Sun[2]
1 School of Psychology, Shandong Normal University, Jinan, 250358
2 Center for Mental Health Education and Research, Shandong University of Finance and Economics, Jinan, 250014

Abstract: Cooperation is a social behavior between individuals or groups to cooperate for a common goal and to promote the result to be realized, which is the cornerstone of the survival and development of human society. However, it is not easy to achieve win-win cooperation because of individual differences and mutual distrust between two or more parties. The wealth heterogeneity caused by economic growth has been increasing in recent years, and researchers in cooperation have begun to pay attention to its impact on cooperative behavior. Nevertheless, the existing research results were controversial. Some studies have shown that rich groups tend to contribute more than poor groups in social dilemmas, but other studies have found opposite results. These studies mainly explored this issue by adopting the "two-person dilemma" or the "multiple-person dilemma." However, the two dilemmas may coincide in reality, and it needs to be clarified how participants will choose. Therefore, the current study combined the two dilemmas and explored the effect of wealth heterogeneity on the cooperation of multiple people in mixed dilemmas by setting up two kinds of matching groups (rich group vs. poor group; middle group vs. middle group), which were conflicts of interest between groups. The wealth heterogeneity was manipulated through the different initial payments, where each member in the rich groups received ¥15, those in the medium groups received ¥10, and those in the poor groups received ¥5. Two experiments were executed in the present study. In experiment 1, the members of each group received an endowment of 30 tokens. They could decide how many tokens to contribute to the Between pool, increasing the payoff for in-group members but decreasing the out-group. The results found that the poor group contributed more to the Between pool than the medium group, with no significant difference between the middle and rich groups. However, it was unclear whether poor groups' high levels of cooperation were motivated by the collective interest or hatred for the rich group. Therefore, experiment 2 added a Within pool (increases the payoff for in-group members without decreasing the out-group), and contributions can be made to one of the two pools. More people in the poor group chose to invest in the Between pool than the middle group, while there was no significant difference between the middle and rich groups. In summary, these results indicated that the poor group competed against the out-group to a considerable extent. This study provides new evidence of the effect of wealth heterogeneity on cooperation that may drive poor individuals to be competitive and lead to selfish behavior at the expense of others.

Keywords: Within Pool , Between Pool , Cooperation, Social dilemmas

社会学习情境下帮助者的拒绝概率、可回馈概率对受助者求助决策的影响：基于分层贝叶斯计算建模分析

罗浩诚[1] 代恒森[1] 唐炎程[2] 周晓林[1*]（通讯作者）高晓雪[1*]（通讯作者）

1 华东师范大学心理与认知科学学院，上海市心理健康与危机干预重点实验室，上海，200062

2 脑机协同信息行为教育部和上海市重点实验室，上海外国语大学国际工商管理学院，上海，201620

*通讯作者：周晓林 xz104@psy.ecnu.edu.cn，高晓雪 xxgao@psy.ecnu.edu.cn

摘 要 日常生活中，个体时常遇到自己难以解决的问题，并需要权衡利弊、决定是否主动发起人际请求以获得他人帮助，即求助决策。虽然求助可以带来获益，但也伴随着潜在帮助者的社会拒绝和无法回馈帮助者的焦虑等诸多社会成本。因此，求助者往往需要根据以往求助所带来的实际结果，更新对于潜在社会拒绝和回馈焦虑成本的预期，进而动态调整后续求助决策。这一社会学习过程背后的认知计算机制仍有待考察。本研究自主开发人际互动范式，在实验室真实、重复地诱发个体对于过往求助结果的社会学习，测量其求助决策的动态调整过程，并结合计算建模手段揭示背后的认知计算机制。人际互动范式中，被试每一轮会因前期任务失败而损失代币；同时，被试与一名匿名对家配对，并决定是否向该对家求助以减免一半的损失。被试被告知，系统根据对家的历史拒绝率和系统决定的、被试可以对对家进行回馈的概率，将所有对家分成了四组：高拒绝率（70%）-高可回馈率（70%）组、低拒绝率（30%）-高可回馈率（70%）组、高拒绝率（70%）-低可回馈率（30%）组、低拒绝率（30%）-低可回馈率（30%）组。被试需要在实验中进行试次接试次的是否求助决策，得到实际的求助结果反馈（即实际体验的社会拒绝和回馈焦虑），以学习不同组对家的拒绝概率和可回馈概率，据此不断调整是否求助决策。对被拒绝概率和可回馈概率的强化学习计算建模分析结果发现，被试对拒绝概率的学习率总体显著高于对可回馈概率的学习率；在拒绝概率学习方面，相比于面对两个低拒绝率组时，被试面对两个高拒绝率组时的学习率更高；在可回馈概率学习方面，相比于面对两个高可回馈率组时，被试面对两个低可回馈率组时的学习率更高。对求助决策的计算建模分析发现，求助决策中被试对拒绝概率的考虑权重总是高于其对可回馈概率的考虑权重，说明个体在求助决策中对拒绝概率加工的优先级相对较高。本研究从社会学习的角度揭示了求助决策动态调整的认知计算机制，为相关障碍的循证矫正提供了理论基础。

关键词 求助决策，社会学习，拒绝概率，可回馈概率，计算建模

The Impact of Helper's Rejection Probability and Repayment Probability on Help-seeker's Help-Seeking Decision in the Social Learning Context: Analysis Based on Layered Bayesian Computational Modeling

Haocheng Luo[1] Hengsen Dai[1] Yancheng Tang[2] Xiaolin Zhou[1*] Xiaoxue Gao[1*]

1 Shanghai Key Laboratory of Mental Health and Psychological Crisis Intervention, School of Psychology and Cognitive Science, East China Normal University, Shanghai 200062, China

2 Key Laboratory of Brain-Machine Intelligence for Information Behavior (Ministry of Education and Shanghai), School of Business and Management, Shanghai International Studies University, Shanghai 201620, China

[*]Corresponding Authors: Xiaolin Zhou xz104@psy.ecnu.edu.cn,

Xiaoxue Gao xxgao@psy.ecnu.edu.cn

Abstract: In daily life, individuals often encounter problems that are difficult to solve on their own and need to weigh the pros and cons, and decide whether to initiate an interpersonal request for help, i.e., the help-seeking decision. Although asking for help can be beneficial, it also comes with many social costs, such as social rejection by potential helpers and anxiety about not being able to reciprocate. As a result, help-seekers often need to update their expectations of potential social rejection and repayment anxiety costs based on actual outcomes resulting from previous help-seeking, and thus dynamically adjust subsequent help-seeking decisions. The cognitive computational mechanism behind this social learning process remains unknown. In this study, we developed an interpersonal interaction paradigm to realistically and repetitively induce individuals' social learning of past help-seeking outcomes in the laboratory, to measure the dynamic adjustment process when people make their help-seeking decisions, and to combine it with computational modeling tools to reveal the underlying cognitive computational mechanisms. In the paradigm, subjects lose tokens each trial for failing the pre-task; at the same time, subjects are paired with an anonymous helper and decide whether ask for help from that helper in order to mitigate half of the loss. Subjects were told that the system divided all helpers into four groups based on the historical rejection probability of the helpers and the system-determined probability that the subject could reciprocate to the helpers: high rejection probability (70%)-high repayment probability (70%) group, low rejection probability (30%)-high repayment probability (70%) group, high rejection probability (70%)-low repayment probability (30%) group, and low rejection probability (30%)-low repayment probability (30%) group. Subjects need to make trial-by-trial decisions on whether to seek help in the experiment, get feedback on actual help-seeking outcomes (i.e., actually experienced social rejection and repayment anxiety) in order to learn the probability of rejection and the probability of repayment of different group helpers, and continually adjust the decision on whether to seek help accordingly. The results of the computational modeling analysis of reinforcement learning for rejection probability and repayment probability found that the overall learning rate of subjects for rejection probability was significantly higher than that for repayment probability; in terms of rejection probability learning, the learning rate was higher when subjects faced two groups with high rejection probability compared to when they faced two groups with low rejection probability; and in terms of repayment probability learning, the learning rate was higher when subjects faced two groups with low repayment probability compared to when they faced two groups with high repayment probability. The computational modeling analysis of the help-seeking

decision reveals that the subjects' consideration weight of the rejection probability in the help-seeking decision is always higher than their consideration weight of the repayment probability, indicating that individuals process the rejection probability with relatively high priority in the help-seeking decision. This study reveals the cognitive computational mechanism of the dynamic adjustment of help-seeking decision-making from the perspective of social learning, and provides a theoretical basis for the evidence-based correction of related disorders.

***Keywords*：** help-seeking decision, social learning, rejection probability, repayment probability, computational modeling

负性合作对人际关系的影响

唐炎程[1#] 隋心怡[2#] 胡杨[2*]（通讯作者）

[1]脑机协同信息行为教育部和上海市重点实验室，上海外国语大学国际工商管理学院，上海，201620

[2]华东师范大学上海市心理健康与危机干预重点实验室，心理与认知科学学院，上海，200062

#贡献均等 *通讯作者， yanghu@psy.ecnu.edu.cn

摘 要 **背景：**合作是建立良好人际关系的关键基础，对促进个体形成健康稳定的社会生活模式具有重要意义。根据合作结果，通常可将合作分为正性合作（如警方合作缉拿要犯）与负性合作（如犯罪分子合伙诈骗）。以往研究多考察正性合作对个体间人际关系的影响，目前尚不清楚负性合作如何影响人际关系。本研究通过三项在线行为研究（N = 535），考察含有不同道德成本的负性合作行为对合作双方人际关系的影响。

方法：三项研究分别操纵了负性合作中的不同道德成本。其中，研究一操纵了情境中的欺骗成本（无欺骗成本、有欺骗成本；其中对后者进一步区分了欺骗者的身份：对家、自我或双方，共 4 个水平）。研究二操纵了伤害道德成本的大小（包含无伤害成本，低成本，高成本 3 个水平）。 研究三操纵了两种道德成本（包括无道德成本，欺骗-无伤害成本，欺骗-低伤害成本，欺骗-高伤害成本 4 个水平）。三项研究中，被试均需要两次评价双方人际关系，一次在对家合作前（前测）；一次在对家决策后，基于自己可能的不同决策（合作/不合作）评价双方的人际关系（后测）。三项研究聚焦双方决策后达成合作的情境，以合作前后，个体对合作者信任度（研究一、二：投资行为；研究三：主观报告）与亲近感（主观报告）的变化（后测-前测）作为因变量。研究均采用被试内设计，数据分析均采用单因素方差分析。

结果与讨论：研究一发现：合作达成后亲近感显著增加（变化量>0）。相比于无成本条件，欺骗成本使其变化量降低，而信任度无显著变化；其中，相较双方共同欺骗，自我参与欺骗的条件下亲近感的变化量更低。研究二发现：合作达成后亲近感和信任度显著增加（变化量>0）。同研究一，伤害成本（vs.无成本）显著降低了亲近感和信任度的变化量。研究三发现：道德成本使得合作后双方信任度下降（变化量<0）。而亲近感的变化则呈现出整体上升的趋势（变化量>0），但道德成本（特别是欺骗-高伤害成本条件）使得亲近感的变化量显著降低。

综上，尽管负性合作能够促进合作者间的信任度与亲近感，但不同的道德成本对于信任度和亲近感有着不同的影响，在一定程度上反应出负性合作对人际关系影响的复杂性。

关键词 负性合作，人际信任，人际亲近，道德成本

Impact of Negative Cooperation on Interpersonal Relationships

Yancheng Tang[1#] Xinyi Sui[2#] Yang Hu[2*]

1 Key Laboratory of Brain-Machine Intelligence for Information Behavior (Ministry of Education and Shanghai), School of Business and Management, Shanghai International Studies University, Shanghai, China, 201620

2Shanghai Key Laboratory of Mental Health and Psychological Crisis Intervention, School of Psychology and Cognitive Science, East China Normal University, Shanghai, China, 200062

# equal contribution *Corresponding Author, yanghu@psy.ecnu.edu.cn

Abstract: **Background**: Cooperation is the key foundation for establishing good interpersonal relationships and plays an important role in promoting the formation of a healthy and stable social life for individuals. Based on the morality of cooperation, cooperation can usually be divided into positive cooperation (such as police cooperation in capturing criminals) and negative cooperation (such as criminals collaborating in fraud). Previous studies have mostly examined the impact of positive cooperation on interpersonal relationships between individuals, and it is unclear how negative cooperation affects interpersonal relationships. This study conducted three online behavioral studies (N = 535) to examine the impact of negative cooperation behaviors with different moral costs on the interpersonal relationships of the cooperating parties.

Method: Three studies manipulated different moral costs in negative cooperation. Study 1 manipulated the cost of deception (with or without cost of deception) and we further distinguished the identity of the deceiver in the former case: partner deceive, self-deceive, or both deceive, resulting a total of 4 moral cost conditions. Study 2 manipulated the magnitude of the cost of harm (including no cost of harm, low cost, and high cost, 3 conditions). Study 3 manipulated two types of fore-mentioned moral costs in four conditions (no moral cost, deception but no harm, deception with low harm cost, and deception with high harm cost). In all three studies, participants were required to evaluate the interpersonal relationships between them and their partner twice: once before cooperation (pretest), and once after the cooperative decision-making (posttest), based on their possible different decisions (cooperating /not cooperating). The three studies focused on the situation where cooperation was achieved between the two parties. The changes in interpersonal trust (Study 1 and 2: investment behavior; Study 3: subjective reports) and closeness (subjective reports) towards the partner were taken as dependent variables by comparing the change from pretest to posttest. All studies adopted a within-subject design, and data analysis was conducted using one-way analysis of variance.

Results and discussion: Study 1 found that interpersonal closeness significantly increased after cooperation was achieved (change of closeness > 0). Compared to the no cost condition, the cost of deception decreased the change in interpersonal closeness, while trust did not show a significant change. Specifically, under the condition of self-deceiving, the change in interpersonal closeness was lower compared to both deceiving. Study 2 found that both interpersonal closeness and trust significantly increased after cooperation was achieved (change of closeness and trust > 0). Similar to Study 1, the cost of harm (vs. no cost) significantly decreased the change in interpersonal closeness and trust. Study 3 found that moral costs led to a decrease in interpersonal trust after cooperation (change of trust < 0). However, the change in interpersonal closeness showed an overall upward trend (change of

closeness> 0), but moral costs (especially the deception-high harm cost condition) significantly decreased the change in interpersonal closeness.

In summary, although negative cooperation can promote interpersonal trust and closeness between collaborators, different moral costs have different impacts on interpersonal trust and closeness, reflecting the complexity of the influence of negative cooperation on interpersonal relationships.

Keywords: Negative cooperation, Interpersonal trust, Interpersonal closeness, Moral cost

跨越群体边界？他人声誉对个体合作行为的影响

孔繁聪 王晓明（通讯作者） 朱泓锦 陈银燕
曲阜师范大学心理学院，山东曲阜，273165，xmwang2019@qfnu.edu.cn

摘 要 有界广义互惠理论(BGR)预测人们合作是基于群体内成员而非群体外成员的良好声誉，即声誉的作用机制存在群体边界。然而，无界间接互惠理论(UIR)认为，声誉是一种更普适的力量，声誉所带来的影响不受群体边界的限制，即人们同样会基于外群体成员的良好声誉选择与其合作。因此，研究从两大理论的争议点出发，采用嵌套社会困境博弈范式构建群际互动情境以探究他人声誉对个体合作行为的影响是否受群体约束。研究包含三个实验，实验 1 和实验 2 分别采用嵌套社会困境范式(NSD)和普遍与偏狭隘合作游戏范式(IPUC)考察他人声誉对合作行为的影响，实验 3 在此基础上调整了声誉的操纵方式并进一步探讨他人声誉对合作行为的影响机制。结果发现：(1)在嵌套社会困境(NSD)中个体与高声誉的外群体成员会有更多的合作(实验 1)；(2)在普遍与偏狭隘合作游戏(IPUC)中内外群体的声誉皆促进了个体的普遍合作，且由合作预期完全中介(实验 2)；(3)声誉关注在他人声誉对合作行为的影响中具有调节作用，在高声誉关注条件下，内群体的声誉越高普遍合作水平越高；在低声誉关注条件下，外群体的声誉越高普遍合作水平越高(实验 3)；(4)内群体的声誉会抑制强狭隘合作，即牺牲外群体利益只维护内群体利益。但在高群际威胁感知条件下，内群体的声誉会促进个体强狭隘合作(实验 2 和实验 3)。研究结果一方面再次验证了有界广义互惠与无界间接互惠的观点，即群体边界存在但并非不可以跨越；另一方面对声誉如何跨越群体边界的条件进行了探索，并发现了声誉关注与威胁感知的调节作用。研究从群际视角刻画了声誉与合作行为的关系，详细描绘了群际环境中的声誉机制，支持和补充了有界广义互惠和无界间接互惠，这一定程度上可以为理解人们在集体环境中的合作行为提供参考。

关键词 他人声誉，嵌套社会困境，合作，声誉关注，群际威胁感知

Crossing group boundaries? The Effect of Others' Reputation on Individuals' Cooperative Behavior

Kong Fancong, Wang Xiaoming (Correspondence), Zhu Hongjin, Chen Yinyan
Qufu Normal University, Shandong Qufu, 273165, xmwang2019@qfnu.edu.cn

Abstract: Bounded generalized reciprocity (BGR) predicts that people's cooperation is based on a positive reputation of ingroup members rather than outgroup members, i.e., there are group boundaries for the mechanism of action of reputation. However, Unbounded indirect reciprocity (UIR) argues that reputation is a more pervasive force, and that the influence exerted by reputation is not constrained by group boundaries, i.e., people will similarly choose to cooperate with outgroup members based on his or her positive reputation. Therefore, starting from the point of contention between the above theories, the study adopted a nested social dilemma game paradigm to construct an inter-group interaction situation in order to investigate whether the influence of others' reputations on an individual's cooperative behavior is bounded by group boundaries. The study consisted of three experiments, experiments 1 and 2 used the Nested Social Dilemma paradigm (NSD) and the Intergroup Parochial and Universal Cooperation (IPUC) game to examine the effect of others' reputation on cooperative behavior, respectively, while experiment 3 adapted the manipulation of reputation and further explored the mechanism of the effect of others' reputation on cooperative behavior on this basis. The results found that (1) individuals in nested social dilemmas (NSD) cooperate more with outgroup members with high reputations (Experiment 1); (2) both ingroup and outgrou

p reputations in Intergroup Parochial and Universal Cooperation (IPUC) game promote generalized cooperation among individuals and fully intermediated by cooperation expectations (Experiment 2); (3) reputational concern has a moderating role in the effect of others' reputations on cooperative behaviors. In the high reputational concern condition, the higher the reputation of the ingroup the higher the level of generalized cooperation; in the low reputation concern condition, the higher the reputation of the outgroup the higher the level of generalized cooperation (Experiment 3); (4) the reputation of the ingroup inhibits strong narrow cooperation, i.e., sacrificing the interests of the outgroup only to safeguard the interests of the ingroup. However, under high intergroup threat perception conditions, the reputation of the ingroup promotes individual strong narrow cooperation (Experiments 2 and 3). The results, on the one hand, revalidated the idea of bounded generalized reciprocity versus unbounded indirect reciprocity, i.e., group boundaries exist but are not uncrossable; on the other hand, explored the conditions of how reputation crosses group boundaries, and found a moderating effect of reputational concern and threat perception. The study portrays the relationship between reputation and cooperative behavior from an intergroup perspective, detailing the mechanisms of reputation in intergroup settings, supporting and complementing bounded generalized reciprocity and unbounded indirect reciprocity, which can to some extent inform the understanding of people's cooperative behavior in collective settings.

Keywords: other people's reputations, nested social dilemmas, cooperation, reputational concerns, intergroup threat perception

网名性别化感知对人际信任的影响：个体评价的中介作用

宋婉煜[1] 李静玟[1] 尹述飞[1](通讯作者)
1 湖北大学心理学系，武汉，430000，yinshufei121@163.com

摘 要 第 51 次《中国互联网发展统计报告》显示截止 2022 年 12 月，我国网民规模达到 10.67 亿。网络交友已成为当今人际交往的重要形式，高效地利用网名等简单线索进行信任判断是人们进行网络交往时的普遍方式。在现实交往中，名字中的性别化信息会影响对名字主人的特质评价，男性化名字的个体被评价为更有能力，而女性化名字的个体被评价为更具热情，这种评价也会进一步影响人际信任。为探究性别化网名在网络人际交往和印象形成中是否具有同样的效应，本研究通过两个实验考察了网名性别化感知对人际信任和评价的影响。研究一采用信任博弈范式，考察网名性别化感知（网名性别与个体性别一致和不一致）对人际信任水平的影响。结果表明，男性个体在网络中使用女性化网名将减少其得到人际信任，女性个体使用不同性别化的网名均不影响其得到的人际信任。研究二结合刻板印象内容模型，进一步探究网名性别化感知对人际信任水平影响及个体评价（热情和能力）的中介作用。结果表明，男性个体使用女性化网名后得到更低的热情、能力评价，进而导致更低的人际信任水平。总体结果表明，网名性别化感知会对个体评价以及人际信任产生影响。本研究为网名性别化感知与印象评价和人际信任提供了新的实证支持，对今后网名性别化感知的研究具有重要意义。
关键词 性别化网名，人际信任，个体评价

The Effect of Perceived Screen Name Genderization on Interpersonal Trust: the Mediating Role of Individual Evaluation

Wanyu Song[1], Jingwen Li[1], Shufei Yin[1*]
1 Department of Psychology, Faculty of Education, Hubei University
368 Youyi Road, Wuchang, Wuhan, China

Abstract: According to the 51st Statistical Report on China's Internet Development, the number of Internet users in China reached 1.067 billion by December 2022. Making friends online has become an important form of interpersonal communication. It is a common way for people to make trust judgments by using simple clues such as screen names efficiently. In real interactions, the gendered information in the name will affect the evaluation of the owner of the name. Individuals with masculine names are evaluated as more competent, while individuals with feminine names are evaluated as more enthusiastic, which will further affect interpersonal trust. To explore whether gendered screen names have the same effect in online interpersonal communication and impression formation, this study examined the effect of perceived gendered screen names on interpersonal trust and evaluation through two experiments. In the first study, the trust game paradigm was adopted to investigate the influence of the perception of screen name gender (whether the screen name gender is consistent with the individual gender or not) on the interpersonal trust level. The results show that male individuals using feminine screen names will reduce their interpersonal trust, while female individuals using different gendered screen names will not affect their interpersonal trust. In the second study, combined with the stereotype content model, we further explored the effect of perceived screen name gender on interpersonal trust level and the mediating effect of individual evaluation (enthusiasm and competence). It is shown that male individuals get lower enthusiasm and ability evaluation after using feminized net names, which leads to lower interpersonal trust level. The overall results show that the

perception of gender of screen names will have an impact on individual evaluation and interpersonal trust. The research provides new empirical support for the perception and impression evaluation and interpersonal trust of the gender of internet names, which is of great significance to the future research on the perception of gender of screen names.

Keywords：Gendered screen name, interpersonal trust, individual evaluation

社会排斥对大学生人际信任的影响：基于情景观和特质观的双重分析视角

代晨辉[1] 石常秀[1] 李明臻[2] 赵尧瑶[3] 赵小军[1]（通讯作者）
1 河北大学教育学院，河北保定，071002，psy790821@aliyun.com
2 淄博职业学院，山东淄博，255314
3 商丘学院应用科技学院，河南开封，475000

摘 要 以往对于人际信任的研究主要分为两个方面，一种是基于情景状态视角下的人际信任反应，即个体在合作任务中对他人的信任行为，通常采用信任博弈任务等实验范式来测量；另一种则是基于人格特质视角下的人际信任倾向，即个体在人际互动中所形成的对他人或团体可信性的稳定的心理倾向，通常采用信任问卷来测量。人际信任作为人际互动的产物，能够衡量人际关系的质量，研究表明具有良好同伴关系的大学生一定程度上会表现出更多的人际信任。然而并不是所有的大学生都拥有良好的人际关系，部分个体可能会感知到自己被他人所排斥，也就是所谓的社会排斥。本研究旨在从情景状态和人格特质两种视角分析社会排斥对人际信任的影响及其心理机制。研究 1 采用社会排斥范式（想象范式、孤独终老范式）和信任博弈任务对 94 名大学生展开研究，以探讨短期激活的被排斥体验对人际信任反应的影响，结果发现被排斥体验能够负向预测个体的人际信任反应，且即时控制感起完全中介作用，此外研究还发现想象范式组下的人际信任反应显著低于无排斥组，而孤独终老范式组与无排斥组却无显著差异。个体在日常生活中遭遇的往往并不是单一的被排斥事件，而是在很长的一段时间内反复被他人所排斥或忽视，这种长期且频繁的被排斥经历可能会影响个体稳定的认知方式和行为模式，研究 2 通过采用大学生社会排斥问卷、控制感量表、人际信任量表和网络空间人际信任量表对 610 名大学生进行问卷施测以探讨被排斥经历对于大学生现实人际信任倾向和网络人际信任倾向的影响，结果发现，被排斥经历能够负向预测现实人际倾向，但却能正向预测网络人际信任倾向，且特质控制感的中介作用均显著。本研究通过两种研究视角，进一步明确了社会排斥与人际信任之间的关系，社会排斥和人际信任都是影响大学生心理健康和社会适应的重要因素，了解它们之间的关系和作用机制，可以为制定有效的干预措施以改善大学生的人际信任水平提供理论依据。
关键词 社会排斥，控制感，人际信任反应，人际信任倾向

The influence of social exclusion on interpersonal trust among college students: a dual analytical view based on scenario perspective and trait perspective

Dai Chenhui[1], Shi ChangXiu[1], Li Mingzhen[2], Zhao Yaoyao[3], Zhao Xiaojun[1]
1 School of Education, Hebei University, Baoding 071002
2 Zibo Vocational Institute, Zibo 255314
3 Shangqiu University Applied Science and Technology College, Kaifeng 475000

Abstract： In previous studies, research on interpersonal trust has primarily focused on two aspects. Firstly, it examines interpersonal trust reactions from the perspective of situational states, which refers to individuals' trusting behavior towards others in cooperative tasks. This aspect is commonly measured using experimental paradigms such as trust game tasks. Secondly, research has explored interpersonal trust tendencies from the perspective of personality traits, which refers to individuals' stable psychological inclination towards perceiving others or groups as trustworthy in interpersonal interactions. This aspect is typically assessed through trust

questionnaires. Interpersonal trust, as an outcome of interpersonal interaction, can measure the quality of interpersonal relationships. Research indicates that college students who have good peer relationships tend to exhibit more interpersonal trust to some extent. However, not all college students have good interpersonal relationships. Some individuals may perceive that they are rejected by others, which is called social exclusion. This study aims to analyze the impact of social exclusion on interpersonal trust and its psychological mechanisms from two perspectives: situational state and personality trait. Study 1 employed social exclusion paradigms (imagination paradigm, lonely forever paradigm) and a trust game task to investigate the influence of short-term activated exclusion experience on interpersonal trust response among 94 college students. The results revealed that exclusion experience could negatively predict individuals' interpersonal trust response, and immediate control sense played a full mediating role. Moreover, the study also found that the interpersonal trust response under the imagination paradigm group was significantly lower than that of the no-exclusion group, while there was no significant difference between the lonely forever paradigm group and the no-exclusion group. Individuals often encounter not single instances of exclusion in their daily lives, but rather repeated exclusion or neglect by others over a long period of time. This chronic and frequent experience of exclusion may affect individuals' stable cognitive styles and behavioral patterns. Study 2 surveyed 610 college students using the College Student Social Rejection Questionnaire, the Sense of Control Scale, the Interpersonal Trust Scale and the Online Interpersonal Trust Scale to explore the effects of exclusion experience on college students' real-life interpersonal trust tendency and online interpersonal trust tendency. The results showed that exclusion experience negatively predicted real-life interpersonal trust tendency, but positively predicted online interpersonal trust tendency, and the mediating role of trait sense of control was significant. This study further clarified the relationship between social exclusion and interpersonal trust through two research perspectives. Social exclusion and interpersonal trust are both important factors affecting college students' mental health and social adaptation. Understanding their relationship and mechanism of action can provide theoretical basis for developing effective interventions to improve college students' level of interpersonal trust.

Keywords： social exclusion, sense of control, interpersonal trust response, interpersonal trust tendency

社会拒绝内容对亲和性及自我关注的分离效应

陈菲菲[1]　郭铁元[2]（通讯作者）
1 湖北师范大学心理学系，湖北，435002
2 澳门大学心理学系，澳门，999078，tguo@um.edu.mo

摘 要　社会拒绝在日常生活中广泛存在，对个体的认知、情感以及行为产生重要影响，相关的学术研究中最值得关注的问题之一是人们如何应对社会拒绝。本研究从社会拒绝内容即热情和能力两个方面出发，考察基于热情的社会拒绝或基于能力的社会拒绝对个体的亲和性反应及自我关注的差异影响。根据需求-威胁模型，本研究假设热情拒绝比能力拒绝更加威胁关系需求，能力拒绝比热情拒绝更加威胁效能需求；为了修复受到威胁的关系需求，热情拒绝（相比能力拒绝）会促进个体表现出更多的亲和性反应，为了修复受到威胁的效能需求，能力拒绝（相比热情拒绝）会促进个体表现出更多的自我关注。本研究进行了 4 个实验，结果发现相比能力拒绝，热情拒绝增加了被试对结交新朋友的兴趣(研究 1)，对陌生人的评价更为积极(研究 2、3、4)。相比热情拒绝，能力拒绝增加了被试关注自我的程度(研究 3、4)。此外，当关系需求被启动时，热情拒绝对个体亲和性反应的作用消除；当效能需求被启动时，能力拒绝对个体自我关注的作用消除(研究 4)。研究结果表明，受到威胁的关系需求使热情拒绝增加了个体的亲和性反应，受到威胁的效能需求使能力拒绝增加了个体关注自我，社会拒绝如何影响个体后续的拒绝反应取决于个体对社会拒绝内容的认知。

关键词　社会拒绝，热情，能力，亲和性，自我关注

Divergent effects of warmth and competence social rejections on affiliation and self-focus

Feifei Chen[1]　Tieyuan Guo[2]
1 Department of Psychology, Hubei Normal University, Hubei
2 Department of Psychology, University of Macau, Macao SAR

***Abstract*：** Social rejection has been shown to produce a number of different responses. The present study investigated the divergent effects of warmth and competence social rejections on people's subsequent affiliative responses and self-focus. Based on the need-threat model, the present study hypothesized that because warmth rejection threatens relational needs whereas competence rejection threatens efficacy needs, warmth rejection motivates people to restore their relational needs by affiliating with others more than competence rejection does, whereas competence rejection motivates people to restore their efficacy needs by focusing on the self more than warmth rejection does. Four studies found that warmth rejection motivated participants to be more interested in making new friends (Study 1), and perceive other people as being more sociable than competence rejection did (Studies 2, 3, and 4). Competence rejection made participants be more self-focused than warmth rejection did (Studies 3 and 4). Furthermore, when relational needs were boosted, the effect of warmth rejection on affiliation was eliminated, and when efficacy needs were boosted, the effect of competence rejection on self-focus was eliminated (Study 4). The present results indicated that it was the threatened relational needs that made warmth

rejection increase the affiliative responses, and that the threatened efficacy needs were responsible for the effect of competence rejection on self-focus. This study provided converging evidence that the effects of social rejection depend on the perception of why rejection occurs.

Keywords：Social rejection, Warmth, Competence, Affiliation, Self-focus

人工智能情感特质对人工智能威胁感知的影响机制研究

王紫祎[1] 何宁[1]（通讯作者）
1 陕西师范大学心理学院，西安，710062，通讯作者 E-mail： hening@snnu.edu.cn

摘 要 目的：立足于社会认同理论(social identity theory)与群际威胁理论（intergroup threat theory），本研究将人工智能作为与人类对应的外群体，探讨青年群体人工智能威胁感知的现状与影响机制，为解读当下人工智能类人恐惧现象提供实证研究依据。 方法：研究一提出人工智能威胁（AI Threats）的概念，并使用改编的人工智能消极态度量表（Negative Attitudes Toward AI Scale）对随机抽取 249 位 18-35 岁青年被试进行问卷调查，考察当前青年群体的人工智能威胁感知现状及人工智能接触(AI Exposure)与人工智能经验(AI Experience)对人工智能威胁感知的影响；研究二招募 115 位 18-35 岁被试，使用文字阅读材料分别启动个体对人工智能能力特质(Competence)与情感特质(Emotion)的认知，在控制个体人工智能接触与人工智能经验的条件下，验证人工智能情感特质引发更高人工智能威胁感知的假设；在此基础上，研究三引入感知相似性作为中介变量，探讨人工智能情感特质对人工智能威胁感知的影响路径。 结果：当前青年群体人工智能威胁感知水平偏低，人工智能接触、人工智能经验水平与人工智能威胁感知皆为显著正相关；在控制个体人工智能经验与人工智能接触的条件下，人工智能情感特质引发的人工智能威胁感知显著高于人工智能能力特质引发的人工智能威胁感知；感知相似性在人工智能情感特质对人工智能威胁感知的影响中起到完全中介作用。 结论：当前青年群体存在人工智能威胁感知，但整体水平偏低，并且个体越是熟悉人工智能，越不将其视为外群体威胁；相比人工智能超凡的思维与海量的知识，人工智能具有情感更令青年群体感到恐惧与威胁；当人工智能表现出较高的情感互动能力时，个体感到人工智能更加“类人化”，进而产生更强的群际威胁感知。

关键词 人工智能威胁，情感特质，感知相似性，群际威胁

Research on the Influence Mechanism of AI Emotional Traits on AI Threat Perception

Wang Ziyi, He Ning
(School of Psychology, Shaanxi Normal University, Xi’an, 710062)

Abstract： Object:Based on Social Identity Theory and Intergroup Threat Theory , this study takes artificial intelligence (AI) as an outgroup corresponding to human beings, and explores the current situation and influence mechanism of AI threat perception in youth groups, so as to provide empirical research for interpreting the phenomenon of AI humanoid fear at present. basis. Methods: Study 1 proposes the concept of AI Threats, and uses the adapted Negative Attitudes Toward AI Scale to conduct a questionnaire survey on 249 randomly selected young subjects aged 18-35 years old, to investigate the current status of AI Threats perception in the current youth group, and the relationship between AI Exposure and AI Experience on AI threat perception; Study 2 recruited 115 subjects aged 18-35 and used textual reading materials to activate individuals' perceptions of AI Competence and Emotion, respectively, to test the hypothesis that AI Emotion triggers higher AI threat perceptions, controlling for individual AI Exposure and AI Experience. Based on the results of Study 2, Study 3 introduces perceived similarity as a mediating variable to explore the influence path of AI emotional traits on AI threat perception. Results: The current young generation has a lower level of AI danger perception. AI exposure, AI experience level, and AI threat perception are all highly positively connected. Controlling for individual AI experience and AI exposure, Study 2 found that AI threat perceptions induced by emotional AI traits were much higher than AI threat

perceptions triggered by ability AI traits. Study3 obtains that perceived similarity plays a fully mediating role in the influence of AI emotional traits on AI threat perception. plays a fully mediating role. Conclusion: Although there is some AI threat perception among today's adolescent groups, it is generally low, and the more familiar they are with AI, the less they see it as a threat to other groups. For youth organizations, the existence of AI's emotions is more terrifying and dangerous than its incredible intelligence. People perceive an AI to be more "humanized" and more of an intergroup threat when it demonstrates higher emotional connection skills.

Keywords：AI Threats, Emotion trait, perceived similarity, intergroup threat

大学生人际不信任与关系攻击的纵向关系：从个体间差异中分离出个体内过程

杨玉川[1]　赵敏翔[1]　陈燕铃[1]　董妍[2]（通讯作者 1）夏凌翔[3]（通讯作者 2）

1 中国人民大学心理学系，北京，100872

2 中国人民大学心理学系，北京，100872，dong8958@126.com

3 心理与社会发展研究中心，西南大学，重庆，400715，xialx@swu.edu.cn

摘 要　近年来，校园欺凌事件频发，大学生的攻击行为已经成为社会关注的一个主要问题。中国文化强调维护社会和谐和积极的人际关系，直接的身体冲突是不被社会所接受的。因此，大学生可能采用隐蔽的，攻击他人人际关系的方式达到伤害他人的目的(即关系攻击)。此外，集体主义强调人际依赖的重要性。因此，关系攻击行为可能对受害者的伤害和影响更大。鉴于中国文化背景下关系攻击的有害性，探究大学生关系攻击的影响因素及其作用机制具有重要意义。根据一般攻击模型和有限的间接实证研究，人际不信任可能会对关系攻击产生影响。然而，目前并未有研究深入探讨人际不信任对关系攻击的影响及其内在机制。本研究基于 5 波纵向数据来探究人际不信任和社会攻击的纵向关系以及敌意归因偏向在这一关系中的中介作用。此外，分析方法上，本研究使用随机截距交叉滞后分析将个体内过程与稳定的个体间差异区分开来，其中个体内过程更能够说明变量间的因果关系。本研究从中国六个省的五所高校招募被试，最终有效被试为 1053 名本科生(女生占比为 64.3%；M_{age} = 19.45)，被试分别在 5 个时间点(间隔 6 个月)完成人际不信任、敌意归因偏向和关系攻击问卷。结果表明，在个体内水平上，大学生人际不信任能够显著正向预测关系攻击，而敌意归因偏向则中介了两者间的关系。本研究在个体内水平上揭示了人际不信任对关系攻击的影响，对制定科学干预措施以减少大学生关系攻击行为具有重要的实际意义。

关键词　人际不信任，关系攻击，敌意归因偏向，纵向数据

Longitudinal Associations between Interpersonal Distrust and Social Aggression during College: Disentangling the Within-person Process from Stable Between-person Differences

Yu-Chuan Yang[1], Min-Xiang Zhao[1], Yan-Ling Chen[1], Yan Dong[2], Ling-Xiang Xia[3]

[1] Department of Psychology, Renmin University of China, Beijing, 100872

[2] Department of Psychology, Renmin University of China, Beijing, 100872, dong8958@126.com

[3] Research Center of Psychology and Social Development, Southwest University, Chongqing, 400715, xialx@swu.edu.cn

***Abstract*：** In recent years, there have been frequent incidents of bullying in schools, and aggressive behavior among college students has become a major social concern. Chinese culture emphasizes the maintenance of social harmony and positive interpersonal relationships, and direct physical conflict is not socially acceptable. As a result, college students may use covert, attacks on others' interpersonal relationships for the purpose of harming others (i.e., relational aggression). In addition, collectivism emphasizes the importance of interpersonal

dependence. As a result, relational aggression may be more harmful and influential to the victims. Given the harmful nature of relational aggression in the Chinese cultural context, it is important to explore the influencing factors of social aggression among college students and its mechanism of action. Based on *the General Aggression Model* and limited indirect empirical studies, interpersonal distrust may have an effect on social aggression. However, there is no study examining the directionality of the relationship between interpersonal distrust and social aggression as well as its underlying mechanisms. The present study was based on 5 waves of longitudinal data to investigate the longitudinal relationship between interpersonal distrust and social aggression and the mediating role of hostile attributional bias in this relationship. In addition, analytically, this study used the random intercept cross-lagged panel model to disentangle within-person processes from stable between-person differences, where within-person processes are more indicative of causal relationships between variables. Participants were recruited from five universities in six provinces in China. Valid participants included 1053 undergraduate students (64.3% female; Mage = 19.45) who completed assessments of interpersonal distrust, hostile attribution bias, and social aggression at 5-time points, with 6-month intervals. Results indicated that at the intra-individual level, college students' interpersonal distrust significantly and positively predicted relational aggression, while hostile attribution bias mediated the relationship. The present study revealed the effects of interpersonal distrust on relational aggression at the within-person level, which has important practical implications for the development of scientific interventions to reduce relational aggression in college students.

Keywords：interpersonal distrust, relational aggression, hostile attribution bias, longitudinal data

突发灾厄下的黑白几枰

——心理距离对情感极化产生的链式中介效应

白麒钰[1]（通讯作者） 满运玖[1]

1 北京大学新媒体研究院，北京，100871，通讯作者 E-mail：baiqiyu_pku@163.com

摘 要 随着社交媒体所带来的自我隔离环境和“二极管效应”被越来越多地学者关注，社交媒体成为情感极化发生平台和重要的研究场域，社交媒体的使用与情感极化的发生息息相关。基于群际威胁理论和解释水平理论，群体暴露于突发危机事件中并感知到威胁距离的缩短会诱发情感极化等极端情境的发生。本研究选择 2022 年 12 月北京地区新冠肺炎疫情传播突然严重爆发、并且公众关于防疫政策产生大量意见争鸣的时间窗口，在这一研究语境下试图探寻：在非常规突发事件的背景下，民众的心理距离与其在群体行为中发生的情感极化之间的影响机制是怎样的？民众对于危机事件的风险感知和严重性预期如何影响心理距离与情感极化之间的关系？本研究收集有效问卷 1019 份（男性占比 41.6%，女性占比 58.4，平均年龄 32 岁）。研究发现：心理距离与情感极化负相关，心理距离越近则越容易产生情感极化；严重性预期与风险感知在心理距离与情感极化中起到链式中介作用，心理距离的缩小会增加个体对风险的严重性预期，进而增加个体感知到的风险，从而产生情感极化。时至今日，现代社会的复杂性在诸如风险社会的理论建构中再一次被凸显和放大，风险社会已经不再是社会学家认知现代性危机时所建构出来的后工业时代图景，而成为告别全球性猛进高歌时代后日常基本生活中的切实表征。对于非常规或不确定性因素，足以带来个体的意见表达差异与集体性的舆论争鸣，这与当今互联网社交媒体环境中的复杂社会意见生态存在着无比紧密的联系。这一研究为了解现代社会风险社会构建提供了实证支持，突显了社交媒体在塑造集体舆论争鸣中的重要作用，为理解社交媒体环境下复杂社会意见生态提供了新视角。这些发现有助于深化对群体心理动态和信息传播的理论认知，对于应对非常规事件时群体行为的预测与干预也具有重要参考价值。

关键词 心理距离，严重性预期，风险感知，情感极化，链式反应中介

Catastrophic Events and Emotional Polarization: The Chain Mediating Mechanism of Psychological Distance on Emotional Polarization

Qiyu Bai, Yunjiu Man
School of New Media, Peking University of China

Abstract：With the increasing attention of scholars to the self-isolating environment and "echo chamber effect" brought about by social media, it has become a critical platform and research field for emotional polarization. The use of social media is closely related to the occurrence of emotional polarization. Drawing on the Intergroup Threat Theory and Explanatory Level Theory, exposure of groups to sudden crisis events and the perceived shortening of threat distance can trigger extreme situations such as emotional polarization. In this study, we selected the sudden and severe outbreak of COVID-19 in Beijing in December 2022, during a time when there was a significant public debate on epidemic prevention policies, aiming to explore the impact mechanism between individuals' psychological distance and emotional polarization in group behavior during unconventional crisis events. Additionally, we investigated how individuals' risk perception and severity expectation of the crisis event influence the relationship between psychological distance and emotional polarization. We collected 1019 valid questionnaires for the study (41.6% male, 58.4% female, average age of 32 years). Our findings revealed a negative correlation between psychological distance and emotional polarization, with closer psychological distance associated with a higher likelihood of emotional polarization. Furthermore, we found that severity expectation and risk perception act as chain mediators in the relationship between psychological distance and emotional polarization. The reduction of psychological distance increases individuals' severity expectation of risk, thereby intensifying their perception of risk and leading to emotional polarization. In today's complex modern society, the theory of risk society has been highlighted and amplified, with risk society no longer confined to a post-industrial era construct by sociologists during the era of global advancement. Instead, it has become a tangible manifestation in daily life after bidding farewell to the age of rapid global progress. Unconventional or uncertain factors are sufficient to bring about differences in individual expressions of opinions and collective public debates. This is closely related to the complex social opinion ecology in today's internet and social media environment. Our study provides empirical support for understanding the construction of modern risk society, emphasizing the significant role of social media in shaping collective public debates, and offering new perspectives on comprehending the complex social opinion ecology in the context of social media. These findings contribute to a deeper understanding of group psychological dynamics and information dissemination, and have important reference value for predicting and intervening in group behavior during unconventional events.

Keywords：Unconventional crisis events, psychological distance, emotional polarization, chain mediation

道德认同与幽默感的关系：笑话中道德违背成分与社会心理距离的作用

范丽婷　孙炳海（通讯作者）
浙江师范大学心理学院，浙江金华，321004，jky18@zjnu.cn

摘 要　作为人际交往的润滑剂，幽默感在促进人际和谐方面起着重要作用。一般情况下，幽默感需要打破常规思维，而道德认同则强调对道德规范的维护。鉴于二者在规则的遵守方面存在一定差异，有研究者提出观点，即高道德认同会抑制个体表现出的幽默感，并得到实证研究的支持，但也有研究并未支持这一结果。良性冲突理论指出，如果将幽默刺激视为良性的，那么个体将会表现出较高水平的幽默感。结合已有研究，本研究认为道德违背成分和社会心理距离会影响个体对幽默刺激的良性判断，可能在道德认同影响幽默感的过程中起到调节作用。研究 1 采用问卷调查初步探究道德认同与幽默感之间的关系；研究 2 以笑话作为幽默刺激，采用 2（道德认同：激活、控制）×2（笑话类型：道德违背、非道德违背）混合实验设计，探究不同笑话类型下，道德认同对幽默感的影响；研究 3 聚焦于道德违背笑话，采用 2（道德认同：激活、控制）×2（社会心理距离：远、近）被试间实验设计，探究不同社会心理距离条件下，道德认同对幽默感的影响及其良性判断的中介作用。综合研究 1-3 的结果，本研究主要得出以下结论：（1）高道德认同者的总体幽默感较高，尤其是对积极、非道德违背的笑话。（2）高道德认同者对包含道德违背成分且对象为近社会心理距离的笑话会表现出较低的幽默感。（3）高道德认同降低幽默感成立时，是通过降低良性判断进而降低幽默感的。本研究明确提出高道德认同降低幽默感的条件以及心理机制，丰富了相关领域的现有研究，并为人际交往提供了一定的指导。

关键词　幽默感，道德认同，道德违背，社会心理距离，良性冲突理论

Moral identity and sense of humor: The role of moral violation component and social psychosocial distance in jokes

Liting Fan, Binghai Sun
School of Psychology, Zhejiang Normal University, Jinhua, 321004, Zhejiang, China

Abstract： As a lubricant for interpersonal communication, a sense of humor plays an important role in promoting human-human harmony. In general, a sense of humor requires a break from conventional thinking, while individuals with high levels of moral identity tend to behave in a conservative manner in order to maintain moral norms. Given the differences between the two in terms of rule adherence, some researchers have made the argument that high moral identity inhibits individuals from displaying a sense of humor, and this argument has been supported by empirical studies, but others have not supported this result. The benign violations theory states that if humorous stimuli are viewed as benign, individuals will exhibit higher levels of sense of humor. Based on previous research, this study argues that the moral violation component and social psychological distance affect individuals' benign judgment of humorous stimuli and play a moderating role in the process of moral identity affecting sense of humor. In study 1, questionnaire survey was used to explore the relationship between moral

identity and sense of humor. In study 2, a hybrid design of 2 (moral identity: activation and control) ×2 (joke type: moral violation and nonmoral violation) was adopted, in which moral identity was the inter-subject variable and sense of humor was the dependent variable. Study 3 only jokes containing moral violations were selected as humorous stimuli to explore the impact of moral identity on the sense of humor and its potential psychological mechanisms under different conditions of social psychological distance. In study 3, 2 (moral identity: activation and control) ×2 (social psychosocial distance: distance and proximity) was used as an inter-subject design, with sense of humor as the dependent variable and the cavalier humor beliefs as the mediating variable. Based on the guidance of the benign violations theory and the result of empirical test, this study mainly draws the following conclusions：(1) Individuals with high levels of moral identity have higher levels of sense of humor in general, especially for positive and nonmoral violation jokes. (2) If the joke contains a moral violation, and the target of the joke is proximity, the individuals with high levels of moral identity will show lower levels of sense of humor. (3) Individuals with high levels of moral identity will lower their sense of humor by lowering their benign judgment. This study clearly puts forward the conditions and psychological mechanisms of a level of high moral identity to reduce the level of sense of humor, which encircles the existing research in related fields and provides some guidance for interpersonal communication.

Keywords：sense of humor, moral identity, moral violation, social psychological distance, benign violations theory

字如其人：笔迹美感对书写者道德感知的影响

段妍[1]　　何先友[1]（通讯作者）

[1]华南师范大学心理应用研究中心，华南师范大学脑与认知教育科学重点实验室，华南师范大学心理学院，华南师范大学广东省心理健康与认知科学重点实验室，广州，510631，xianyouhe@163.com

摘 要　书法是中国传统文化的瑰宝，不仅是一种艺术表现形式，更是修身养性的重要载体。虽然从古至今，中国人经常将笔迹与人的品德修养联系在一起，强调在书法中体悟道德美，但是这个观念尚未得到实证研究的支持。因此，本研究旨在探索笔迹美与书写者道德感知之间的关系，以及这种关系背后的内在机制。

首先，实验 1 招募了 200 名被试，让他们评价 17 幅笔迹的美观程度和书写者的道德水平。结果显示，笔迹的美观程度可以显著正向预测书写者的道德评分。这表明人们会从他人的笔迹美感中进行道德推断。

为了进一步了解人们做出这种推断的最小时间条件。实验 2 操纵了不同美感笔迹的暴露时间。结果验证了实验 1 的发现，即人们会主观认为书写美的人更值得信赖。同时，在 100ms 后做出的道德判断与无时间限制的判断高度相关。这表明 100ms 的暴露时间足以形成对笔迹美的道德印象，后续暴露时间的延长提高了人们对道德判断的信心。

实验 3 和实验 4 旨在从内隐的角度考察人们对书法者的道德评价。实验 3 采用了经典的内隐联想范式（IAT）。结果发现，被试更多地将美的笔迹与高道德词汇联系，而将丑的笔迹与低道德词汇相联系。实验 4 为了排除 IAT 固有的方法局限性和书写者面孔的影响，采用了一种创新变体的反应启动范式，。实验 4 的结果显示，相比于中性条件，美笔迹图片启动高道德词的反应时更快。这进一步证明了在内隐条件下，人们会将笔迹美与道德高联系在一起。

最后，实验 5 考察了笔迹美与道德之间联结的内在机制。实验给被试呈现不同美感程度的笔迹，并让被试对书写者的道德和能力进行评分。结果发现，当美的笔迹与中性面孔配对时，道德和能力得分更高。此外，人们感知的能力在笔迹美感和道德感知之间起了中介作用。

综上，本研究为“字如其人”的中国传统书法理论提供了实证依据，验证了笔迹美感与道德之间密不可分的关系。这些发现进一步丰富和拓展了印象形成领域的研究，也为书法美育提供了相应的理论基础。

关键词　笔迹，审美，道德，能力，书法

The style is the man: The impact of Penmanship Aesthetics on Perceptions of the Writer's Morality

Yan Duan [a]　　Xianyou He [a]

a Center for Studies of Psychological Application, South China Normal University, Key Laboratory of Brain, Cognition and Education Sciences, Ministry of Education, South China Normal University, Guangzhou, People’s Republic of China; School of Psychology, South China Normal University, Guangzhou, People’s Republic of China; Guangdong Key Laboratory of Mental Health and Cognitive Science, South China Normal University, Guangzhou, 510631，xianyouhe@163.com

Abstract: Calligraphy, an esteemed facet of traditional Chinese culture, serves not only as an artistic expression

but also as a crucial medium for self-cultivation and moral refinement. Despite the longstanding association between handwriting and moral character in Chinese culture, this belief has yet to be validated through empirical inquiry. Therefore, this study aims to investigate the relationship between penmanship aesthetics and the perception of moral character in writers, along with the underlying mechanisms driving this association.

Experiment 1 involved 200 participants who evaluated the aesthetic appeal of 17 handwriting samples and the perceived moral character of the writers. Results revealed a significant positive correlation between handwriting aesthetics and ratings of moral character, suggesting that individuals tend to infer moral attributes from the aesthetic quality of others' handwriting.

To examine the minimum time required for making such inferences, Experiment 2 manipulated the exposure time of handwriting samples with varying aesthetic qualities. The findings replicated those of Experiment 1, with participants subjectively perceiving writers with beautiful handwriting as more trustworthy. Moreover, moral judgments made at 100ms after exposure significantly correlated with unrestricted judgments, indicating that a brief 100ms exposure time suffices to form moral impressions based on penmanship aesthetics, with prolonged exposure only increasing confidence in moral judgments.

Experiment 3 and Experiment 4 aimed to explore people's implicit moral evaluations of calligraphers. Experiment 3 employed a classic Implicit Association Test (IAT), revealing that participants associated beautiful handwriting with positive moral words and ugly handwriting with negative moral words. In Experiment 4, an innovative variant of the Response Priming paradigm was utilized to eliminate inherent IAT limitations and the influence of calligraphers' facial characteristics. Results indicated that under implicit conditions, participants associated beautiful handwriting with higher moral attributes through faster response times than in the neutral condition. It thereby confirms the link between penmanship aesthetics and moral character.

Finally, Experiment 5 delved into the underlying mechanisms connecting penmanship aesthetics and moral perception. Participants were presented with handwriting samples displaying varying degrees of aesthetics and asked to rate the moral character and competence of the writers. Findings revealed that when beautiful handwriting was paired with neutral faces, both moral and competence ratings were higher. Furthermore, the perception of competence acted as a mediator between penmanship aesthetics and moral perception.

In conclusion, this study provides empirical evidence supporting the traditional Chinese belief that "The style is the man." It validates the inseparable relationship between penmanship aesthetics and moral character, enriching and expanding research in the domain of impression formation, and offering a theoretical foundation for calligraphy education.

Keywords: Penmanship, Aesthetics, Morality, Ability, Calligraphy

获益不适感和道德义务感在人际关系与付出感知中的作用研究

刘玉昕[1] 王璇[1] 陈一冉[1] 谈欣[1] 陈迪[1] 陈文惠[1] 王士祺[1] 许筑媛[1] 赵珂冰[1] 周洁仪[1] 陈前[1] 吴明证[1]（通讯作者）

1 浙江大学心理与行为科学系，杭州，310058

通讯作者 E-mail：psywu@zju.edu.cn

摘 要 我们在生活中更愿意向熟人或朋友而非陌生人吐露心声、咨询建议或寻求帮助。尽管如此，对于获得的帮助我们有时候会感激陌生人甚于朋友，我们可能认为帮助我们是朋友应尽的义务，或为无需急于回报朋友的帮助。那么，人际关系是否影响着人们对他人帮助我们过程中付出的感知？为此，本研究探讨了人们对朋友和陌生人在帮助自己过程中付出感知的差异及其机制。共开展了三项研究：

研究一探讨了人们对陌生人和朋友帮助过程中的付出感知。结果发现，对于相同的帮助行为，与获得陌生人的帮助相比，人们对朋友在帮助过程中付出的感知较低；

研究二探讨了帮助类型对付出感知差异的影响。结果发现，人们在主动寻求帮助的情况下会感知到朋友的付出低于陌生人，但这一倾向在被动获得帮助的情况下并不存在；

研究三探讨了人们对付出感知差异的作用机制。结果发现，获益不适感在人际关系与付出感知中发挥着中介作用，与获得陌生人的帮助相比，人们对于朋友的付出体验到较低的获益不适感，由此导致较低的付出感知。此外，获益不适感在人际关系与付出感知关系中的中介作用受到道德义务感的调节，获益不适感的中介作用主要体现在那些认为朋友对于帮助自己有着较高道德义务感的个体身上，而在认为朋友对于帮助自己有着较低道德义务感的个体身上则不存在。

综上所述，本研究揭示了人们低估朋友付出这一现象，即当向他人寻求帮助时，人们对朋友在帮助过程中付出的感知低于陌生人。此外，在低估朋友付出感知这一现象中获益不适感发挥着中介作用，道德义务感发挥着调节作用。

关键词 人际关系，付出感知，获益不适感，道德义务感

Interpersonal relationship and perception of giving: A moderated mediation model

Liu Yuxin[1], Wang Xuan[1], Chen Yiran[1], Tan Xin[1], Chen Di[1], Chen Wenhui[1], Wang Shiqi[1], Xu Zhuyuan[1], Zhao Kebing[1], Zhou Jieyi[1], Chen Qian[1], Wu Mingzheng[1](Corresponding author)

1 Department of Psychology and Behavioral Sciences, Zhejiang University, Hangzhou, 310058

E-mail address: psywu@zju.edu.cn

Abstract: We prefer to express our feelings, seek advice or seek help from acquaintances or friends rather than strangers in our daily lives. However, we are sometimes more grateful for the help we receive from strangers than from friends, perhaps because we feel it is our friend's duty to help us, or because we are not eager to return the favour. Thus, do interpersonal relationships affect people's perceptions of what others give in the process of helping us? In response, the present study explores the differences in people's perceptions of giving in the process of helping themselves from friends and strangers and the underlying mechanisms. A total of three studies are

examined in the present study.

Study 1 investigates people's perceptions of giving in the process of helping from strangers and friends. The result reveals that people perceive less giving during helping from friends compared to getting help from strangers for the same helping behavior.

Study 2 examines the impact of different type of help in perceptions of giving. Results found that people perceive friends to be less giving than strangers in the context of proactively seeking for help, but this tendency does not exist in the context of receiving help passively.

Study 3 explores the mechanisms underlying the effect of differences in people's perceptions of giving. It is found that discomfort of benefit mediates the interpersonal relationship and perceptions of giving, which people experience lower discomfort of benefit for friends' giving compared to strangers', and results in lower perceptions of friends' giving. Furthermore, the mediating role of discomfort of benefit in the relationship between interpersonal relationships and perceptions of giving is moderated by the perception of moral obligation, with the mediating role of discomfort of benefit mainly found in individuals who perceive friends as having a higher moral obligation to help themselves, but not in individuals who perceive friends as having a lower moral obligation to help themselves.

In conclusion, the current study reveals that people underestimate the perception of giving from friends. For instance, when seeking help from others, people perceive friends as giving less than strangers in the process of helping. In addition, discomfort of benefits plays a mediating role and the perception of moral obligation plays a moderating role in the perception of underestimating friends' giving.

***Keywords*：** Interpersonal relationships, Perception of giving, Discomfort of benefit, Perception of moral obligation

越“反思”越“邪恶”——愤怒反刍对恶意创造力的激发作用

胡庆[1] 曾泽宇[1] 杜睿晨[1] 熊乐怡[1] 蒋雨珂[1] 刘海龙[1] 敬羚珠[1] 刘朝阳[2] 贡喆[1](通讯作者)

1 四川师范大学心理学院，成都，610066，zhegong@sicnu.edu.cn

2 四川师范大学国际教育学院，成都，610066

摘 要　恶意创造力(malevolent creativity, MC)的发生机制问题是该领域研究的关键。本研究基于一般攻击模型(General Aggression Model, GAM)认为愤怒反刍(anger rumination)可能是恶意创造力的核心前因变量。愤怒反刍即个体沉浸于愤怒情绪与愤怒经历，反复思考负性事件起因及后果的 “负性反思”状态。依据 GAM，有计划的攻击行为(如 MC)的产出有赖于个体对当前负性事件进行反复思考与加工，该过程与愤怒反刍近似。据此本研究试图验证愤怒反刍对恶意创造力的激发作用(假设 1)，并关注该激发作用是否借助创造力四阶段中的酝酿期生效(假设 2)。在此基础之上进一步检验不同类型愤怒反刍的作用(问题 1)及主要情绪调节手段抑制恶意创造力的有效性(问题 2)。本研究通过四个实验共招募 781 名被试检验以上假设与问题。实验一为单因素两水平(愤怒反刍组/控制组)被试间设计以检验假设 1，结果表明愤怒反刍可以显著促进恶意创造力。实验二为单因素五水平(愤怒反刍组/分心组/心智游移组/愤怒情绪组/控制组)被试间设计以检验假设 2，采用延时酝酿范式令被试在创造力酝酿期接受不同任务，结果表明与其余各组相比，愤怒反刍可以在酝酿期显著促进恶意创造力。实验三为 2(愤怒反刍特质：高/低)×3(愤怒反刍类型：体验性愤怒反刍/分析性愤怒反刍/控制组)被试间设计以检验问题 1，结果表明高愤怒反刍特质者恶意创造力水平更高；体验性愤怒反刍和分析性愤怒反刍均显著促进恶意创造力，不过二者激发恶意创造力的维度存在差异。实验四为单因素五水平(情绪调节方式：认知重评/表达抑制/宣泄/宽恕/愤怒反刍)被试间实验设计以检验问题 2，结果表明认知重评、表达抑制、宣泄和宽恕均显著降低恶意创造力，但抑制恶意创造力的维度与效果存在差异。综上，本研究发现愤怒反刍对恶意创造力具备重要的激发作用且该过程与创造力酝酿期有关，不同类别愤怒反刍的激发作用及主要情绪调节策略的抑制效果得以验证但功效存在差异。本研究结果有助于厘清恶意创造力的发生机制和干预手段问题，具备重要的理论和实践价值。

关键词　愤怒反刍，恶意创造力，酝酿期，情绪调节方式

The More "Reflection" the More "Evil": The Stimulating Effect of Anger Rumination on Malevolent Creativity

Hu Qing Zeng Zeyu Du Ruichen Xiong Leyi Jiang Yuke Liu Hailong Jing Lingzhu Liu Zhaoyang Gong Zhe
School of Psychology, Sichuan Normal University, Chengdu, zhegong@sicnu.edu.cn
School of International Education, Sichuan Normal University, Chengdu,

Abstract: The mechanism of malevolent creativity (MC) is the key to the research in this field. Based on the General Aggression Model, GAM), this study holds that anger rumination may be the core antecedent of malevolent creativity. Anger rumination is a state of "negative reflection" in which individuals are immersed in anger and anger experiences and repeatedly think about the causes and consequences of negative events. According to GAM, the output of planned aggression (such as MC) depends on the individual's repeated thinking and processing of current negative events, which is similar to anger rumination. Based on this, this study attempts to verify the stimulating effect of anger rumination on malevolent creativity (hypothesis 1), and pay attention to whether this stimulating effect takes effect with the help of the incubation period in the four stages of creativity (hypothesis 2). On this basis, we further test the effects of different types of anger rumination (question 1) and the effectiveness of the main emotional regulation means to inhibit malevolent creativity (question 2). In this study, 781 subjects were recruited through four experiments to test the above assumptions and problems. Experiment 1 was designed between subjects with one factor and two levels (anger rumination group/control group) to test hypothesis 1. The results showed that anger rumination could significantly promote malevolent creativity. In experiment 2, a single factor and five levels (anger rumination group/distraction group/mind wandering group/anger emotion group/control group) were designed between subjects to test hypothesis 2. The delayed incubation paradigm was used to make subjects accept different tasks during the incubation period of creativity. The results showed that anger rumination could significantly promote malevolent creativity during the incubation period compared with the other groups. Experiment 3 is a design of 2 (anger rumination trait: high/low) ×3 (anger rumination type: experiential anger rumination/analytical anger rumination/control group) between subjects to test question 1. The results show that people with high anger rumination trait have higher level of malevolent creativity; Both experiential anger rumination and analytical anger rumination significantly promote malevolent creativity, but there are differences in the dimensions of stimulating malevolent creativity. Experiment 4 is a single factor and five levels (approach of emotion regulation: cognitive reappraisal/expression inhibition/catharsis/forgiveness/anger rumination) experimental design between subjects to test question 2. The results show that cognitive reappraisal, expression inhibition, catharsis and forgiveness all significantly reduce malevolent creativity, but there are differences in the dimensions and effects of inhibiting malevolent creativity. To sum up, this study found that anger rumination has an important stimulating effect on malevolent creativity, and the process is related to the incubation period of creativity. The stimulating effect of different types of anger rumination and the inhibitory effect of main emotional regulation strategies have been verified, but the effects are different. The results of this study are helpful to clarify the mechanism and intervention means of malevolent creativity, and have important theoretical and practical value.

Keywords: anger rumination, malevolent creativity, incubation, approach of emotion regulation

谁是害群之马？社会困境情境下，群体成员身份对联想记忆的影响

张右[1]　王乔[1]　孙朔[1]　聂爱青[1]（通讯作者）
1 山西师范大学教育科学学院，太原，030000，nieaiq@126.com

摘 要　人们对来自同一群体的面孔有记忆优势。(a)以往文献关注到了群体成员身份对面孔项目记忆的影响，但鲜有文献关注到群体成员身份对面孔联想记忆的作用。(b)此外，有文献关注到不同互动身份可以与群体成员身份共同影响项目记忆，相比外群体，个体更容易记住群体内合作者（内群体偏好效应）；相比外群体，人们更容易记住群体内欺骗者（黑羊效应），但还没有文献考虑到不同互动身份和群体成员身份对联想记忆的影响(c) 先前的研究表明，刺激情绪可以影响联想记忆，但其模式是多种多样的:负性可以损害或改善联想记忆，而正性通常会促进联想记忆。本研究想探究面孔情绪是否调节不同互动身份和群体成员身份对联想记忆的影响。综上所述，本研究通过实验，探究在社会困境实验下，群体成员身份对个体联想记忆的影响。实验采用 2（群体成员身份：内群体，外群体）×3（互动身份：合作者、中立者、欺骗者）×3（面孔情绪：正性、中性、负性）×3（联想记忆：完整配对、重组配对、新面孔）的四因素被试内实验设计。因变量为联想任务的正确率和反应时。我们对实验进行如下预测：（a）群体成员身份主效应显著，内群体面孔正确率好于外群体面孔，支持社会分类理论(b)互动身份主效应显著，合作者和欺骗者面孔正确率好于中立者。支持社会契约理论。（c）情绪面孔主效应显著，正性和负性面孔正确率要好于中性（d）个体对内外群体中的不同身份（合作者、欺骗者和中立者） 的联想记忆是不一致的。相比外群体，对内群体的合作者，会产生内群体偏好效应。相比外群体，对内群体的欺骗者，会产生黑羊效应。（e）情绪能调节不同互动身份和群体成员身份对联想记忆的影响，对内群体的正性和负性面孔正确率更好。研究结果支持了社会分类和社会契约理论，为身份信息对联想记忆的研究提供了进一步的证据。
关键词　内群体，社会困境，联想记忆，面孔情绪，黑羊效应

Who is the Black Sheep? The Effect of Ingroup Membership on Associative Memory in a Social Dilemma

You Zhang1, Qiao Wang1, Shuo Sun1, Aiqing Nie1
1Faculty of Education, Shanxi Normal University, Taiyuan, 030000, China nieaiq@126.com

Abstract：People have a memory advantage for faces from their own group. (a) Previous literature has focused on the effect of ingroup membership on memory for faces, but little research has examined the role of ingroup membership on associative memory for faces. (b) Furthermore, some studies have looked at how different interactant behaviors can jointly influence item memory along with ingroup membership – individuals show better memory for ingroup members who were cooperators (ingroup bias) and ingroup members who cheated (black sheep effect) compared to outgroup members. However, no study has considered how different interactant behaviors and ingroup membership might affect associative memory. (c) Prior work shows that emotional stimuli can influence associative memory, but the patterns are mixed – negative emotions can impair or enhance associative memory while positive emotions tend to improve it. The present study seeks to investigate whether facial emotion modulates the effects of different interactant behaviors and ingroup membership on associative

memory.

In summary, this experiment examines the effect of ingroup membership on individuals' associative memory in a social dilemma game, using a 2 (group membership: ingroup, outgroup) × 3 (interactant behavior: cooperator, neutral, cheater) × 3 (facial emotion: positive, neutral, negative) × 3 (associative memory: intact pairs, rearranged pairs, new) mixed factorial design. The dependent variables were accuracy and reaction time on an associative memory task. We hypothesize that: (a) a main effect of group membership will emerge, with better accuracy for ingroup faces, supporting social categorization theory; (b) a main effect of interactant behavior, with better accuracy for cooperators and cheaters versus neutrals, supporting social contract theory; (c) a main effect of emotion, with better accuracy for positive and negative versus neutral faces; (d) individuals will show differential associative memory for different identities (cooperators, cheaters, neutrals) depending on ingroup vs outgroup status, with an ingroup bias for ingroup cooperators, and a black sheep effect for ingroup cheaters compared to outgroup members; (e) emotion will moderate effects of interactant behavior and group membership on associative memory, with even better accuracy for positive and negative ingroup faces. The results will provide further evidence for the effects of identity on associative memory, supporting social categorization and social contract theory.

Keywords：ingroup, social dilemma, associative memory, facial emotion, black sheep effect

社会阶层，幸灾乐祸与道德情境下儿童的亲社会行为

汪祚军[1] 汪雅梦[1] 魏颖[2] 张婷婷[2,3] 王霏[4](通讯作者) Kai Qin Chan[5]

1 河海大学公共管理学院，南京，211100

2 宁波大学心理学系，宁波，315211

3 南昌师范学院经济管理学院，南昌，330032

4 厦门大学新闻传播学院，厦门，361005，Feiwang@xmu.edu.cn

5 Department of Psychology, James Cook University, Singapore, 387380

摘 要：亲社会行为是儿童社会化和适应性的重要表现，良好的亲社会行为有利于儿童建立积极的社会关系，对儿童的健康发展具有重要作用。以往研究发现，社会阶层和儿童的亲社会行为之间的关系非常复杂，会受到多种因素的影响。本研究在不同的道德情境之下，通过探讨社会阶层和儿童的亲社会行为之间的关系，促进了对儿童道德发展的理解。研究一（N = 833）发现，当目标儿童追求消极的道德目标效价，然后遭遇不幸时，与低阶层儿童相比，高阶层儿童会产生更多的幸灾乐祸情绪，表现出更少的亲社会行为；当目标儿童追求积极的道德目标效价，然后遭遇不幸时，不同阶层的儿童所表现出来的亲社会行为并未产生显著差异。目标儿童的道德目标效价在这一过程当中起调节作用。研究二（N = 389）的目的是探索幸灾乐祸情绪的前置因素，即高阶层儿童所表现出来的高水平幸灾乐祸是否是由对目标儿童遭遇不幸的更低的共情反应或更高的应得性感知所驱动的。结果显示，社会阶层通过应得性感知和幸灾乐祸情绪对亲社会行为产生了影响，但是社会阶层无法通过影响被试的共情，进而对幸灾乐祸情绪以及被试的亲社会行为产生影响。这些结果共同揭示了社会阶层这一宏观的社会情境因素对儿童道德判断、道德情感和道德行为发展的影响。

关键词：社会阶层，幸灾乐祸，共情，应得性感知，亲社会行为

Social class, Schadenfreude, and Children's Prosocial Behavior in Moral Contexts

Zuo-Jun Wang[1] Ya-Meng Wang[1] Ying Wei[2] Ting-Ting Zhang[2, 3] Fei Wang[4] Kai Qin Chan[5]

[1]School of Public Administration, Hohai University, China

[2]Department of Psychology, Ningbo University, China

[3] Institute for Tourism Studies and Economic Managent, Nanchang Normal University, China

[4]Department of Advertising, Xiamen University, Xiamen, China

[5]Department of Psychology, James Cook University, Singapore

Correspondence may be addressed to: Fei Wang (Feiwang@xmu.edu.cn)

Abstract: Past research has found a mixed relation between social class and children's prosocial behavior. The current research advances the understanding of these findings by examining the relation between social class and children's prosocial behavior in moral context. Study 1 (N = 833) found that when a target child pursued a morally negative goal and then suffered misfortune, higher class children, compared to lower class children, experienced higher schadenfreude and acted less prosocially, and the relation is mediated by schadenfreude. Study 2 (N = 389) examined whether the higher schadenfreude of high class children was driven by weaker empathic response to the misfortune or a higher sense of deservingness. The results showed a sequential mediation effect of social class on

prosocial behavior through deservingness and schadenfreude. The findings shed light on the effect of social class on the development of children's moral judgment, emotion, and behavior.
Keywords：social class, schadenfreude, empathy, deservingness, prosocial behavior

性别偏格影响同伴评价的动态演化机制

温芳芳[1] 赵峰[1] 方泽鸣[2] 柯文琳[1] 佐斌[3]（通讯作者）

1 华中师范大学心理学院暨社会心理研究中心，武汉，430079

2 上海交通大学, 医学院, 精神卫生中心▪心理和行为科学研究院, 上海 20030

3 中山大学心理学系，广州，510006，通讯作者 Email: zuobin@mail.sysu.edu.cn

摘要 性别偏格的同伴评价是个体对社会认知对象进行心理决策的连续过程。对于人们头脑中的性别一致（包括性别偏格）的内容，可以通过建立规范化的特征判别的数学表征来实现对刻板印象内容的“逼近”。通常采用一个或一组词来代表某种性别规范一致或不一致。从性别一致的内容看，出生时人们对某个特质词描述对象是男性或女性一无所知，随着在社会生活中经历描述男性和女性特质词语情况的增加，人们就形成了某个特征词与某个性别联系程度的模板，这就是性别相符的学习过程，这一学习过程能够采用基于模型的强化学习范式进行模拟。本研究通过系列实验基于强化学习框架的社会学习理论是否能够解释性别偏格对同伴评价的影响。结果发现，随着无意义符号与性别的关联频率增加，人们对具有该特质的男性或女性的接受度也逐渐增加；人们的接受程度也随着关联频率的反转迅速反转，表明无意义符号与性别的关联频率变化的确会显著影响接受度；利用有意义的真词反转频率后，接受度也出现了与频率相一致的变化，但其变化幅度明显小于无意义符号；男女基本属性特质词起到了关键作用，随着特质关联频率的反转，接受度也会随之发生变化。这些发现对于使用基于模型的强化学习模拟对性别偏格同伴评价的原型形成的揭示具有重要意义。

关键词 性别偏格，强化学习，基本属性，计算模型，刻板印象

The dynamic evolutionary mechanism of gender nonconformity affecting peer evaluation

Wen Fangfang[1] Zhao Feng[1] Fang Zeming[2] Ke Wenlin[1] Zuo Bin[3] (corresponding author)

1 School of Psychology and Center for Studies of Social Psychology, Central China Normal University, Wuhan 430079, China

2Shanghai Jiao Tong University, School of Medicine, Center for Mental Health, Institute of Psychological and Behavioral Sciences, Shanghai 20030, China

3 Corresponding author: zuobin@mail.sysu.edu.cn, Department of Psychology, Sun Yat-sen University, Guangzhou 510006, China

Abstract **：** Gender nonconformity on peer evaluation is a continuous process in which individuals make psychological decisions about social cognitive objects. For the content of gender consistency (including gender nonconformity) in people's minds, we can achieve the "approximation" of stereotype content by establishing standardized mathematical representation of feature discrimination. A word or group of words is usually adopted to represent a certain gender norm agreement or inconsistency. In terms of the content of gender conformity, people at birth have no idea whether a trait word describes male or female. With the increase in the number of words describing male and female traits in social life, people form a template for the degree of association between a trait word and a certain gender. This is the learning process of gender conformity. This learning process can be simulated using a model-based reinforcement learning paradigm. This study conducted a series of experiments on whether social learning theory based on reinforcement learning framework can explain the influence of gender bias on peer evaluation. The results show that as the frequency of gender association increases, people's acceptance of male or female with this trait also increases. People's acceptance also rapidly reversed with the reversal of

association frequency, indicating that the change of association frequency between meaningless symbols and gender will significantly affect the acceptance; After using meaningful true words to reverse the frequency, the acceptability also changed in accordance with the frequency, but the range of change was significantly smaller than that of meaningless symbols; The basic attribute trait words of men and women played a key role, and with the reversal of trait association frequency, the acceptability would also change. These findings have important implications for uncovering the archetypal formation of gender nonconformity peer evaluations using model-based reinforcement learning simulations.

Keywords：Gender nonconformity, reinforcement learning, basic attributes, computational models, stereotypes

风度翩翩与朴实无华：科学领域中的外貌刻板印象及其可变性的心理机制

朱小燕[1] 刘雯萱[1] 于钊[1] 康艺馨[1] 张维[1]（通讯作者）
华南师范大学心理学院，广州，510631，psycheungwai@163.com

摘 要 面孔吸引力具有分类线索的功能并能产生相应的刻板印象，已有研究发现，人们会对那些看起来有能力、有道德且有吸引力的科学家的研究内容更加感兴趣。前人研究虽然探讨了面孔信息与科学传播的关系，但是没有解决面孔吸引力如何塑造大众对不同领域科学家的刻板印象的问题。基于此，本研究将通过6个行为实验，从面孔吸引力的角度对科学领域中存在的面孔刻板印象以及这一刻板印象背后的心理机制进行探究。研究一分别采用自由联想（实验1a）和主观猜测范式（实验1b）初步探讨人们对不同科学领域的科学家是否存在不同的外貌–科学刻板印象。结果发现，自由联想任务下，人们对社会科学家外貌特征的描述词偏向于高吸引力的外貌描述词,但这一效应在主观猜测任务中被削弱，结果提示外貌–科学刻板印象更可能存在于内隐层面。研究二采用经典内隐联想测验（IAT,实验2a）和单类内隐联想测验（SC-IAT，实验2b）检验上述效应，结果发现人们更自动化地将高吸引力面孔与社会科学家联结，将中等吸引力面孔与自然科学家联结。研究三进一步探讨外貌–科学刻板印象的心理机制。在句子迫选任务（实验3a）中，人们倾向于将中等吸引力面孔和与“人”相关程度较低的标题相配对、将高吸引力面孔和与“人”相关程度较高的标题配对，但是这种倾向只存在于自然科学领域中。但在更为内隐的句子生成任务（实验3b和3c）中，无论是在社会科学领域还是自然科学领域，更高吸引力的特征词和与“人”相关程度更高的研究内容，更容易出现在同一个句子中，即科学家研究内容的与“人”相关程度的高低能在内隐层面影响人们对科学家外貌的刻板印象。上述结果表明，人们对科学家存在一种自动化的外貌–科学刻板印象，这一刻板印象产生的心理机制与不同学科领域研究内容有关，且这一刻板印象具有可变性，会随着研究内容的变化而发生改变。
关键词 面孔吸引力，外貌–科学刻板印象，刻板印象可变性

Elegant and unpretentious: The psychological mechanisms of appearance stereotype and its changeability in science

Xiaoyan Zhu[1] Wenxuan Liu[1] Zhao Yu[1] Yixin Kang[1] WeiZhang[1]
School of Psychology, South China Normal University, Guangzhou, 510631,
psycheungwai@163.com

Abstract: Facial attractiveness has the function to trigger categorical cues and generate stereotypical impressions. Previous studies have found that people are more interested in the research of scientists who appear competent, ethical and attractive. However, there still remains an open issue that how facial attractiveness shapes the stereotypical impressions of scientists in different fields. This present study aims to investigate the face stereotype in different fields of science and the underlying psychological mechanisms through 6 experiments. Study 1 used free association (Experiment 1a) and subjective guessing paradigms (Experiment 1b) to explore whether people hold different appearance-scientific stereotype in different scientific domains. The results revealed that in the free association task, people tended to use attractiveness-related terms to describe social scientists, but this effect was weakened in the subjective guessing task, suggesting that the appearance-scientific stereotype might be more implicit. Study 2 employed the Implicit Association Test (IAT, Experiment 2a) and Single-Category Implicit Association Test (SC-IAT, Experiment 2b) to examine this stereotype. The results showed that participants

associated highly attractive faces with social scientists, and associated moderately attractive faces with natural scientists more easily. Study 3 further explored the psychological mechanisms underlying the appearance-scientific stereotype. In the sentence completion task (Experiment 3a), participants tended to combine highly attractive faces with titles were highly relevant to human only in the natural sciences. In the more implicit sentence generation tasks (Experiments 3b and 3c), we found high-attractive traits and research content with stronger "human" relevance were more likely to appear in the same sentence in both social and natural science domains. The results indicate that people have an implicit appearance-scientific stereotype of scientists, and the underlying mechanisms of this stereotype are related to specific disciplinary research content.

Keywords: facial attractiveness, appearance-scientific stereotype, the changeability of stereotype

环保宣传主体与时间维度

对亲环境态度和行为意愿的影响

吉楠楠[1]　曾好豪[1]　李尚仪[1]　刘佩佩[1]　张维[1]（通讯作者）

华南师范大学心理学院，广州，510631，psycheungwai@163.com

摘 要　生态问题的日益严重使得亲环境行为成为环境心理学的研究热点，已有研究发现，以图片海报的形式将生态环境问题进行可视化对个体的亲环境行为产生的影响存在不同的结果，这可能与不同人群的亲环境行为与环保动机不同、个体的自我参照类型不同、宣传内容及其形式等因素密切相关。基于此，本研究将通过 4 个实验探讨中国人的亲环境动机偏好及其在不同的环保宣传主体和时间维度上对人们亲环境态度和行为意愿的影响。实验 1 通过动机启动范式探讨中国人的亲环境动机类型。结果发现，在“以人为中心”的环保宣传组中，被试的亲环境态度和行为意愿显著高于“以生态为中心”的环保宣传组，说明中国人持有的亲环境动机主要是“以人为中心”的。实验 2 基于“以人为中心”的环保宣传海报，考察宣传海报对不同类型被试（有子女与无子女）的亲环境意识的影响。结果发现，已婚有子女被试在环保宣传海报强调对后代的负面影响时产生了明显的子女参照效应，从而引发了更为强烈的亲环境动机与行为意愿。实验 3 通过在传达不环保的负面影响（损失框架，实验 3a）和强调环保的积极影响（获益框架，实验 3b）的环保宣传文字材料中强调不同主语和环保问题出现的未来时间点，考察其是否会影响未婚无子女人群的亲环境意识。结果发现，对于未婚无子女人群，通过强调距离未来时间点远的环境问题与对自身的危害，或强调距离未来时间点近的环境问题与对后代的危害可以明显引发未婚无子女人群的亲环境动机与意愿，且这种效应在强调损失的框架下更为明显。基于研究结果，本研究提出在进行环保宣传和环境教育时，可以注意面对不同人群选取相应的环保宣传内容；此外，通过重点展示环境问题对人类社会的消极影响有助于提升人们的环保意识。

关键词　环保宣传，宣传主体，时间维度，亲环境态度，亲环境行为意愿

The impact of subject and time dimension on pro-environmental attitudes and behavioral willingness in environmental publicity

Nannan Ji, Haohao Zeng, Shangyi Li, Peipei Liu, Wei Zhang

School of Psychology, South China Normal University, Guangzhou, 510631

Abstract：　The increasingly serious ecological problems have made pro-environmental behavior a hot topic in environmental psychology researches. Previous studies have shown that visualizing environmental issues has different effects on the pro-environmental behavior, which may be closely related to a series of factors such as the pro-environmental behavior and environmental motivation of different population groups, different types of individual self-reference, and the content and form of publicity. Therefore, this present study aims to investigate the pro-environmental motivation of Chinese people, and the corresponding impact of different types of subject and temporal dimensions in the publicity for environmental protection on the attitudes and behavioral intentions

towards environment. Experiment 1 used the motivational priming paradigm to explore the types of pro-environmental motivation among Chinese people. The results found that the scores of pro-environmental attitudes and behavioral intentions were significantly higher in the “human centered” environmental publicity group than those in the “ecological centered” environmental publicity group. These results indicated that the pro-environmental motivation held by Chinese people is mainly based on “human centered”. Experiment 2 investigate whether different kinds of “human centered” environmental publicity poster can elicit different kinds of reference effects and affect the pro-environmental awareness of people with or without children. The results revealed that people with children showed a significant child-referencing effect when the environmental posters emphasized the negative impacts on future generations and led to stronger pro-environmental motivation and behavioral intention. Experiment 3 aimed to examine whether emphasizing different affected populations in different future time points in the environmental publicity texts conveying negative impacts of non-environmental protection (loss frame, Experiment 3a) and positive impacts of environmental protection (gain frame, Experiment 3b) would affect the pro-environmental awareness of people without children. The results revealed that for unmarried childless people, emphasizing environmental issues and their personal harm occurring at a distant future time point or the harm to future generations occurring at a near future time point significantly triggered pro-environmental motivation and intentions. Furthermore, this effect was more obvious in the loss frame. Taken together, this study proposes that we can select corresponding environmental promotion content for different groups of people. Additionally, highlighting the negative impacts of environmental issues on human society can help enhance people's environmental awareness.

Keywords **:** environmental publicity, publicity subject, time dimension, pro-environmental attitude, pro-environmental behavioral willingness

性别刻板印象提升人们对人工智能机器人的接受度

朱澄铨[1] 王琛瑀[1] 佐斌[1]（通讯作者）

1 中山大学心理学系，广州，510006，通讯作者 E-mail：zuobin@mail.sysu.edu.cn

摘 要 人工智能机器人正在融入人类社会，深入理解人们对人工智能机器人的看法有利于指导人工智能机器人的开发和利用。通常认为人工智能机器人具有一定的能动性，缺乏体验性。感知体验性的缺乏在一定程度上导致了人们对机器人的消极态度。本研究旨在探索性别刻板印象在其中的作用。研究一采取被试间设计，向参与者分别呈现男性、女性、无性别人工智能机器人，结果显示相比无性别人工智能机器人，男性人工智能机器人被评估为更有能力，女性人工智能机器人被评估为更热情，感知到的能力正向预测了人们对人工智能机器人的消极态度，而感知到的热情负向预测了人们对人工智能机器人的消极态度。研究二采取被试间设计，分别向参与者呈现承担与性别刻板印象一致和不一致工作的人工智能机器人（例，一致：客服女性机器人；不一致：程序员女性机器人），在刻板一致的条件下参与者更喜欢该类型的人工智能机器人，认为其更可靠并且表达了更高的使用意愿，在不一致的条件下参与者的消极态度更明显，使用意愿也较低。总体上，研究结果表明性别刻板印象适用于人机交互领域之中，人们以推定人类类似的方式对机器人做出推定，合适的性别角色设计有助于增加人们对于人工智能机器人的接受度。但是需要注意的是，这种类推有可能进一步加强人们的性别刻板印象。

关键词 性别刻板印象，人工智能机器人，能力，热情，消极态度

Gender Stereotypes Promote Acceptance of Artificial Intelligence Robots

ZHU Chengquan, WANG Chenyu, ZUO Bin

Department of Psychology, Sun Yat-sen University, Guangzhou.

***Abstract*：** Artificially intelligent (AI) robots are increasingly integrating into human society, and understanding people's perceptions of AI robots is essential for guiding AI robots' development and utilization. People often perceive AI robots as lacking experientiality, despite having a certain degree of mobility. This perceived lack of experientiality contributes to negative attitudes toward robots. This study aimed to explore the role of gender stereotypes in shaping these perceptions. In Study 1, a between-subjects design was used, presenting participants with male, female, and genderless AI robots. The results showed that compared to genderless AI robots, male AI robots were assessed as more competent, while female AI robots were assessed as warmer. Perceived competence positively predicted negative attitudes toward AI robots, whereas perceived warmth negatively predicted negative attitudes toward AI robots. In Study 2, a between-subjects design was employed, presenting participants with AI robots assigned jobs that were either consistent or inconsistent with gender stereotypes (e.g., consistent: a female customer service robot; inconsistent: a female programmer robot). In the stereotype-consistent condition, participants preferred the AI robot, perceived it as more reliable, and expressed a higher willingness to use it. Conversely, in the inconsistent condition, participants' negative attitudes were more pronounced, and willingness to use was lower. In summary, the results suggest that gender stereotypes are applicable in the field of human-robot interaction, where people make assumptions about robots similar to those of

humans. Designing AI robots with appropriate gender roles can increase people's acceptance of them. However, it is crucial to acknowledge that this approach may further reinforce gender stereotypes in daily life.

Keywords: Gender Stereotype, Artificially Intelligence Robots, Competence, Warmth, Negative Attitudes

社会经济地位与经济不平等对自恋的双重作用

李橦 1 杜洪飞 2（通讯作者）
1 北京师范大学文理学院，珠海，519000
2 北京师范大学人文和社会科学高等研究院，珠海，519000，hongfeidu@bnu.edu.cn

摘要 等级计量理论(the hierometer theory)认为，自恋的功能是反映个体的社会地位。人们的社会地位越高，就越自恋。这一理论强调了个体的社会地位对自恋的影响，但是，忽略了环境因素对自恋的影响。本研究认为，自恋不仅仅由个体的社会经济地位所决定，并且受环境的经济不平等程度所决定。同时，基于能动型-共生型自恋模型，人们受不同动机驱动来满足自我提升需要，因而，自恋可区分为能动型自恋（通过提高自身竞争力）和共生型自恋（通过增强利他性）。本研究分别检验了社会经济地位和经济不平等对能动型自恋和共生型自恋的双重预测作用。为了回答这一问题，本研究使用美国的大样本居民数据,考察社会经济地位和经济不平等对自恋的双重预测作用。被试是来自美国 51 个州（包括华盛顿特区）的 46,745 名居民，报告了他们的能动型自恋和共生型自恋的水平。我们使用多层线性模型进行数据分析，探究个体层面变量——社会经济地位、州层面变量——经济不平等对两种自恋的双重预测作用。结果发现：针对能动型自恋而言：（1）社会经济地位越高，人们的自恋水平越高；（2）经济不平等程度越高，人们的自恋水平越高；（3）经济不平等与社会经济地位的交互效应不显著。针对共生型自恋而言：（1）社会经济地位越高，人们的共生型自恋水平更高；（2）经济不平等的主效应不显著；（3）经济不平等与社会经济地位的交互效应不显著。本研究部分支持了我们的假设，即对于能动型自恋而言，社会经济地位和经济不平等对自恋有双重预测作用。但是，我们没有发现经济不平等对共生型自恋的预测作用。未来研究可以采用实验方法，进一步探究社会经济地位和经济不平等对自恋的因果效应。

关键词 经济不平等，社会经济地位，能动型自恋，共生型自恋

Both High Inequality and High SES boost narcissism?

Tong Li[1], Du Hongfei[2]
1 Faculty of Arts and Sciences, Beijing Normal University, Zhuhai, China, 519000
2 Institute of Advanced Studies in Humanities and Social Sciences, Beijing Normal University, No.18 Jinfeng Road, Xiangzhou District, Zhuhai, China, 519000

Abstract: According to the hierometer theory, the function of narcissism is to reflect one's social status. People from higher social status are more narcissistic. This theory emphasizes the effect of social status at the individual-level on narcissism, but ignores the effect of social environmental variables on narcissism. This study suggests that narcissism is not only determined by an individual's socioeconomic status, but also by economic inequality in the social environment. Meanwhile, agentic-communal narcissism model suggests that narcissism can be separated into two subtypes: agentic narcissism (self-enhance in the agentic domain) and communal narcissism (self-enhance in the communal domain). This study examined the predictive effects of socioeconomic status and economic inequality on agentic and communal narcissism respectively, utilizing a large samples of residents in the United States. The participants, 46,745 residents from 51 U.S. states (including Washington, D.C.), have reported their agentic and communal narcissism. We used a hierarchical linear model to explore the dual predictive effect of socioeconomic status at individual-level and economic inequality at state-level on the two subtypes of narcissism. The results showed that, in terms of agentic narcissism: (1) high SES people showed more agentic narcissistic tendency; (2) high economic inequality enhances agentic narcissism; (3) the interaction effect of economic inequality and socioeconomic status is not significant. And in terms of communal narcissism: (1) high SES people

showed more communal narcissism; (2) the main effect of economic inequality is not significant; (3) the interaction effect of economic inequality and socioeconomic status is not significant. This study partially supports our hypothesis that for the agentic aspect, both socioeconomic status and economic inequality are predictors of narcissism. However, we found no effect of economic inequality on communal narcissism. Future studies are expected to use experimental methods to further explore the causal effects of socioeconomic status and economic inequality on narcissism.

Keywords: economic inequality, socioeconomic status, agentic narcissism, communal narcissism

帮助者对受助意愿的预测偏差及其机制研究

谈欣[1] 赵佳慧[1] 陈迪[1] 王璇[1] 刘玉昕[1] 王士祺[1] 赵珂冰[1] 陈文惠[1] 周洁仪[1] 许筑媛[1] 吴明证[1]（通讯作者）

1 浙江大学心理与行为科学系，杭州，310058

通讯作者 E-mail：psywu@zju.edu.cn

摘 要 在帮助行为中，帮助者会对受助者寻求帮助的意图、动机，以及受助者获得帮助后对其感激程度等出现预测偏差(prediction bias)。出现这一偏差的可能原因在于帮助者的自我中心思维，以及帮助者和受助者在信息可及性方面的差异。本研究聚焦于受助者接受主动帮助的意愿（即“受助意愿”），探讨帮助者认为受助者愿意接受自己主动帮助的程度，与受助者实际感知到的意愿程度是否相符，即帮助者对受助意愿的预测是否出现偏差，并根据我国文化背景下的人情与面子模型，对帮助者预测偏差的限定条件及作用机制进行探讨。为此，本研究共开展了四项研究：

研究一以受助者接受主动帮助的意愿，主动帮助对帮助者的印象评价以及对双方人际关系的影响为出发点，探究帮助者是否存在对受助者接受主动帮助意愿的预测偏差。结果发现，相比受助者，帮助者会低估受助者接受主动帮助的意愿，低估主动帮助对自己的印象评价以及双方人际关系的积极影响。

研究二在研究一发现的基础上探讨旁观者作为潜在帮助者是否存在对受助意愿的预测偏差。结果发现，旁观者同样会低估受助者接受主动帮助的意愿,验证了研究一的发现。

研究三包含 2 项研究，探讨关系类型对帮助者预测偏差的影响。结果发现，帮助者的预测偏差主要存在于双方关系一般的条件下，当帮助者和受助者双方关系一般时，帮助者会低估受助者接受主动帮助的意愿，以及受助者对于接受主动帮助的积极情绪反应。

研究四进一步探究帮助者对受助意愿的预测偏差背后的作用机制。研究发现，面子顾虑-受助不适感在其中起到链式中介作用，帮助者会高估主动帮助对于受助者的面子影响，高估由此给受助者带来的不适感，进而低估受助者接受主动帮助的意愿。

综上所述，本研究验证并探究了帮助者存在对受助意愿的预测偏差，这一预测偏差存在跨情境和跨角色的稳定性，且通常发生于双方彼此不熟悉，关系一般的情况下，面子顾虑-受助不适感在这一现象中起到链式中介作用。

关键词： 主动帮助；关系；面子顾虑；帮助者；受助者

Helper’s prediction bias on recipient’s willingness to accept proactive helping and its mechanism

Xin Tan[1] Jiahui Zhao[1] Di Chen[1] Xuan Wang[1] Yuxin Liu[1] Shiqi Wang[1] Kebing Zhao[1] Wenhui Chen[1] Jieyi Zhou[1] Zhuyuan Xu[1] Mingzheng Wu[1]

1 Department of psychology and behavioural sciences, Zhejiang University

***Abstract*：** In helping behavior, the helper may have a prediction bias about the recipient's intention and motivation to seek help, and the recipient's appreciation for the help. The possible reasons for this bias are the egocentric thinking of the helper and the difference in information accessibility between the helper and the

recipient. This study focuses on recipients' willingness to accept unsolicited help, and examines whether the extent to which helpers perceive recipients to be willing to accept their unsolicited help matches the extent to which recipients actually perceive their own willingness, which means whether there exists helper's prediction bias on recipient's willingness to accept proactive helping. The study also explored the constraints and mechanisms underlying the bias by using the Favor and Face model in Chinese culture. To this end, four studies were conducted in this study:

Study 1 explored whether this phenomenon exists that helper have prediction bias about recipients' willingness to accept proactive help. The recipient's willingness to accept proactive help, the impression evaluation of the helper and the effect on the interpersonal relationship between the two parties were used as dependent variables. The results found that helpers underestimated recipients' willingness to accept proactive help, the positive impact of proactive help on their impression, and the positive impact on their interpersonal relationship.

Study 2 used school contexts to test the stability of the phenomenon across contexts, and potential helpers (bystanders) to test the stability of the phenomenon across roles. The dependent variable was the same as in Study 1. The results validated the findings of Study 1 that bystanders similarly underestimate recipients' willingness to accept proactive help. The findings of Study 1 were validated.

Study 3 consisted of two studies that explored the variation in the findings of Study 1 and Study 2 across relationship types, using recipients' willingness to help and recipients' emotion to help as dependent variables, respectively. Result shows that the helper's prediction bias was mainly found in the condition of acquaintance relationship. That means, the helper underestimated the recipient's willingness to accept proactive help and the recipient's positive emotional response to accepting proactive help when the relationship between the helper and the recipient was acquaintance.

Study 4 further investigated the underlying mechanisms behind the bias in helpers' predictions of willingness to help. It was found that the face concern and recipient discomfort mediate this, with helpers overestimating the face impact of proactive help on recipients, overestimating the resulting discomfort, and thus underestimating recipients' willingness to accept proactive help.

In summary, this study verified and explored the existence of a prediction bias in helper predict the recipient's willingness to help, which is stable across contexts and roles and usually occurs when the parties are unfamiliar with each other and the relationship is acquaintance, with the face concern and recipient discomfort acting as a mediator in this chain.

Keywords：Proactive help; Guanxi; Face concern; Helper; Recipient

对话中的回忆视角对集体记忆的作用

郭倩琳[1]　管健[2]

1 广东警官学院公共管理系, 广州 510230

2 南开大学周恩来政府管理学院社会心理学系, 天津 300350

摘 要　通过记忆对话恢复集体记忆信息，是人们试图复刻事件最初画面的重要方式之一。记忆对话过程又总是伴随着不同的回忆视角，人们对集体记忆信息的恢复是否受到不同记忆视角的作用？本研究设计 3 个实验考察这一问题，其中实验 1 采用 2(激活视角: 第一人称视角 vs 第三人称视角)×2(时间: 前测 vs 后测)两因素混合实验设计，探讨在记忆对话中激活视角互斥框架对集体记忆的作用；实验 2 采用 2(激活视角占比: 第一人称视角 vs 第三人称视角 = 1/3 vs 2/3)×2(时间: 前测 vs 后测)两因素混合实验设计，探讨视角互补框架对集体记忆的作用；实验 3 采用 2(激活视角顺序: 先一后三 vs 先三后一)×2(时间: 前测 vs 后测)两因素混合实验设计，探讨视角转换顺序对集体记忆的作用。结果显示：视角互斥框架下，第一人称视角回忆会减少参与者之间集体记忆的共同记住项目，第三人称视角回忆会增加参与者之间集体记忆的共同记住项目数；视角互补框架下，第一人称视角占比较多会减少参与者之间集体记忆共同记住的项目；且先采用第一人称视角可使参与者之间集体记忆共同记住项目数减少，但首先激活第三人称视角不会产生这一现象。鼓励个体在记忆对话中采用相应的回忆视角框架，有助于恢复记忆对话中更多的集体记忆信息。

关键词　集体记忆，记忆对话，回忆视角

Effects of memory perspective in memory conversation on collective memory

GUO Qianlin[1], GUAN Jian[2]

1 Department of Public Administration, Guangdong Police College, Guangzhou 510230, China

2 Zhou Enlai School of Government, Nankai University, Tianjin 300350, China

Abstract：The reconstruction of collective memory information through memory conversation is one of the important ways that people try to recreate the original picture of an event. The process of memory conversation is always accompanied by different memory perspectives. Is the recovery of collective memory information influenced by different memory perspectives? This study examined the effect of memory perspective on collective memory in memory conversations, including three experiments. In Experiment 1, the effect of perspective mutual exclusion framework activation in memory conversations on collective memory was discussed. Experiment 2 investigated the effect of complementary framing on collective memory in memory conversations. Finally, Experiment 3 explored the effect of perspective switching sequence of collective memory in memory conversations. Combining with the results of three experiments, the conclusion was made as follows: (1) When the mutual exclusion frame of perspective was activated, the first-person perspective would reduce the number of items remembered in common between participants, while the third-person perspective would increase the number of items remembered in common between the participant. (2) When the complementary frame of perspectives was activated, A higher proportion of the first-person perspective would reduce the number of items remembered in common by participants. In addition, using the first-person perspective first can make the number of items remembered in common by participants be reduced. Encouraging individuals to adopt the corresponding memory perspective frame in the memory conversation is helpful to recover more collective memory information.

Keywords：collective memory, memory conversation, memory perspective

如何维护好人与公序良俗？

——5-6 岁幼儿灵活调整对失范受助者的宽恕与情感

莫秀锋（通讯作者）

广西师范大学教育学部，桂林，541004，E-mail:moxiufeng76@126.com

摘 要　公正与友善是社会主义核心价值观的重要组成部分，乐于助人与知恩图报是中华民族的传统美德，也分别是传递友善和维护社会公序良俗、引人向善的道德规范。学前期是幼儿道德感发展、积极人格特质养成和亲社会行为培养的重要阶段。不过，当受助者有违知恩图报这一道德规范时，幼儿会如何维护好人与公序良俗，尚未可知。实验一考察 5-6 岁幼儿如何对待失范的受助者。采用单因素设计，自变量为特定助人情境故事，因变量为幼儿的宽恕、人际喜爱及信任，共 44 位幼儿参与研究。结果表明：绝大多数 5-6 岁幼儿不原谅、不喜欢、不信任失范的受助者。实验二考察 5-6 岁幼儿是否会基于失范受助者后续的态度，来调整自己对其的态度。采用单因素六水平被试间设计，包括失范受助者道歉并补偿故事、默默补偿故事、道歉故事、沉默无为故事、不知道自己做错故事、知错未改正故事六个水平，因变量为幼儿的宽恕、人际喜爱及信任，共 180 位幼儿参与研究，每组各 30 人。先叙述六种故事之一，然后测查幼儿对故事人物角色的宽恕、人际喜爱及信任。结果表明：听了失范受助者道歉并补偿故事或者默默补偿故事、道歉故事之后，大多数幼儿不仅宽恕而且喜欢、信任故事中先前失范、随后知错就改的受助者，与此形成鲜明对比的是，其他三个故事组的绝大多数幼儿不原谅、不喜爱、不信任相应故事中的这些失范受助者。两个实验综合表明：5-6 岁幼儿能够灵活调整对失范受助者的宽恕与情感，以维护好人与公序良俗。

关键词　公序良俗，失范受助者，宽恕，人际喜爱，人际信任

How to maintain good people and public order and good morals?

—5-6 year olds flexibly adjust their forgiveness and emotions toward the misbehaving recipients

Mo Xiufeng

Faculty of Education, Guangxi Normal University, Guilin 541004, China

Abstract：Justice and friendliness are important components of the socialist core values. Being ready to help others and showing gratitude are the traditional virtues of the Chinese nation. They are also the moral norms of transmitting kindness, maintaining social public order with good customs, and attracting kindness. Preschool is an important stage in the development of children's sense of morality, positive personality traits, and prosocial behaviors. However, it is not yet known how preschool children will defend good people and public order and good morals when the recipients violate gratitude and morals. Experiment 1 examined how 5- to 6-year-old children treat recipients who misbehave. A one-way design was adopted, with the independent variable being a specific helping situation story and the dependent variables being children's forgiveness, interpersonal preference,

and trust, and a total of 44 children participated in the study. The results indicated that most 5-6 year olds did not forgive, like, or trust recipients who misbehaved. Experiment 2 examined whether 5-6-year-olds would adjust their attitudes toward the misbehaving recipients based on their subsequent attitudes. A one-factor, six-level between-subjects design was adopted, including six stories such as misbehaving recipients apology with compensation, apology, silent compensation, silence with inaction, unawareness of the misbehavior, awareness of the misbehavior but unwillingness to correct. The dependent variables were children's forgiveness, interpersonal preference and trust about the misbehaving recipients. Children listened to one of six stories and then were measured on forgiveness, interpersonal preference and trust about the characters in the corresponding story. The two experiments combined showed that 5-6-year-olds are able to flexibly adjust their forgiveness and emotions toward the misbehaving recipients in order to preserve good people and public order and good morals.

***Keywords*:** public order and good morals, the misbehaving recipients, forgiveness, interpersonal preference, interpersonal trust

与个人目标冲突的内群体规范对亲群体倾向的影响

王阳[1] 李凌智[1] 温芳芳[1] 佐斌[2]（通讯作者）
1 华中师范大学心理学院，武汉，430079
2 中山大学心理学系，广州，510006，zuobin@mail.sysu.edu.cn

摘 要 自我和群体的关系是社会生活中经久不衰的主题。一方面，人们存在着归属的本质需要，受群体规范影响；另一方面，人们又存在着自主需要。然而，以往群体规范领域的研究更关注群体属性对个体行为的直接影响，较少讨论在个体存在个人目标的前提下群体规范的作用及其在行为决策之外的影响。为了解决上述问题，本研究综合考虑了群体规范与个人目标两方面因素，构建了二者冲突或一致的情境，以探究自主与合群二者重要性的问题，同时也关注了自我概念清晰性的调节以及认知（群体认同）和情绪（焦虑）因素的中介作用。预实验针对当前实验内容改编了以往研究的实验情境，发现在内群规范与个人目标冲突条件下，人们会受到群体规范影响而做出目标冲突行为。正式实验在预实验基础上将实验情境限定在饮食健康方面，实验 1 共招募 128 名有效被试，随机分入群体规范与个人目标冲突组或一致组，关注两组被试及其自我概念清晰性对行为决策及亲群体行为的影响。结果发现，在行为决策上冲突组相比一致组做出目标冲突行为的比例更高，此外，冲突组中被试的自我概念清晰性越高越倾向于做出目标一致行为。在亲群体倾向上，实验发现一致组被试的亲群体倾向显著高于冲突组，同时自我概念清晰性正向预测了被试的亲群体倾向。实验 2(n = 127)则在实验 1 基础上加入了焦虑情绪和群体认同的中介因素的测量。实验结果在印证实验 1 的基础上发现了焦虑情绪而非群体认同的部分中介作用，同时，自我概念清晰性调节了实验条件对焦虑情绪的影响，对于自我概念清晰性更低的被试，冲突情境引发了更高水平的焦虑，进而降低了被试的亲群体倾向。本研究验证了即使当存在个人目标的前提下，群体规范也会影响到成员行为，这种影响尽管会让被试服从于群体规范，但却会对群体内关系带来消极影响。未来研究有必要进一步探索该情境下个体在面临自主与合群冲突下的内部心理加工机制，以更好地深化对人的社会本质的理解。

关键词 个人目标，群体规范，亲社会倾向，焦虑，群体认同

The impact of in-group norms that conflict with personal goals on pro-group tendencies

WANG Yang[1] LI Lingzhi[1] WEN Fangfang[1] ZUO Bin[2]
1 Central China Normal University, School of Psychology, Wuhan, 430079
2 Department of Psychology, Sun Yat-sen University, 510006, zuobin@mail.sysu.edu.cn

Abstract: The interplay between self and group is an enduring topic in social life. On the one hand, people have a natural need for belonging and are influenced by group norms; on the other hand, people also have a need for autonomy. However, previous research on group norms has focused more on the direct impact of group attributes on individual behavior, and less on the role of group norms when individuals have personal goals, and their impact beyond decision-making. To address these issues, this study integrated both group norms and personal goals, and constructed scenarios where they conflicted or consistent, to explore the importance of autonomy versus conformity, as well as the moderation of self-concept clarity and the mediation of cognitive (group identification) and emotional (anxiety) factors. The pilot experiment adapted the scenarios from previous studies, and found that under the condition of in-group norm and personal goal conflict, people would be influenced by group norms and make goal-conflicting behaviors. The formal experiment limited the experimental scenarios to dietary health based

on the pilot experiment. Experiment 1 recruited 128 participants, randomly assigned to the group norm and personal goal conflict group or consistent group, and focused on the impact of the two groups of participants and their self-concept clarity on decision-making and pro-group behavior. The results showed that in decision-making, the conflict group presented a higher proportion of goal-conflicting behaviors than the consistent group. In addition, the higher the self-concept clarity of the participants in the conflict group, the more likely they were to make goal-consistent behaviors. In terms of pro-group tendencies, the experiment found that the pro-group tendencies of the participants in the consistent group were significantly higher than those in the conflict group, and self-concept clarity positively predicted the participants' pro-group tendencies. Experiment 2 (n = 127) added the measurement of anxiety emotion and group identification as mediating factors based on Experiment 1. The results confirmed the results of Experiment 1 and found a partial mediation effect of anxiety rather than group identification. At the same time, self-concept clarity moderated the effect of experimental condition on anxiety. For participants with lower self-concept clarity, conflict situation triggered a higher level of anxiety, which in turn reduced their pro-group tendencies. This study verified that even when there are personal goals, group norms still affect member behavior. This influence, although it makes participants conform to group norms, has a negative impact on intra-group relations. Future research needs to further explore the internal psychological processing mechanism of individuals facing autonomy versus conformity conflicts in this situation, in order to deepen the understanding of human social nature.

Keywords：personal goal, group norm, pro-group tendencies, anxiety, group identification

紧密=机器，松散=动物:文化的紧密-松散对非人性化的影响

史嘉鑫[1]（通讯作者） 陈战胜[2] 邱俊杰[3]
1 华南师范大学心理学院，广州市，广东省
2 香港大学心理学系，香港特别行政区
3 岭南师范大学心理学系，湛江市，广东省
通讯作者邮编：langlang723@foxmail.com

摘 要 人们如何看待来自不同文化背景的其他人?为探究这一问题，我们考察了个体如何感知来自松紧文化的目标。松紧文化是指一个国家或者地区的文化中，强(与弱)的社会规范和对偏差行为的低(高)容忍度。三项研究(N = 614)，分别来自中国(研究 1)和美国(研究 2-3)的不同样本，证实了我们的假设，即生活在紧密文化中的人被认为像机器一样，而生活在松散文化中的人被认为像动物一样。更重要的是，被试感知到目标的自我控制中介了文化松紧度对不同形式的非人性化感知的影响(研究 3)。我们的研究结果表明，人们的文化背景会影响我们对他们的感知。我们还讨论了理论贡献和局限性。

关键词 去人性化，松紧文化，社会知觉，人的本性，人的独特性

Tightness = Machine, Looseness = Animal: Effects of Cultural Tightness-Looseness on Dehumanization

Bill Jiaxin Shi
School of Psychology, South China Normal University, Guangzhou, Guangdong
Zhansheng Chen
Department of Psychology, The University of Hong Kong, HKSAR
Junjie Qiu
Department of Psychology, Lingnan Normal University, Zhanjiang, Guangdong

***Abstract*:** How do people perceive others from different cultures? We addressed this question by testing people's perception of the targets living in a tight (vs. loose) culture, which refers to strong (vs. weak) social norms and a low (high) tolerance of deviant behavior. In three studies (N = 614), with different samples from China (Study 1) and the U.S. (Studies 2-3), we confirmed our hypotheses that people living in a tight culture are perceived as machine-like, whereas people living in a loose culture are perceived as animal-like. More importantly, the perceived self-control of the targets mediated the effect of cultural tightness-looseness on different forms of dehumanized perception (Study 3). Our findings suggest that people's cultural backgrounds can influence our perception of them. We also discussed theoretical contributions and limitations.

***Keywords*:** Dehumanization, Tight-Loose Culture, Social Perception, Human Nature, Human Uniqueness

收入不平等的主观感知与睡眠的关系及其心理机制

刘雯萱[1]　杜洪飞[2]（通讯作者）
1 北京师范大学心理学系，珠海，519000
2 北京师范大学人文和社会科学高等研究院，珠海，519000，hongfeidu@bnu.edu.cn

摘 要　收入不平等与个体的心理与生理健康密切相关。我们认为，收入不平等较高的条件下，个体的心理健康可能受到消极影响，进而对睡眠产生负面效应。通过两项研究，本文探讨人们对收入不平等的主观感知是否影响睡眠，及其社会比较和压力作为这一关系中的内在心理机制。

研究 1 探究个体对收入不平等的主观感知，是否预测他们六年后的睡眠时间。研究 1 使用来自中国 25 个省份的纵向调查数据，研究对象是各省代表性居民样本（$N = 28590$）。结果发现，感知收入不平等显著地负向预测了个体六年后的睡眠时长。即使在控制了个体六年前的睡眠时长以及其他人口学变量，这一纵向效应仍然显著。也就是说，人们在日常生活中感知到较高的收入差距，他们的睡眠时间将无法得到保障。

研究 2 旨在进一步探究收入不平等感知和睡眠两者之间的内在心理机制。研究 2 使用了中国某市的横向调查数据，研究对象是本市社区居民（$N = 1009$）。该研究选取了三个睡眠指标：睡眠质量、睡眠满意度和睡眠功效，并分别检验了社会比较和压力在感知收入不平等与睡眠关系中的中介作用。结果发现，与研究 1 结果一致，感知收入不平等显著地负向预测了睡眠质量、睡眠满意度和睡眠功效。同时，在加入中介变量社会比较后，感知收入不平等对睡眠质量和睡眠功效的负向预测作用降低；而在加入中介变量压力后，感知收入不平等对睡眠三个指标的负向预测作用均降低。研究 2 的结果说明，感知收入不平等会影响对个体的睡眠，这重复验证了研究 1 的结果。此外，研究 2 揭示了社会比较与压力作为感知收入不平等预测睡眠的内在心理机制。

综上所述，本研究表明，人们对收入不平等的主观感知，对睡眠产生持久的不利影响。社会比较和压力解释了不平等感知对睡眠的负向效应。我们认为，推动共同富裕的政策，将有利于消除人们的不平等感知，进而能够提升人们的心理与生理健康水平，为健康中国战略奠定坚实的基础。

关键词　感知收入不平等，睡眠，社会比较，压力

Subjective Income Inequality and Sleep: An Examination of Psychological Mechanisms

Wenxuan Liu, Hongfei Du (corresponding author)
Beijing Normal University at ZhuHai, No.18 Jinfeng Road, Tangjiawan, Xiangzhou District, Zhuhai City, Guangdong Province, P.R.China

Abstract: Income inequality is closely related to individuals' psychological and physical health. We argue that higher income inequality can negatively affect individuals' psychological health, which in turn has a negative effect on sleep. Through two studies, the present study explores whether individuals' subjective income inequality affect sleep, and whether social comparison and stress mediate this relationship.

Study 1 used longitudinal survey data from 25 Chinese provinces with a representative sample of residents from each province (N = 28,590) to explore whether individuals' subjective perception of income inequality predicted their sleep duration six years later. Study 1 found that subjective income inequality was associated with

less individuals' sleep duration six years later, even after controlling for individuals' sleep duration six years earlier and other demographic variables.

Study 2 used cross-sectional survey data from a Chinese city with community residents (N = 1,009) to further explore the psychological mechanisms underlying the relationship between subjective economic inequality and sleep. The study selected three sleep indicators: sleep quality, sleep satisfaction, and sleep efficacy, and examined the mediating roles of social comparison and stress in the relationship between subjective economic inequality and sleep. In line with the findings of Study 1, Study 2 found that subjective income inequality was associated withe less all three indicators of sleep. Additionally, social comparison and stress were identified as intrinsic psychological mechanisms that mediate the negative effect of perceived income inequality on sleep. Specifically, social comparison mediated the negative effect of subjective income inequality on sleep quality and sleep efficacy, while stress mediated the negative effect on all three indicators of sleep.

In summary, our findings suggest that individuals' subjective income inequality have a lasting adverse effect on sleep, and that social comparison and stress explain this negative effect. The findings highlight the importance of promoting common prosperity as a policy to eliminate individuals' perception of inequality, which can enhance individuals' psychological and physiological health and lay a solid foundation for the Healthy China strategy.

Keywords：subjective income inequality, sleep, social comparison, stress

不同风险情境下社会规范对陌生人信任的影响:基于规范焦点理论的视角

郭新生[1]　张佳静[2]　赵小军[1]（通讯作者）

1 河北大学教育学院，保定，071000　2 河北大学教育学院，保定，071000

3 河北大学教育学院，保定，071000，psy790821@aliyun.com

摘 要　陌生人信任不但有助于人际交往，而且能够为发展长期的信任关系奠定基础，但是陌生人互动面临更多的未知性、不确定性等风险因素，导致陌生人信任很难产生，因此关于陌生人初始信任的研究具有重要意义。规范焦点理论将社会规范影响个体行为的方式分为两类：描述性与命令性社会规范，不同社会规范对陌生人信任的影响可能存在差异。本研究采用两个实验深入探讨社会规范与风险因素共同影响陌生人信任的方式及内部机制。实验一招募 76 名大学生采用 2（描述性规范：高、低）×2（命令性规范：高、低）被试间实验设计，探讨不同社会规范对陌生人信任的作用，结果显示社会规范可以显著影响陌生人信任，当两种规范导向一致时对陌生人信任的影响最大，当两种规范发生冲突时，命令性社会规范对陌生人信任的影响作用更大，但是实验结果未发现两种社会规范对陌生人信任的交互作用；实验二招募 84 名大学生采用 3（社会规范：命令性规范、无规范、描述性规范）×2（风险情境：高、低）混合实验设计，探讨风险因素在社会规范影响陌生人信任中的作用，结果显示即使在高风险情境下、命令性社会规范仍可以显著影响陌生人间的信任决策，其中命令性社会规范通过风险感知的间接作用影响陌生人信任，命令性社会引发个体更强的人际导向的社会目标，减少个人利益目标的考虑，从而忽略情境中的风险，做出群体期望的信任行为，即当得知信任行为是值得鼓励和提倡的时候，人们会为赢得社会的赞赏而忽略情境中的风险，采取更多的信任行为。本研究在社会规范与风险因素双重系统下探讨陌生人初始信任，为进一步揭示陌生人信任的影响因素，提升陌生人际信任水平提供一定的理论启示与实证证据。

关键词　陌生人信任，规范焦点理论，风险感知，风险情境

The Impact of Social Norms on Stranger Trust in Different Risk Situations: From the Perspective of Normative Focus Theory

Guo Xinsheng[1] Zhang Jiajing[2] Zhao Xiaojun[1]
School of Education HeBei University，BaoDing

***Abstract*：** Stranger trust not only helps interpersonal interactions, but also can provide a foundation for developing long-term trusting relationships. However, interactions with strangers face more risk factors such as unknowns and uncertainties, making it difficult to trust strangers. Therefore, it is significant to study initial stranger trust. The Focus Theory of Normative Conduct classifies the ways in which social norms influence individual behavior into injunctive norms and descriptive norms. The impact of the two different social norms on stranger trust may differ. The present research adopts two experiments to explore the ways in which norms and risk factors jointly influence stranger trust and the internal mechanisms in depth. Experiment 1 recruited 76 college students using a 2 (descriptive norms: high, low) × 2 (injunctive norms: high, low) between-subjects experimental design to explore the role of different social norms on stranger trust. The results showed that social norms can significantly influence stranger trust . The greatest effect on stranger trust was found when the two normative orientations were aligned . And the effect of imperative social norms on stranger trust was greater when the two norms were in conflict. However, the experimental results did not find an interactive effect of the two social norms on stranger trust. Experiment 2 recruited 84 college students using a 3 (social norms: imperative norms, no norms, descriptive social norms) × 2 (risky situations: high, low) mixed experimental design to explore the role of risk factors in the influence of social norms on stranger trust. The results showed that social norms can significantly influence trust decisions between strangers even in high-risk situations . In particular, imperative social norms influence stranger trust through the partial mediation of risk perception . The injunctive society may trigger stronger inter-personally oriented social goals in individuals and reduce the consideration of personal interest goals, thus allowing them to ignore the risks in the situation and engage in the trusting behavior expected by the group. When people learn that trust behavior is worth encouraging and promoting, we will ignore the risks in the situation and adopt more trust behaviors in order to win the appreciation of society. Based on a dual system of social conduct norms and risk factors, the present research provides some theoretical insights and empirical evidence for enhancing individual interpersonal stranger trust by exploring the factors influencing stranger initial trust.

Keywords: Stranger trust, Normative focus theory, Risk perception, Risk situation

社会规范与 COVID-19 健康行为:群体因素的纵向调查

周昊辰[1]（通讯作者） Diana Cárdenas[2] Katherine J. Reynolds[1,3]
1 澳大利亚国立大学，心理学研究院，堪培拉，澳大利亚，E-mail: haochen.zhou@anu.edu.au
2 蒙特利尔大学，心理学系，蒙特利尔，加拿大
3 墨尔本大学，教育研究生院，墨尔本，澳大利亚

摘 要 大多数关于社会规范和 COVID-19 的研究都忽视了社会规范的群体性和动态性，其中自我相关的显著群体会在不同的情况下出现和变化，从而导致它们对健康行为的影响也会随之变化。许多关于社会规范的文献综述强调，规范的来源(即，许多可能产生规范的群体)决定了它们的影响。内群体规范(相对于一般的“社会”规范)与自我更相关且对其群体成员更加重要(Reynolds et al., 2015)。因此，规范的来源对规范的影响是否成功至关重要。此外，规范在历史上被描绘成在社交环境或社会中相对固定；共同的历史和经历造就了“我们”。同样，对个人重要的“他人”也被认为是一个相当静态的社会网络的一部分。最近，有一些新兴的讨论认为，基于人们对他人的某些行为的参与，他们对规范的感知会不断更新(Prentice & Paluck, 2020)。也就是说，规范对行为的影响是动态的，可以随时间而变化(Prentice & Paluck, 2020)。这意味着，要理解规范性的影响，就必须理解这种可能的流动性(以及可能的稳定性)，并采用更多的纵向研究方法。

当前的研究试图通过三个时间点的纵向实验设计来探索这些问题。我们采用了一个澳大利亚代表性样本(N wave 1 = 3024)，分别在 2020 年 5 月、6 月/ 7 月和 9 月/ 10 月针对两个群体(社区和国家群体)调查了规范对两种 COVID-19 健康行为(保持身体距离和手卫生)的潜在影响。结果表明，在控制人口学变量和个体水平的健康变量的情况下，社区描述性规范(而不是国家或禁令性规范)对健康行为的影响最大，特别是从第一波时间点到第二波时间点。这表明影响行为的群体和相关规范随着时间的推移而变化。由此得出结论，对于社会规范的研究需要去探索哪些群体在何时会起到影响。

关键词 社会规范、社会认同、社会影响、COVID-19 健康行为、纵向研究

Norms and COVID-19 Health Behaviours: A Longitudinal Investigation of Group Factors

Haochen Zhou[1](corresponding author) Diana Cárdenas[2] Katherine J. Reynolds[1,3]
1 Research School of Psychology, Australian National University, Canberra, Australia
2 Department of Psychology, University of Montreal, Montreal, Canada
3 Graduate School of Education, University of Melbourne, Melbourne, Australia
Address for correspondence: Haochen Zhou, Research School of Psychology, Australian National University, Canberra ACT 2601, Australia. E-mail: haochen.zhou@anu.edu.au

Abstract： Most studies on norms and COVID-19 have ignored the group-based and dynamic nature of normative influence where self-relevant and salient groups might emerge and change along with their impact on health behaviours. Many reviews of social norm literature highlight that the source of the norm (i.e., from which of many possible groups the norms emerge) determines their influence. An ingroup norm (versus a generic ‘social’ norm) is tied to a group that is self-relevant and salient for its constituents (Reynolds et al., 2015). The source of

the norm, then, is critical to the success of normative influence. Moreover, norms have been historically portrayed as being relatively fixed in the social milieu or society; a product of shared history and experiences that shapes who 'we' are. Likewise, the 'others' that are important to the individual have been assumed to be part of a reasonably static social network. More recently, there are emerging discussions that norm perception is constantly being updated based on people engaging in certain behaviours over others (Prentice & Paluck, 2020). That is, normative influence on behaviours is dynamic and can change in time (Prentice & Paluck, 2020). This means that to understand normative influence it is essential to understand this possible fluidity (as well as possible stability) and to enlist more longitudinal methods.

The current research seeks to explore these issues using a three-wave longitudinal design with a representative sample of Australians (N wave 1 = 3024) where two group sources of potential normative influence (neighbourhood and national groups) and two COVID-19 health behaviours (physical distancing and hand hygiene) were investigated in May, June/July and September/October 2020. Results indicated that especially from Wave 1 to Wave 2 neighbourhood descriptive norms (rather than national or injunctive norms) had the most impact on health behaviours while controlling for demographic and individual-level health variables. This demonstrates that groups and associated norms that influence behaviours vary across time. It is concluded that research on norms needs to study which groups matter and when.

***Keywords*:** social norms, social identity, social influence, COVID-19 health behaviours, longitudinal research

人工(不)智能：创造力低估是导致 AI 绘画审美偏见的主要因素

李婉悦[1]　何先友[1]（通讯作者）

[1]华南师范大学心理学院，广州，510631

摘 要　算法的革新使 AI 生成器能够大量创作音乐、绘画和诗歌等各种各样的艺术产品，但是公众对于 AI 艺术品仍然心怀疑虑。近年来研究显示，被宣称为 AI 创作者的艺术品会诱发偏负性的态度，例如更低的审美愉悦和购买意愿。然而，AI 和人类创作的艺术品是否真的存在差异，以及个体在审美评价中对 AI 创作者身份偏见的成因及其心理机制目前仍不清楚。本研究通过三个实验探讨了个体对于 AI 绘画、电子绘画和手工绘画审美评价的差异，以及创造力和努力评价在其中的影响。实验一在创作者身份已知和未知条件下测量了个体对 AI 绘画、电子绘画和手工绘画的美感、创造力和努力程度评分，发现创作者身份信息显著改变了个体对绘画作品的评价。在身份信息未知的条件下， AI 绘画的审美评价显著高于手工绘画。而在身份信息已知的条件下，AI 绘画的创造力和努力评分显著降低，其中创造力评分是影响审美评价的主要因素。实验二采用了迫选任务，要求被试首先对画作进行创作者身份的选择，然后进行一系列审美评价。实验二进一步验证了 AI 创作者偏见的心理机制，发现 AI 画作的创造力低估导致了个体对 AI 绘画作品的审美偏见。实验三探讨了 AI 创作经验在其中的影响，发现参与 AI 绘画的创作体验并不能缓解这种偏见，反而改变了个体的评价策略，使其更加在意创作者身份，更倾向于将人类创作的画作判断为由 AI 创作。总之，本研究探讨了个体在审美评价中对 AI 创作者的身份偏见及其内在机制，发现创造力低估是影响 AI 绘画审美评价的主要因素。这有利于阐明当人机交互被应用于艺术创作领域所导致的算法厌恶的成因，也为未来 AI 艺术的规范化发展提供了建议。

关键词　人工智能，算法厌恶，审美，创造力，努力

Artificial (non)intelligence: The main factor of aesthetic bias in AI painting hides in the undervaluation of its creativity

Wanyue Li[a]　Xianyou He[a]

[a] School of Psychology, South China Normal University, Guangzhou, People's Republic of China

Abstract： The innovation of algorithms has enabled AI generators to create a wide variety of artistic products such as music, paintings, and poetry in large quantities, but people are still skeptical about AI artwork. Recent studies have found that people tend to under evaluate the artworks labeled as created by AI, but what causes this bias is still unclear. Through three experiments, we investigated the creator identity bias in the aesthetic evaluation of AI, digital, and handmade paintings, and the role of creativity and effort ratings in the influence of creator identity on the beauty ratings. Experiment 1 compared aesthetic evaluations of different painting types in conditions of with and without identity priming, and found that creator identity information significantly changed individuals' evaluations of paintings, with creativity ratings being the main factor contributing to the change in beauty ratings. Experiment 2 used the forced choice paradigm to further validate the results of Experiment 1 and found that individuals exhibited a negative bias towards AI painting due to their undervaluation of AI's creativity. Experiment 3 required participants to experience the AI painting creation and found that this experience could not

alleviate this bias, but rather made participants more concerned about the creator identity. These findings contribute to the understanding of the internal causes of creator identity bias in AI artworks and provide suggestions for the future normative development of AI art.

Keywords：artificial intelligence, algorithmic aversion, beauty, creative, effort

浪漫关系减弱了恋人竞争：来自人际关系神经同步的证据

贾淑钰 [1]　孟雨佳 [1]　刘映杰 [1]

1 华北理工大学，河北，唐山，063210

华北理工大学，河北，唐山，063210，psyliuyingjie@163.com

摘 要　以往的研究表明，当恋人之间进行合作互动时，他们的脑间活动会更加同步。类似地，竞争也是社会交互中不可或缺的一部分，在人类生活中扮演着重要的角色。然而，关于浪漫关系与竞争之间的关系，以及对女性个体竞争互动的影响，仍值得进一步探讨。本研究以女性个体为主要研究对象，通过脑电超扫描技术，选取同步锁向值(PLV)作为脑间同步的衡量指标，探究浪漫恋人脑间活动与竞争的关系。本研究使用了单因素两水平的实验设计，共招募了 104 名大学生参与研究。其中包括 26 对恋人和 26 对陌生异性。参与者在计算机上完成了一个视觉提示-目标竞争任务，并记录其行为和脑电信号。研究结果显示，当女性个体与恋人竞争时，其胜率更高。个体之间的 alpha 频段 PLV 受到浪漫关系的影响。在竞争互动目标刺激出现的早期阶段，女性个体与陌生异性竞争时的 PLV 显著更高，而在竞争后期，女性个体与恋人竞争时候的 alpha 频段 PLV 更高。此外，女性个体的胜率与 alpha 频段脑间 PLV 之间存在显著相关，女性对竞争对手的主观印象与 alpha 频段脑间 PLV 之间也存在显著相关。研究结果表明，在竞争互动时，脑间同步情况受到浪漫关系的调控作用。男性在浪漫关系中更倾向于选择配偶保留策略，以维持浪漫关系的和谐稳定。对女性来说，浪漫关系还会影响女性个体的警觉性和注意力状态，从而对竞争结果产生影响。本研究基于达尔文的性选择理论，证明了浪漫关系对竞争的影响，完善了浪漫关系及竞争互动的理论解释。

关键词　脑电，超扫描，竞争，浪漫关系，脑间同步

Romantic Relationship Attenuated Dyadic Competition: Evidence from Interpersonal Neural Synchronizatio

Shuyu Jia[1], Yujia Meng[1], Yingjie Liu[1]

1 North China University of Science and Technology, Hebei, Tangshan

Abstract：Previous studies have shown that when couples engage in collaborative interactions, their brain activity becomes more synchronized. Similarly, competition is also an indispensable part of social interaction and plays an important role in human life. However, the relationship between romantic relationships and competition, as well as the impact on individual female competitive interactions, still deserves further exploration. This study mainly focuses on female individuals and uses electroencephalography (EEG) hyperscanning technology to select the synchronized locked value (PLV) as a measure of brain synchronization, exploring the relationship between brain activity and competition in romantic couples. This study used a single-factor two-level experimental design and recruited a total of 104 college students to participate in the study. This includes 26 pairs of lovers and 26 pairs of strangers of the opposite sex. Participants completed a visual cue-target competition task on a computer and recorded their behavior and EEG signals. The research results show that when female individuals compete with their partners, their winning rate is higher. The alpha frequency band PLV between individuals is influenced by romantic relationships. In the early stage of the emergence of competitive interaction target stimuli, female individuals have significantly higher PLV when competing with strangers of the opposite sex, while in the later stage of competition, female individuals have higher alpha frequency PLV when competing with their partners. In

addition, there is a significant correlation between the success rate of female individuals and the alpha frequency band brain PLV, and there is also a significant correlation between women's subjective impressions of competitors and the alpha frequency band brain PLV. The research results indicate that during competitive interactions, brain synchronization is regulated by romantic relationships. Men tend to choose spouse retention strategies in romantic relationships to maintain harmony and stability. For women, romantic relationships can also affect their individual alertness and attention state, thereby affecting the outcome of the competition. Based on Darwin's Sexual selection theory, this study proves the impact of romantic relationships on competition, and improves the theoretical explanation of romantic relationships and competitive interactions.

Keywords：EEG, hyperscanning, competition, romantic relationships, Interbrain synchronization

目标推断中承诺预期对注意的引导：来自眼动的证据

段愚凡[1] 徐昊骅[1] 徐健哲[1] 程少哲[1] 周吉帆[1]（通讯作者）

[1]浙江大学心理与行为科学系，杭州，310058

通讯作者 E-mail：jifanzhou@zju.edu.cn

摘 要 目标推断是指通过观察他人外显行为与状态来推断他人内在目标。准确高效的目标推断有助于理解他人意图、预测他人行为、改善沟通和互动，是人类顺利开展社会交互的重要基础。传统理论认为，观察者总是假设行动者遵循理性原则规划行为，因而在根据行为推断目标时遵循同样的理性原则。然而，行动者在规划行为时往往表现出“非理性”，完全基于理性原则的目标推断有时无益于社会交互的顺利进行。因此，一种潜在的假设是，观察者预期行动者并非绝对理性，并据此推断行动者目标。目标承诺是一类普遍存在的非理性行为，表现为当场景中存在多个潜在目标时，行动者优先选择旧目标（而非最优目标）。据此，本研究假设，观察者在目标推断时预期行动者存在目标承诺，其注意将优先被引导至旧目标，且对目标的推断偏向于旧目标。

研究共包含两个实验（各 24 名被试），每个实验中均要求被试观看行动者的行为轨迹，并推断其目标：实验一采用“连续吃豆人”场景，场景中始终包含两个潜在目标。存在目标冲突条件下，行动者每到达一个目标后，场景中将出现一个新目标；无目标冲突条件下，行动者每到达一个目标，场景中所有原目标均消失，并出现两个新目标。实验二采用“噪声吃豆人”场景，在行动者移动的过程中，可能出现噪声使其向意图的反方向移动。存在目标冲突条件下，噪声将行动者拉偏至距离新目标更近或与两个目标等距；不存在目标冲突条件下，噪声后行动者仍然距离旧目标更近。

两个实验的结果一致：存在目标冲突条件下，在观察到后续行为前，被试注视旧目标的时间占比显著高于注视新目标，即注意优先被引导至旧目标，且被试更倾向于推断行动者会选择旧目标；而在无目标冲突条件下，被试的注意选择和目标推断结果仅依赖于目标与行动者的距离。以上结果表明，人类的目标推断并非基于完全理性原则，而是预期他人存在目标承诺，据此引导注意选择并推断潜在目标。

关键词 目标推断，目标承诺，注意选择，预期

Expectations of Commitment Guide Attention in Goal Inference: Evidence from Eye Movements

Yufan Duan[1], Haokui Xu[1], Jianzhe Xu[1], Shaozhe Cheng[1], Jifan Zhou[1] (Corresponding Author)
[1]Department of Psychology and Behavioral Sciences, Zhejiang University, Hangzhou, 310058
Corresponding E-mail：jifanzhou@zju.edu.cn

Abstract：Goal inference refers to inferring the potential goal of others from their explicit behaviors and states. Efficient goal inference helps on intention understanding, behavior prediction, further communication and interaction, and thus plays an important role in human social interaction. Traditional opnion holds that observers always assume that actors plan their actions according to the rational principle, and thus follow the same rational principle in goal inference. However, actors often show "irrationality" when planning behaviors, and goal inference based entirely on rational principle may bring disadvantages for social interactions. Therefore, it is reasonable to assume that the observer holds expectation that the actor is not absolutely rational, and infers from this the underlying goal behind the observed behavior. Goal commitment is a kind of ubiquitous irrational behavior, which is manifested in that when there are multiple potential goals in the scene, the actor prefers the old goal (rather than the rational optimal goal). Based on this, the current study hypothesizes that observers expect the actor to have goal commitment during goal inference, and their attention will be preferentially directed to the old goal, and the inference of the goal is biased towards the old goal.

Our study consisted of two experiments (24 subjects respectively), each of which required subjects to watch the behavioral trajectories of actors and infer their goals: Experiment 1 used a "Sequential Pac-Man" scenario, which always contained two potential goals. Under the conflict condition, every time the actor reaches a goal, a new goal will appear in the scene; under the inconflict condition, every time the actor reaches a goal, all the original goals in the scene will disappear, and two new goals will appear in the scene. Experiment 2 uses the "Noise Pac-Man" scene. During the moving process, noise may appear to make the actor move in the opposite direction of the intention. Under the conflict condition, the noise will pull the actor closer or equidistant to the new goal; under the inconflict condition, the actor is still closer to the old goal after the noise.

The results of the two experiments are consistent: in the conflict condition, before observing the follow-up behavior, the proportion of fixation duration on the old goal was significantly higher than that on the new goal, which meant attention was preferentially directed to the old goal. Participants were also more likely to infer that the actor would choose the old goal. In the inconflict condition, participants' attention selection and goal inference depend only on the distance between the goal and the actor. The above results reveal that human goal inference is not entirely based on rational principles, but also based on the expectation of other people's goal commitment, which guides attention to select and infer potential goal.

Keywords：goal inference, goal commitment, selective attention, expectation

社会支配性表达及等级分化的社会互动脑机制

李思莹[1] 黄于龙[2] 曲琛[3*]

[1]东北师范大学教育学部，长春，130024

[2]法国认知科学研究所，里昂，6900

[3]华南师范大学心理学院，广州，510631，

*通讯作者 E-mail: fondest@163.com

摘 要　社会等级作为社会组织的基本原则，广泛存在于社会物种当中，对个体与社会的发展至关重要。在对社会等级信息的习得、影响等方面进行了逐步深入的研究过程中，还有一个重要且亟待探讨的问题是：社会等级是如何产生的？作为一种人际互动的基本模式，社会等级在人际交往中逐步产生，并在双方的相互影响下逐步稳固。基于此，本研究关注社会等级产生与发展变化的动态互动过程。为了探究该问题，研究通过斗鸡博弈构建了具有支配行为表达的社会环境和社会规则，并在双人真实互动中追踪人际关系的变化轨迹。具体来说，通过基于近红外脑成像（fNIRS）的超扫描技术，以小波相干为指标，本研究考察了支配行为表达过程中的脑间神经同步性。进一步，根据双人互动模式进行划分，比较了等级分化模式和制约平衡模式的社会互动脑机制，以探究社会等级关系产生的特异性脑间神经同步性特征。结果发现：（1）支配表达过程中，互动双方在内侧前额叶（mPFC）以及右侧颞顶联合区（rTPJ）的神经同步性增高；（2）支配等级关系的形成会伴随着互动双方在 mPFC 处的神经同步性降低，这一特征可能是支配等级关系形成的社会互动神经机制的特征。该研究从人际互动和脑间神经同步性的视角探究了支配行为表达的过程，其发现为理解等级关系的形成提供了双脑信号的证据。

关键词　社会等级；支配性；人际关系；fNIRS

The interpersonal neural synchronization of social dominance expression and social hierarchy emergence

Siying Li[1] Yulong Huang[2] Chen Q[3*]

[1] Faculty of Education, Northeast Normal University, Changchun, 130024, China

[2] Institut des Sciences Cognitives Marc Jeannerod, UMR5229 CNRS, 69500 Bron, France

[3] School of Psychology, South China Normal University, Guangzhou, 510631, China

[*] E-mail: fondest@163.com

Abstract: Social hierarchy, as a basic principle of social organization, exists widely among social species and is essential to the development of individuals and societies. In the course of the gradual and in-depth research on the acquisition and influence of social hierarchical information, there is an important question to be explored: how does the social hierarchy emerge? As a basic pattern of interpersonal relationships, social hierarchy gradually arises in interpersonal interactions and gradually solidifies under the mutual influence of both parties. The present study focuses on the dynamic and interactive process of the emergence and development of social hierarchies. To investigate this issue, we constructed social contexts and rules with dominant behavioral expressions through the Chicken game and traced the trajectory of interpersonal relationships in two-person real interactions. Specifically, employing functional near-infrared spectroscopy (fNIRS)-based hyperscanning technique and using wavelet coherence as the index, this study examined interpersonal neural synchronization during dominance expression. Further, to explore the specific characteristics arising from social hierarchical relationships, the interpersonal neural synchronization of the hierarchy mode and the balance mode were compared by dividing dyadic interaction characteristics. The results revealed that (1) neural synchronizations between the interacting parties at the medial prefrontal cortex (mPFC) and the right temporoparietal joint region (rTPJ) were increased during dominance expression, and (2) the formation of dominance hierarchical relationships is accompanied by a decrease in neural synchronization between the interacting parties at the mPFC, a feature that may characterize the neural mechanism of the social interactions in which dominance hierarchical relationships are formed. This study explored the processes of dominance behaviors from the perspectives of interpersonal interactions and interpersonal neural synchronization, and the findings provide evidence of the formation of hierarchical relationships.

Keywords： Social hierarchy; Dominance; Social relationships; fNIRS

脑电与近红外联合测谎的机理研究

易兴玉　李竑锐　林晓虹*（通讯作者）
杭州师范大学心理学系，杭州，311121，xiaohonglin@hznu.edu.cn

摘 要　前人的脑电与近红外联合测谎研究(Lin et al., 2018)发现在隐藏信息测谎范式(concealed information test，CIT)中联合脑电 P300 波幅和近红外氧合血红蛋白浓度变化（HbO）能有效提高测谎鉴别率，但关于脑电与近红外联合测谎背后的机理目前仍不清楚。以往的CIT测谎原理的研究表明基于中枢神经系统的CIT的测谎机理主要与定向反应或反应抑制有关，其中定向反应与刺激的新异性和意义性有关，而反应抑制与欺骗紧密相关，所以本研究试图通过对比有无欺骗对测谎的影响来探索其测谎机理。实验中，脑电和近红外数据通过自建的系统同步收集。所有被试均为犯罪者，并随机分为欺骗组与无欺骗组。实验采用隐藏信息测谎范式，测谎时会给被试呈现一系列名字刺激作为靶子刺激、无关刺激或探测刺激。所有被试的探测刺激都是自己的名字，任务是判断呈现的刺激是否是靶子刺激，如果是靶子刺激就按键反应。测谎中，欺骗组被试需要隐藏认识自己名字的事实，即看到自己的名字时说谎，而无欺骗组则诚实反应。结果表明，对欺骗组和无欺骗组而言，探测刺激与无关刺激诱发的 P300 波幅差异和 HbO 浓度变化差异均显著，而且探测刺激诱发的 P300 和 HbO 浓度变化没有显著差异。这说明欺骗并不影响脑电与近红外联合测谎，因此实验证明脑电与近红外联合测谎的机理是定向反应。

关键词　说谎，测谎，神经法学，隐藏信息测谎范式，脑电，P300,近红外脑成像技术

The neural mechanism of deception detection with combined EEG and fNIRS

Xingyu Yi, Hongrui Li, Xiaohong Lin*
Department of Psychology, Hangzhou Normal University, Hangzhou, China

Abstract：Previous studies (Lin et al., 2018) have revealed that combining P300 amplitude and changes in oxygenated hemoglobin concentration (HbO) in the concealed information test (CIT) significantly enhances the discrimination rate of deception detection. However, the underlying mechanism of this combination remains unclear. Researches have demonstrated that the deception detection mechanism based on the central nervous system was primarily associated with the orienting response and response inhibition. The orienting response was associated with to the novelty and significance of stimuli, while response inhibition was closely tied to deception. Consequently, the present study's primary objective is to investigate the deception detection mechanism by manipulating deception. EEG and fNIRS data were simultaneously collected using a home-made system. All participants were randomly divided into the deception group and the non-deception group. In the CIT, participants were presented with a series of name stimuli, including target stimuli, irrelevant stimuli, and probe stimuli during deception detection. Participants were presented with their own names as probe stimuli and tasked with discriminating whether the presented stimulus was a target stimulus. They responded by pressing a button if it was indeed a target stimulus. The deception group was required to conceal the truth that they recognized their names, i.e., they had to lie when they saw their names, whereas the non-deception group responded truthfully. The results demonstrated significant differences in P300 amplitude

and HbO concentration changes between probe stimuli and irrelevant stimuli for both the deception group and the non-deception group. However, there was no significant difference in P300 and HbO concentration changes induced by probe stimuli. These findings suggest that deception had no effect on the deception detection, indicating that the neural mechanism underlying EEG and fNIRS deception detection was associated with the orienting response.

Keywords: deception, deception detection, neurolaw, concealed information test, EEG, fNIRS

身高很重要：相对身高劣势促进第三方惩罚的的脑电研究

孟雨佳[1]　贾淑钰[1]　刘映杰[1]（通讯作者）

华北理工大学心理与精神卫生学院，唐山，063000，psyliuyingjie@163.com

摘 要

第三方惩罚是发生在人际互动中的亲社会行为，互动对象的特征将对第三方惩罚产生重要影响。作为直立行走的人类，身高是最显著的外在特征。拿破仑情结是身高影响心理的重要表现，是指矮个子男性将产生自卑心理并采取其他方式来弥补身高差距。本研究采用基于独裁者博弈的第三方惩罚任务，应用事件相关电位（ERP）、时频分析和功能连接技术，全面探讨男性相对身高差异（拿破仑情结）对第三方惩罚影响及其认知神经机制。结果发现，与第三方的身高高于不公平分配方案的接受者相比，当第三方的身高矮于接受者时，第三方惩罚率和惩罚分数都显著更大。当第三方的身高矮于接受者时，由身高劣势引起的愤怒会引起显著更大的 P300 波幅和 theta 能量。此外，受到愤怒情绪的影响，个体对分配方案的注意力被分散，引起的 N1 波幅将减小。功能连接结果显示，当第三方低于接受者时，rTPJ 与顶叶区、DLPFC 与顶叶区之间的功能连接值(wPLI)显著更大。研究结果表明，个子较矮的男性为了追求声誉利益而进行第三方惩罚，所以他们更关心他人对自己的评价，并有更多的心理化过程。综上所述，拿破仑情结将促进第三方惩罚。相对较矮的男性会受到相对身高劣势引起的负面情绪的影响，并追求声誉利益来弥补身高劣势。

关键词　拿破仑情结，第三方惩罚，公平，ERP，时频分析，功能连接

Height matters: An EEG study of the relative height disadvantage promoting third-party punishment

Yujia Meng　Shuyu Jia　Yingjie Liu

School of Psychology and Mental Health, North China University of Science and Technology

21 Bohai avenue, Caofeidian district, Tangshan, Hebei province, China

Abstract: Third-party punishment is essential for maintaining social norms. However, third-party punishment is usually influenced by personal characteristic factors. In this study, we applied event-related potential (ERP), time-frequency analysis, and functional connectivity to comprehensively explore the influence of a typical personal characteristic-male relative height difference (Napoleon complex) on the third-party punishment and neural mechanism. The results found that shorter men show a higher punishment rate and more transfer amount. When the third party is shorter than the recipient, anger caused by the height disadvantage evoked greater P300 amplitude and more theta power. Affected by anger, attention to the offering is dispersed, evoking a smaller N1. When a third party is shorter than the recipient, alpha band power was less, and wPLI was significantly stronger between rTPJ and the posterior parietal region and DLPFC and the posterior parietal region. The results suggest that shorter men engage in third-party punishment to pursue reputation benefits, so they care more about the perceptions of others and have more mentalizing processes. The Napoleon complex promotes third-party

punishment. Relative shorter men are influenced by negative emotions resulting from relative height disadvantage and pursue reputation interests to make up for height disadvantage.
Keywords： Napoleon complex, Third-party punishment, fairness, ERP, Time-frequency analysis, Functional connectivity

5.13 临床与咨询心理学专业委员会

临床大规模抑郁焦虑共病患者治疗前后的网络比较分析

李宁[1,2] 丁凤琴[1]（通讯作者） 张森森[1] 靖治[1,3] 赵雨萌[1]
1 宁夏大学教师教育学院心理学系，银川，750000
2 宁夏精神卫生中心，宁安医院，银川，750000
3 鄂尔多斯工业大学学生事务办公室心理健康教育系，鄂尔多斯，017000
通讯作者 dingfqin@nxu.edu.cn

摘 要 新冠肺炎流行期间，抑郁焦虑共病人群数量激增。与单一抑郁或焦虑相比。合并症造成了更严重的功能损伤、更差的治疗效果和预后以及更低的患者满意度。与主流的共同病因模型相比，网络分析是研究合并症的一个新视角，可以从症状水平上更好地识别合并症的典型症状以及两种障碍间的合并机制，揭示传统评估工具无法捕捉到的病情变化。本研究在 2019 年 11 月至 2022 年 11 月期间，收集了 787 名临床合并症患者（平均年龄：31.8 岁，67.1%为女性）治疗前后（T1→T2）的 Zung 氏抑郁自评（SDS）和焦虑自评（SAS）量表数据，计算了节点强度中心性和桥梁强度，评估了网络的稳健性，并利用网络比较测试（NCT）来探索治疗前后和不同性别群体的网络差异。研究结果表明，获得的网络模型是高度稳定和准确的。“空虚感”在合并症状中表现出最高的强度中心性，尤其在青少年群体中最为明显；网络中最强的边缘出现在两个障碍的重叠症状之间（心动过速-心悸，疲劳-易疲劳，睡眠困难-失眠）；大多数桥梁节点与 SDS 的情绪、生理和心理症状有关，失眠与 SAS 的躯体症状相关。尽管治疗过程中评估工具的总分降低，但 NCT 证实网络的整体强度显著增加（$p = .03$）。此外，在男性的网络分析中“精神解体”显示出更高的强度中心性。以上结果说明：（1）确定了合并症中最核心症状—空虚感，支持了“空心病”的理论，为进一步治疗合并症提供准确的干预靶点；（2）揭示了两种障碍之间的起到合并作用的桥症状以及合并的路径，重叠症状和两种障碍各自独立症状簇的发现再次验证了两种疾病有共同的结构又表现出独特的特征；（3）证实了当前评估工具对症状的变化的掩盖，以及合并症网络的性别差异。因此，将网络分析整合到诊断、治疗和随访过程中有助于制定个性化干预措施并加速合并症人群的康复。
关键词 网络分析，抑郁症，焦虑症，合并症，治疗

Network analysis of comorbid depression and anxiety disorders in a large clinical sample: a pre- and post-treatment comparison

Ning Li[1, 2], Fengqin Ding[1*], Sensen Zhang[1] , Zhi Jing[1, 3], and Yumeng Zhao[1]
[1] Department of Psychology, Institute of Teacher Education, Ningxia University, Yinchuan, China
[2] Ningxia Provincial Mental Health Center, Ningan Hospital,Yinchuan, China
[3] Mental Health Counseling Center of Erdos College of Applied Technology, Ordos, China

Abstract: During the COVID-19 pandemic, there has been a significant increase in the number of individuals with comorbid depression and anxiety. Compared to singular depression or anxiety, comorbidity leads to more severe functional impairment, poorer treatment outcomes and prognosis, and lower patient satisfaction. Network analysis, as a new perspective in studying comorbidity, allows for a better identification of typical symptoms and the underlying mechanisms between the two disorders at the symptom level. It reveals changes in illness that traditional assessment tools fail to capture. In this study, data from the Zung Self-Rating Depression Scale (SDS) and Zung Self-Rating Anxiety Scale (SAS) were collected from 787 clinical comorbid patients (mean age: 31.8 years, 67.1% female) before and after treatment (T1→T2) between November 2019 and November 2022. Node strength centrality and bridge strength were calculated, network robustness was evaluated, and Network Comparison Tests (NCT) were conducted to explore the differences in networks before and after treatment and among different gender groups. The results indicate that the obtained network model is highly stable and accurate. *Emptiness* exhibited the highest strength centrality among comorbid symptoms, particularly in the adolescent group. The strongest edges in the network occurred between overlapping symptoms of the two disorders (rapid heartbeat-palpitations, fatigue-easily fatigued, sleep difficulties-insomnia). Most bridge nodes were related to emotional, physiological, and psychological symptoms of SDS, while insomnia was associated with physical symptoms of SAS. Despite a decrease in overall scores of the assessment tools during the treatment process, NCT confirmed a significant increase in the overall strength of the network (p = .03). Furthermore, *Mental disintegration* showed higher strength centrality in the network analysis of males. The results suggest that: (1) the core symptom of comorbidity, *Emptiness,* supports the theory of *Hollow mind disorder* and provides accurate intervention targets for further treatment of comorbidity; (2) the bridging symptoms and pathways that contribute to comorbidity between the two disorders are revealed, and the discovery of overlapping symptoms and distinct symptom clusters of each disorder reaffirms the common underlying structure and unique features of the two diseases; (3) it confirms the masking effect of current assessment tools on symptom changes and the gender differences in comorbidity networks. Therefore, integrating network analysis into the diagnostic, treatment, and follow-up processes helps in developing personalized interventions and expediting the recovery of comorbid populations.

Keywords: network comparison test, depression, anxiety, comorbidity, treatment setting

中国癌症患者抑郁症状亚型的分类与转变：一项纵向研究

邵宇飞[1]　朱蕾[1]（通讯作者）

1 陕西师范大学心理学院，西安，710062，lei.zhu@snnu.edu.cn

摘 要　随着死亡率和发病率的上升，癌症已成为世界范围内死亡的主要原因之一。癌症患者总是比健康人群报告更多严重的心理问题，而抑郁是这些问题中最为常见的心理症状之一。然而，不同患者的抑郁症状不尽相同，因此应针对不同的抑郁亚型精准实施不同的干预措施来减轻其症状。目前该方面的研究多为横断研究，纵向研究较少，且基本以西方为背景进行，缺少针对于中国癌症患者的研究。本纵向研究聚焦于中国癌症患者的抑郁症状，目的：(1)确定癌症患者抑郁症状的不同亚型；(2)研究抑郁症亚型在不同癌症阶段的稳定性和转变率。方法：对陕西省肿瘤医院的 153 名癌症患者进行三个时间点的追踪研究，分别于首次确诊后一周内(T1)、开始就医后一周内(T2)、就医结束后一周内(T3)进行数据收集，包括人口学数据、医学特征，以及采用 9 条目病人健康问卷(PHQ-9) 测量的抑郁情况。通过潜在剖面分析（LPA）和潜在转换分析（LTA）对数据进行建模和验证。结果：本研究确定了四种潜在的抑郁症亚型:“无抑郁”、“轻度抑郁”、“中度抑郁”和“重度抑郁”。“无抑郁”亚型的大多数患者从 T1 到 T3 时期均保持稳定。大约一半的“轻度抑郁”患者从 T1 到 T2 保持稳定，但从 T2 到 T3 过渡到“无抑郁”亚型。“重度抑郁”的患病率从 T1 到 T2 保持稳定，但从 T2 到 T3 显著下降。结论：本研究证实了我国癌症患者存在四种不同的抑郁症状亚型。四种亚型的大多数患者从首次诊断到开始治疗保持稳定，而后症状有所缓解至治疗结束。同时，仍需要对“重度抑郁”患者进行专门的心理干预。

关键词　抑郁，癌症患者，潜在剖面分析，潜在转换分析

Classification and transition in subtypes of depressive symptoms in Chinese cancer patients: A longitudinal study

Shao Yufei, Zhu Lei

School of Psychology, Shaanxi Normal University, Xi'an, 710062

Abstract：With the rise in mortality and morbidity, cancer has become one of the leading causes of death worldwide. Cancer patients always are more likely to report serious psychological problems than the healthy people, while depression is one of the most common psychological symptoms among these problems suffered by cancer patients. However, the depressive symptoms in different patients are not the same, different interventions should therefore be precisely implemented for different subtypes to relieve their symptoms. At present, most of the studies in this aera are cross-sectional studies, and few longitudinal studies basically conducted in the Western background, while there is a lack of research on Chinese cancer patients. This longitudinal study focused on depressive symptoms in cancer patients in China, the purpose of this longitudinal study is to (1) identify the different subtypes of depressive symptoms; (2) investigate the stability and transition of depression subtypes over different stages of cancer. Methods: The study was conducted on 152 cancer patients in Shaanxi Cancer Hospital at three time points. Data, including demographic data, medical characteristics, and depressive symptoms measured by the 9-item Patient Health Questionnaire (PHQ-9), were collected within 1 week after the first diagnosis (T1), 1

week after the start of medical treatment (T2), and 1 week after the end of medical treatment (T3), modeled and validated by Latent profile analysis (LPA) and Latent transition analysis (LTA). Results: Four latent subtypes of depression were identified: “no depression”, “mild depression”, “moderate depression” and “elevated depression”. Most patients in the “no depression” profile remained stable from T1 to T3. About half of patients in “mild depression” profile remained stable from T1 to T2 but moved into “no depression” profile from T2 to T3. The prevalence of “elevated depression” remained stable from T1 to T2 but significantly declined from T2 to T3. Conclusions: Four different subtypes of depressive symptoms were confirmed in Chinese cancer patients in this study. Most patients of the four subtypes remained stable from the first diagnosis to the beginning of medical treatment, while relieved till the end of medical treatment. Meanwhile, specialized psychological intervention is still needed to offer to patients in “elevated depression” profile.

Keywords：Depression, Cancer patients, Latent profile analysis, Latent transition analysis

重度抑郁症患者白质微结构的内在破坏:基于体素的弥散张量成像元分析

郭云霄[1] 刘奕浓[1] 刘威[1] 任志洪[1]（通讯作者）

[1]青少年网络心理与行为教育部重点实验室，华中师范大学心理学院，湖北省人的发展与心理健康重点实验室，武汉，430079，ren@ccnu.edu.cn

摘 要 近年来大脑白质与精神疾病的关系得到广泛重视。重度抑郁症(Major depressive disorder, MDD)是一种常见的致残性情绪障碍，很多研究发现重度抑郁症与大脑白质(white matter, WM)微结构异常有关，判断白质微结构异常的核心指标是分数各向异性(Fractional anisotropy ,FA)。然而当前使用弥散张量成像技术(diffusion tensor imaging, DTI)研究报告重度抑郁症患者的 FA 异常脑区不一致，且有研究发现重度抑郁症患者相较于健康对照组(Healthy control, HC)其大脑白质 FA 值并无显著异常。为解决当前研究困惑，本研究根据 PRISMA 指南采用关键词在 Embase、Web of Science、PubMed、PsycINFO、Cochrane Library 和 Scopus 数据库进行文献搜索，检索时间截至 2023 年 5 月 30 日，纳入已发表和未发表的文献进入统计分析。使用基于全脑的分析方法对 MDD 相对于健康对照组的分数各向异性(FA)进行了荟萃分析，利用基于种子的主题图像排列映射(Seed-based d mapping via permutation of subject images, SDM-PSI)来识别与 MDD 发病机制相关的 WM 异常。分析方法分别为基于体素的全脑分析（Voxel-based analysis ,VBA）和基于神经纤维束的空间分析（tract-based spatial statistics ,TBSS）。为了对 VBA 研究和 TBSS 研究共同进行荟萃分析，在生成效应大小统计的差异图时采用了基于 FMRIB58 FA 骨架的 TBSS 模板，将 TBSS 骨架掩膜应用于每个效应大小统计的差异图，确保 TBSS 和 VBA 研究都受到相同的分析覆盖。经过筛选本研究最终将 35 项研究，包括 3064 名被试（MDD=1755，HC=1309）纳入基于全脑的荟萃分析。结果显示，与健康对照相比，重度抑郁症患者的胼胝体(Corpus callosum , CC)和丘脑前投射(anterior thalamic projections , ATP) FA 较低。元回归分析显示，MDD 患者的胼胝体(CC)FA 值减少与症状严重程度和抑郁持续时间呈负相关。亚组分析显示，单独 17 项 VBA 分析结果更为显著，MDD 患者的胼胝体(CC)相对于健康对照组有更低的 FA 值。单独 18 项 TBSS 分析在统计矫正后无结果。 本研究结果为 MDD 的临床诊断和治疗提供了强有力的证据，表明大脑半球间连接和丘脑-皮层前回路的 WM 损伤可能在 MDD 的发病机制中起重要作用，它可能是重度抑郁症的潜在生物标志物。除此之外，本研究发现对于 MDD 的白质 FA 值分析，VBA 相对于 TBSS 可能更具有敏感性。

关键词：重度抑郁症，白质，弥散张量成像 ，元分析

Intrinsic disruption of white matter microarchitecture in major depressive disorder: A voxel-based meta analysis of difusion tensor imaging

Yunxiao Guo[1] Yinong Liu[1], Wei Liu[1] , Zhihong Ren[1]

[1] Key Laboratory of Adolescent Cyberpsychology And Behavior (CCNU), Ministry Of Education; School of Psychology, Central China Normal University; Key Laboratory of Human Development and Mental Health Of Hubei Province, Wuhan, China

Abstract： In recent years, the relationship between brain white matter and mental illness has received extensive attention. Major depressive disorder (MDD) is a common disabling mood disorder, and many studies have found

that major depressive disorder is associated with abnormal white matter (WM) in the brain. Fractional anisotropy (FA) is the core index for determining white matter abnormalities. However, current studies using diffusion tensor imaging (DTI) have reported that the FA abnormal brain regions in patients with major depression are inconsistent, and some studies have found that compared with the control group, the FA values of the brain white matter in patients with major depression are not significantly abnormal. In order to solve the current research confusion, this study conducted a literature search based on PRISMA guidelines using keywords in Embase, Web of Science, PubMed, PsycINFO, Cochrane Library and Scopus databases. The search time was up to May 30, 2023. Published and unpublished literature was included in the statistical analysis. A meta-analysis of the fractional anisotropy (FA) of MDD relative to healthy controls was performed using a whole-brain-based analysis method. A Seed-based d mapping via permutation of subject images (SDM-PSI) was used to identify WM abnormalities associated with the pathogenesis of MDD. The analysis methods were Voxel-based analysis (VBA) and tract based spatial statistics (TBSS). To allow for meta-analyzing both VBA studies and TBSS studies, we adopted the TBSS template when generating the effect size-signed differential maps. This template is based on the FMRIB58 FA skeleton(http://www.fmrib.ox.ac.uk/fsl). Applying the TBSS skeleton mask to each effect size-signed differential map ensures that both TBSS and VBA studies are subjected to identical analysis coverage. After screening, 35 studies including 3064 participants (MDD=1755, HC=1309) were included in a brain-based meta-analysis. Results showed that patients with major depression had lower Corpus callosum (CC) and anterior thalamic projections (ATP) FA compared to healthy controls. Meta-regression analysis showed that reduced corpus callosum (CC)FA values in MDD patients were inversely associated with symptom severity and duration of depression. Subgroup analysis showed that the results of 17 VBA analyses alone were more significant, with MDD patients having lower FA values in the corpus callosum (CC) compared to healthy controls. The 18 TBSS analyses alone had no results after statistical correction. Our findings provide strong evidence for clinical diagnosis and treatment that WM impairment of the brain's interhemispheric connections and thalamic-cortical precircuits may play an important role in the pathogenesis of MDD and that it may be a potential biomarker of major depressive disorder. In addition, this study found that VBA may be more sensitive than TBSS for white matter FA value analysis of MDD.

Keywords: Major depressive disorder, White matter, Diffusion tensor imaging, Meta-analysis

短视频成瘾与抑郁症状的纵向发展：一项交叉滞后网络分析

刘博文 陈润森（通讯作者）
清华大学万科公共卫生与健康学院，北京，100101
通讯作者 E-mail：runsenchen@tsinghua.edu.cn

摘 要

背景：短视频成瘾作为一种新兴的网络成瘾类型，在当今青少年中已成为一个重要问题。短视频成瘾可能会与抑郁症状存在共病，但这些具体症状之间相互作用、以及进一步维持症状的机制仍未清晰。近年来，网络分析模型成为揭示这个复杂难题的一种有效方法。这种模型突破了潜变量模型的局限，将精神障碍区分为具体症状本身之间的相互作用。交叉滞后面板网络模型则可以进一步精神症状随着时间发展而变化的纵向过程。因此，本研究采用交叉滞后面板网络模型，旨在揭示短视频成瘾和抑郁症状纵向发展的网络结构。

方法：采用整群抽样法在北京一所大学进行了问卷调查，分别在 2021 年和 2022 年进行了两次数据收集，数据收集间隔为 12 个月。最终样本包括 1163 名参与者（Mage=19.46，SD=1.04, 77.6%为女性）。抑郁症状使用患者健康问卷-9（PHQ-9）进行测量，短视频成瘾使用修改版的 Facebook 成瘾量表进行测量。所有统计分析均基于 R 软件。使用 glmnet 包分析网络回归，使用 qgraph 包绘制所有图形，使用 R 中的 bootnet 包估计网络稳定性和准确性。计算预期内影响（IEI，指某症状被其他症状所影响的效力）和预期外影响（OEI，指某症状对其他症状的影响效力）来明确症状之间的方向性。计算桥接预期影响（BEI）以确定桥接节点。

结果：短视频成瘾症状中最强的预期外影响节点是 A2（“越来越想使用短视频软件”，OEI = 1.93），抑郁症状中最强的预期外影响节点是 D1（快感缺失，OEI = 0.57），这意味着它们对其他症状有更强的预测能力。短视频成瘾症状中最强的预期内影响节点是 A1（“花费大量时间思考短视频软件或计划使用它”，IEI = 2.06），抑郁症状中最强的预期内影响节点是 D3（睡眠问题，IEI = 1.05），这意味着它们受其他症状的强烈预测。A6（“刷短视频影响了学习”，BEI = 1.70）和 D2（情绪低落，BEI = 0.80）被发现作为桥接症状连接了两种心理健康问题。值得注意的是，在抑郁症状中存在两个较强的负向边：D9：自杀意念→D1：快感缺失（OR = 0.89），以及 D9：自杀意念→D2：情绪低落（OR = 0.90）。

结论：研究结果明确了特定成瘾症状如“越来越想使用短视频软件”（A2）和抑郁症状如“快感缺失”（D1）可以预测网络中其他症状的发展。此外，成瘾症状“冲突”（A6）和抑郁症状“情绪低落”（D2）可能作为桥接症状说明了两个症状群之间的共病机制。此外，本研究发现“自杀意念”症状的存在负向预测了随后的抑郁症状中‘快感缺失’（D1）和‘情绪低落’（D2）的发生。这提示自杀意念可能作为一种情绪调节策略，为个体提供了缓解情绪的突破口。从理论角度来看，本研究结果揭示了短视频成瘾症状和抑郁症状之间纵向发展的关键症状。在实际应用中，识别这些关键的靶点症状有助于为相关的预防和治疗策略提供指导。

关键词 短视频成瘾, 抑郁症状, 共病, 桥接网络, 交叉滞后网络分析模型

The longitudinal relationships between short video addiction and depressive symptoms: A cross-lagged panel network analysis

Bowen Liu, Runsen Chen (Corresponding author)
Vanke School of Public Health, Tsinghua University, Beijing, China.
E-mail：runsenchen@tsinghua.edu.cn

***Abstract*：**

Background: Short video addiction, a specific type of internet addiction, has emerged as a significant problem among youth today. The high prevalence of co-occurring mood problems, such as depressive symptoms, in individuals with short video addiction poses additional challenges for treatment. However, the extent to which these symptoms interact, predict each other, and further maintain the problems remains unclear. In recent years, the rapid development of the network approach has emerged as a promising avenue for unraveling this complex puzzle. Instead of perceiving these disorders as latent entities, this approach conceptualizes mental disorders as emerging from causal interactions among various symptoms. The cross-lagged panel network model (CLPN) can unveil the longitudinal dynamics occurring within and between mental disorders over time. Therefore, this study employed CLPN to reveal the directional network structure between the co-occurrence of short video addiction and depressive symptoms.

Methods: A cluster sampling method was used to conduct questionnaire surveys in a university located in Beijing in both 2021 and 2022, with a 12-month interval between the two data collection waves. The final sample consisted of 1163 participants (Mage = 19.46, SD = 1.04), including 903 (77.6%) females. Depressive symptoms were measured by the Patient Health Questionnaire-9 (PHQ-9) and short video addiction was measured by the modified version of the Facebook Addiction Scale. All statistical analyses were performed using R (Version 4.2). The glmnet package was used to calculate regressions and the qgraph package was used to plot all graphs. The bootnet package in R was used to estimate the network stability and accuracy. In-expected influence (IEI) and out-expected influence (OEI) were estimated to parse the directionality between items. The bridge expected influence (BEI) were estimated to identify the bridge items.

Results: There were 112 non-zero cross-lagged edges after regularization convergence and omission of autoregressive paths in the network, and the mean of cross-lagged edges was 1.02. The strongest out-EI nodes were A2 (Tolerance, ‘felt an urge to use ticktock more and more’, OEI = 1.93) in short video addiction symptoms and D1 (Anhedonia, OEI = 0.57) in depressive symptoms, meaning they had stronger predictive power for other symptoms. The strongest in-EI nodes were A1 (Salience, ‘spending a significant amount of time thinking about TikTok or planning its use’, IEI = 2.06) in short video addiction symptoms and D3 (sleep, IEI = 1.05) in depressive symptoms, meaning they were strongly prospectively predicted by other symptoms. Both A6 (Conflict, ‘used ticktock so much that it has had a negative impact on your studies’, BEI = 1.70) and D2 (Sad mood, BEI = 0.80) were found to act as bridging symptoms, connecting two mental health issues. The noteworthy point is that there were two strong negative edges within depression symptoms: D9: suicide ideation → D1: anhedonia (OR = 0.89), and D9: suicide ideation → D2: sad mood (OR = 0.90).

Conclusion: The study findings highlight that specific addiction symptoms like ‘Tolerance’ (A2) and depressive symptoms such as ‘Anhedonia’ (D1) can predict the development of mental health issues over time. Additionally, addiction problem ‘Conflict’ (A6) and emotional states like ‘Sad mood’ (D2) may act as bridge symptoms linking the co-occurrence of these conditions. Identifying these key and bridge symptoms can guide prevention and treatment strategies for short video addiction in this population. Moreover, it was observed that the presence of ‘suicidal ideation’ symptoms negatively predicted the occurrence of subsequent depressive symptoms over time, including ‘Anhedonia’ (D1) and ‘Sad mood’ (D2). Suicidal ideation may serve as an emotional regulation strategy, offering individuals immediate tension reduction and a perceived sense of control over their emotions. Our research not only expands the theoretical value of the problematic internet use model but also underscores the practical value of considering bridge symptoms in the exploration of addiction problems. From a

theoretical perspective, it highlights the growing comorbidity phenomenon between symptoms of short video addiction and depressive symptoms. In practical application, it is imperative to disrupt the link between bridge symptoms to prevent the exacerbation of dense connectivity among comorbid mental health problems.

Keywords: short video addiction, depressive symptoms, network analysis, comorbidity, cross-lagged panel design

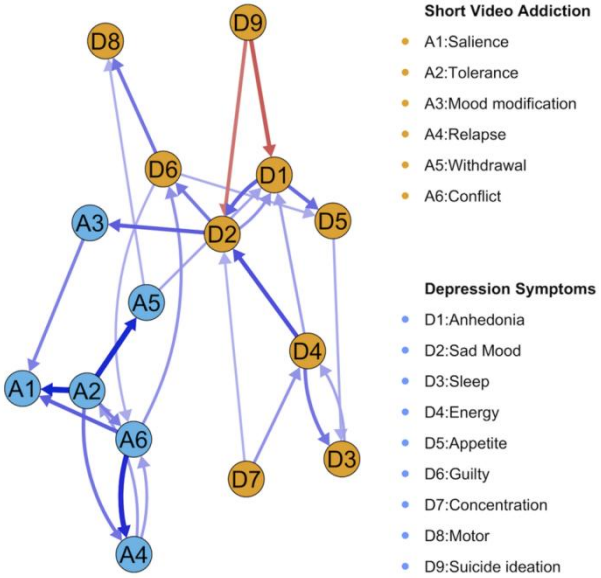


Figure 1. The cross-lagged panel networks for T1 → T2.

移动网络化接纳承诺疗法干预创伤后应激障碍的心理机制：随机对照试验数据的再分析

[1,2]赵春晓 [2]赵子仪 [2]赖丽足 [2]任志洪（通讯作者）

[1]湖北中医药大学医学人文学院，武汉，430065

[2]青少年网络心理与行为教育部重点实验室，华中师范大学心理学院，湖北省人的发展与心理健康重点实验室，武汉 430079

通讯作者：任志洪 E-mail：ren@ccnu.edu.cn

摘要　COVID-19 的流行及其广泛影响，导致创伤后应激障碍(posttraumatic stress disorder，PTSD)症状的发病率大幅度上升。移动网络化接纳承诺疗法(Acceptance and Commitment Therapy, ACT)被证明能有效干预 PTSD，但导致其有效的心理机制还有待探索。本研究以再分析一项以 221 名符合 PTSD 临时诊断以及亚临床症状者为被试的随机对照试验的数据来探索移动网络化 ACT 干预 PTSD 的心理机制。该随机对照试验设置 ACT 干预组（*n*=78），正念干预组（Mindfulness Intervention，MI 组，*n*=76）以及等待组（Waitlist，WL 组，*n*=67）。假设的心理机制是心理灵活性的六个成分，即，接纳、此时此刻、以己为景、认知解离、价值和承诺行动。假设的心理机制用多维心理灵活性清单-24 (multidimensional psychological flexibility inventory, MPFI-24)评估。结果变量为 PTSD 症状的严重性，以创伤后应激障碍检查表第五版（Posttraumatic Stress Disorder Checklist-5，PCL-5)评估。本研究共 7 个测量时间点，数据分析采用潜变量增长曲线模型（latent growth curve modeling，LGCM）。结果表明，除了此时此刻没有在 ACT 干预中得到显著改善，认知解离、承诺行动、价值、接纳和以己为景均在 ACT 干预 PTSD 中起到完全的中介作用。因此，提升接纳、以己为景、认知解离、厘清价值观和增强承诺行动有助于提升 ACT 干预 PTSD 的有效性。

关键词　移动网络化接纳承诺疗法，创伤后应激障碍，心理机制，潜变量增长曲线模型

Mechanisms of change in Internet-based Acceptance and Commitment Therapy for posttraumatic stress disorder in China: Secondary analysis of a randomized controlled trial

[1,2]Chunxiao Zhao [2]Ziyi Zhao [2]Lizu Lai [2]Zhihong Ren (Corresponding Author)

[1]School of Medical Humanities, Hubei University of Chinese Medicine, Wuhan, 430065, China

[2]Key Laboratory of Adolescent Cyberpsychology and Behavior, Ministry of Education; School of Psychology at Central China Normal University; Key Laboratory of Human Development and Mental Health of Hubei Province, Wuhan, 430079

Corresponding Author: Zhihong Ren: ren@ccnu.edu.cn

***Abstract*:** The COVID-19 epidemic and its widespread impact have led to a significant increase in the incidence of posttraumatic stress disorder (PTSD) symptoms. Internet-based Acceptance and Commitment Therapy (ACT) has been shown to be an effective intervention for PTSD, but the psychological mechanisms leading to its effectiveness remain to be explored. This study analyzed data from a randomized controlled trial of 221 participants who met the provisional diagnosis and subclinical symptoms of PTSD to explore the psychological mechanism of Internet-based ACT intervention in PTSD. The participants were assigned to ACT Intervention group (*n*=78), Mindfulness Intervention group (MI group, *n*=76) and waiting group (WL group, n=67). The

putative mediators were the six components of psychological flexibility, namely, acceptance, present moment awareness, self as context, cognitive defusion, values, and committed action. putative mediators were evaluated using multidimensional psychological flexibility inventory (MPFI-24). The outcome was the severity of PTSD symptoms, as assessed by the Posttraumatic Stress Disorder Checklist 5 (PCL-5). There were 7 measurement time points in this study, and the data were analyzed using latent growth curve modeling (LGCM). The results showed that cognitive defusion, committed action, value, acceptance, and self as context were mediators in the ACT intervention for PTSD. Therefore, promoting acceptance, self as context, cognitive defusion, clarifying values, and enhancing commitment actions can improve the effectiveness of ACT intervention for PTSD.

Keywords: Internet-based Acceptance and Commitment Therapy; Posttraumatic Stress Disorder; Psychological mechanism; latent growth curve model

创伤后应激障碍心理治疗效果的基线预测变量：系统综述与元分析

赵子仪[1] 李睿[1] 郭云霄[1] 卢易[1] 阮君[1] 李莹[1] 郭子涵[1] 刘昕怡[1] 任志洪[1]（通讯作者）
青少年网络心理与行为教育部重点实验室，华中师范大学心理学院，湖北省人的发展与心理健康重点实验室，武汉，430079，通讯作者 E-mail：ren@ccnu.edu.cn

摘 要 创伤后应激障碍（Posttraumatic stress disorder, PTSD）是一种以直接或间接方式接触实际的或被威胁的死亡、严重创伤或性暴力事件后所发展出的心理障碍。新冠肺炎疫情爆发后，PTSD 在世界范围内的检出率显著提升，其所造成的健康风险、经济负担、财政压力为个人、家庭和社会带来巨大挑战，也为针对 PTSD 的有效干预提出了更高的要求。以认知行为疗法、延长暴露疗法、眼动脱敏疗法等为代表的心理干预是治疗 PTSD 的重要手段，然而，仅有不到 50%的患者能从干预中获益，其余患者则可能经历延长症状、甚至出现症状的恶化。考虑到无效或不充分干预对患者可能造成的二次伤害，有必要探究能有效预测 PTSD 心理干预效果的基线变量，进而为干预方案的选择及干预-患者的精准匹配提供指导。基于此，本研究在 Web of science，Embase，PubMed/Medline, PsycINFO 和 Cochrane 进行文献检索，共纳入 123 项研究，25284 名被试，系统综述对 PTSD 心理治疗效果具有预测意义的基线变量，并在此基础上计算各类变量对治疗效果的标准化预测效应量。结果显示，（1）现有受到较多关注的基线预测变量主要来自临床症状、创伤特征、心理及社会特征、认知加工特征、认知神经及生物特征、人口学特征六个领域。（2）性别（r = 0.09）、基线愤怒（r = -0.19）、基线抑郁（r = -0.09），创伤后负性认知（r = -0.17），社会支持（r = 0.27）对干预效果的预测作用显著。具体来说，相比较男性，女性更容易在 PTSD 的心理干预中获益；具有较低基线愤怒、抑郁、创伤后负性认知，较高社会支持水平的个体更有可能在干预后获得症状改善。PTSD 心理干预效果的预测变量正变得越来越具有多样性，但研究结果间的异质性和不稳定性也较为突出，未来需要更多高质量、具有针对性的预测因素研究，进而为优化干预方案，推进个性化干预提供指导。

关键词 创伤后应激障碍，心理治疗，干预效果

Predictors of psychotherapy outcomes for posttraumatic stress disorder: a systematic review and meta-analysis

Ziyi Zhao, Rui Li, Yunxiao Guo, Yi Lu, Jun Ruan, Ying Li, Zihan Guo, Xinyi Liu, Zhihong Ren
Key Laboratory of Adolescent Cyberpsychology and Behavior (CCNU), Ministry of Education, Key Laboratory of Human Development and Mental Health of Hubei Province, School of Psychology, Central China Normal University, Wuhan; China

Abstract：Posttraumatic stress disorder (PTSD) is a psychological disorder which develops after the exposure to actual or threatened death, serious injury, or sexual violence in direct or indirect ways. The COVID-19 pandemic has increased mental health problems in the global public, especially posttraumatic stress disorder (PTSD) symptoms, putting individuals at risk of health problems, and placing a heavy financial burden on families and societies. Psychological interventions, including cognitive behavioral therapy (CBT), prolonged exposure therapy (PE) and eye movement desensitization and reprocessing therapy (EMDR), are important treatment for PTSD. However, less than 50% of PTSD patients benefit from the psychological intervention, and symptoms may be prolonged or even worsened in the rest. Considering the potential harm caused by ineffective or inadequate interventions, the present systematic review and meta-analysis aims to explore the predictors of psychotherapy

outcomes for PTSD and compute comparable effect sizes at marker level, which could further provide guidance for the selection of intervention and the precise matching of interventions-patients. Web of science, Embase, PubMed/Medline, PsycINFO, and Cochrane were systematically searched. One hundred twenty-three studies, totaling 25,284 individuals, met inclusion criteria. Results showed that (1) the predictors of psychotherapy outcomes for PTSD mainly came from six domains: clinical symptoms, trauma characteristics, psychological and social, cognition, cognitive neurological and biological, and demographic characteristics. (2) Gender (r = 0.09), baseline anger (r = -0.19), baseline depression (r = -0.09), post-traumatic cognitions (r = -0.17), and social support (r = 0.27) were significant predictors of intervention effects. Specifically, women were more likely to benefit from psychological interventions for PTSD compared to men; individuals with lower baseline anger, depression, negative posttraumatic cognitions, and higher levels of social support were more likely to experience symptomatic improvement after the intervention. Identifying and understanding the pre-treatment markers that predict treatment response may offer insight into the mechanisms of psychological treatment, provide a foundation for improving the efficacy of treatment, and inform treatment matching. Further high-quality research with more transparent and standardized reporting is needed.

Keywords：PTSD, psychological intervention, treatment outcome

基于网络分析的心理痛苦三因素模型对老年人自杀意念的预测效能

陈钰莹[1]　李欢欢[1]（通讯作者）
1 中国人民大学心理学系，北京，100872
通讯作者 E-mail: psylihh@ruc.edu.cn

摘 要　老年人是自杀高危人群，该人群自杀既有相对特有的风险因素如躯体因素，也有与其他人群共有的风险因素如自杀理论下的心理因素。以往多识别单一风险因素，对它们之间如何相互作用从而增加老年人自杀风险知之甚少，因此本研究基于心理痛苦三因素模型，结合网络分析方法，考察该模型对老年人自杀意念的解释力以及风险因素之间的关系模式。采用分层按比例抽样法，从北京市海淀区六所社区招募 505 名 60 周岁及以上的老年人，其要完成贝克自杀意念量表、心理痛苦量表、三维心理痛苦量表、贝克抑郁量表第 2 版、贝克无望感量表、巴瑞特冲动性量表、人际需求量表、习得自杀能力-无畏死亡量表、世界卫生组织生存质量测定量表简表、疾病家庭负担量表和整体疼痛量表。结果发现：（1）在老年人自杀意念网络中，从直接关系看，当前痛苦逃避、习得自杀能力、无望感、单维心理痛苦、生理疼痛、家庭疾病负担和社会领域生存质量与当前自杀意念直接正向关联，最严重时痛苦逃避、最严重时痛苦体验、受挫的归属感、习得自杀能力和无望感与最严重时自杀意念直接正向关联，其中单维心理痛苦与当前自杀意念的连线权重最大（r_p=0.18），最严重时痛苦逃避与最严重时自杀意念的连线权重最大（r_p=0.48）。从间接关系看，抑郁、受挫的归属感以及心理领域生存质量通过单维心理痛苦间接与当前自杀意念相连，抑郁、知觉到的累赘感以及环境领域生存质量通过当前痛苦逃避间接与当前自杀意念相连；（2）当前痛苦体验预期影响最大，单维心理痛苦中介中心性最强；（3）在对当前和最严重时自杀意念可预测性的相对重要性排序中，当前（7.94%, 95% CI 0.51-26.17）和最严重时痛苦逃避（29.00%, 95% CI 19.59-37.20）分别是位于首位的风险因素。结果表明相较于心理因素、躯体因素和综合因素，痛苦逃避对老年人自杀意念的解释力更优。痛苦体验可能是老年人自杀意念维持的重要因素。对不同远端因素，心理痛苦都是老年人自杀意念稳定的近端风险因素。提示在老年人心理危机干预策略中，心理痛苦可作为有效干预靶点。

关键词　心理痛苦，自杀意念，网络分析，老年人

Association between Three-Dimensional Psychological Pain and Suicidal Ideation in Older Adults: A Network Analysis

Yuying Chen[1], Huanhuan Li[1] (corresponding author)
Department of Psychology, Renmin University of China, Beijing 100872, China
E-mail: psylihh@ruc.edu.cn

Abstract: Older adults are at high risk of suicide, and this population has both unique risk factors such as physical factors and common risk factors such as psychological factors. Previous studies have mostly identified single risk factor. Little is known about how these factors interact to increase the risk of suicide in older adults. The present study aimed to identify the role of three-dimensional psychological pain model in interpreting suicidal ideation among the older population and the associations of different risk factors using the statistical method of network analysis. Five hundred and five older adults over sixty years old were recruited from six different

communities in Haidian District of Beijing. All the participants completed Beck Scale for Suicide Ideation (BSI), the Psychache Scale (PAS), Three-Dimensional Psychological Pain Scale (TDPPS), Beck Depression Inventory-II (BDI-II), Beck Hopelessness Scale (BHS), the Barratt Impulsivity Scale (BIS), Interpersonal Needs Questionnaire (INQ), Acquired Capability for Suicide Scale-Fearlessness About Death (ACSS-FAD), WHO Quality of Life Scale-Brief (WHOQOL-BREF), Family Burden Scale of Disease (FBS) and Global Pain Scale (GPS). The results showed that: (1) In the cross-sectional network about the suicidal ideation, current pain avoidance, acquired capability for suicide, hopelessness, psychache, global pain, family burden of disease and quality of life about social relationship had direct and positive associations with current suicidal ideation. While worst pain avoidance, worst painful feelings, thwarted belongingness, acquired capability for suicide and hopelessness had direct and positive associations with worst suicidal ideation. The edge weight between worst pain avoidance and worst suicidal ideation (r_p=0.48) was largest compared to factors which directly and positively associated to worst suicidal ideation while the edge weight between psychache and current suicidal ideation (r_p=0.18) was largest compared to factors which directly and positively related to current suicidal ideation. Moreover, some factors such as depression, thwarted belongingness and quality of life about psychology were indirectly linked to current suicidal ideation through psychache, and depression, perceived burdensomeness and quality of life about environment were indirectly linked to current suicidal ideation through current pain avoidance. (2) Current pain avoidance had the highest expected influence centrality while psychache had the highest betweenness centrality. (3) Current pain avoidance (7.94%, 95% CI 0.51-26.17) and worst pain avoidance (29.00%, 95% CI 19.59-37.20) had the biggest value of relative importance (19.78%, 95% CI 9.26-31.53) in the predictivity of current suicidal ideation and worst suicidal ideation, respectively. Pain avoidance is a stable behavioral variable that can effectively predict suicidal ideation among older population compared to physical factors, psychological variables and other relevant factors. Painful feelings play an important role in the maintenance of suicidal ideation network. Psychological pain is a stable proximal risk factor for suicidal ideation in older adults. These findings highlight that psychological pain may be an effective target in the process of suicide intervention among older population.

Keywords：psychological pain, suicidal ideation, network analysis, older adults

大众与专家的知识鸿沟：香港民众哀伤素养的代表性电话调查

张心兰[1]　唐苏勤[1]（通讯作者）　庄晓宇[2]

1 深圳大学心理学院，深圳，618060，jasminetsq@hotmail.com

2 香港浸会大学社会工作系，香港

摘 要　世界卫生组织于 2018 年正式将延长哀伤障碍（prolonged grief disorder, PGD）列入《国际疾病分类第十一次修订本（ICD-11）》中，但公众对这一精神障碍的关注远不如对其他精神障碍（如重性抑郁症）的认识与讨论。罹患延长哀伤障碍会严重影响丧亲者的身心健康，提升公众关于丧亲反应及延长哀伤障碍的心理健康素养，有助于在公共卫生层面促进丧亲适应。目前，很少研究关注公众的哀伤素养，学界对中国民众哀伤素养更是知之甚少。本研究以香港为例，旨在考察公众（1）对丧亲反应及其持续时间的看法，和（2）对哀伤可否被诊断为精神疾病的态度及其原因。本研究采用随机抽样电话调查，在全港随机抽取了 1011 名 18 岁及以上的香港居民，询问其对丧亲反应及其持续时间的看法、哀伤可否诊断为精神疾病的态度及原因、人口学信息和丧亲经历。结果发现：（1）被调查者提及最多的丧亲反应是悲伤（n = 722，76.4%）和思念（n=275，27.2%）；哀伤持续时间集中在六个月（n = 216，22.8%）和十二个月（n = 206，21.7%）。（2）近七成被调查者认为哀伤在某些情况下可能是一种精神疾病（n = 699，69.1%），而反对者（n = 311，30.8%）则认为哀伤是正常的现象或只是一种情绪而非精神疾病。（3）将支持诊断的被调查者提到的原因与 ICD-11 延长哀伤障碍的诊断标准进行比较，部分被调查者提到了核心症状（过度思念或持久的有关逝者的先占观念；n = 200，28.6%））、病程标准（哀伤持续时间过长；n = 142，20.3%）和功能标准（影响社会功能；n=81，11.6%）。（4）支持诊断的被调查者更年轻、受教育程度更高、没有丧亲经历或丧亲经历对其产生了重要影响，而更多人提及难以继续生活、出现生理反应和感觉生活失去意义这三个 ICD-11 延长哀伤障碍的症状。女性、有丧亲经历的被调查者中，更多人提及思念这一核心症状，而更少人提及出现生理反应这一症状。本研究启示，大部分香港民众能意识到哀伤可能会发展为精神疾病，但诊断标准和公众认识之间存在一定差异，未来研究及实践应关注提升公众哀伤素养的路径。

关键词　哀伤素养，心理健康素养，延长哀伤障碍，丧亲，代表性电话调查

Knowledge gap between the public and professionals: a representative telephone survey on grief literacy in Hong Kong

Xinlan Zhang[1], Suqin Tang[1], Xiaoyu zhuang[2]

1 School of Psychology, Shenzhen University, Shenzhen 518060, China

2 Department of Social Work, Hong Kong Baptist University, Hong Kong 999077, China

Abstract：The International Statistical Classification of Diseases 11th Revision (ICD-11) first included Prolonged grief disorder (PGD) as an official diagnosis in 2018, yet public attention to this mental disorder is much less than other mental disorders such as major depressive disorder. The physical and psychological health of the bereaved would be severely challenged once they developed PGD. Improving mental health literacy about bereavement reactions and PGD of the public could contribute to the adjustment to loss at a public health level. Few studies have focused on grief literacy of the public, particularly grief literacy of Chinese people. Taking Hong

Kong as an example, this study aimed to investigate: (1) public opinion about bereavement reactions and the duration of these reactions, and (2) public attitude toward whether grief could be considered a mental disorder and the reasons for their choices. We conducted a telephone survey with a randomized sampling strategy. A total of 1011 Hong Kong residents aged 18 and/or above were recruited and asked about their opinions about bereavement reactions and the duration of these reactions, attitudes to and reasons for diagnosing or not diagnosing grief, demographic information, and bereavement experience. We found that sadness (n = 722, 76.4%) and longing (n=275, 27.2%) were the two most frequently mentioned bereavement reactions, and the most commonly nominated durations of bereavement reactions were 6 months (n = 216, 22.8%) and 12 months (n = 206，21.7%). About seven-tenth of the participants (n=699, 69.2%) agreed that grief could be a mental disorder under certain circumstances, whereas the remainder disagreed (n= 311, 30.8%) as they believed that grief was normal or just an emotion instead of a mental disorder. When comparing the reasons participants agreed with diagnosing grief to the ICD-11 PGD criteria, a small part of the supporters mentioned the core symptoms (i.e., longing for the deceased or persistent preoccupation with the deceased; n=200, 28.6%), the durations criterion (i.e., grief lasts too long; n=142, 20.3%), and the functioning criterion (i.e., impaired social functioning; n=81, 11.6%). Younger and higher educated participants, as well as participants who had no bereavement experienced or were greatly influenced by their bereavement experiences, tended to agree with diagnosing grief. The proportion of mentioning ICD-11 PGD symptoms including difficulty in reintegration, strong physical problems, and a sense of meaninglessness of life was higher among supporters than opposers. Female and bereaved participants tended to mention the reaction of longing and tended not to mention strong physical problems. This study revealed that most Hong Kong residents were able to realize that grief could develop into a mental disorder, but there is a knowledge gap between the public and professionals regarding the diagnostic criteria. Future research and practice should focus on how to improve grief literacy in public.

Keywords： grief literacy, mental health literacy, prolonged grief disorder, bereavement, representative telephone survey

探究自悯训练对广泛性焦虑障碍的作用

罗熙[1] 申永辉[2] 孙丽君[2] 齐雪君[2] 吴满花[2] 车先伟[3] 李红[4]（通讯作者）

1 杭州医学院护理学院，杭州，310059

2 杭州市第七人民医院，杭州，310013

3 杭州师范大学认知与脑疾病中心，杭州，311121

4 华南师范大学心理学院，广州，510631，lihong_psych@m.scnu.edu.cn

摘 要 广泛性焦虑障碍（Generalized anxiety disorder，GAD）是最普遍的、也是最难成功治疗的焦虑症。越来越多的证据表明自悯在焦虑症治疗中有重要作用，但是目前研究没有将自悯训练用于治疗 GAD。本研究旨在考察两周八次的自悯训练对 GAD 的疗效，并与经典的正念治疗进行直接比较。75 名 GAD 患者被分配到自悯训练组（n = 25）、正念训练组（n = 25）、常规治疗组（n = 25）（ClinicalTrials 注册 ID: ChiCTR2100053374），其中自悯训练组和正念训练组除了接受包含药物使用的常规治疗之外，还分别接受自悯或正念训练。主要结果变量包括汉密尔顿焦虑量表和宾州担忧问卷，并在干预前、干预后和干预后三个月分别施测。次要结果包括汉密尔顿抑郁量表、匹兹堡睡眠质量指数、自悯量表和多伦多正念量表。根据意向性分析原则（Intention-to-treat Analysis，ITT）对改变量进行了方差分析，并基于此建立了中介模型。结果显示，自悯训练组和正念训练组都能有效降低 GAD 患者的焦虑和抑郁，并且比常规治疗组起效更快。三组的担忧变化无差异。中介分析显示，自悯通过降低焦虑来改善睡眠质量。我们结果表明自悯训练组和正念训练组都能有效降低 GAD 患者的临床症状，但自悯训练的愉悦体验和接受程度更高，而且自悯训练通过降低焦虑间接地改善 GAD 患者的睡眠质量。研究结果表明自悯训练对 GAD 临床治疗具有巨大的潜力，有望成为新的辅助心理治疗工具。

关键词 自悯，广泛性焦虑障碍，正念，睡眠，临床试验

Exploring the Effect of Self-compassion Training for Adults with Generalized Anxiety Disorder

Xi Luo[1] Yonghui Shen[2] Lijun Sun[2] Xuejun Qi[2] Manhua Wu[2] Xianwei Che[3] Hong Li[4]（Corresponding author）

1 School of Nursing, Hangzhou Medical College, Hangzhou,310059

2 Hangzhou Seventh People's Hospital, Hangzhou，310013

3 Centre for Cognition and Brain Disorders, Hangzhou Normal University, Hangzhou, China, Hangzhou, 311121

4 School of Psychology, South China Normal University, Guangzhou 510631, lihong_psych@m.scnu.edu.cn

Abstract： Generalized anxiety disorder (GAD) is the most common anxiety disorder and very difficult to treat successfully. Many studies have shown the potential of self-compassion in reducing anxiety symptoms, but no studies have applied self-compassion training to the treatment of GAD. The aim of this study was to examine the effect of a two-week self-compassion training including eight sessions for GAD, in direct comparison with classic mindfulness-based treatment. 75 GAD patients were assigned to self-compassion training group (n = 25), mindfulness training group (n = 25), treat-as-usal group (n = 25) (ClinicalTrials registration ID: ChiCTR2100053374), in which self-compassion training group and mindfulness training groups received either self-compassion or mindfulness training respectively, in addition to treat-as-usal i.e., medication use. Primary outcomes included the Hamilton Anxiety Rating Scale and the Penn State Worry Questionnaire, which were administered at pre-intervention, post-intervention, and three months after the intervention. Secondary outcomes included the Hamilton Depression Rating Scale, the Pittsburgh Sleep Quality Index, the Self-Compassion Scale, and the Toronto Mindfulness Scale. According to the principle of intention analysis (Intention-to-treat Analysis, ITT), analysis was carried out on the variables of change, and a mediation model was established based on this. Results showed that both the self-compassion training and mindfulness training group effectively reduced anxiety and depression in patients with GAD, and the effect came faster than the treat-as-usal group. There was no difference in change in worry among the three groups. Mediation analysis revealed that self-compassion improves sleep quality by reducing anxiety. Our results show that both the self-compassion training group and the mindfulness training group can reduce the clinical symptoms of patients with GAD, but the pleasure and acceptability of self-compassion training are higher, and self-compassion training can improve the sleep quality of GAD patients by reducing anxiety. These findings suggest that self-compassion training has great potential for the treatment of GAD and is expected to be a promising psychotherapy tool.

Keywords： self-compassion, generalized anxiety disorder, mindfulness, sleep, clinical trials

父母低头行为对青少年问题行为的影响：亲子联结感的中介作用与正念教养的调节作用

朱晓晴[1]　程红[2]　王雨吟[1]（通讯作者）

[1]中山大学心理学系，广州，510000，wangyuy2@mail.sysu.edu.cn

[2]北京大学心理与认知科学学院，北京，100000

摘　要：青春期是问题行为的高发期，而家庭作为青少年最重要的生活环境和社会关系，家庭因素对青少年问题行为的影响值得重视。父母低头行为是现代社会催生的一种消极养育方式，指的是亲子互动中父母因使用手机而忽视孩子的现象。已有研究表明，父母低头行为与青少年内外化问题行为（如手机成瘾、抑郁等）存在关联。但目前尚无研究直接探讨父母低头行为与反映青少年整体心理健康状况的一般性行为和情绪问题的联系。此外，现有研究大多基于横断面数据，难以考察家庭系统中两者的动态关系，也限制了对其潜在机制的探讨。

本研究结合横断面和密集追踪数据，旨在探讨中国家庭背景下父母低头行为与青少年问题行为之间的关系，以及亲子联结感的中介作用和正念教养的调节作用。研究一共招募 164 对亲子被试参与横断面问卷调查，其中父母低头行为由父母和青少年双方报告，亲子联结感和青少年问题行为由青少年单方报告。结果表明，父母自评的低头行为与青少年感知的父母低头行为呈显著正相关；青少年感知的父母低头行为与青少年问题行为呈显著正相关，亲子联结感在其中起中介作用。

研究二共招募 110 对亲子被试，首先由父母报告正念教养水平，随后通过密集追踪方法连续采集 10 天数据，由青少年报告其感知的父母低头行为、亲子联结感和问题行为。数据分析采用多水平结构方程模型，在个体内和个体间水平进一步探索父母低头行为、青少年问题行为与亲子联结感之间的关系。结果表明，每日父母低头行为可以正向预测每日青少年问题行为，每日亲子联结感在其中起中介作用。此外，正念教养可以调节父母低头行为对青少年问题行为的影响，当父母的正念教养水平较高时，低头行为所带来的负面影响将被削弱。

本研究表明，父母低头行为会损害亲子联结感，进而使得青少年问题行为增加。这一发现无疑为中国父母敲响了警钟，在亲子互动中不应让手机分走了对孩子的关注。此外，本研究也揭示了正念教养在亲子关系中的保护作用，提示父母采取积极教养方式的重要性。

关键词：父母低头行为，青少年问题行为，亲子联结感，正念教养

Parental Phubbing and Problem Behaviors in Chinese Adolescents: The Role of Parent-Child Connectedness and Mindful Parenting

Xiaoqing Zhu[1], Hong Cheng[2], Yuyin Wang[1]
[1]Department of Psychology, Sun Yat-sen University, Guangzhou, China
[2]School of Psychological and Cognitive Sciences, Peking University, Beijing, China

Abstract: Adolescents' psychosocial problems are a major public health concern worldwide. Although children's social worlds undergo a significant transformation with increased salience of peer relationships across adolescence, parents continue to serve as a source of nurturance at this age period. With the growing popularity of smartphone use in everyday family life, there has been a growing scholarly interest in understanding the negative effects of parental phubbing on adolescents' development in recent years. Parental pubbing is a new concept in the research area of parenting. It refers to parents using or being distracted by smartphones when interacting with their children.

In general, parental pubbing has been identified as negative parenting that can interfere with the quality of parent-child interactions and associate with children's increased maladaptive outcomes. However, as a new research construct, the current understanding of parental pubbing's potential effects on adolescent outcomes remains limited. First, extant research has primarily focused on the relationship between parental pubbing and adolescent problematic smartphone use, leaving its roles in adolescents' general psychosocial development understudied. Second, the reliance on cross-sectional designs in extant research precludes understanding the dynamic relationship between parental phubbing and adolescent outcomes within family systems over time. Third, the underlying mechanism through which parental pubbing relates to adolescent psychosocial outcomes and whether there are possible buffers in their relations remains unclear.

To address the abovementioned limitations, we conducted two studies with parent-adolescent dyads living in a metropolitan city in China. Study 1 is a cross-sectional design, and Study 2 is a 10-day intensive longitudinal design. The two studies explored the relationship between parental pubbing and adolescents' psychosocial problems, as well as the possible mediation of parent-child connectedness and moderation of mindful parenting. We focused on these two factors because past literature has consistently shown that technology interference likely decreases relationship quality between the parent and child. Parent-child connectedness reflects parent-child relationship quality. Mindful parenting, which refers to applying mindfulness skills to parent-child interactions, has been demonstrated to be beneficial for parent-child relationship and adolescent development.

A sample of 164 pairs of Chinese adolescents (52.4% male; mean age = 12.72 years, *SD* = 2.95) and their parents (17.1% male; mean age = 39.80 years, *SD* = 5.71) participated in Study 1. Both parents' and adolescents' perceived parental phubbing were collected. Adolescents also completed questionnaires regarding perceived parent-child connectedness and self-report problem behaviors. The results indicated that parents' self-reported phubbing behavior was positively correlated with adolescents' perceived parental phubbing. Besides, adolescents' perceived parental phubbing was positively correlated with adolescent problem behavior and parent-child connectedness partially mediated this relationship. However, parents' self-reported phubbing behavior was not significantly related to adolescents' perceived parent-child connectedness and adolescent problem behavior, and therefore it was excluded from subsequent analyses and research.

Study 2 further employed a 10-day intensive longitudinal design to validate the results of Study 1 at both within- and between-person levels. A sample of 110 pairs of Chinese adolescents (57.3% male; mean age = 13.15 years, *SD* = 0.76) and their parents (7.3% male; mean age = 41.97 years, *SD* = 4.24) was recruited. In step 1, parents were invited to report their mindful parenting levels. In step 2, adolescents reported their daily perceived

parental phubbing, parent-child connectedness, and problem behaviors during the next ten consecutive days. The multilevel structure equation model (MSEM) analysis in Mplus 8.0 was executed to test the moderated mediation model. The results indicated that adolescents' daily perceived parental phubbing positively predicted their daily problem behaviors and the daily parent-child connectedness played a mediating role in it. Moreover, mindful parenting moderated the impact of parental phubbing on adolescent problem behavior, the negative effect was weakened when parents with a high level of mindful parenting.

This research proves that parental phubbing can significantly increase adolescent problem behavior by damaging parent-child connectedness. Additionally, it demonstrates that mindful parenting can buffer the negative effect of parental phubbing on adolescents' psychosocial problems, which aligns with previous literature highlighting the benefits of mindful parenting on child development. These findings serve as a wake-up call for Chinese parents, suggesting that they should consider to put down smartphones when getting along with adolescents.

Keywords: parental phubbing behavior, adolescent problem behavior, parent-child connectedness, mindful parenting

父母与儿童抗逆力对突发公共卫生事件不同时期焦虑的影响：纵向主客体互倚分析

方婧欣[1]　赵轶[2]　安媛媛[1]（通讯作者）
1 南京师范大学心理学院，南京，210097，anran220@163.com
2 北京师范大学心理学部，北京，100875

摘 要　新冠肺炎疫情作为一场典型的重大突发公共卫生事件，引发了广泛而持续的恐慌和焦虑。长期的居家隔离往往被视为家庭资源和功能的重大威胁，然而，根据家庭系统理论，极长时间的封闭相处也增加了家庭成员之间的互倚性，某一家庭成员在事件中所表现出的抗逆力很可能帮助整个家庭维持日常生活秩序，缓解其他家庭成员的焦虑等心理症状。有研究发现，疫情下父母的抗逆力能够负向预测儿童的焦虑水平。然而，目前尚未有研究从互倚的角度，探究家庭中父母与儿童抗逆力水平对焦虑的相互作用。本研究旨在采用主客体互倚中介模型，探究重大突发公共卫生事件下父母与儿童的抗逆力对双方焦虑的保护作用，并探讨其在疫情高峰期与稳定期的差异。研究选取 315 户家庭的父母与儿童作为被试，分别于 2020 年 2 月（T1，疫情爆发期）采用抗逆力量表（CD-RISC），于 2020 年 3 月（T2，疫情高峰期）和 10 月（T3，疫情稳定期）采用焦虑自评量表（SAS）进行施测，并搭建了 T1 抗逆力对 T2 和 T3 焦虑影响的纵向主客体互倚中介模型。结果发现：（1）儿童/父母 T1 的抗逆力水平对其疫情高峰期（T2）焦虑水平的主体效应显著，并能进一步预测其自身在疫情稳定期（T3）的焦虑水平；（2）父母 T1 的抗逆力水平对疫情高峰期（T2）儿童焦虑水平的客体效应显著；（3）儿童 T1 的抗逆力水平对疫情稳定期（T3）父母焦虑水平的客体效应显著。结果表明，重大突发公共卫生事件下父母的抗逆力可以在短期内迅速缓解儿童的焦虑，孩子的抗逆力能够在更长期的稳定期对父母的焦虑水平起到反向的保护作用。这揭示了父母与儿童的抗逆力在家庭适应危机的不同阶段可能表现出不同的作用机制，并提示在重大突发公共卫生事件中，应注重家庭整体的适应过程与家庭成员间的相互影响，发掘部分家庭成员的心理资源与优势以缓解其他成员的焦虑等心理症状。

关键词　焦虑，抗逆力，纵向主客体互倚模型，突发公共卫生事件

The effect of parents' and children's resilience on anxiety in different periods of public health emergencies: a longitudinal actor-partner interdependence analysis

Jingxin Fang[1], Yi Zhao[2], Yuanyuan An[1](Corresponding author)
1 School of Psychology, Nanjing Normal University, Nanjing, 210097
2 Faculty of Psychology, Beijing Normal University, Beijing, 100875

Abstract：As a typical major public health emergency, the novel coronavirus (COVID-19) pandemic has triggered widespread and sustained panic and anxiety. Long-term isolation at home is often seen as a major threat to family resources and functions. However, according to the family system theory, prolonged isolation also increases the interdependence of family members, and the resilience shown by a family member during an event is likely to help the whole family maintain the order of daily life and alleviate psychological symptoms such as

anxiety of other family members. Some studies have found that parents' resilience can negatively predict children's anxiety symptoms during the pandemic. However, there are no studies to explore the interaction of resilience between parents and children on anxiety in the family members from the perspective of interdependence. The aim of this study was to explore the protective effect of resilience of parents and children on anxiety in major public health emergencies, and to explore the difference between the peak and stable period of the COVID-19. The study selected 315 families of parents and children as subjects, using the Connor-Davidson Resilience Scale (CD-RISC) in February 2020 (T1, the outbreak period of COVID-19), using the Self-Rating Anxiety Scale (SAS) in March 2020 (T2, the peak period of COVID-19) and in October 2020 (T3, the stable period of COVID-19). A longitudinal actor-partner interdependence mediation model of the effects of T1 resilience on T2 and T3 anxiety was established. The results showed that: (1) the resilience of children and parents at T1 had a significant actor effect on their anxiety symptoms at the peak of the COVID-19 (T2), and could further predict their anxiety symptoms at the stable period of the COVID-19 (T3); (2) The partner effect of parents' resilience at T1 on the anxiety symptoms of children at the peak of the COVID-19 (T2) was significant; (3) The partner effect of children's resilience at T1 on the anxiety symptoms of parents in the stable period of the COVID-19 was significant. The results show that parents' resilience can rapidly relieve children's anxiety in the short term, and children's resilience can inversely protect parents' anxiety during the longer stable period. These findings reveal that the resilience of parents and children may show different mechanisms in different stages of family's adaptation crisis, and suggest that in major public health emergencies, we should pay attention to the adaptation process of whole family and the interaction between family members, and explore the psychological resources and advantages of some family members to alleviate the anxiety and other psychological symptoms of other members.

Keywords **:** anxiety, resilience, the longitudinal actor-partner interdependence model, public health emergencies

他们在害怕什么？社交焦虑自动思维的质性探索

崔洌川[1] 皮雨虹[1] 邓嘉琪[1] 唐信峰[1]（通讯作者）
1 中国人民大学理学院心理学系，北京，100872 （xtang@ruc.edu.cn）

摘要

目的：根据社交焦虑的认知模型（例如，Clark & Wells, 1995; Hofmann, 2007），负面认知（自动思维和信念）是社交焦虑的主要成因。本研究旨在深入探索社交焦虑者在社交情境下的自动思维种类，从而开发更有效、更个性化的干预手段提供可能。

方法：采用目的取样法，对 34 名有社交焦虑的大学生进行了半结构化访谈，纳入标准为社交恐怖症量表（Social Phobia Inventory, SPIN）＞19 分。我们使用 MAXQDA 软件对访谈内容进行主题分析。

结果：根据对访谈结果的内容分析，我们提炼出了 7 个主题，包括负面评价、表现过程不好、表现结果不好、严苛的社交规范、可见和隐匿的身体表现、不良的情绪控制以及社交的挑战性。具体来说，我们发现在对待自己的想法上，社交焦虑者均有对自己包括外在及内在特质的负面评价，并担忧来自他人对自己各项能力表现及性格特点的负面评价。面对社交过程，他们中的大部分会担心自己在社交过程中的表现及结果不好，例如发言过程不流畅、面试得低分等。这令他们在社交时持续处于紧张状态。而对社交本身，他们中的大多数人也会有所顾虑，这些人可能会有一套或真实或想象的社交规范来约束自己的言行，避免犯错或违反他人的规范，同时也有许多受访者觉得社交本身就是一件具有挑战性的难题，例如人们之间总是因为各方面差异而产生隔阂，甚至还可能充满隐私受到侵犯等危险，这阻碍了他们进入社交。最后，也会有受访者担忧情绪和身体方面的表现，包括社交过程会产生的尴尬、焦虑等负面情绪，以及心跳加速、脸红出汗等身体反应，并且他们会觉得这种反应是不可控的，从而更加焦虑。上述这些担忧和顾虑的想法可能是个体社交焦虑产生的直接原因和维持因素。

讨论：本研究深入探索了中国高社交焦虑学生群体的自动思维和信念类型，明确地阐述了社交焦虑个体所恐惧的核心内容。此研究为社交焦虑预防及干预策略的制定提供了重要的指导方向。

关键词　社交焦虑，自动思维，质性研究

What Are They Afraid Of? A Qualitative Exploration of Automatic Thoughts in Socially Anxious College Students

Liechuan Cui, Yuhong Pi, Jiaqi Deng, Xinfeng Tang
Department of Psychology, Renmin University of China, Beijing, China
Corresponding author: xtang@ruc.edu.cn (X. Tang)

Abstract

Aim: Based on the cognitive model of social anxiety (e.g., Clark & Wells, 1995; Hofmann, 2007), negative cognitions (automatic thoughts and beliefs) are considered significant factors contributing to social anxiety. The present study aims to delve into the types of automatic thoughts experienced by individuals with social anxiety in social situations, with the ultimate goal of developing more effective and personalized intervention strategies.

Methods: Using purposive sampling, semi-structured interviews were conducted with 34 college students who met the criteria for social anxiety, as indicated by a Social Phobia Inventory (SPIN) score > 19. The data collected from the interviews were analyzed using thematic analysis in MAXQDA software.

Results: Content analysis of the interview results yielded seven themes, including negative evaluation, poor performance process, poor performance outcomes, rigid social norms, visible and invisible physical symptoms, poor emotional control, and the challenges of social interaction. Specifically, it was found that individuals with social anxiety exhibit negative self-evaluations concerning both their external and internal traits, as well as concerns about negative evaluations of their abilities and personality traits by others. In social interactions, the majority of them worry about their performance process and outcomes, such as speaking fluency or receiving low scores in interviews, leading to a continued state of anxiety during social interactions. Furthermore, many interviewees have concerns about social interactions themselves, often adhering to a set of real or imagined social norms to regulate their behavior, avoid making mistakes, or violating others' norms. Some also perceive social interactions as challenging due to differences among individuals, potential privacy infringements, and other risks, hindering their engagement in social situations. Lastly, interviewees express concerns about emotional and physical manifestations, including embarrassment, anxiety, and uncontrollable physiological responses such as increased heart rate, blushing, and sweating during social interactions, which exacerbate their anxiety. These worries and concerns may serve as direct causes and maintenance factors of individual social anxiety.

Discussion: This study provides an in-depth exploration of the types of automatic thoughts and beliefs among Chinese college students with high social anxiety, elucidating the core content of their fears. This research offers crucial guidance for the development of social anxiety prevention and intervention strategies.

***Keywords*:** Social anxiety, Automatic thoughts, Qualitative study

心理健康促进 4P 模型：过程与应用

唐信峰[1]（通讯作者） 贾思茗[2] 任志洪[3]

[1]中国人民大学心理学系，北京，100872， xtang@ruc.edu.cn

[2] 中国人民大学社会工作与社会政策系，北京，100872

[3] 华中师范大学心理学院，武汉，430079

摘 要

心理健康促进在全球范围内已成为一项重要议题，并广泛应用于学校、社区、政府和企业等各个领域，旨在促进各年龄段的个体心理健康，涵盖情绪困扰（如抑郁、焦虑）和行为问题（如欺凌、拒学）等多个方面。

在现有的心理健康促进模型中，Gordon（1983）提出的三级预防（普遍性预防、选择性预防和指向性预防）产生了深远影响。普遍性预防（universal prevention）针对整个人群提供预防策略，以使所有个体受益。选择性预防（selective prevention）则专门针对被确认处于较高疾病风险的亚群体，提供相应的预防措施。指向性预防（indicated prevention）则针对那些表现出初步症状但尚未达到诊断标准的个体，以提供相应干预措施。然而，该模型存在一定局限，其仅仅划分了干预的人群，对于干预的具体内容和目标缺乏明确说明。此外，该模型是从研究者和实践者的角度开发的，未考虑来访者/病人的视角和需求，因而在来访者/病人的求助过程中并未提供充分的支持。

为此，我们提出了一个新的心理健康促进模型——4P 模型（Four-Phase Model of Mental Health Promotion），包含以下 4 个阶段：科普（popularization）、教育（psychoeducation）、咨询（psychotherapy）和治疗（psychiatric treatment）。第一阶段（科普阶段）旨在提升个体对自己和他人心理健康困扰的心理健康素养：增加疾病知识，减少疾病污名化，并促进求助意愿和行为。第二阶段（教育阶段），又称心理教育阶段，旨在提升个体对疾病干预的理论和技术的了解，帮助他们掌握有效的自助干预技巧。第三阶段（咨询阶段），主要采取心理咨询的方式，通过更为深度的咨询互动、体验和练习，帮助个体改善问题。第四阶段（治疗阶段），针对诊断为心理障碍的个体，在医疗环境中进行药物或心理干预，协助其改善心理困扰。这四个阶段根据干预目标（增加知识或改善症状）、目标人群（普通人群或临床人群）、干预递送人员（专业人员或非专业人员）以及干预形式（团体或个体、高强度或低强度、线上或线下、自助或专业人士带领）进行了差异化设置。

心理健康促进的 4P 模型具有以下优点：首先，它纳入了心理健康素养的提升，这在发展中国家尤为重要。其次，它将以自助为主的教育阶段（第二阶段）和以专业人士带领的咨询阶段（第三阶段）分开，更加清晰地区分这两种干预方式的差异。最后，该模型不仅为研究者和实践者提供了指南，还能为普通公众/来访者/病人提供求助指引。

关键词 心理健康促进，心理健康素养，心理教育，心理咨询

Four-phase Model of Mental Health Promotion: Process and Applications

Xinfeng Tang[1], Siming Jia[2], Zhihong Ren[3]

[1]Department of Psychology, Renmin University of China, Beijing, China

[2]Department of Social Work and Social Policy, Renmin University of China, Beijing, China

[3]School of Psychology, Central China Normal University, Wuhan, China

Corresponding author: xtang@ruc.edu.cn (X. Tang)

***Abstract*:**

Mental health promotion has become a significant global issue and is widely applied across various domains, including schools, communities, governments, and corporations. The primary objective is to foster psychological well-being among individuals of all age groups, encompassing multiple aspects such as emotional distress (e.g., depression, anxiety) and behavioral issues (e.g., bullying, school refusal).

Among the existing mental health promotion models, Gordon's (1983) three-tiered prevention model (universal prevention, selective prevention, and indicated prevention) has had a profound impact. *Universal prevention* targets the entire population with preventive strategies, benefiting all individuals. *Selective prevention* focuses on subgroups identified as having a higher risk of developing certain disorders and offers tailored preventive measures. *Indicated prevention* targets individuals exhibiting initial symptoms that have not yet met diagnostic criteria, providing effective intervention strategies. However, this model has certain limitations as it only categorizes intervention target populations, lacking explicit specifications of intervention content and objectives. Moreover, its development has been researcher- and practitioner-centric, neglecting the perspectives and needs of clients/patients, thereby not providing adequate support during their help-seeking process.

Therefore, we propose a novel model for mental health promotion, the Four-Phase Model of Mental Health Promotion (4P Model), comprising four distinct phases: *Popularization*, *Psychoeducation*, *Psychotherapy*, and *Psychiatric Treatment*. The first phase (Popularization) aims to enhance individuals' mental health literacy towards themselves and others: increase disease knowledge, reduce stigma, and promote help-seeking intentions and behaviors of themselves and others. The second phase (Psychoeducation) focuses on enhancing individuals' understanding of disease interventions, providing them with effective self-help intervention skills. The third phase (Psychotherapy) primarily involves psychological counseling, employing more in-depth counseling interactions, experiential learning, and practice to help individuals improve their issues. The fourth phase (Psychiatric Treatment) addresses individuals diagnosed with mental health disorders, offering psychiatric or psychological interventions within a medical setting to assist in alleviating their psychological distress. The four phases are differentially tailored based on intervention objectives (knowledge enhancement versus symptom improvement), target population (general population versus clinical population), service providers (professionals versus non-professionals), and delivery formats (group versus individual; high intensity versus low intensity; online versus face-to-face; self-help versus professionally-led).

The 4P Model possesses several advantages: Firstly, it incorporates the improvement of mental health literacy, which is particularly crucial in developing countries. Secondly, it distinctly separates the psychoeducation (Phase 2) focused on self-help interventions from the psychotherapy (Phase 3) led by professionals, providing clarity on the differences between these two approaches. Lastly, this model not only offers guidance for researchers and practitioners but also provides a roadmap for the general public/clients/patients seeking assistance.

Keywords: Mental health promotion, Mental health literacy, Psychoeducation, Psychotherapy

功能分析心理疗法及其临床应用进展

王礼军[1]（通讯作者） 向苇秦[1]
1 安徽师范大学教育科学学院，芜湖，241000，nnuwlj8421@163.com

摘 要 “第三浪潮”认知行为疗法强调正念、情感、接纳、关系、价值观念、目标和元认知等方面，旨在帮助来访者澄清自己的价值观，鼓励来访者采取积极灵活的行动以改变生活，且已在医院、学校、社区或通过在线平台被广泛应用，在预防和治疗各类疾病方面取得明显成效。功能分析心理疗法（functional analytic psychotherapy, FAP）是“第三浪潮”认知行为疗法中聚焦人际关系问题的一种新型疗法，其主要特点是强调治疗情境与日常环境的功能等同性，通过分析来访者在治疗过程中的问题行为，积极创设能促进来访者改变的情境，强化来访者的行为改变并泛化至日常生活，以恢复来访者的人际关系等功能。FAP 主张在 ACL 模型的指导下，基于 5 项治疗准则开展治疗，并采用功能分析心理疗法评定量表、功能分析心理疗法能力量表、功能分析心理疗法亲密量表、自我体验量表等工具以检验 FAP 的治疗效果、评估治疗师的能力以及了解来访者的心理特征以及治疗过程中的变化。FAP 既可以单独用于治疗各类心理问题，也可与其它治疗方法联合使用以增强治疗效果，其在改善人际关系障碍中的临床应用得到团体和个案研究的有效证明，在改善抑郁症、精神分裂症、边缘型人格障碍、反社会型人格障碍等临床应用方面也取得重要进展。但关于 FAP 的研究仍存在研究设计缺陷、内在机制和治疗规则探讨不足、评价工具不完善等问题，且 FAP 作为一种新型的治疗手段尚未引起国内学者的充分关注和应用。后续研究应完善 FAP 的研究方法和工具、探讨 FAP 的治疗规则及患者的神经机制变化、推进 FAP 中国化和数字化治疗服务应用进程。

关键词 功能分析心理疗法，人际关系障碍，心理咨询与治疗，“第三浪潮”认知行为疗法

Functional Analytic Psychotherapy and Its Clinical Application

WANG Lijun, XIANG Weiqin
School of Educational Science, Anhui Normal University, Wuhu 241000

Abstract: The “third wave” cognitive behavioral therapy places emphasis on mindfulness, emotion, acceptance, relationship, values, goals and meta-cognition. It aims to facilitate clients in clarifying their values and motivating them to take active and flexible actions to change their lives. It has been extensively utilized in hospitals, schools, communities and online platforms with remarkable effect in the prevention and treatment of various diseases. Functional analytic psychotherapy(FAP) is a new therapy that focuses on interpersonal issues in the “third wave” cognitive behavioral therapy. Its main characteristic is to emphasize the functional equivalence between treatment conditions and daily environments, create situations that can promote clients’ change by analyzing their problematic behaviors during the treatment, reinforce their change, and generalize it to daily life. FAP’s purpose is to restore clients’ interpersonal relationship and other functions. FAP carries out treatment guided by ACL model and based on five treatment guidelines. It utilizes tools such as Functional Analytic Psychotherapy Rating Scale, Functional Analytic Psychotherapy Competency Scale, Functional Analytic Psychotherapy Intimacy Scale, Experiencing of Self Scale to assess FAP’s treatment effectiveness, therapist competency, and client psychological characteristics and changes throughout the treatment process. FAP can be used to treat various psychological problems alone, or in conjunction with other therapies to augment the therapeutic outcome. Its clinical efficacy has been effectively demonstrated in ameliorating interpersonal relationship disorders through groups and case studies, as well as making significant strides in the treatment of depression, mental disorders, borderline personality disorders, and antisocial personality disorders. However, there are still some issues in FAP research, such as

deficiencies in research design, inadequate discussion of internal mechanisms and treatment rules, and imperfect evaluation tools. Additionally, as a new psychotherapy approach, FAP has not received sufficient attention or application from domestic scholars. Subsequent studies ought to improve the research methods and tools of FAP, explore the treatment rules for FAP and the neurological changes in clients, as well as promote the application of FAP in China and digital treatment services.

***Keywords*:** Functional Analysis Psychotherapy, Interpersonal Relationship Disorder, Psychological Counseling and Therapy, the "Third Wave" Cognitive Behavioral Therapy

反刻板印象想象对心理咨询师关于来访者内隐性别刻板印象的影响研究

李渠渠[1] 林靖凯[2] 张军[2]（通讯作者）
1 北京师范大学，北京，100101
2 华南理工大学，广州，510000
2 北京师范大学珠海校区，广东省珠海市，519000，zjpsy@bnu.edu.cn

摘 要 心理咨询师关于来访者的性别刻板印象会影响咨询过程和咨询效果。本研究分为两个部分，探讨了心理咨询师关于来访者内隐性别刻板印象的具体内容和强度，并通过反刻板印象想象对心理咨询师关于来访者刻内隐性别刻板印象进行干预，通过 excel 计算每个被试的内隐 D 值作为被试内隐性别刻板印象的程度指标，利用 SPSS 27.0 进行数据分析。

研究一使用自由联想法探讨心理咨询师关于来访者性别刻板印象的具体内容并将其作为材料制作内隐联想测验程序，招募 132 名心理咨询师完成内隐联想测验，发现心理咨询师对来访者内隐性别刻板印象较强（Mean D =0.84），对女性来访者的刻板印象为情感丰富、倾诉欲、敏感、细腻、纠结、关注关系，对男性来访者的刻板印象为情感隔离、压抑、理性、回避、易怒、控制。

研究二考察反刻板印象想象对心理咨询师内隐性别刻板印象的干预效果。研究 2a 招募 94 名心理咨询师作为被试，选取对男性和女性来访者内隐刻板印象程度最高的词语作为干预目标，让被试想象符合刻板印象、反刻板印象的来访者或风景，进行 5 分钟想象后记录想象内容。发现反刻板印象想象对心理咨询师关于男性来访者内隐性别刻板印象干预效果显著(t =-2.89, p =0.009)，对关于女性来访者内隐性别刻板印象干预效果不显著；进一步地，研究 2b 招募 53 名心理咨询师作为被试，选取符合男性来访者程度最低的词语作为干预目标，发现反刻板印象想象对心理咨询师关于男性来访者较弱的性别刻板印象仍能起到显著干预作用（t =-2.66, p =0.015）。研究还发现，心理咨询师的性别、年龄、咨询小时数与心理咨询师内隐性别刻板印象强度和反刻板印象想象的干预效果无显著相关性。

关键词 性别刻板印象，心理咨询，反刻板印象

A STUDY ON THE EFFECT OF ANTI-STEREOTYPE IMAGINATION ON COUNSELORS' IMPLICITSTEREOTYPES OF CLIENTS

Liququ[1] Linjingkai[2] Zhangjun[2] (Corresponding author)
1 Beijing Normal University, Beijing,100101
2 South China University of Technology, Guangzhou, 510000
2 Beijing Normal University Zhuhai Campus, Zhuhai City, Guangdong Province, 519000,
zjpsy@bnu.edu.cn

Abstract

Counselors' gender stereotypes about clients can affect counseling process and counseling effectiveness.This study is divided into two parts,exploring the specific content of counselors' gender stereotypes about clients, the

strength of counselors' implicit gender stereotypes and the influence of anti-stereotype imagination on them.The implicit D value of each participant is calculated using Excel as an indicator of the degree of implicit stereotype among participants, and data analysis is conducted using SPSS27.0.

In study 1, the free association method was used to explor the specific content of counselors' gender stereotypes about clients and used it as a material to create the Implicit Association Test procedure. 132 counselors were recruited to complete the Implicit Association Test. It was found that counselors have strong implicit gender stereotypes about clients (Mean D =0.84), the stereotypes of female clients are emotionally rich, talkative, sensitive, delicate, entangled, and focused on relationships, while the stereotypes of male clients are eemotional isolation, suppression, rationality, avoidance, irritability, and control

Study 2 examines the influence of anti-stereotype imagination on implicit gender stereotypes in counselors. In Study 2a, 94 counselors were recruited as participants, and the words that met the highest degree of male and female clients were selected as the intervention objects. The participants were asked to imagine the client who met or anti-stereotype or stereotype or scenery, and the imagination content was recorded after 5 minutes of imagination. It was found that anti-stereotype imagination had a significant intervention effect on male clients' stereotypes by counselors (t =-2.89, p =0.009), but had no significant intervention effect on female clients' stereotypes by counselors; Furthermore, in Study 2b, 53 counselors were recruited as participants, and the words with the lowest degree of compliance with male clients were selected as intervention subjects. It was found that anti-stereotype imagination still had a significant intervention effect on counselors' weaker gender stereotypes of male clients (t =-2.66, p =0.015). The study also found that there is no significant correlation between the gender, age, and consultation hours of a counselor and the intervention effect of the counselor on the implicit gender stereotype intensity and anti-stereotype imagination of clients.

Keywords：Gender stereotyping, Counselors, Anti-stereotyping

完美主义团体干预方案对青少年社交焦虑的干预效果研究

孟佳策[1]　余萌[1,2]

[1] 中山大学心理学系，广州，510006

[2*]南方医科大学公共卫生学院心理学系，广州，510510，Email：yumengbnu@163.com

摘　要：完美主义是一个跨诊断因素，对于诸多心理问题（包括社交焦虑）都有影响。干预青少年的完美主义将有利于降低其社交焦虑水平，从而促进其心理发展。以往研究主要集中于消极完美主义对社交焦虑的影响上，关于积极完美主义对社交焦虑的影响的研究相对较少。而本研究将同时从积极和消极两个角度对完美主义进行探讨，从干预的角度研究其与青少年社交焦虑之间存在的关系。

本研究基于文献和相关书籍研发了一套适合青少年的干预完美主义的方案，以认知行为治疗的框架为主，融合了积极心理治疗和正念的技术，旨在降低成员的消极完美主义，提升积极完美主义。为了探讨这一干预手段是否可以有效干预社交焦虑水平，本研究共招募 71 名高社交焦虑青少年（$M_{年龄}$=16.282,$SD_{年龄}$=0.865），并将其随机分配到干预组（n=34）和对照组（n=31）。干预组被试参加为期 6 周，每周 1 次，每次约 1.5 个小时的团体心理干预。在干预前（T1）、 干预两周后（T2)、干预四周后(T3)、干预六周后(T4)，测量两组被试的积极和消极完美主义以及社交焦虑水平。

基线测量显示，两组被试同质。重复测量方差分析表明，各变量都出现了显著的组别（$F_{社交焦虑}$=64.627，p<0.001; $F_{积极完美主义}$=12.077，p=0.001; $F_{消极完美主义}$=16.067，p<0.001)和干预时间点（$F_{社交焦虑}$=32.250，p<0.001; $F_{积极完美主义}$=17.471，p<0.001; $F_{消极完美主义}$=23.887，p<0.001)的主效应。同时，各个变量组别和干预时间点的交互作用显著。对照组的各个维度均没有显著变化。而干预组被试的积极完美主义显著增加（T4-T1=22.235,t=7.704），消极完美主义显著减少（T4-T1=-19.147,t=-6.994），社交焦虑水平较干预前有显著降低（T4-T1=-13.882，t=-11.385）。进一步的简单效应表明，相较于对照组，在第二周后，干预组和对照组的社交焦虑水平(p<0.001)、消极完美主义（p=0.005）出现了显著减少。在第四周后，干预组和对照组的积极完美主义出现了显著增加(p<0.001)。

结果显示这一干预方案能够有效干预青少年的社交焦虑水平，给其心理健康发展带来裨益，以期对中学心理健康老师从事青少年的工作带来一定的实用价值和借鉴意义。

关键词：完美主义，社交焦虑，青少年，团体干预，效果研究

Study on the Effect of Perfectionism Group Intervention Program on Social Anxiety of Adolescents

Meng Jiace [1], Yu Meng[1,2]
1 Department of Psychology, Sun Yat-sen University, Guangzhou, 510006
2 * Department of Psychology, School of Public Health, Southern Medical University, Guangzhou, 510510, Email: yumengbnu@163.com

Abstract: Perfectionism is a cross diagnostic factor, which has an impact on many psychological problems (including Social anxiety). Intervention of adolescents' perfectionism will help to reduce their Social anxiety level, thus promoting their psychological development. Previous studies mainly focused on the impact of negative perfectionism on Social anxiety, while there were relatively few studies on the impact of positive perfectionism on Social anxiety. This study will explore perfectionism from both positive and negative perspectives, and study the relationship between perfectionism and adolescent Social anxiety from the perspective of intervention.

Based on the literature and related books, this research developed a set of intervention perfectionism programs suitable for adolescents, focusing on the framework of cognitive Behaviour therapy, integrating positive psychotherapy and mindfulness technology, aiming to reduce the negative perfectionism of members and improve the positive perfectionism. In order to explore whether this intervention can effectively intervene the level of Social anxiety, 71 adolescents with high Social anxiety (M_{age}=16.282, SD_{age}=0.865) were recruited and randomly assigned to the intervention group (n=34) and the control group (n=31). The intervention group participants participated in a group psychological intervention for 6 weeks, once a week, for approximately 1.5 hours each time. The levels of positive and negative perfectionism and Social anxiety of the two groups were measured before the intervention (T1), two weeks after the intervention (T2), four weeks after the intervention (T3), and six weeks after the intervention (T4).

Baseline measurements showed that both groups of participants were homogeneous. Analysis of variance of repeated measurements showed that each variable had significant main effects in groups ($F_{scial\ anxiety}$=64.627, p<0.001; $F_{positive\ perfectionism}$=12.077, p=0.001; $F_{negative\ perfectionism}$=16.067, p<0.001) and intervention time points ($F_{social\ anxiety}$=32.250, p<0.001; $F_{positive\ perfectionism}$=17.471, p<0.001; $F_{negative\ perfectionism}$=23.887, p<0.001). At the same time, the interaction between various variable groups and intervention time points is significant. There were no significant changes in all dimensions of the control group. In the intervention group, positive perfectionism was significantly increased (T4-T1=22.235,t=7.704), negative perfectionism was significantly reduced (T4-T1=-19.147, t=-6.994), and Social anxiety level was significantly reduced (T4-T1=-13.882, t=-11.385). Further simple effects showed that compared with the control group, the level of Social anxiety (p<0.001) and negative perfectionism (p=0.005) in the intervention group and the control group significantly decreased after the second week. After the fourth week, there was a significant increase in positive perfectionism in the intervention group and the control group (p<0.001).

The results show that this intervention program can effectively intervene the level of Social anxiety of adolescents, bring benefits to their mental health development, and bring certain practical value and reference significance to middle school mental health teachers engaged in the work of adolescents.

Keywords: Perfectionism, Social anxiety, Adolescent, Group intervention, Effect research

不同治疗方式对问题青少年心理健康影响的仿真研究

张科创[1]　杨梦笔[1]　司书宾[1]　张伟霞[2]（通讯作者）
1 西北工业大学工业工程系，西安，710000
2 西北工业大学体育部，西安，710000，zhangweixia@nwpu.edu.cn

摘 要：个性化心理治疗的实现一致是一个难点。近年来，复杂系统科学的思想在精神病学领域得到了长足发展，心理健康被认为是由多种心理症状表现相互作用形成的复杂网络。不少研究使用复杂网络的分析方法，通过计算网络的核心节点确定关键症状表现，以期为干预或治疗提供明确的“靶点”。但是，由于聚焦关键症状节点的靶向治疗是否优于无针对性的治疗尚缺乏实证支持，此类研究的临床价值受到了较大质疑。鉴于实际治疗投入较大，本研究使用仿真的方法，从理论层面探索针对关键节点和无针对性的治疗对心理健康症状网络的影响，为心理治疗提供新思路。在仿真中，分别用蓄意攻击和随机攻击代表针对性治疗和无针对性治疗方法，以症状网络的自然连通度表示网络的抗毁性。基于青少年健康主题数据库中 2020 年的横断调查数据，将 SCL-90 总分超过 200 或任一因子分超过 3 的被试作为研究对象。首先，基于 R 语言的 bootnet 包构建以 SCL-90 条目为节点的症状网络，计算网络中不同症状节点中心性，根据预期影响值（EI）的大小确定症状重要程度。其次，进行抗毁性测试，采用随机攻击与针对重要节点的蓄意攻击的方式分别对症状网络进行攻击，并计算网络遭受攻击时的自然连通度。结果表明，症状网络在遭受随机攻击与蓄意攻击时网络连通度变化明显不同。在随机攻击中，网络的连通度变化缓慢，节点移除个数从 1-75 渐增时，自然联通度变化的拟合曲线始终在 10-15 区间内波动，节点移除个数与整体连通度无明显线性关系；在蓄意攻击中，随着节点移除个数的增加，网络连通度呈线性递减，节点移除个数从 1-75 渐增时，自然联通度变化的拟合曲线在 0-25 区间内波动。研究结果说明，对存在明显心理问题的青少年而言，普适性的治疗方法（随机攻击）不能很好地破坏症状网络之间的联系，治疗效果欠佳，对核心症状进行有针对性的治疗（蓄意 攻击）能更快、更彻底地破坏症状之间的联系，治疗效果较好。
关键词：青少年，心理健康，症状网络，针对性治疗，抗毁性测试

Simulation Study on the Impact of Different Treatment Methods on Adolescent Mental Health

Kechuang Zhang[1]　Mengbi Yang[1]　Shubin Si[1]　Weixia Zhang[2](corresponding author)
1 Department of Industrial Engineering, Northwestern Polytechnical University, Xian, China
2 Department of Physical Education, Northwestern Polytechnical University, Xian, China,
zhangweixia@nwpu.edu.cn

Abstract: Personalized psychological treatment is challenging. In recent years, the principles of complex systems science have made significant advancements in the field of psychiatry, in which mental health was treated as a complex network formed by the interaction of various psychological symptoms. Many studies have employed analytical methods from complex network to identify key symptoms by computing the core nodes of the network. The aim is to provide clear "targets" for intervention or treatment. The clinical significance of these studies have been disputed, however, as there is a lack of empirical support for whether targeted treatment focused on key nodes is superior to non-targeted treatment. Given the substantial investment required for actual treatments, this study utilizes simulation methods to explore, from the theoretical perspective, the effects of targeted and non-targeted treatments on the symptom network of mental health. The study aims to provide new insights for the

treatment of depression. In the simulation, deliberate attacks and random attacks are used to represent targeted and non-targeted treatment methods, respectively, with the network's natural connectivity representing its invulnerability. The data source for the study is the cross-sectional survey results from the Adolescent Health Theme Database in 2020, where participants with a total SCL-90 score exceeding 200 or any factor score exceeding 3 were selected. First, using the bootnet package in R, a symptom network is constructed with SCL-90 items as nodes. The centrality of different symptom nodes in the network is calculated, and symptom importance is determined based on the magnitude of the Expected Influence (EI). Next, invulnerability testing is conducted by attacking the symptom network using both random attacks and deliberate attacks targeting important nodes. The network's natural connectivity is computed when subjected to attacks. The results show that the changes in network connectivity are significantly different when the symptom network undergoes random attacks compared to deliberate attacks. During random attacks, the network's connectivity changes gradually, with no apparent linear relationship between the number of removed nodes and overall connectivity. As the number of removing nodes increased from 1-74, the trend of connectivity fluctuate between 10 and 15. However, during deliberate attacks, as the number of removed nodes increases, the network's connectivity changes linearly. As the number of removing nodes increased from 1-74, the trend of connectivity change in 0-75. Our findings indicate that for adolescents with significant psychological problems, non-targeted treatment methods (random attacks) fail to effectively disrupt the connections between symptom networks, resulting in poor treatment outcomes. Targeted treatment focusing on core symptoms (deliberate attacks) can more quickly and thoroughly disrupt the connections between symptoms, leading to better treatment effects.

Keywords: adolescent, mental health, symptom network, targeted treatment, invulnerability test

言为心声：基于 LDA 挖掘心理咨询语料库中的心理和生涯主题

王笑　袁熙庆 程新宇　邢秋连 明玉 王鹏（通讯作者）
山东师范大学心理学院，济南，250000，pengsdnu@163.com

摘 要 背景和目的：基于对话机器人进行的心理咨询对话为文本分析研究提供了丰富的数据资源。本研究拟挖掘首个开放的中文心理咨询对话语料库，探索心理烦恼、心理异常和心理危机个体的生涯主题模型。方法：使用 Pycharm2021.3.2 语言编辑器，基于词频统计和 LDA 主题模型，提取不同程度心理问题个体的文本特征。结果：（1）个体的心理烦恼及伴随的生涯事件主要有：烦躁、很迷茫、没有安全感、有外遇、高三升学、找工作、厌学、毕业等；心理异常及伴随的生涯事件有：忧郁症、焦虑症、偏执、离过婚、离职、工作压力、传销、车祸、学习成绩等；心理危机及伴随的生涯事件有：不想活了、轻生、工作压力、家暴、传销等。（2）经过 LDA 主题模型训练后，语料库中个体的心理烦恼和生涯事件可归为 4 个主题：以“迷茫”、“厌学”等为关键词的大学生心理烦恼和生涯主题模型，以“心理压力”、“长大”、“毕业”等为关键词的毕业生心理烦恼和生涯主题模型，以“没兴趣”、“财务”等为关键词的上班族的心理烦恼和生涯主题模型，以“焦虑”、“早恋”、“技校”等为关键词的高中生心理烦恼和生涯主题模型。个体的心理异常和生涯事件可归为 3 个主题：以“家暴”、“家庭烦恼”为关键词的心理和生涯主题模型，以“产后抑郁”、“男同性恋”等为关键词的心理和生涯主题模型，以“单亲”、“暴食”等为关键词的心理和生涯主题模型。个体的心理危机和生涯事件可以归为 3 个主题：以“家庭暴力”、“男同性恋”、“长相”等为关键词的心理和生涯主题模型，以“残疾”、“单亲”、“校园暴力”等为关键词的心理和生涯主题模型，以“产后抑郁症”、“压力过大”、“怎么死”等为关键词的心理和生涯主题模型。结论：LDA 模型是便利实用的文本分析工具，在挖掘识别个体的非正常心理状态及关联的生涯事件方面表现优异。
关键词 LDA 主题模型，心理咨询语料库，生涯

Words are for the heart: mining psychological and career themes in the counseling corpus based on LDA

Xiao Wang　Xiqing Yuan　Xinyu Cheng　Qiulian Xing　Yu Ming　Peng Wang
School of Psychology, Shandong Normal University, Jinan

Abstract： Background and Purpose: Counseling conversations based on conversational robots provide a rich data resource for text analysis research. This study intended to mine the first open Chinese corpus of counseling conversations to explore the career topic models of individuals with psychological concerns, psychological abnormalities, and psychological crises. Methods: Using Pycharm2021.3.2 language editor, textual features of individuals with different degrees of psychological problems were extracted based on word frequency statistics and Latent Dirichlet Allocation(LDA) topic modeling. Results: (1) Individuals' psychological concerns and accompanying career events mainly include: irritability, being confused, insecurity, having an affair, advancing to senior high school, looking for a job, being bored with school, and graduation. Psychological abnormalities and accompanying career events include depression, anxiety, paranoia, divorce, separation, work pressure, pyramid selling, car accidents, academic performance, etc. Psychological crises and accompanying career events include: not wanting to live, making light of one's life, work pressure, domestic violence, pyramid scheme, etc. (2) After the training of LDA topic model, the psychological concerns and career events of individuals in the corpus can be categorized into four topics: college students' psychological concerns and career topic model with the keywords of

"confusion" and "boredom of studying". Graduate's psychological concerns and career topic model with keywords such as "psychological pressure", "growing up", "graduation", and so on. Working people's psychological concerns and career topic models with keywords such as "uninterested", "finance", and so on. High school students' psychological concerns and career theme models with keywords such as "anxiety", "calf love" and "technical school". Individual psychological abnormality and career events can be categorized into three topics: psychological and career topic models with keywords such as "domestic violence" and "family troubles". A model of psychological and career topics with keywords such as "postpartum depression" and "male homosexuality". Psychological and career topic models with keywords such as "single parent" and "overeating". Individual psychological crises and career events can be categorized into three topics: psychological and career topic models with keywords such as "domestic violence", "male homosexuality" and "looks". Psychological and career thematic models with keywords such as "disability", "single parent", "school violence", etc. Modeling of psychological and career topics with keywords such as "postpartum depression", "stress", "how to die", etc. Conclusion: the LDA model is a convenient and practical tool for text analysis, and it is excellent at mining to identify individuals' abnormal mental states and associated career events.

Keywords： LDA topic model, Chinese corpus of counseling conversations, career

5.14 军事心理学专业委员会

军事场景风险决策中任务紧迫性对人机组队后悔情绪的影响

杨千一　董超武　晏碧华　（通讯作者）
陕西师范大学心理学院暨陕西省行为与认知神经科学重点实验室
西安，710062，E-mail：yanbihua@snnu.edu.cn

摘 要　军事决策指经过判断推理而选择军事行动方案，定下决心并付诸实施的过程。战场形势瞬息万变，决策者不仅需要承受任务紧迫性及其引发的时间压力感对认知加工的影响，还需要根据有限的信息尽可能地对当前形势做出正确决策。不仅如此，由于人类决策者的有限理性限制，不可避免地会导致决策风险性上升，影响后续任务的绩效。因此，决策者需要在复杂条件下不断平衡利弊进行连续风险决策。连续风险决策是模拟风险逐步累积过程的决策方式（如快速救援任务）。此外，当前军事决策场景多由自动化辅助系统和人类合作者共同完成，人机组队中的风险决策问题尤为重要。基于此，本研究从时间压力出发，探讨人机组队和人人组队在军事场景决策中的后悔体验及表现。

本研究基于军事场景下的风险决策设置了四项实验，以任务紧迫性水平（时间压力：高、中、低、无）为被试间变量进行分组，实验采用 2（组队方式：人机组队、人人组队）×2（选择方式：相容选择、不相容选择）×2（结果：成功、失败）的被试内设计，考察不同任务紧迫性条件下不同组队方式、选择方式对决策主体后悔情绪以及决策任务绩效的影响。

结果：（1）任务紧迫性显著影响被试在失败条件下的后悔情绪体验，表现为时间压力越大，个体后悔情绪越强；（2）无论选择方式如何，人机组队中的被试在高任务紧迫性中的后悔体验显著低于人人组队，任务绩效则显著高于人人组队；（3）相容选择条件下，人机组队中的被试在低、无任务紧迫性中的后悔情绪与人人组队中的后悔情绪无显著差异，绩效无显著差异。

结论：军事场景下，任务紧迫性影响风险决策后悔情绪及绩效；相较于人人组队，人机组队更能够缓解紧迫任务的后悔情绪及提高任务绩效，但要求人机间保持选择相容。

关键词　任务紧迫性，人机组队，后悔，风险决策

The effect of mission urgency on Human-automation teaming regret in risky decision-making in military scenarios

YANG Qianyi, DONG Chaowu, YAN Bihua
(School of Psychology, Shaanxi Normal University, Xi´an 710062, China)

Abstract: Military decision-making refers to the process of choosing a military course of action, making up one's mind, and putting it into practice after judgment and reasoning. As the situation on the battlefield is rapidly changing, decision-makers not only need to bear the impact of task urgency and the time pressure it induces on cognitive processing but also need to make the best possible decision on the current situation based on limited information. In addition, the limited rationality of human decision- makers inevitably leads to an increase in the riskiness of decision-making, which affects the performance of subsequent tasks. Therefore, decision-makers need to continuously balance the pros and cons of continuous risk decision-making under complex conditions. Continuous risk decision-making is a decision-making approach that simulates the gradual accumulation of risk (e.g., rapid rescue missions). In addition, current military decision-making scenarios are mostly performed by automated assistive systems and human collaborators, and the problem of risky decision-making in human crews is particularly important. Based on this, this study explores the performance and regret experience of Human-automation teams and Human-Human teams in decision-making in military scenarios from the perspective of time pressure.

This study set up four experiments based on risky decision-making in military scenarios, grouped by task urgency level (time pressure: high, medium, low, and none) as a between-subjects variable, and the experiments used a 2 (teaming style: Human-automation teaming, Human-Human teaming) × 2 (choice style: compatible choice, incompatible choice) × 2 (outcome: success, failure) within-subjects design to examine the effects of different task urgency conditions on decision-making in different The effects of teaming and choice modes on decision subjects' regret emotions and decision task performance were investigated under different conditions of task urgency.

Results: (1) Task urgency significantly affected subjects' experience of regret in the failure condition, which was manifested in the fact that the higher the time pressure, the stronger the individual's regret; (2) Regardless of the choice mode, subjects in the Human-automation team had a significantly lower experience of regret in high task urgency than in the Human-Human team, while task performance was significantly higher than in the Human-Human team; (3) when the condition was a compatible choice, the regret experience of the Human-automation team was significantly higher than in the low and no task urgency were not significantly different from those in the Human-Human team, and performance was not significantly different.

Conclusion: In military scenarios, task urgency affects risky decision regret and task performance; compared with Human-Human teaming, Human-automation teaming is more capable of mitigating urgency and improving task performance, but requires that the choices between humans and machines be kept compatible.

Keywords: task urgency, Human-automation teaming, regret, risk-taking

无人机打击场景中的道德决策与自动化信任研究

董超武　杨千一　晏碧华（通讯作者）
陕西师范大学心理学院，西安，710062，E-mail：yanbihua@snnu.edu.cn

摘 要　技术的成熟与发展促使自动化系统逐渐迈向自主化，人工智能的应用推动了人机关系的变革，也在军事领域推动着战场形态的质变。在新式人机关系中，人不再扮演操作角色，而是作为系统的监控者与机器协作，这种关系需建立在稳固的信任之上。信任缺乏普遍接受的定义，但可解释为“一方对另一方的行为具有脆弱性的意愿，其基础是预期对方将执行对委托人重要的特定行动，而不论对方是否有能力监督或控制该方”。当前，以无人机自动化打击为代表的作战方式将建立新的作战体系，人机组队中的道德决策问题亟待解决。人类会由于机器的可靠性而信任机器，也会由于机器缺乏完整的高级思维模式而厌恶机器做出到的决策。

本研究分三部分对被试在无人机打击场景中的道德抉择问题进行探索。具体而言，研究一将被试被随机分配到两种结果（成功打击、失败打击）中的一种，并对不同决策主体（机器、人）做出的决定进行容忍度评级和结果感知评级；研究二在决策“黑箱”规模（低、中、高）三种条件下测量“人-机思维距离”，探索无人机打击场景下的机器道德决策厌恶机制；研究三通过三种手段（提升情绪体验、决策角色替换、增加专业知识表达）试图减轻被试对机器道德决策厌恶的途径。此外，研究 1 和研究 2 会在实验前测量被试的自动化信任水平并在任务结束后进行后测。

结果：（1）无论结果好坏，被试对人类做出道德决策的容忍程度都显著高于机器，失败的结果还会显著削弱个体的自动化信任水平；（2）机器做出道德决策的思维可见性（“黑箱”规模）显著影响了被试对其道德决策的态度和信任程度；（3）在无人机打击背景下，被试对机器道德决策的厌恶难以消除。

结论：在无人机打击背景下，个体厌恶机器做出道德选择，其原因之一在于个体感知到的机器决策过程与自身思维过程相去甚远，相关改进只能部分减弱这种厌恶感。

关键词　无人机，自动化信任，道德困境，人机关系

Research on moral decision making and trust in automation in UAV strike scenarios

Dong Chaowu Yang Qianyi Yan Bihua(corresponding author)
Shaanxi Normal University, Xi'an

***Abstract*:** The maturity and development of technology promote the automatic system gradually towards autonomy, the application of artificial intelligence promotes the change of human-machine relationship, and also promotes the qualitative change of battlefield form in the military field. The new human-machine relationship, in which humans no longer play an operational role but collaborate with machines as system monitors, needs to be based on solid trust. However, there is no specific definition of trust, but it can be interpreted as "the willingness of one party to be vulnerable to the actions of another based on the expectation that the other party will perform a particular action that is important to the principal, regardless of the other party's ability to supervise or control that party" (Mayer et al., 1995). At present, the combat mode represented by unmanned aerial vehicle(UAV) automatic strike will establish a new combat system, and the decision-making problem of moral dilemma in man-machine team is urgent to be solved. Humans will trust machines because of their reliability, and they will loathe the decisions made by machines because they lack a complete higher level of thought.

This study is divided into three parts to explore the moral choice of the subjects in the drone strike scenario. Specifically, in study 1, the subjects were randomly assigned to one of two outcomes (successful attack or fail attack), and the decisions made by different decision-making agents (machines and people) were rated for tolerance and outcome perception. In the second study, the "man-machine thinking distance" was measured under three conditions of the "black box" scale (low, medium and high), and the mechanism of machine moral decision aversion under the UAV attack scenario was explored. Study 3 attempts to reduce the aversion of subjects to machine moral decision making through three means (improving emotional experience, replacing decision-making roles, and increasing the expression of professional knowledge). In addition, Study 1 and Study 2 measured the level of automated trust before the experiment and after the task.

Results: (1) Whether the result is good or bad, the tolerance of human moral decision is significantly higher than that of machine, and the result of failure will significantly weaken the level of individual trust in automation; (2) The mental visibility of the machine to make moral decisions (the "black box" scale) significantly affected the subjects' attitude towards and trust in their moral decisions; (3) In the context of drone strikes, subjects' aversion to machine moral decision-making is difficult to eliminate.

Conclusion: In the context of UAV strikes, one of the reasons for individuals' aversion to machine making moral choices is that the decision-making process perceived by individuals is far from their own thinking process, and relevant improvements can only partially reduce this aversion.

***Keywords*:** UAV, trust in automation, moral dilemma, human machine relationship

特质正念对语段阅读注意特征的影响：来自动态眼动的证据

邢辰[1]，朱霞[1]，何玮[3]，叶盛东[3]，苗丹民[2*]（通讯作者）
第四军医大学军事医学心理学系：[1]军事心理学教研室，[2]航空航天心理学教研室；
[3]第四军医大学基础医学院，
陕西 西安 710032

摘 要 **目的** 采用眼动技术分析特质正念在语段阅读过程中表现的动态眼动特征。**方法** 以标准化语段为阅读素材，以内导向认知范式为框架设计基于眼动追踪的语段阅读及自我参照任务。招募大学本科生 124 人，以特质正念量表得分划分高低组后纳入实验。采用动态数据处理方法对相应眼动数据进行分析。**结果** 0-10 s 阅读期间的数据显示，特质正念和认知导向显著影响了对不同区域注视比例的变化趋势。具体而言，低正念组表现出 0-2.5 s 期间显著的对于文本区域和背景区域注视比例的波动，而高正念组则在 0-10 s 期间内保持稳定。在内外不同认知导向条件下，正念水平显著影响了注视特征的差异。**结论** 本研究揭示了在阅读早期由特质正念引起的显著的眼动特征，提示了正念可能的与注意分心的关系。研究同时发现了正念与内导向认知的关系，提示了正念与内省思维的密切联系。这些结果均说明正念中注意监控成分可以很好的通过眼动特征进行表达。

关键词 特质正念,阅读,眼动技术,注意

Exploring the Impact of Trait Mindfulness on Attentional Characteristics of Passage Reading: Insights from Dynamic Eye Movements

Chen Xing[1], Xia Zhu[1], Wei He[3], Shengdong Ye[3], Danmin Miao[2*] (Corresponding author)
Military Medical Psychology School, Fourth Military Medical University: [1]Department of Military Psychology, [2]Department of Aerospace Psychology;
[3]Basic Medical Science Academy, Fourth Military Medical University

***Abstract*：** **Objective:** This study aims to examine the attentional characteristics of individuals with trait mindfulness during passage reading using eye-tracking technology. **Methods:** A standardized passage was utilized as the reading material, and a task combining eye-tracking technology and introspective thinking was designed within the internal directed cognitive paradigm. The participants consisted of 124 undergraduate students who were divided into high and low trait mindfulness groups based on their trait mindfulness scale scores. Dynamic data processing methods were employed to analyze the corresponding eye movement data. **Results:** The analysis of data from the initial 0-10 second reading period revealed that trait mindfulness and cognitive direction significantly influenced the proportion of gaze directed towards different areas of interest. Specifically, the low trait mindfulness group exhibited significant fluctuations in the proportion of gaze between verbal and nonverbal areas within the first 2.5 seconds, whereas the high trait mindfulness group maintained stability throughout the entire 10 seconds. Furthermore, the level of trait mindfulness had a significant impact on gaze characteristics under

different cognitive directions. **Conclusions:** This study unveils distinctive eye-movement patterns associated with trait mindfulness during early reading, suggesting a potential association between mindfulness and attentional distraction. Moreover, a relationship was identified between mindfulness and internally directed cognition, indicating a close connection between mindfulness and introspective thinking. Overall, these findings suggest that the attentional monitoring aspect of mindfulness can be manifested through eye movement features.

Keywords：Trait mindfulness, Reading, Eye-tracking, Attention

消防救援队员领悟社会支持与积极应对方式的关系：积极情绪和生命意义感的中介作用

张誉瀚[1]，欧阳丽萍[2]，陈思瑜[1]，王丹[1]，章溢[1]，靖治[1]，张森森[1]，丁凤琴[1]（通讯作者）
1 宁夏大学教师教育学院，银川，750021，通讯作者 E-mail（dingfqin@nxu.edu.cn）
2 桂林市消防救援支队，桂林，541001

摘要：消防救援队员肩负着抗震救灾和抢险救援的重要任务，是保障人民群众生命财产安全的中坚力量。然而，难以预测险情与灾情，经常使消防救援队员处于可能引起受伤甚至牺牲的应激情境之中，从而承受较大的心理压力。显然，消防救援队员的心理问题已经成为制约消防部队稳定和救援能力的一大障碍。因此，考察消防队员心理健康的影响因素、为维护消防队员心理健康提供科学依据，是当前急需加强研究的重要课题。以往研究表明：积极应对方式不仅是影响消防救援队员心理健康的重要因素之一，还与消防救援队员工作状态密切相关。然而，却鲜有研究探讨消防救援队员积极应对方式及其背后的心理机制，这也正是本研究是意义所在。本研究探讨消防救援队员的领悟社会支持与积极应对方式的关系以及积极情绪和生命意义感的链式中介作用，采用领悟社会支持量表(PSSS)、正性负性情绪量表(PANNS)、生命意义感量表(MLQ)、简易应对方式问卷(SCSQ)对某市消防救援支队共 354 名消防救援队员进行问卷调查。结果表明：(1)消防救援队员的领悟社会支持能正向预测其积极应对方式；(2)消防救援队员的积极情绪在其领悟社会支持和积极应对方式间起独立中介作用；(3)消防救援队员的生命意义感在其领悟社会支持和积极应对方式间起独立中介作用；(4)消防救援队员的积极情绪和生命意义感在领悟社会支持和积极应对方式中起双重中介作用。以上研究说明：消防救援队员的领悟社会支持分别通过积极情绪和生命意义感进而正向预测其积极应对方式。该结果揭示了消防救援队员领悟社会支持与积极应对方式的内在作用机制，旨在为提高消防救援队员的心理健康和救援能力提供理论依据和实践指导。

关键词：消防救援人员，领悟社会支持，积极应对方式，积极情绪，生命意义感

The relationship between perceived social support and positive coping styles in the fire rescue personnel: the mediating effect of positive emotion and sense of meaning in life

Zhang Yuhan[1], OuYang Liping [2], Chen Siyu[1], Wang Dan[1], Zhang Yi[1], Jing Zhi[1], Zhang Sensen[1], Ding Fengqin[1]
1.NingXia University, No.489 Helan Mountain West Road, Yinchuan City,
2.Guilin Fire and Rescue Detachment, No.119 Zhongyin Road, Guilin City.

Abstract: The fire rescue personnels shoulder the important task of earthquake relief and rescue, and is the backbone of ensuring the safety of people's lives and property. However, it is difficult to predict the danger and disaster, which often makes the fire rescue personnels in the stress situation that may cause injury or even sacrifice, thus bearing greater psychological pressure. Obviously, the psychological problems of fire rescue personnels have become a major obstacle restricting the stability and rescue ability of fire forces. Therefore, investigating the influencing factors of mental health of fire rescue personnels and providing scientific basis for maintaining mental health of fire rescue personnels is an important topic that needs to be strengthened at present. Previous studies have shown that the positive coping style is not only one of the important factors affecting the mental health of fire

rescue personnels, but also closely related to the working status of fire rescue personnels. However, few studies have explored the active coping styles of fire rescue personnels and the psychological mechanisms behind them, which is why this study is significant. This study explores the relationship between perceived social support and positive coping styles, as well as the chain mediating effect of positive emotion and sense of life meaning among fire rescue personnels. A total of 354 fire rescue members of a fire rescue detachment in a city were investigated by Perceived Social Support Scale (PSSS), positive and negative Emotion Scale (PANNS), meaning of Life Scale (MLQ) and Simple Coping Style Questionnaire (SCSQ). The results show that: (1) the comprehending social support can positively predict the positive coping style of fire rescue personnels; (2) The positive emotions of fire rescue personnels play an independent mediating role between their understanding of social support and their positive coping styles; (3) The meaning of life of fire rescue personnels play an independent mediating role between their understanding of social support and positive coping styles; (4) Fire rescue personnels' positive emotions and sense of life meaning play a double mediating role in perceived social support and positive coping styles. The above research shows that the perceived social support of fire rescue personnel positively predicts their positive coping style through positive emotion and sense of life meaning respectively. The results reveal the internal mechanism of perceived social support and positive coping style of fire rescue personnels, aiming to provide theoretical basis and practical guidance for improving the mental health and rescue ability of fire rescue personnels.

Key words: fire rescue personnel，perceived social support，positive coping style，positive emotion，meaning of life

散偏远官兵抑郁和焦虑的流行率、相关因素和网络分析研究

杨梦圆[1] 张芫蓓[1] 蒲昭君[1] 李翊君[1] 任垒[2] 武圣君[1,*](通讯作者)

1 空军军医大学军事医学心理学系，西安，710032

2 武警后勤学院军事心理学系，天津，300309

通讯作者 E-mail：wushj@fmmu.edu.cn

摘 要 抑郁和焦虑是军队官兵中最常见的心理健康问题，对军队的日常管理和训练有着重要影响。本研究旨在评估抑郁和焦虑在散偏远地区军人中的流行程度、相关因素和网络结构。研究从2022年7月至2023年1月在符合散偏远地区操作性定义的地区进行数据收集，共获得有效问卷831份。本研究采用PHQ-9（Patient Health questionnaire-9）和GAD-7（Generalized anxiety disorder 7-item）量表来评估抑郁和焦虑症状。进一步进行单因素分析、多因素回归分析和网络分析。在散偏远官兵中抑郁发生率为23.10%，焦虑的发生率为10.83%。协方差分析表明有抑郁或焦虑症状的官兵孤独感、感知压力显著高于健康官兵，而社会支持水平显著低于健康官兵。多元回归结果显示具有更高压力和孤独感的官兵更有可能出现抑郁或焦虑问题，而社会支持、对未来发展充满希望和对环境感到满意则是保护性因素。此外，担忧身体健康是焦虑症状的危险因素，抑郁症状随着年龄的增加而减轻。网络分析结果显示，"不能控制地担心"是抑郁焦虑共病网络中的核心症状和桥梁症状。我们发现，散偏远地区官兵中年轻和有身体疾病的应得到更多关注；过高的压力和孤独感会对心理健康产生负面影响，而社会支持是重要的保护因素。此外，针对关键节点的心理认知训练对于改善散偏远官兵的抑郁和焦虑症状可能具有现实意义。

关键词 抑郁，焦虑，网络分析，散偏远，官兵

Prevalence, correlates, and network analysis of depression and anxiety among military personnel in dispersed remote areas

Mengyuan Yang[1], Yuanbei Zhang[1], Zhaojun Pu[1], Yijun Li[1], Lei Ren[2], Shengjun Wu[1,*]

[1] Department of Military Medical Psychology, Air Force Medical University, 169 West Changle Road, Xi'an, Shaanxi 710032, China

[2] Department of Military Psychology, Armed Police Logistics College, Tianjin 300309, China

***Abstract*:**

Background: Depression and anxiety as the most common mental health problems among army officers and soldiers, have significant influence on the daily management and training of the army. The purpose of this study aimed to assess the prevalence, correlates, and network structure of depression and anxiety among military personnel in dispersed remote areas.

Method: The study was conducted from July 2022 to January 2023 for data collection in areas that met the operational definition of dispersed remote areas, and a total of 831 valid questionnaires were obtained. PHQ-9 (Patient Health questionnaire-9) and GAD-7 (Generalized anxiety disorder 7-item) scales were used in this study to assess the symptoms of depression and anxiety. Further univariate analysis, multivariate regression analysis and network analysis were performed.

Results: The prevalence of depression was 23.10% and anxiety was 10.83% among the dispersed remote officers and soldiers. Analysis of covariance showed that officers and soldiers with symptoms of depression or anxiety had significantly higher loneliness and perceived stress and significantly lower levels of social support than healthy

officers and soldiers. Multiple regression results showed that officers and soldiers with higher levels of stress and loneliness were more likely to have depression or anxiety problems, while social support, hope for future development and satisfaction with the environment were protective factors. In addition, Worrying about physical health is a risk factor for anxiety, and depressive symptoms decrease with increasing age. The results of the network analysis showed that "uncontrollable worry" was the core and bridge symptom in the depression-anxiety co-morbidity network.

Conclusion: We found that young and physically ill soldiers in remote areas should be given more attention; excessive stress and loneliness can negatively affect mental health, and social support is an important protective factor. In addition, psycho-cognitive training targeting key points may be practical for improving depression and anxiety symptoms in dispersed and remote officers and soldiers.

***Keywords*:** depression, anxiety, network analysis, dispersed remote areas, military personnel

“舰机融合”视阈下舰载战斗机飞行人员身心抗逆力模型构建研究

邹骐阳　应鹏飞　吴昊

海军大连舰艇学院基础部，辽宁大连，116000

摘 要　抗逆力即人的心理弹性、韧性。拥有强大的身心抗逆力是舰载战斗机飞行人员完成超负荷、超难度舰载飞行任务的身心基础。伴随海军航空兵不断发展装大，未来海军舰载战斗机飞行人员需求与日俱增，对于该群体的抗逆力研究较少且有意义。

方法：研究主要采用文献资料法、Delphi 专家调查法，利用担任海军飞行人才心理选拔任务契机，整理与资深飞行专家的访谈记录，通过 Nvivo 11.0 质性分析软件，围绕舰载战斗机飞行学员的身心抗逆力模型构建展开研究。

结果：1.身心抗逆力模型构建依据：研究在前人文献基础上，从未来舰机融合作战的角度出发，以航空特种医学、心理学、运动训练学等学科知识为理论依据，尝试构建该群体身心抗逆力模型。

2.心理抗逆模型的构成：舰载战斗机飞行人员的抗逆模型共包含 7 个一级指标，26 个二级指标，分别是：（1）坚韧血性（5 项：身心抗逆、行为控制、勇敢冒险、生理力量、血性应激）；（2）理性从容（5 项：遇事冷静、分析详尽、预知结果、预设预案、坦然应对）；（3）自我效能（4 项：正视成败、定位准确、信念坚定、自信乐观）；（4）柔性应对（4 项：灵活变通、活跃思维、觉察当下、澄清价值）；（5）责任安全（5 项：责任意识、遵章守法、备飞认真、准确决断、团队和谐）；（6）服从执行（3 项：集体荣誉、服从意识、敢于牺牲）。

结论：结合测试数据,本研究所构建出的舰载战斗机飞行人员身心抗逆力模型，突出了舰机融合特点，可为海军舰载战斗机飞行人员的招飞选拔、培训使用提供有效支撑。

关键词　舰载战斗机，飞行人员，身心抗逆力，模型构建

Research on the Construction of Physical and Psychological Resilience Model of Carrier-based Fighter Pilots under the Perspective of "Carrier-fighter Integration"

ZOU Qiyang,YING Pengfei,WU Hao

Institute of military sport, Dalian Naval Academy , Dalian,LiaoNing 116000

Abstract：Resilience refers to people's psychological flexibility and toughness. Possessing strong physical and psychological resilience is the physical and psychological foundation for carrier-based fighter pilots to complete overloaded and extremely difficult carrier-based flight missions. With the constant development of naval aviation, the demand for naval carrier-based fighter pilots will increase day by day, but there are few and meaningful research on the resilience of this group.

Methods: The research mainly adopts the document literature and Delphi methods and takes advantage of the opportunity of serving as the psychological selection task of naval pilot personnel to sort out the interview records with senior flight experts and conduct research around the construction of the physical and psychological resilience model of carrier-based fighter pilots through Nvivo 11.0 qualitative analysis software.

Results: 1. Basis for the construction of the physical and psychological resilience model: based on previous literature, from the perspective of future carrier-fighter integrated operations, and based on the theoretical basis of special aviation medicine, psychology, sports training, and other disciplines, an attempt was made to construct the physical and psychological resilience model of this group.

2. Composition of the psychological resilience model: The resilience model of carrier-based fighter pilots contains 7 first-level indicators and 26 second-level indicators, which are: (1) tenacity and boldness (5 items: physical and psychological resistance, behavior control, dare to adventure, physical strength, and bold stress); (2) rationality and calmness (5 items: calmness in situations, detailed analysis, predict the result, preset plans, and cope calmly); (3) self-efficacy (4 items: face up to success or failure, accurate positioning, firm belief, and self-confidence and optimistic); (4) flexible response (4 items: flexible adaptation, active thinking, think about the present, and clarify the value); (5) Responsibility and safety (5 items: awareness of responsibility, compliance with laws and regulations, serious preparation for flight, accurate decision-making, and team harmony); (6) Obedience and execution (3 items: collective honor, awareness of obedience, and dare to sacrifice).

Conclusion: Combined with the test data, the physical and psychological resilience model of carrier-based fighter pilots constructed by this research highlights the characteristics of carrier-fighter integration, and is able to provide effective support for the recruitment, selection, training, and use of naval carrier-based fighter pilots.

***Keywords*:** Carrier-based Fighter, Pilots, Physical and Psychological Resilience, Model Construction.

飞行事故场景记忆的边界扩展

杨静怡[1]　晏碧华[1]（通讯作者）
陕西师范大学心理学院，西安，710062，E-mail：yanbihua@snnu.edu.cn

摘 要　视觉场景感知和记忆是人类适应环境的重要过程，但是人的感知和记忆在很多时候会被扭曲。除了场景内容本身，视觉记忆还会受到其形成时的时空环境影响。边界扩展（boundary extension）和边界压缩（boundary contraction）就是场景记忆扭曲的例子。边界扩展指对视觉场景的记忆包含了实际看到的边界之外的信息，也就是对场景边界进行了扩展；而边界压缩是指视觉场景的记忆对场景边界处的信息进行了缩减。边界扩展与边界压缩被统称为边界转换。现有研究围绕常规自然场景记忆的边界转换，对场景深度、场景比例、场景倒置及个体经验等影响因素进行了考察，本研究将对飞行事故场景记忆的边界转换特性展开探索。

通过图库和模拟飞行软件收集飞行场景图片，分为事故与非事故图片，事故图片具有飞机破损、着火、浓烟等特征，建立飞行场景图集。研究一探索了不同场景（事故、非事故）的编码特征（集中编码、分散编码）对图片记忆边界转换的影响。研究二检验了飞行事故场景常见视角（空中垂直俯视，即无人机视角、陆地山坡斜视视角）下事故与非事故图片记忆的边界转换特征，研究三考察了极值边的设置（有无极值边）的影响。三个研究均为 2×2 被试内设计，采用快速场景识别任务和判断信心评级收集反应数据。

结果发现：（1）包含飞机客体的静态场景与事故场景均出现场景记忆的边界扩展现象，事故场景尤其是集中编码的事故场景，其边界扩展量更大；（2）俯视视角下的飞行事故场景扩展量更大；（3）极值边的设置可以降低非事故场景的边界扩展，然而，即使设置了极值边，仍不能减缓或消除飞行事故场景的边界扩展。

结论：飞行事故场景记忆会出现场景边界扩展，且和普通飞行场景比有极化现象，其原因可能和事故飞机作为特殊客体的焦点记忆有关，也有可能是由于飞机特定朝向引起的表征动量与边界扩展叠加而产生极化效应。本研究对航空飞行事故分析有较为重要的意义。

关键词　场景记忆，边界扩展，边界压缩，边界转换

Boundary extension of flight accident scene memory

YANG Jingyi, YAN Bihua (corresponding author)
(School of Psychology, Shaanxi Normal University, Xi’ an 710062, China)

Abstract: Visual scene perception and memory is an important process for human to adapt to the environment, but human perception and memory are often distorted. In addition to the content of the scene itself, visual memory is also affected by the space-time environment in which it was formed. Boundary extension and boundary contraction are examples of distortion of scene memory. Boundary extension means that memories of visual scenes include information beyond the boundaries actually observed, that is, the boundary of the scene is extended. Boundary contraction means that memories of visual scenes contracted the information at the scene boundaries. Boundary extension and boundary contraction are referred to as boundary transformation. The existing researches focus on the boundary transformation of natural scene memory, and investigate the influence factors such as scene depth, scene proportion, scene inversion and individual experience. This study will explore the boundary transformation characteristics of flight accident scene memory.

The images of flight scene are collected through the gallery and the flight simulation software, which are divided into accident and non-accident pictures. The accident pictures have the characteristics of aircraft damage, fire, smoke and so on, build a flight scene atlas. Study 1 explores the influence of different scenes (accident,

non-accident) and coding features (centralized coding, scattered coding) on the boundary transformation of scene memory. Study 2 examines the boundary transformation characteristics of the accident and non-accident pictures under the common perspective of flight accident scene (vertical overlooking of aerial view, namely the perspective of unmanned aerial vehicle and oblique perspective of land slope). Study 3 examines the influence of the setting of extremal edges (with and without extremal edge). All three studies had a 2×2 within-subject design and collected response data by rapid scene-recognition task and judgment confidence ratings.

The results show that: (1) Boundary extension occurs in both static scenes and accident scenes, especially accident scenes with centralized coding. (2) The extension of the flight accident scene in the overlooking perspective is larger. (3) The setting of extremal edge can reduce the boundary extension of non-accident scenes, but cannot decrease or eliminate the boundary extension of flight accident scene.

Conclusion: The scene boundary extension occurs in the memory of flight accident scenes, and the polarization phenomenon is more than that of ordinary flight scenes. The reason may be related to the focus memory of the accident aircraft as a special object, or the polarization effect may be caused by the superposition of the representational momentum and boundary extension caused by the specific orientation of the aircraft. This research is significant to the analysis of aviation accident.

Keywords: scene memory, boundary extension, boundary contraction, boundary transformation

军人抑郁和焦虑症状的关系探索：基于网络分析

吴忠英 马竹静 冯钰婷 刘斌 金银川 李逢战 杨群（通讯作者）
空军军医大学军事医学心理学系，西安，710032，yangqun@fmmu.edu.cn

摘 要 研究发现心理问题会对工作表现产生不良影响。焦虑和抑郁作为最常见的心理问题，常常以共病形式存在。心理病理学网络理论认为，心理问题的产生源于症状之间的相互作用。本研究对军人的抑郁和焦虑共病网络进行了分析，探索了抑郁和焦虑共病网络的核心症状及桥接症状，以期为缓解军人的抑郁和焦虑状况提供预防和干预建议。采用网络分析方法对 656 名军人抑郁症筛查量表（PHQ-9）和广泛性焦虑量表（GAD-7）得分进行研究，基于软件 R 构建和评估抑郁和焦虑共病网络，并对网络拓扑结构、中心性指标、桥中心性指标以及网络性能进行分析。结果表明，抑郁和焦虑网络中最强的连边分别存在于抑郁网络内部或焦虑网络内部。在抑郁网络中，“快感缺失—疲倦”以及“快感缺失—情绪低落”连接强度最高，在焦虑网络中，“坐立不安—害怕有不好的事情发生”, 以及 “感觉紧张或焦虑—无法控制担忧”连接强度最高。“坐立不安”、“疲劳”以及“无法控制担忧”具有最强中心性，而 “精神动力学激越或迟滞”和 “害怕有不好的事情发生”为桥症状。本研究首次使用网络分析方法探究军人抑郁和焦虑症状之间的复杂关系特征。结果表明“坐立不安”、“疲劳”、“无法控制担忧”、“精神动力学激越或迟滞”以及“害怕有不好的事情发生” 为抑郁和焦虑共病网络的关键症状，提示优先针对这 5 个症状进行干预，可能会取得更大的干预效益。

关键词 抑郁，焦虑，网络分析，军人

Understanding the association between depression and anxiety of soldiers: A network analysis

Wu Zhongying, Ma Zhujing, Feng Yuting, Liu Bin, Jin Yinchuan, Li Fengzhan, Yang Qun*
Department of Military Medical Psychology, Air Force Medical University, Xi’an, 710032, China

Abstract：Mental health issues have been found to negatively affect work performance. Depression and anxiety are common psychological disorders and often comorbid. From the network model perspective, psychological disorders arise from direct interactions between symptoms. The current study investigates the network structure of depression and anxiety symptoms of Soldiers and identifies the central symptoms, bridge symptoms, in order to provide suggestions for the prevention of and intervention for depression-anxiety comorbidity in soldiers. We recruited 656 soldiers with symptoms of depression and anxiety, severity spanning from minimal to severe. Patient Health Questionnaire-9 (PHQ-9) and Generalized Anxiety Disorder 7-Item Questionnaire (GAD-7) were utilized to measure depression and anxiety symptoms. The network of depression and anxiety symptoms was constructed and estimated in the statistical programming environment R. Finally, the features of our network including topology, network centrality, bridge centrality, and stability were investigated. Four strongest edges existed in the network were from the same disorder. Two were between depression symptoms, including links between “Anhedonia” and “Fatigue”, as well as “Anhedonia” and “Depressed or sad mood”. The others were between anxiety symptoms, containing links between “Restlessness” and “Afraid something will happen”, as well as “Nervousness or anxiety” and “Uncontrollable worry”. The symptoms “Restlessness”, “Fatigue” and “Uncontrollable worry” had the highest expected influences. Results also revealed two bridge symptoms: “Psychomotor agitation/retardation” and “Afraid something will happen”. The current study not only stressed critical central symptoms “Restlessness”, “Fatigue” and “Uncontrollable worry”, but also highlighted

critical bridge symptoms “Psychomotor agitation/retardation” and “Afraid something will happen”. This study is the first to use network analysis method to explore the complex relationships among the depression symptoms and generalized anxiety symptoms in soldiers. It is found that symptoms “Restlessness”, “Fatigue”, “Uncontrollable worry”, “Psychomotor agitation/retardation” and “Afraid something will happen” are the key symptoms of soldiers’ depression and anxiety. Giving priority to the intervention according to these symptoms may achieve greater therapeutic effects.

Keywords：Depression; Anxiety; Network analysis; Soldiers

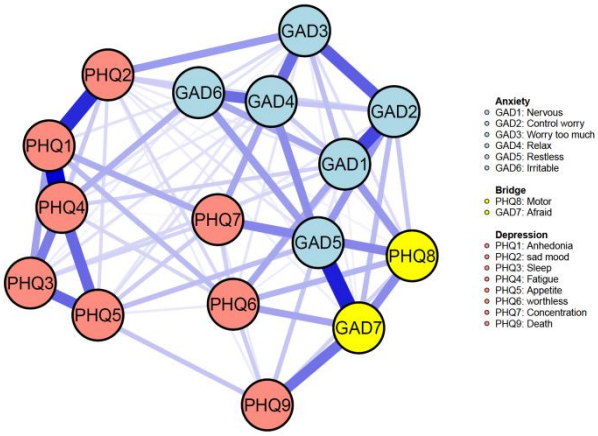


Fig. 1 Network structure of depression and anxiety symptoms showing bridge symptoms in soldiers. Nodes identified as bridge symptoms are colored in yellow.

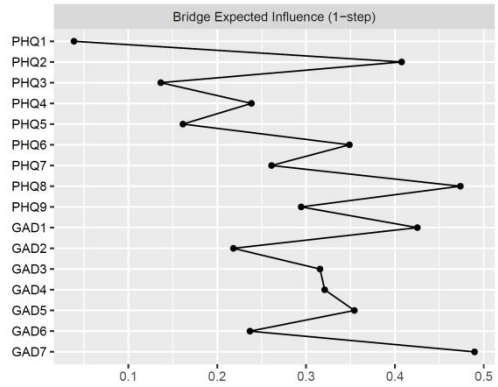


Fig. 2 Bridge centrality plot depicting the bridge expected influence of each symptom in the network (raw scores)

5.15 人格心理学专业委员会

大学生自我建构与孤独感：特质错失恐惧与人际关系满意度的作用

毛建[1] 陈沛[1] 何嘉杰[1] 聂衍刚[1]（通讯作者） 韦俊峰[1] 萧慧仪[1]

1 广州大学教育学院心理学系/青少年心理与行为研究中心，广州，510006

nie-yangang@gzhu.edu.cn

摘 要　自我一直是心理学领域的重要研究课题。自我建构作为该领域的一个分支，指的是个体对自我认识时更强调自己还是与他人的关系，分别对应独立型与依存型自我建构。两种自我建构类型可以并存于同一个体中，只是以某种突出的建构倾向占主导地位。作为现代社会下的一个公共健康问题，孤独感是与社交相关的消极情感体验，由个体期望的社会关系质量与现状之间的差异导致。依存型建构与东方集体主义的文化价值观相吻合，生活在该文化背景下具有依存型建构倾向的个体容易获得社会支持以及感受积极情绪，体验更少的孤独感。然而，持不同观点的研究者认为依存型建构比独立型建构的个体对和谐人际关系的需求更高，可能更容易产生现实人际关系与期待水平之间的差距, 从而感到孤独。在实证研究中，两者的关系也没有得到一致验证。鉴于此，本研究将关注依存型自我建构可能增加孤独感的风险因素（特质错失恐惧的中介作用），以及人际关系满意度的调节作用。采用自我建构量表、孤独感量表、特质错失恐惧量表以及一项人际关系满意度题项对 384 位大学生进行施测，删除答题时间短、反应一致等无效问卷后，得到有效问卷 323 份。结果发现：（1）依存型自我建构与孤独感相关不显著(r=0.07, p>0.05)，与特质错失恐惧显著正相关(r=0.19, p<0.001)，特质错失恐惧与孤独感显著正相关(r=0.34, p<0.001)；（2）特质错失恐惧在依存型自我建构与孤独感关系间起中介作用；（3）人际满意度调节了依存型自我建构与孤独感的关系，低人际关系满意度水平下，依存型自我建构显著正向预测孤独感(β=0.14, p<0.05)，反之，则负向预测孤独感(β=-0.16, p<0.05)。结果表明依存型自我建构倾向的大学生可能通过特质错失恐惧经历更多的孤独感，依存型自我建构对大学生孤独感的影响取决于其人际关系满意度的水平。本研究为理解自我建构与孤独感的关系提供了新的视角，拓展了自我建构倾向的认知和情绪效应的相关研究，有助于减少和改善大学生的孤独感。

关键词　自我建构；孤独感；特质错失恐惧；人际关系满意度

Self-construal and Loneliness among Chinese College Students: the Roles of trait-Fear of Missing Out and Interpersonal Relationship Satisfaction

Jian Mao[1], Pei Chen[1], Jiajie He[1], Yangang Nie[1], Junfeng Wei[1], Huiyi Xiao[1]

1 Department of Psychology/Center for studies of Adolescent Psychological and Behaviors, Guangzhou University, Guangzhou, 510006

Abstract：The self has been an important topic of study in the field of psychology. Self-construal, as a branch of the field, refers to whether individuals recognize the self with more emphasis on themselves or in relation to others, corresponding to independent and dependent self-construals, respectively. The two types of self-construal can coexist in the one individual, dominated by one prominent constructive tendency. Loneliness is considered a global public health issue. Loneliness describes a subjective negative emotional experience related to social communication. The discrepancy between individuals' desired and existing social relationships causes feelings of loneliness. The interdependent construct coincides with the cultural values of Eastern collectivism, individuals living in this culture with a tendency towards the interdependent construct are more likely to access social support and experience positive emotions, and feel less loneliness.However, dissenting researchers have argued that individuals with interdependent constructs have a higher need for harmonious interpersonal relationships than those with independent constructs, and may be more likely to experience a gap between the reality of interpersonal relationships and the level of expectations, and thus to feel lonely. This relationship has also not been consistently verified in empirical studies. Given this, the present study will focus on the risk factors for which interdependent self-construals may increase loneliness (the mediating role of trait-Fear of Missing Out(trait-FoMO)), as well as the moderating role of interpersonal relationship satisfaction. The self-construal scale, loneliness scale, trait

-FoMO scale, and an interpersonal relationship satisfaction question were tested on 384 college students, and 323 valid questionnaires were obtained after deleting invalid questionnaires such as short response time and response consistency. The results found that (1) the interdependent self-construal was not significantly correlated with loneliness (r=0.07, p>0.05), was significantly positively correlated with trait-FoMO (r=0.19, p<0.001), and trait misplaced fear was significantly positively correlated with loneliness (r=0.34, p<0.001); (2) trait-FoMO mediated the relationship between the interdependent self-construal and loneliness ; (3) Interpersonal relationship satisfaction moderated the relationship between interdependent self-construals and loneliness, with interdependent self-construals significantly and positively predicting loneliness at low levels of relationship satisfaction (β=0.14, p<0.05), and negatively predicting loneliness at the opposite level (β=-0.16, p<0.05). The results indicated that college students with interdependent self-constructing tendencies may experience more loneliness through trait-FoMO, and the effect of interdependent self-constructing on college students' loneliness depends on the level of their interpersonal satisfaction. This study provides new perspectives for understanding the relationship between self-construal and loneliness, expands research related to the cognitive and emotional effects of self-construal tendencies, and contributes to the reduction and improvement of college students' loneliness.
Keywords: self-construal, loneliness, trait-fear of missing out, interpersonal relationship satisfacton

成年期人格剖面与身体锻炼

王金凯　邵韵如　郭璐（通讯作者）　毛志雄（通讯作者）
北京体育大学心理学院，北京，100048
guolu2000@163.com
zhxmao@bsu.edu.cn

摘　要　长久以来，人格被视作预测身体锻炼的重要心理因素。目前的研究集中于探讨人格的各项特质（维度）与身体锻炼的关系，累积证据支持外向性和尽责性正向预测身体锻炼。然而，此类已有研究尚存在许多不一致的结果，主要体现在宜人性和开放性与身体锻炼的关系上。在实践方面，研究单一特质所

获的结论也难以有效应用于锻炼促进的指导，因为每个人都具有不同水平的多种人格特质，这些特质相互作用产生人格。相比之下，关注人格特质的组合更具理论和实践指导价值。因此本研究旨在采用以个体为中心的研究路径，考察成年期的“大五”人格剖面及其与身体锻炼行为之间的关系。为支持人格剖面的稳定性和剖面预测身体锻炼的可重复性，研究问题分别在成年早期、成年中期和成年晚期人群中分析。数据来自中国家庭追踪调查（China Family Panel Studies），28304 名成年人报告了“大五”人格（Big Five Inventory）和身体锻炼行为。潜在剖面分析在成年早期、成年中期和成年晚期人群中均识别出 5 种人格剖面——普通、保守、自信、坚韧和脆弱。基于所得剖面进一步发现了不同剖面的个体在身体锻炼上存在显著差异，坚韧和自信剖面的个体往往有更多的身体锻炼行为，而脆弱剖面的个体较少参与锻炼。研究结果揭示了人格特质的不同组合可以预测个体的身体锻炼，既有助于更深入地理解身体锻炼和人格之间的联系，也有助于识别存在缺乏锻炼风险的成年人，并制定针对性的运动干预策略。

关键词　人格，“大五”人格，人格剖面，身体锻炼，成年人

Personality Profiles and Exercise Behaviour across Adulthood

Jin-Kai Wang　Yun-Ru Shao　Lu Guo*　Zhi-Xiong Mao*
School of Psychology, Beijing Sport University, Beijing, China
guolu2000@163.com
zhxmao@bsu.edu.cn

Abstract：Personality has long been considered a significant psychological component predicting exercise behaviour. Prior research has mostly focused on how personality traits (dimensions) were associated with exercise behavior, with the cumulative evidence supporting extraversion and conscientiousness are associated with exercise. However, findings linking the five personality dimensions to exercise behaviour are mixed or even contradictory, agreeableness and openness were the focuses. On the other side of the coin, most research paid attention to relationships with single personality dimensions; it would not be practical to institute measures to promote exercise according to single personality dimension. Because people normally possess many personality characteristics with varying levels, these subcomponents interact with each other to produce personality. Hence, focusing more closely on combinations of personality traits might prove valuable in the future. The present study aimed to bridge this gap by identifying the personality profiles and investigating the associations between Big Five personality profiles and exercise behaviour based on a person-centred approach in adults. And it is worth noting that these questions were addressed in young adulthood, middle adulthood and later adulthood individuals separately to demonstrate the stability of personality profiles and the replicability of the predictive power of exercise behaviour. Data from the China Family Panel Studies (CFPS) were used (N＝28,304 adults), in which participants reported their Big Five personality and exercise behaviour. Latent profile analyses, grounded in young adulthood, middle adulthood, and later adulthood sub-samples, revealed five personality profiles: moderate, reserved, confident, resilient, and vulnerable. Employing profiles identified, significant differences between the five personality profiles in relation to exercise behaviour were revealed. Specifically, people with the resilient or confident profiles generally have longer exercise duration while people with vulnerable profiles tend to exercise less. Our findings give greater insight into the link between exercise and personality, suggesting that different combinations of personality traits may determine individuals' exercise behaviour. It opens promising avenues for identification of adults at risk of lacking exercise, and for personality-targeted exercise interventions as well.

Keywords：personality, Big Five, personality profiles, exercise, adulthood

父母支持充分性对青少年一般性应激反应症状的影响：一个有调节的中介模型

杨雨濛 刘倩文* 王振宏*

陕西师范大学心理学院，陕西（高校）儿童青少年心理与行为健康哲学社会科学重点研究基地,西安，710062,

liuqw24@126.com; wangzhenhong@snnu.edu.cn

摘 要 一般性应激反应症状(Symptoms of General Stress Response)是指由广泛的应激源引起的持续性身心应激反应症状，包括焦虑与抑郁等心理应激反应以及躯体化反应症状，是个体身心健康的风险预测指标。个体的一般性应激反应症状可能会受到环境因素和个体因素的共同影响。父母支持充分性即个体期望的父母支持水平与实际感受到的父母支持水平的匹配程度，作为一种家庭环境资源是否影响青少年的一般性应激反应症状，目前没有研究予以探讨。已有研究表明，压力感知水平的高低影响个体应激反应的大小，因此，父母支持充分性可能会通过影响压力感知进而影响一般性应激反应症状。性格优势是个体的积极心理资源，也可能会与父母支持充分性交互作用于青少年的压力感知水平和应激反应症状，但已有研究对这些问题都缺乏探讨。因此，本研究考察了父母支持充分性对青少年的一般性应激反应症状的影响以及压力感知在其中的中介作用和性格优势的调节作用。运用《儿童及青少年社会支持量表》、《简版中学生品格问卷》、《压力知觉量表》、《广泛性焦虑量表》、《流调中心抑郁量表》、《症状自评量表》中的躯体化维度和《匹兹堡睡眠质量指数量表》，对 631 名青少年($M_{年龄}$=13.88 岁，SD=0.61)进行间隔半年的两次数据采集。研究结果发现：(1)父母支持充分性负向预测青少年一般性应激反应症状，且压力感知在父母支持充分性和一般性应激反应症状之间起纵向中介作用；(2)性格优势不仅能够在父母支持充分性与青少年压力感知之间起调节作用，而且能够调节父母支持充分性对一般性应激反应症状的影响。具体而言，与性格优势水平高的青少年相比，性格优势水平低的青少年更容易受到父母支持充分性的影响，进而作用于其压力感知水平和一般性应激反应症状。研究结果表明，压力感知在父母支持充分性与青少年一般性应激反应症状关系中起到中介作用，而性格优势在父母支持充分性与青少年一般性应激反应症状关系中起到调节作用。

关键词 青少年，父母支持充分性，压力感知，性格优势，一般性应激反应症状

The effect of parental support adequacy on symptoms of general stress response in adolescents : A moderated mediation model

Yumeng Yang, Qianwen Liu*, Zhenhong Wang*

School of Psychology, Shaanxi Normal University, Shaanxi Provincial Key Research Center of Child Mental and Behavioral Health, Xi'an 710062

Corresponding authors：Qianwen Liu, liuqw24@126.com; Zhenhong Wang, wangzhenhong@snnu.edu.cn

Abstract：Symptoms of general stress response refer to psychosomatic stress symptoms caused by a wide range of stressors, including psychological stress symptoms (i.e., anxiety, depression) and accompanying somatization symptoms, which are risk predictors of individuals' physical and mental health. Symptoms of general stress response may be influenced by a variety of environmental and individual factors. Whether the parental support adequacy, that is, the degree to which the individual's desired level of parental support matches the actual level of parental support actually felt, as a family environmental resource, affects adolescents' symptoms of general stress response, has not been explored. Existing empirical evidence indicated that the level of perceived stress affects the size of symptoms of stress response, which may play a mediating role in the relationship between parental support adequacy and adolescents' symptoms of general stress responses. Character strengths is a positive psychological resource and may also interact with parental support adequacy to influence adolescents' perceived stress and symptoms of general stress responses, but these issues have not been discussed in the existing studies. Therefore, the present study sought to investigate the mediating role of perceived stress in the relationship between parental support adequacy and adolescents' symptoms of general stress responses, and the moderating role of recent character strengths. A total of 631 adolescents (M_{age} =13.88 years, *SD* =0.61) were tested by Child and Adolescent Social Support Scale, the Simplified Chinese version of the Character Scale for Adolescents, the Chinese version of the Perceived Stress Scale, Generalized Anxiety Disorder-7, Center for Epidemiological Survey-Depression Scale, the somatization subscale of Symptom Checklist 90, and Pittsburgh Sleep Quality Index at an interval of half a year. After controlling for gender, age, family socioeconomic status, perceived stress of the first measurement, and symptoms of general stress response of the first measurement, the results showed that: (1) parental support adequacy has a significant negative effect on adolescents' symptoms of general stress responses, and perceived stress can mediate the relationship between parental support adequacy and adolescents' symptoms of general stress responses, that is, parental support adequacy can not only directly affect adolescents' symptoms of general stress responses, but also affect adolescents' symptoms of general stress responses via influencing adolescents' perceived stress. (2) character strengths not only moderated the relationship between parental support adequacy and adolescents' symptoms of general stress responses but moderated the influence of parental support adequacy on adolescent perceived stress. Specifically, compared with adolescents with more character strengths, adolescents with fewer character strengths were more likely to be affected by parental support adequacy and perform a low perceived stress and symptoms of general stress response. In conclusion, the results show that perceived stress plays a mediating role in the relationship between parental support adequacy and adolescents' symptoms of general stress response, while character strengths plays a moderating role in the relationship between parental support adequacy and adolescents' symptoms of general stress response.

Keywords：adolescents, parental support adequacy, perceived stress, character strengths, symptoms of general stress response

亲子关系与小学高年级儿童认知评价恐惧的关系：感觉加工敏感性的中介作用

卢禹名 刘倩文* 王振宏*

陕西师范大学心理学院，陕西（高校）儿童青少年心理与行为健康哲学社会科学重点研究基地,西安，710062

liuqw24@126.com; wangzhenhong@snnu.edu.cn

摘 要 社交焦虑认知行为模型提出，负性评价恐惧和正性评价恐惧是社交焦虑的核心特征。其中负性评价恐惧是指对他人的负面评价感到压力；正性评价恐惧则强调为他人正面的评价而苦恼和担忧。研究表明，儿童的认知评价恐惧会受到家庭环境因素和个体因素的共同作用。感觉加工敏感性(Sensory Processing Sensitivity, SPS)反映了儿童对外部刺激的敏锐性、认知加工深度及复杂程度、以及产生的情绪与生理反应，包括审美敏感性、低感觉阈限和易受过度刺激三个维度。研究发现，SPS 在个体评价恐惧和社交焦虑的形成中起着重要作用。此外，儿童 SPS 也会受到家庭环境的影响，且不同的 SPS 维度在影响儿童社会适应时可能起着不同的作用。但亲子关系作为家庭心理社会环境的核心因素，是否会通过影响 SPS 进而作用于儿童认知评价恐惧，目前还没有研究予以探讨。因此，本研究运用《亲子亲密度量表》、《亲子冲突问卷》、《自我报告高敏感儿童量表》、《正性评价恐惧量表》和《简版负面恐惧量表》对 611 名小学高年级儿童（$M_{年龄}$ =11.1 岁，*SD* =1.05）的亲子关系、SPS 和评价恐惧进行测量，考察了 SPS 不同维度在亲子亲密和亲子冲突影响儿童认知评价恐惧中的中介作用。结果发现:（1）亲子亲密和亲子冲突对小学高年级儿童的正性和负性评价恐惧主效应均显著；（2）低感觉阈限在亲子亲密影响正性评价恐惧间起中介作用，易受过度刺激分别在亲子冲突影响正性和负性评价恐惧中起中介作用；（3）亲子亲密和亲子冲突均不会通过儿童的审美敏感性来影响其对正性和负性评价的恐惧；（4）不同 SPS 维度在亲子关系影响评价恐惧中的作用不存在显著的性别差异。研究结果表明，亲子关系会通过影响小学高年级儿童的感觉加工敏感性中的低感觉阈限与易受过度刺激维度而间接影响其认知评价恐惧，研究也提示感觉加工敏感性的三个维度即审美敏感性、低感觉阈限和易受过度刺激在儿童社会适应性发展中的作用机制是不同的。

关键词 小学高年级儿童，亲子关系，低感觉阈限，易受过度刺激，认知评价恐惧

The relationship between parent-child relationship and cognitive fear of evaluation in high-grade primary school students: The mediating role of sensory processing sensitivity

Yuming Lu, Qianwen Liu*, Zhenhong Wang*

School of Psychology, Shaanxi Normal University, Shaanxi Provincial Key Research Center of Child Mental and Behavioral Health, Xi'an 710062

Corresponding authors：Qianwen Liu, liuqw24@126.com; Zhenhong Wang,wangzhenhong@snnu.edu.cn

Abstract： The cognitive-behavioral model of social anxiety proposes that fear of negative evaluation and fear of positive evaluation are core characteristics of social anxiety. The fear of negative evaluation refers to the stress of negative evaluation of others, while the fear of positive evaluation refers to the distress and worry about the positive evaluation of others. Research has shown that cognitive fear of evaluation in children is influenced by family environment factors and individual factors. Sensory processing sensitivity (SPS) is characterized by

enhanced awareness, depth of processing, and emotional reactivity to external stimuli, including three dimensions, i.e., aesthetic sensitivity, low sensory threshold, and ease of excitation. Prior studies have shown that SPS exerts an essential impact on the formation of individual evaluation fear and social anxiety. In addition, children's SPS is considered to be affected by the family environment, and different SPS dimensions may play different roles in influencing children's social adaptation. However, whether the parent-child relationship, as a key factor of family psychosocial environments, will affect children's cognitive fear of evaluation by influencing SPS has not been explored. Thus, the purpose of the present study was to investigate the mediating roles of different dimensions of SPS in the effects of parent-child intimacy and parent-child conflict on children's cognitive fear of evaluation. A total of 611 high-grade primary school students (M_{age} =11.10 years, SD =1.05) were recruited to complete the Parent-Child Close Scale, Parent-Child Conflict Questionnaire, Highly Sensitive Child Scale, Fear of Positive Evaluation Scale, and Brief Fear of Negative Evaluation Scale to assess their parent-child relationship, SPS, and cognitive fear of evaluation. The results found that: (1) Parent-child intimacy and parent-child conflict had significantly main effect on fear of the positive and negative evaluation. (2) Low sensory threshold played a mediating role in the relationship between parent-child intimacy and fear of positive evaluation, while ease of excitation played a mediating role in the relationship between parent-child conflict and fear of the positive and negative evaluation; (3) Neither parent-child intimacy nor parent-child conflict could affect significantly children's fear of positive and negative evaluation via their aesthetic sensitivity; (4) There was no significant gender difference in associations among parent-child relationship, SPS, and cognitive fear of evaluation. The current study results indicated that the parent-child relationship indirectly affects the cognitive fear of evaluation by influencing the low sensory threshold and ease of excitation of sensory processing sensitivity in high-grade primary school students. Meanwhile, the three dimensions of sensory processing sensitivity, aesthetic sensitivity, low sensory threshold, and ease of excitation, have different mechanisms in children's social adaptive development.

***Keywords*:** high-grade primary school students, parent-child relationship, low sensory threshold, ease of excitation, cognitive fear of evaluation

中国人幽默人格和幽默感本质主义信念对心理健康的影响机制

曹毅 余慧慧 侯玉波（通讯作者）
北京大学心理与认知科学学院，北京，100010
通讯作者 houyubo@pku.edu.cn

摘 要 中西方的文化差异影响着人们对幽默的认识与理解，同时也塑造了幽默人格在不同文化中的表现形式。本研究以中国传统文化中的幽默思想为依据，通过 5 个系列研究，首先开发了中国人幽默人格量表，接着在此基础上结合本质主义信念理论，探索了中国人幽默人格和幽默感本质主义信念对人们心理健康的影响与机制。具体而言，研究 1 根据人格词汇学假设，分别通过探索性(研究 1A, N = 397)和验证性因素分析(研究 1B, N = 289)，开发了中国人幽默人格工具。研究 2(N 中 = 400; N 西 = 381)运用测量不变性和描述性统计方法，证明中国人幽默人格的 5 因子结构具有文化特异性。研究 3(N = 290)考察了中国人幽默人格影响心理健康的中介机制，发现认知评价与压力知觉在其中起链式中介作用。研究 4(N = 346)启动被试的幽默感本质主义信念，探索它在幽默人格影响认知评价中的调节作用，结果显示幽默感本质主义信念可以调节幽默人格对认知评价的影响，并进一步调节了幽默人格通过认知评价来影响压力知觉的间接效应。研究 5 (N = 357)采用多时点问卷收集方式进一步发现幽默感本质主义信念可以调节认知评价和压力知觉的链式中介作用。这些研究结果丰富了跨文化心理学、幽默心理学及本质主义信念领域的相关文献，并且为更好地促进民众的心理健康提供了理论与实践上的启示。

关键词 文化,幽默人格,心理健康,本质主义信念

The Impact Mechanism of Chinese Humor Personality and Essentialism about Sense of Humor on Mental Health

Yi Cao Huihui Yu Yubo Hou
School of Psychological and Cognitive Sciences, Peking University, Beijing, China

Abstract: Cultural differences between China and the West influence people's perception and understanding of humor, and also shape the different expressions of humor personality. The present research through 5 studies, firstly construct the structure of humor personality in Chinese culture derived from traditional Chinese thinking in humor, then combine the theory of essentialist beliefs to explore the impact mechanism of Chinese humor personality and people's beliefs in essentialism about sense of humor (BESH) on mental health. Specifically, Study 1 used exploratory factor analysis (Study 1A, $N = 397$) and confirmatory factor analysis (Study 1B, $N = 289$) to construct and confirm the five factors of Chinese humorous personality structure. Study 2 ($N_{Chinese} = 400$; $N_{West} = 381$) utilized measurement invariance and descriptive statistics to demonstrate that the 5-factor structure of Chinese humorous personality was not valid in Western participants, indicating its cultural specificity. Study 3 ($N = 290$) collected questionnaires at two different time points to investigate the impact mechanism of Chinese humor personality on mental health. The results indicated that cognitive appraisal and stress perception

played a chain mediating role in the relation of Chinese humor personality on mental health. Study 4 (N = 346) used an experimental paradigm to explore the moderating role of BESH. The results revealed that participants' BESH moderated the effect of their humor personality on cognitive appraisal and further moderated the indirect effect of humor personality on stress perception. Study 5 (N = 357) used a longitudinal design to further validate the moderating effect of BESH on the chain mediating effect of Chinese humor personality on mental health. The findings enrich the literature in the fields of cross-cultural psychology, humor psychology, and essentialism, and provide theoretical and practical insights to promote public mental health in a better phase.

Keywords：culture, humor personality, mental health, essentialist beliefs

面孔运动促进独立型自我建构个体的面孔整体加工*

连玉净 王安清 张琪 杨学贤 汪海玲(通讯作者)
山东师范大学心理学院，济南，250358，hailingwang@sdnu.edu.cn

摘 要 面孔整体加工受到跨文化因素影响，已有研究表明东亚个体整体加工能力强于高加索个体。这一现象可能由于东亚个体依赖型自我建构重视自我和社会关系的整体联系，而高加索个体独立型自我建构强调自我的独特性。前人研究基于静态面孔材料探讨了自我建构对面孔整体加工的影响，发现独立型自我建构个体整体加工水平低于依赖型个体，但是面孔运动对不同类型自我建构个体的面孔加工方式的影响及其机制尚未明确。本研究通过改变面孔空间频率(spatial frequency, SF)操纵面孔加工方式，其中低 SF(LSF) 信息被认为主要涉及面孔整体加工，而高 SF(HSF) 信息涉及特征加工。研究采用 2(自我建构类型：依赖型；独立型) × 2(学习面孔：动态；静态) × 2(测验面孔：LSF；HSF)被试内实验设计，首先向被试呈现学习面孔 1350ms，随机间隔 300-500ms 后呈现测验面孔 1500ms，被试需要对学习面孔和测验面孔进行匹配。实验过程中多次使用圈读法启动被试的自我建构类型，并通过问卷测量启动效果。ERP 结果发现：(1) P1 成分上 LSF 面孔诱发波幅大于 HSF 面孔，同时二者差异在动态条件下更大；相反，N170 成分上 HSF 面孔诱发波幅大于 LSF 面孔，但是该差异在动静态之间保持一致；随后的 P2 成分上发现 LSF 面孔诱发波幅大于 HSF 面孔，该差异在动静态之间同样保持一致。(2)对依赖型自我建构个体而言，静态条件下，LSF 面孔诱发的 P2 大于 HSF 面孔；但是，对独立型自我建构个体而言，动态条件下，LSF 面孔诱发的 P2 大于 HSF 面孔。综上所述，本研究发现面孔运动对整体加工的促进作用表现在视觉加工的较早阶段；在面孔的深度加工阶段更依赖于整体加工，而在此之前，面孔加工遵循由粗到细(coarse-to-fine)的加工机制。与前人研究一致，静态学习面孔促进依赖型个体的面孔整体加工；本研究则进一步发现，动态学习面孔对整体加工的促进作用体现在独立型自我个体上。

关键词 面孔运动，自我建构，整体加工，空间频率
*国家自然科学基金(32171042)

Facial motion facilitates the holistic face processing with independent self-construal individual*

Yujing Lian, Anqing Wang, Qi Zhang, Xuexian Yang, Hailing Wang (Corresponding Author)
School of Psychology, Shandong Normal University, Jinan, 250358, hailingwang@sdnu.edu.cn

Abstract: Cross-culture factors have been shown to influence holistic face processing, as previous studies have demonstrated that East Asians possess a higher degree of holistic face processing compared to Caucasian. This finding might be attributed to the fact that East Asians are likely to have a dependent self-construal that focuses on the relationship between themselves and their social relationships, while Caucasians tend to prioritize individual uniqueness through their independent self-construal. Previous studies have investigated the effect of self-construal on holistic face processing using static facial stimuli, revealing that individuals with an independent self-construal exhibit lower degree of holistic processing compared to those with a dependent self-construal. However, it is remains unclear whether facial motion has diverse effects on the neural mechanisms underlying holistic face processing depending on the type of self-construal. The current study manipulated face processing by altering the

spatial frequency (SF) of face, with low spatial frequency (LSF) information being associated with holistic face processing and high spatial frequency (HSF) information being related to feature-based processing. A 2 (self-construal type: dependent, independent) × 2 (study face: dynamic, static) × 2 (test face: LSF, HSF) within-subject design was employed. Participants were initially presented with a study face for 1350ms followed by a random interval of 300-500ms, after which the test face was presented for 1500ms. Subsequently, they were instructed to match the identity of the study face and the test face. By employing the pronoun-circling task, self-construal types were primed repeatedly to evaluate the efficacy of priming, which was then assessed immediately through questionnaires. ERP results were as follows. (1) P1 response to the LSF face was larger than the HSF face, and the facilitative effect of LSF face was more pronounced in the dynamic condition than in the static condition. Conversely, the N170 response was consistently larger for HSF face than for LSF faces in both static and dynamic conditions. LSF face elicited a greater P2 than HSF faces in both static and dynamic conditions, with consistent differences between the two. (2) After studying static faces, the dependent self-construal condition elicited a greater P2 response to LSF than HSF faces. For independent self-construal condition, LSF face elicited a greater P2 than HSF face after studying dynamic face. In conclusion, the current study found that facial motion facilitates holistic processing during the earliest visual stages. Holistic face processing is more prominent during the depth stage of face processing, whereas prior to this stage, face processing follows a coarse-to-fine sequence. The current study found that static study face promotes holistic face processing in individuals with interdependent self-construal, a result that is consistent with previous research. Furthermore, the findings revealed that dynamic study face facilitates holistic face processing in those with independent self-construal.

Keywords: facial motion, self-construal, holistic processing, spatial frequency

*National Natural Science Foundation of China (32171042)

人格与无手机恐惧的关系：基于潜在类别分析方法的探索

季顺鑫[2]　周嬰[2]　刘拓[1,2,3]（通讯作者）

1 教育部人文社会科学重点研究基地天津师范大学心理与行为研究院，天津，300387

2 天津师范大学心理学部，天津，300387

3 学生心理发展与学习天津市高校社会科学实验室，天津，300387，liutuo@tjnu.edu.cn

摘 要　手机功能的不断更新为使用者们带来了更多的便利，但同时也对人们产生一些消极影响，无手机恐惧(Nomophobia)正是由于问题性手机使用引起的。手机使用被认为是一种行为结果，那么了解行为背后的心理因素才是解决问题的关键。人格作为稳定的心理特征，经常被用于研究个体的行为表现，研究者们也发现了不同的人格特质对无手机恐惧有着不同的预测作用。前人研究往往聚焦于大五人格的维度差异，本研究为了将研究对象的五种人格特质同时考虑进去，使用潜在类别分析方法探讨大学生的人格类型。在此基础上，使用单因素方差分析探究人格类型与无手机恐惧之间的关系。本研究采用中国大五人格问卷简式版和中文版本的无手机恐惧量对1906名大学生进行问卷调查，利用Mplus 8.0和SPSS19.0对数据进行分析。研究结果表明: (1)潜在类别分析的结果显示4个类别的模型拟合良好，分别将其命名为低弹性型(17%)、高弹性型(22%)、低脆弱性(36%)和高脆弱型(25%)。低弹性型与高弹性型在神经质维度上作答概率最低，在剩余4个维度方面作答概率均较高，且高弹性型得分高于低弹性型。低脆弱型与高脆弱型在外向性和神经质维度的作答概率均处于中间状态，在剩余3个维度方面作答概率较高，但低脆弱型得分高于高脆弱型。(2)单因素方差结果显示，4个人格类型与无手机恐惧总分及其分维度均有显著差异(ps<0.001)。事后检验表明，除“害怕失去联系”维度以外，高低脆弱型的被试无手机恐惧程度更强(ps<0.01)。相比于高弹性型的被试，低弹性型更加害怕失去手机带来的便利(p<0.05)。在“害怕失去联系”上，低弹性型的被试显著低于其它的类型(ps<0.01)，且高脆弱型显著低于低脆弱型(p<0.05)。本研究的结果证明了不仅限于独立人格特质与无手机恐惧的具有关系，人格的潜在类别也与无手机恐惧有一定的联系，为未来关于人格与手机使用的研究提供一定的启示。

关键词 无手机恐惧，大五人格，潜在类别分析，手机使用

The Relationship between Personality and Nomophobia: An Exploration Based on Latent Class Analysis

Shunxin Ji [2] Zhao Zhou [2] Tuo Liu[1,2,3] (Corresponding author)

1 Key Research Base of Humanities and Social Sciences of the Ministry of Education, Academy of Psychology and Behavior, Tianjin Normal University, Tianjin 300387, China;

2 Faculty of Psychology, Tianjin Normal University, Tianjin 300387, China;

3 Tianjin Social Science Laboratory of Students' Mental Development and Learning, Tianjin 300387, China, liutuo@tjnu.edu.cn

Abstract：The continuous advancement of mobile phones functions has brought more convenience to users, but it has also had a negative impact on people. Nomophobia is caused by problematic mobile phone use. Mobile phone use is considered a behavioral outcome, so understanding the psychological factors behind mobile phone use is crucial for addressing this issue. Personality, as a stable psychological trait, is often used to study the individual's behavioral performance, and researchers have found that different personality traits are differently predicated on nomophobia. Previous studies have tended to focus on the differences in the dimensions of the big five personality, and the present study used latent class analysis(LCA) to explore the personality types of university students in order to take the five personality traits of the subjects together into consideration. Based on this, one-way analysis of variance (ANOVA) was used to explore the relationship between personality types and nomophobia.In this study, questionnaires were administered to 1,906 college students using the Chinese brief version of the Big Five Personality Inventory and the Chinese version of Nomophobia Scale, and the data were analyzed using Mplus 8.0 and SPSS 19.0. The results showed that: (1) The results of the LCA showed a best model fit for the four classes, which were named weakly resilient(17%), strongly resilient(22%), weakly vulnerable(36%), and strongly vulnerable(25%) respectively. Weakly resilient and strongly resilient had the lowest response probability in the neuroticism dimension, higher response probability in the remaining four dimensions, with strongly resilient scoring higher than weakly resilient. Both weakly and strongly vulnerable had medium response probabilities in the extraversion and neuroticism dimensions and higher response probabilities in the remaining three dimensions, but weakly vulnerable scored higher than strongly vulnerable. (2) One-way ANOVA results showed that the four personality types were significantly different from the total score of nomophobia and its sub-dimensions(ps<0.001). Post hoc tests showed that weakly and strongly vulnerable subjects were more afraid of nomophobia(ps<0.01), except for the fear of losing contact dimension. Weakly resilient subjects were more scared of losing the convenience of mobile phone than strongly resilient subjects(p<0.05). Fear of losing contact dimension was significantly lower for weakly resilient than other types(ps<0.01), and strongly vulnerable was significantly lower than weakly vulnerability(p<0.05). The findings of this study demonstrated that not only independent personality traits had a relationship with nomophobia, but that latent classes of personality were also associated with nomophobia, providing some insights for future research on personality and mobile phone use.

Keywords：Nomophobia, Big Five Personality, Latent Class Analysis, Mobile Phone Use

5.16 工程心理学专业委员会

社交媒体中隐性社会规范对自动化信任传递的影响

董超武　杨千一　晏碧华（通讯作者）
陕西师范大学心理学院，西安，710062，E-mail：yanbihua@snnu.edu.cn

摘 要　我国社交媒体用户已达 10.15 亿，庞大的用户规模使社交媒体成为了群体信念传递的主要途径。近来，Chatgpt 等自然语言处理工具引发了公众对自动化信任的讨论，社交媒体中的自动化信任被视为社会信任的一部分。社会规范是指社会中多数个体做什么或赞成做什么的信念。其中，描述性规范指某一场景中的普遍适应性行为方式，禁令性规范是针对他人是否赞同以及他人行为可能得到的奖惩的暗示。

本研究聚焦社交媒体平台中的规范信息（如标题内容），通过三项实验探索了描述性规范和禁令性规范对自动化信任传递的影响。实验一通过操纵自动化宣传材料的传播指标，对比了描述性规范和禁令性规范对社交媒体用户自动化信任水平以及传播意愿的影响；实验二进一步探索了不同水平的描述性规范（低、中、高）的对社交媒体用户自身信念和对他人信念评价的影响；实验三通过加入社会比较信息场景，尝试揭示个体自动化信任水平受不同规范影响的部分原因。此外，本研究设计了符合我国社交媒体平台的实验材料，加入了针对自动化信任内隐态度测验，尽可能避免主观问卷测量带来的偏差。

结果：（1）描述性规范显著影响了社交媒体用户的自动化信任水平和传播意愿，禁令性规范的效果则不显著，甚至削弱了部分被试的传播意愿；（2）描述性规范的强度越大，被试的自动化信任水平和传播意愿的提升就越明显；（3）社会比较信息关注水平中介了描述性规范对个体自动化信任和传播意愿的影响。

结论：社交媒体中的隐性社会规范信息显著影响了自动化信任的水平和传递，描述性规范是有效的干预方式，可减少外显信任和内隐态度间的误差。

关键词　自动化信任，社交媒体，社会规范，内隐态度

The impact of implicit social norms on trust in automation transmission in social media

Dong Chaowu　Yang Qianyi　Yan Bihua(corresponding author)
Shaanxi Normal University, Xi'an

***Abstract*:** The number of social media users in China has reached 1.015 billion, and the huge scale of users makes social media become the main way of group belief transmission. Recently, natural language processing tools such as Chatgpt have sparked public discussion about trust in automation (TiA), which is seen as part of social trust in social media. Social norms are beliefs about what the majority of individuals in a society do or approve of. The descriptive norm refers to the general adaptive behavior pattern in a certain scene, while the injunctive norm is the suggestion of whether others agree with it and the possible rewards and punishments for others' behavior.

Through three experiments, our study explored the effects of descriptive norms and injunctive norms on transmission of TiA based on normative messages (such as headline content) in social media platforms. Experiment 1 compared the effects of descriptive norms and injunctive norms on the TiA level and communication intention of social media users by manipulating the communication indicators of automation propaganda materials. Experiment 2 further explored the effects of different levels of descriptive norms (low, medium and high) on social media users' beliefs towards themselves and others. Experiment 3 added social comparison information scene, to

partly revealed the reason why individuals' TiA level was affected by different norm. Notably, redesigned experimental materials that fit the Chinese social media platform, and added the implicit attitude test for TiA trust, so as to avoid the bias caused by subjective questionnaire measurement as much as possible.

Results: (1) Descriptive norms significantly affected the level of trust in automation and communication intention of social media users, while injunctive norms had no significant effect, and even weakened the communication intention of some subjects; (2) The stronger the extent of descriptive norms, the more obvious the improvement of subjects' TiA and transmission intention; (3) The level of social comparative information concern mediates the influence of descriptive norms on individuals' TiA and transmission intention.

Conclusion: The implicit social norm information in social media significantly affects the level and transmission of TiA. Descriptive norm is an effective intervention method, which can reduce the error between explicit trust and implicit attitude.

***Keywords*:** trust in automation, social media, social norm, implicit attitude

虚拟人访谈成功激发与受访者的言语交流

周宁[1] 林晨露[1] 潘可淇[1] 郑苗[1] 隋佳璐[1] 汤彬[2] 邓成龙[1] 蒯曙光[1](通讯作者)

1 华东师范大学心理与认知科学学院，脑科学与教育创新研究院，上海市心理健康与危机干预重点实验室，上海，200062，sgkuai@psy.ecnu.edu.cn

2 华东师范大学计算机科学与技术学院，上海智能教育研究院，上海，200062

摘 要 虚拟人技术作为一种创新的人机交互方式，正逐渐应用到越来越多的领域，比如入职面试和情感陪伴等。随着技术的持续进步和人工智能的不断发展，虚拟人技术在语音识别、自然语言处理和情感表达等方面取得了显著进展。通过复杂的算法和模型，虚拟人可以实时感知用户的语言和情感，并以自然流畅的方式进行回应和互动。那么，虚拟人与真人之间的交流效果是否能够与真人相媲美，以及人类在多大程度上能够与虚拟人建立有效的交流，是一个备受关注的重要问题。本研究旨在比较真人访谈和虚拟人访谈对被试的影响，以探究虚拟人技术在人机交互体验中的潜在优势和局限性。我们招募了 158 名在校大学生参与实验，其中 77 人（17 男，60 女）接受真人结构化访谈，81 人（20 男，61 女）接受虚拟人结构化访谈，访谈过程中我们记录了被试的言语和非言语行为。访谈结束后，被试填写大五人格量表和访谈体验问卷。研究结果显示，尽管在某些主观感受上与真人访谈相比有所欠缺，虚拟人访谈能够成功地激发受访者的言语交流行为。为更好地提升交互体验，未来的研究可以进一步优化虚拟人的外貌和语言表现，提升交互的逼真度和互动体验。此外，不断改进虚拟人系统的智能化程度和个性化服务，将是推动虚拟人技术更广泛应用的关键。

关键词 虚拟人访谈，真人访谈，言语交互

Virtual humans enable verbal interaction with humans during interviews

Ning Zhou [a], Chen-Lu Lin [a], Ke-Qi Pan [a], Miao Zheng [a], Jia-Lu Sui [a], Bin Tang [b], Cheng-Long Deng [a], Shu-Guang Kuai [a,*]

[a] Shanghai Key Laboratory of Mental Health and Psychological Crisis Intervention, Institute of Brain and Education Innovation, School of Psychology and Cognitive Science, East China Normal University, Shanghai, 200062, China
[b] Shanghai Institute of AI for Education, School of Computer Science and Technology, East China Normal University, Shanghai, 200062, China

Abstract: Virtual human technology, as an innovative form of human-computer interaction, is progressively being applied in various domains such as job interviews and emotional companionship. With continuous advancements in technology and the ongoing development of artificial intelligence, virtual human technology has made remarkable progress in areas like speech recognition, natural language processing, and emotional expression. Leveraging sophisticated algorithms and models, virtual humans can dynamically perceive users' language and emotions, responding and interacting in a natural and seamless manner. A crucial and highly scrutinized question remains unclear, however, can virtual human interactions match the effectiveness of human-to-human interactions, and to what extent can humans establish meaningful communication with virtual counterparts? This study aims to compare real human interviews with virtual human interviews to explore the potential advantages and limitations of virtual human technology in human-computer interaction experiences. We recruited 158 university students, with 77 individuals (17 male, 60 female) participating in real human interviews and 81 individuals (20 male, 61 female) participating in virtual human interviews. During the interviews, we recorded participants' verbal and non-verbal behaviours. After the interviews, participants completed the NEO Five Factor Inventory and an interview experience questionnaire. The results showed that, although virtual human interviews may lack certain subjective perceptions compared to real human interviews, they strongly stimulate verbal communication behaviour between the interviewers and respondents. To further enhance the interactive experience, future research can focus on optimizing the appearance and language performance of virtual humans, elevating the realism and interactivity of the interactions. Additionally, continuously improving the level of intelligence and personalized services of the virtual human system will be the key to promoting the widespread application of virtual human technology.

Keywords: Virtual human interview, Real human interview, Verbal interaction

多任务环境中人机协同绩效的提升：基于信任的视角

朱思雨[1]　宋晓蕾[1]（通讯作者）
1 陕西师范大学心理学院，西安，710062，songxiaolei@snnu.edu.cn

摘 要　针对现代复杂人机系统中经常涉及到的多任务导致的用户认知负荷过高问题，人们开发了诊断性自动化辅助工具来降低多任务环境中急剧增加的认知负荷，进而提高任务绩效。以往研究证明了任务负荷与警报的错误偏差对任务绩效的影响，但其中并未涉及到系统可靠性的问题。而系统可靠性会直接影响到人对系统的信任，进而影响绩效。因此，本研究旨在从多维度（主观任务负荷、系统可靠性、自动化信任）评估系统因素对人机协同绩效以及自动化信任的影响，并尝试从信息透明度视角改善系统因素对人机协同绩效的负面影响。实验要求被试在一个飞行模拟程序（MATB-II）中同时执行两种不同类型的任务：一个由不完美的自动化报警系统辅助的监控任务和一个手动跟踪任务。实验一探究在不同任务负荷下，系统可靠性和警报错误偏差如何影响操作者的任务绩效及其对自动化报警系统的信任。实验二在此基础上进一步探究是否能通过给被试提供更高水平的可靠性信息来增加信息透明度，进而改善系统因素对人机协同绩效的消极影响和自动化信任。结果表明，低可靠性时，错误警报（Fa）在高任务负荷条件下对任务绩效的负面影响急剧增加。而当透明度更高时，被试的监控任务绩效更好。在自动化信任方面，低任务负荷下操作

者更加信任自动化。并且，被试感知到的自动化可靠性与其对自动化的信任呈正相关。本研究为人机系统中人机协同监控的自动化报警系统设计提供了科学依据。

关键词　人机系统，多任务环境，人-自动化交互

Human-Machine Collaborative Performance Improvement in Multitasking Environments：A Trust-Based Perspective

Zhu Siyu, Song Xiaolei
School of Psychology, Shaanxi Normal University, 710062
songxiaolei@snnu.edu.cn

Abstract：In response to the problem of high user cognitive load due to multitasking often involved in modern complex human-machine systems, diagnostic automation aids have been developed to reduce the drastically increased cognitive load in multitasking environments and thus improve task performance. Previous studies have demonstrated the impact of task load and error bias on task performance, but they have not addressed the issue of system reliability. System reliability can directly affect operators' trust in automation, which in turn affects performance. Therefore, this study aims to assess the effects of system factors on human-machine collaboration performance as well as automation trust from a multidimensional perspective (subjective task load, system reliability, and trust in automation), and attempts to ameliorate the negative effects of system factors on human-machine collaboration performance from an information transparency perspective. Experiments required subjects to perform two different types of tasks simultaneously in a flight simulation programme (MATB-II): a monitoring task assisted by an imperfect automated alarm system and a manual tracking task. Experiment 1 explored how system reliability and alarm error bias affected operators' task performance and their trust in the automated alarm system under different task loads. Experiment 2 builds on this by further exploring whether the negative influence of system factors on human-machine collaborative performance and automation trust can be improved by providing subjects with higher levels of reliability information to increase information transparency. The results showed that at low reliability, the negative effect of false alarms (Fa) on task performance increased dramatically in the high task load condition. In contrast, when transparency was higher, subjects' monitoring task performance was better. In terms of automation trust, operators trusted automation more under low task load. Moreover, subjects' perceived automation reliability was positively correlated with their trust in automation. This study provides a scientific basis for the design of automated alarm systems for collaborative human-machine monitoring in human-machine systems.

Keywords：Human-machine systems，Multitasking environment，Human-automation interaction

对话响应时间及反馈方式对老年人语音交互满意度的影响

崔晨虹[1]　周博霖[2]　张浩[1]　曹贤才[1,2,3]（通讯作者）
1 天津师范大学心理学部,天津，300387
2 教育部人文社会科学重点研究基地天津师范大学心理与行为研究院,天津，300387
3 学生心理发展与学习天津市高校社会科学实验室,天津，300387，通讯作者 caoxiancai@tjnu.edu.cn

摘 要 随着数字化科技的成熟与发展，语音交互方式被广泛运用于手机、智能音箱、家居、车载等不同设备或使用场景中。同时，语音交互方式因其自然性可以较好适用于老年群体或特定障碍人群执行相对复杂任务的人机交互。然而目前对语音交互产品的设计与研究主要针对年轻人，相关研究指出老年人在使用语音交互过程中存在满意度不高、接受度较低等问题。因此，亟待有研究关注老年群体的语音交互，以提高老年人对语音交互的满意度。本研究聚焦于语音交互中相对重要的对话环节，考察对话响应时间及反馈方式对老年人语音交互满意度的影响。研究共招募 60 岁以上老年人 31 名，平均年龄为 70.2±4.8 岁，采用小度智能音箱作为模拟实验对象，使用人工断点的形式记录对话响应时间，在不同的对话响应时间与反馈方式的结合下，老年人对满意度、舒适度、拟人性、速度快慢进行评分。本实验为 10（对话响应时间：0ms,300ms,600ms,900ms,1200ms,1500ms,2000ms,2500ms，3000ms,3500ms)×3(对话反馈方式：任务导向型、社交导向型）被试内实验设计。研究结果发现：（1）二次曲线模拟的结果显示，随着唤醒响应时间的延长，老年人对智能音箱的满意度、舒适度、拟人性下降，但在拟人性评分上，任务导向型下降速率先慢后快、社交导向型下降速率先快后慢。（2）老年人接受的舒适响应时间段为[300-1500ms]。（3）老年人在满意度评分上，响应时间与反馈方式主效应显著，二者交互作用不显著。在反馈方式上，社交导向型的评分显著大于任务导向型；在响应时间上，3000ms 以上的评分显著低于 2000ms 内的时间段。在拟人性评分上，仅存在响应时间主效应边缘显著， [2500-3000ms]评分显著低于[1200-1500ms]。在舒适度评分上，仅发现响应时间主效应显著，3000ms 以上的评分显著低于 2500ms 内的时间段。本实验结果表明对话响应时间和反馈方式会影响老年人语音交互的满意度，得到了老年人在不同主观评价指标下的语音交互的差异，以及最佳的响应时间段和反馈方式。研究结果表明与年轻群体研究结果存在差异，能够为语音交互适老化设计提供建议，提高老年人在使用语音交互技术或产品时的用户体验。

关键词 语音交互，老年人，对话响应时间，对话反馈方式

The Impact of Dialogue Response Time and Feedback Style on the Satisfaction of Older Adults with Voice Interaction

Chenhong CUI[1] Bolin ZHOU[2] Hao ZHANG[3] Xiancai CAO[1,2,3]

1 Faculty of Psychology, Tianjin Normal University, Tianjin, China

2 Key Research Base of Humanities and Social Sciences of the Ministry of Education, Academy of Psychology and Behavior, Tianjin Normal University, Tianjin, China

3 Tianjin Social Science Laboratory of Students' Mental Development and Learning, Tianjin, China

Abstract：With the maturity and development of digital technology, voice interaction has been widely used in different devices or scenarios such as smartphones, smart speakers, smart homes, and cars. At the same time, voice interaction is well-suited for older adults or individuals with disabilities to perform relatively complex tasks due to its naturalness. However, current design and research on voice interaction products mainly focus on young people, and studies have pointed out that older adults have low satisfaction and acceptance levels when using voice interaction. Therefore, there is an urgent need for research on voice interaction for the elderly to improve their

satisfaction with it. This study focuses on the relatively important dialogue phase in voice interaction and examines the impact of dialogue response time and feedback styles on the satisfaction of older adults with voice interaction.

The study recruited 31 participants aged 60 and above, with an average age of 70.2±4.8 years. A XiaoDu smart speaker was used as the experimental device, and the dialogue response time was recorded using artificial breakpoints. Under different combinations of dialogue response time and feedback styles, older adults rated their satisfaction, comfort, anthropomorphism, and perceived speed level. The experiment followed a 10 (dialogue response time: 0ms, 300ms, 600ms, 900ms, 1200ms, 1500ms, 2000ms, 2500ms, 3000ms, 3500ms) × 3 (dialogue feedback style: task-oriented, social-oriented) within-subject design. The results of the study showed that: (1) The results of quadratic curve simulation showed that as the wake-up response time increased, the satisfaction, comfort, and anthropomorphism of older adults towards the smart speaker decreased. However, in terms of anthropomorphism rating, the task-oriented feedback style had a slower initial decrease rate and a faster later decrease rate, while the social-oriented feedback style had a faster initial decrease rate and a slower later decrease rate. (2) The comfortable response time range accepted by older adults was [300-1500ms]. (3) In terms of satisfaction rating, both dialogue response time and feedback style had significant main effects, while their interaction effect was not significant. Post hoc comparisons indicated that the social-oriented method had significantly higher ratings than the task-oriented method and ratings above 3000ms were significantly lower than those within the 2000ms range. In terms of anthropomorphism rating, only the main effect of response time was marginally significant, with ratings in the [2500-3000ms] range significantly lower than those in the [1200-1500ms] range. In terms of comfort rating, only the main effect of response time was significant, with ratings above 3000ms significantly lower than those within the 2500ms range.

The results of this experiment indicate that dialogue response time and feedback style can affect the satisfaction of older adults with voice interaction. The study identified differences in subjective evaluation indicators of voice interaction among older adults and identified optimal response time ranges and feedback styles. The results of the study indicate differences from research results on younger populations and can provide suggestions for age-friendly design of voice interaction, thereby improving the user experience of older adults when using voice interaction technology or products.

Keywords：voice interaction, older adults, dialogue response time, dialogue feedback styles

5.17 决策心理学专业委员会

描述信息的来源可信度及其偏差对基于经验的风险决策的影响

高山川　吴彦佑

复旦大学心理学系，上海，200433，tracygao@fudan.edu.cn

摘 要　在基于经验的决策中，个人通过反复抽样和反馈来把握不同结果的概率分布，当事先获知有关收益、损失及其概率的概括性描述后，其选择会同时受到描述信息和经验的影响。外部信息来源有不同的可信度，对选项的描述也可能偏离个人经验，如夸大收益率、隐瞒潜在损失。人们利用描述信息时会考虑来源可信度吗？越是夸张的描述是否越有迷惑性？经验的积累能否消除描述信息的误导并让人发现真相？通过模拟投资决策情境进行了两个实验，分别对风险选项的收益率进行不同程度夸大或对可能的亏损进行隐瞒，以考察描述信息的来源可信度及其与经验的偏差将如何共同影响风险选择。

通过预实验编制了不同投资咨询机构的介绍材料，被试阅读后感知到不同的可信度。实验一采用 2（描述信息来源可信度：高、低）×2（夸大收益率：10%、20%）的被试间设计，要求在确定选项与风险选项

之间做 100 轮选择，后者的真实收益率为 50%，但被夸大描述。实验二为 2（描述信息来源可信度：高、低）×2（隐瞒亏损：500 元、1000 元）的被试间设计，如实描述 50%收益率但隐瞒 10%的可能产生或大或小亏损。被试各 80 人，因变量均为选择风险选项的比例。结果发现：

(1)描述信息来源可信度对风险选项选择有显著影响，夸大收益率情境下，可信度高时被试不仅比可信度低时更多地选择风险选项，选择比例还明显超过真实的 50%收益率；隐瞒亏损情境下，可信度低时被试不仅比可信度高时更少地选择风险选项，选择比例还低于真实的收益率；(2)更大程度偏离经验的描述信息并未产生更大的影响，夸大 20%不比 10%吸引人更多地选择风险选项，亏小钱也不比亏大钱时让人更少地回避风险选项；(3)经历 100 轮选择后各组被试都发现先前的描述不太可信，夸大收益率情境下，能准确估计风险选项的真实收益率约 50%，隐瞒亏损情境下，却会高估亏损率、低估收益率。

总之，当原本可靠的信息来源夸大宣传时，人会更冒险，面对不可信的来源，则可能过于谨慎。即使开始时人可能受描述影响，随着经验积累，终将接近真相。

关键词　基于经验的决策，描述-经验偏差，来源可信度，风险选择

The Influences of Source Credibility of Descriptive Information and its Deviation from Experience on Risky Choices

Gao Shanchuan, Wu Yanyou
Department of Psychology, Fudan University, Shanghai 200433

***Abstract*:** When making decisions based on experience, individuals learn about the potential outcomes of their choices and associated probabilities by observing samples of outcomes over time. Previous research showed that participants tended to combine the available abstract descriptions about the underlying distribution of outcomes with their own experience in decision-making. However, little attention was paid to impact of the source credibility of descriptive information and the extent of its deviation from experience, which could be either overstating the chance of gain or no warning against the possible loss. Will the credibility of external source be taken into consideration when people incorporate the descriptive information? Is it that the more the descriptions deviate from experience, the more people are to be misled? Can they finally get to know the true distribution as they accumulate enough experience? To address these questions, we conducted two studies using the scenarios of investment decision-making and investigated the influences of source credibility of the descriptive information and its deviation from experience on risky choices.

Prior to Study 1, paragraphs describing two agencies for investment consulting were prepared and validated, which were to be presented to participants to manipulate their perception about the credibility of each source. A sample of 80 college students participated in Study 1, utilizing a 2 (source credibility: high vs. low) × 2 (overstatement of the chance of gain: 10% vs. 20%) between-subjects design. Participants were asked to make 100 choices between two investment options with the same expected value, yet one yielding sure smaller gain and the other actually yielding larger gain 50% of the time otherwise nothing, which was described as 10% or 20% more. Another sample of 80 college students participated in Study 2, utilizing a 2 (source credibility: high vs. low) × 2 (concealed loss: 500 yuan vs.1000 yuan) between-subjects design. Similar to Study 1, participants also made 100 choices between sure and risky options with the exception that there was 10% chance to lose some money besides the 50% chance of larger gain. The dependent variable of the studies was the rate of selecting the risky options (R-rate).

The results showed that, first, the main effect of source credibility on the R-rates was significant. Specifically, when they were presented the overstatement from the source perceived as highly credible, participants chose the risky options more frequently than those seeing the overstatement from the unreliable source, with the R-rate even higher than the experienced probability level. Meanwhile, when they were presented the descriptions without warning against the possible loss from the unreliable source, participants chose the risky options less often than those seeing the descriptions from the credible source, with the R-rate even lower than the experienced probability of gain. Additionally, the descriptions deviating more from participants' experience didn't show significantly greater influence on their choices, indicating that the overstatement of 20% greater chance didn't make the risky option more attractive than that of 10% greater chance, while concealing smaller loss didn't make participants choose the risky options less often than concealing bigger loss. Last, after making 100 choices, all groups of participants gave low ratings for the credibility of the prior descriptions of risky options. Their estimation of the probability of gain in Study 1 was close to the experienced level (i.e., 50%), whereas in Study 2 the estimated probability of loss was higher than the experience (i.e., 10%) and the estimated probability of gain was lower than the experience.

In sum, the studies showed that descriptive information from the source perceived as highly credible may mislead people into risk seeking and the unreliable source may make them risk averse. Although descriptions may have initial influence on decision making, people could learn the real distribution in the environment through experiential exploration.

Keywords： decision from experience, deviation of description from experience, source credibility, risky choice

急性压力对青少年冒险的影响：来自动态瞬时评估和 fNIRS 的证据

刘子豪[1,2]　毕晓燕[2]　窦凯[1,2]（通讯作者）

1 广州大学教育学院青少年心理与行为研究中心，广州，510006，psydk@qq.com

2 广州大学教育学院，广州，510006

摘 要　青少年冒险行为指青少年忽略潜在风险、执着于有利回报的行为。对青少年而言，青春期是充斥着来自人际、家庭、学业等多种压力的特殊时期，也是其冒险高发的危险时期。基于压力情境-行为回应模型和自我控制的资源模型，本研究提出了急性压力影响青少年冲动冒险的双路径模型，通过动态瞬时评估技术探究了日常生活情境中急性压力对青少年冲动冒险的动态影响(研究 1)，并在此基础上进一步采用功能性近红外光谱技术(functional Near-Infrared Spectroscopy, fNIRS)探究了青少年冒险背后的认知神经机制(研究 2)。

研究 1 在线招募了 120 名(其中女性 82 名, *M*age=20.9 岁, *SD*=1.63)青少年被试，采用瞬时评估技术和移动版赌博任务范式对他们进行了 7 天的短期追踪，以构建多水平模型探究自我控制和奖赏敏感在急性压力和青少年冒险间潜在的中介作用。研究结果发现：1) 在日常情境中，青少年个体遭受的急性压力能负向预测其在移动版赌博任务中的冒险表现，且急性压力能通过削弱个体的自我控制能力增加个体在移动版赌博任务中的冒险表现(奖赏敏感不存在中介作用); 2) 个体水平的因素中，仅有性别存在跨水平的交互作用，表现为：相比于男性个体，女性青少年更容易因遭遇急性压力而削弱她们的自我控制能力最终导致其在移动版赌博任务中选择冒险；研究 2 招募了 35 名女性(*M*age=20.26 岁 *SD*=1.54)被试，通过对比急性压力组和控制组被试在实验室中完成 BART 任务的行为绩效和脑区激活情况进一步揭示冲动冒险背后的认知神经机制。

结果发现：1) 行为方面：急性压力组被试在多项 BART 绩效上的表现均显著高于控制组，其表现更加冒险。2) fNIRS 方面：相比于控制组，急性压力组的背外侧前额叶皮层的相关通道(CH04、CH14)的激活水平更低，且 CH04 通道在急性压力和冲动冒险之间的存在显著中介作用。

概言之，本研究发现急性压力主要通过削弱自我控制来促使青少年个体冒险，且相比于男生，女性的自我控制在遭遇急性压力时会受到更严重的影响。这一发现丰富了青少年冲动冒险的动态追踪研究与认知神经研究，为保护青少年的健康发展提供了理论参考和应用指导。

关键词　移动行为实验,动态瞬时评估,功能性近红外成像,青少年冒险,急性压力

The impact of acute stress on adolescent's risk-taking behavior: Evidence from Ecological Momentary Assessment and fNIRS

Zi-hao Liu [1, 2] Xiao-yan Bi [2] Kai Dou [1, 2] (corresponding author)
1 Research Center of Adolescent Psychology and Behavior, School of Education, Guangzhou University, Guangzhou, psydk@qq.com
2 School of Education, Guangzhou University, Guangzhou

Abstract：Adolescent risk-taking behavior is defined as a kind of action taken by teenagers where they ignore potential risks and solely concentrate on beneficial rewards. Adolescence is a unique time for teens which is full of pressure from relationships, families, schools, etc. It is also a perilous time with a high incidence of risk-taking. Based on the strength model of self-control and the general strain theory, this study developed a dual-path model to investigate how acute stress affects propensity for impulsive risk-taking in real-world scenarios using Ecological Momentary Assessment method (Study 1). Study2 investigated the cognitive brain mechanisms behind teenagers' risk-taking through functional Near-Infrared Spectroscopy (fNIRS).

Study 1 recruited 120 adolescent subjects (including 82 females, *M*age=20.9 years old, *SD*=1.63) online, then conducted short-term follow-up research for 7 days by using Ecological Momentary Assessment method and Mobile Gambling Task. The results of the study found that: 1) In daily situations, adolescents' acute stress level can negatively predict their risk-taking performance in Mobile Gambling Task and can increase the individual's risk-taking by weakening the individual's self-control ability.2) For the Between-level factors, only gender has a cross-level interaction, which shows that compared with male individuals, female adolescents' self-control is more likely to be weakened by acute stress which will eventually lead them to take risks in Mobile Gambling Task. Study 2 aiming to Uncover the cognitive neural mechanisms behind their risk-taking behavior recruited 35 female subjects (*M*age=20.26 years old, *SD*=1.54), and compared the behavioral performance and brain area activation of subjects in the acute stress group and the control group when they completed the Balloon Analogue Risk Task in a laboratory setting. The results showed that: 1) For behavioral-results: the participants in the acute stress group's BART performances was more risk-taking than control group.2) For fNIRS-results: Compared with the control group, the activation levels of related channels (CH04, CH14) in the dorsolateral prefrontal cortex (dlPFC) of the acute stress group were lower, and there was a significant mediation between the acute stress and risk-taking (CH04 channel).

In summary, this study found that: acute stress primarily impacts people's risk-taking by weakening their self-control. And compared to male, female adolescents' self-control will be more seriously weakened under the influence of acute stress. This finding enriches the Ecological Momentary Assessment research and offers theoretical support and practical application advice for safeguarding the healthy development of adolescents.

Keywords ： Mobile experiment, Ecological Momentary Assessment, fNIRS, Adolescent risk-taking behavior, acute stress

宣泓舟　朱陈晨　何贵兵*（通讯作者）　陈志琴*（通讯作者）
浙江大学心理与行为科学系，杭州，310028，gbhe@zju.edu.cn，zhiqin.chen@zju.edu.cn

摘 要　确证性偏差指个体偏向于关注和支持与其原始观点一致信息的现象，它在建议采纳、信息搜索和决策选择等领域普遍存在。为了探索信息特点对确证性偏差的影响，本研究通过一系列实验考察了结论性信息（有/无）和信息来源（人类/智能系统）对确证性偏差的影响。实验一在店铺地址选择（S1a）、治疗方案选择（S1b）和理财产品选择（S1c）三重情境下考察了相关信息属性对个体在信息判断中呈现出的确证性偏差强度的影响。结果一致发现，相比于包含结论性信息，当个体评估的信息中不包含结论性信息时，其表现出的确证性偏差程度显著减弱。然而，无论信息来源于人类还是智能系统，确证性偏差程度没有显著差异。为了排除实验一材料中可能引发信息来源歧义的无关效应，实验二进一步调整了实验 S1a 的相关材料，仍然重复了实验一的结果。实验三采用了 Fischer 等人 (2011)提出的续签场景，实验四则采用了信息选择任务，均重复了实验一的结果。本研究结果提示人们，在为他人提供建议或信息时，应尽可能避免提供过多的结论性信息，以减少由确证性偏差带来的潜在负面影响。

关键词　确证性偏差，信息特点，结论性信息，信息来源

Effect of Concluding Information and Information Sources on Confirmation Bias

Hongzhou Xuan, Chenchen Zhu, Guibing He*, Zhiqin Chen*
Department of Psychology and Behavioral Sciences, Zhejiang University, 310028

Abstract：Confirmation bias, characterized by individuals' inclination to selectively attend to and support information that aligns with their preexisting beliefs, manifests widely across decision making, information search, and recommendation acceptance. This study aimed to investigate the influence of information characteristics on confirmation bias through a series of experiments exploring the effects of concluding information (with vs. without) and information source (human vs. AI). Experiment 1 examined the impact of relevant information attributes on the degree of confirmation bias in three scenarios: selecting a location to open a café (S1a), choosing a treatment for lower back pain (S1b), and selecting an investment product (S1c). The results consistently demonstrated that people experienced less confirmation bias when the information in the information evaluation task did not contain concluding information compared to when it did. However, we did not find a significant difference in the degree of confirmation bias between information sourced from humans and AI. To eliminate potential confounds arising from information source ambiguities in Experiment 1's materials, Experiment 2 adjusted the relevant materials of S1a, and its results still replicated the findings of Experiment 1. In Experiment 3, we adopted a scenario from Fischer et al. (2011) involving the decision to extend an employee's contract, and in Experiment 4, we employed an information selection task. Both experiments also replicated the outcomes of Experiment 1. The findings of this study suggest that minimizing the inclusion of concluding information when providing advice or information to others can help mitigate potential negative impacts caused by confirmation bias.

Keywords：Confirmation bias, Information characteristics, Concluding information, Information source

李冀蒙[1]　卢雨媚[1]　毕研玲[1]（通讯作者）
1 陕西师范大学心理学院，西安，710062, biyanling@snnu.edu.cn

摘 要　随着互联网的快速发展，人们逐渐依赖网络的帮助以快速获取信息。网络已经渗透到人们的日常学习、工作和生活中，改变着人们的学习方式、生活方式和思维方式。研究发现，人们接受网络帮助会影响个体对自身能力的自我评估，产生过分自信。在现实生活中，人们遇到问题之后，不仅会接受网络的帮助,也会选择求助于人类同伴。本研究以已有研究为基础，通过实验探讨网络帮助与人类同伴帮助对个体过分自信水平的影响差异，并进一步探讨其原因。

实验一证明不同帮助方式对过分自信的影响存在差异。网络帮助组的过分自信水平显著高于人类同伴帮助组与无帮助组，而人类同伴帮助组与无帮助组的过分自信水平差异不显著。在此基础上，实验二加入“思考条件”因素，通过 2（帮助方式：网络帮助、人类同伴帮助）×2（思考状况：有思考、无思考）的被试间设计，发现在控制了首次作答正确率后，思考状况的主效应显著，思考条件下被试的过分自信水平显著低于无思考条件下的被试；帮助方式主效应也显著，网络帮助条件下被试的过分自信水平高于人类同伴帮助条件下的被试；思考状况与帮助方式的交互效应不显著。

根据以上实验可得出结论：（1）接受网络帮助会促使人们更加高估自己的能力，产生更高程度的过分自信水平。（2）人们在接受人类同伴帮助时，不会像接受网络帮助一样产生更高的过分自信水平，而是像没有接受帮助的个体一样可以相对准确地评估自己的能力。（3）网络帮助与人类同伴帮助对过分自信的影响存在差异的原因是接受网络帮助的个体缺乏对问题的思考，难以意识到自身认知的局限性。迫使人们在接受帮助前先“思考”，可以有效地缓解其过分自信，从而更好地校准其对自身能力的评估。

关键词　网络帮助，人类同伴帮助，过分自信，思考策略

Comparison of the effects of online assistance and human peer assistance on overconfidence

Jimen Li[1] Yumei Lu[1] Yanling Bi[1]
School of Psychology, Shaanxi Normal University,710062, biyanling@snnu.edu.cn

Abstract：With the rapid development of the internet, people gradually rely on the help of the internet to quickly obtain information. The internet has penetrated people's daily learning, work, and life, changing their way of learning, life, and thinking. Research has found that people's acceptance of online help can affect individuals' self-evaluation of their own abilities, leading to overconfidence. In real life, when people encounter problems, they not only accept the help of the internet, but also choose to seek help from their human companions. This study is based on existing research and explores the differences in the impact of online assistance and human peer assistance on individual overconfidence levels through experiments, and further explores the reasons for these differences.

Experiment 1 demonstrates that different ways of helping have different effects on overconfidence. The overconfidence level of the online help group is significantly higher than that of the human peer help group and the helpless group, while the difference in overconfidence level between the human peer help group and the helpless group is not significant. On this basis, Experiment 2 added the factor of "thinking conditions" and used the inter subject design of 2 (help methods: online help, human peer help) ×2 (thinking state: thinking, no thinking), finding that after controlling for the accuracy of the first answer, the main effect of thinking state was significant, and the overconfidence level of participants under thinking conditions was significantly lower than that under no thinking conditions. The main effect of help methods is also significant, with participants having a higher level of overconfidence under online help compared to those under human peer help. The interaction effect between thinking status and help methods is not significant.

Based on the above experiments, it can be concluded that (1) accepting online assistance can lead people to overestimate their abilities and generate a higher level of overconfidence. (2) When people receive help from human peers, they do not develop a higher level of overconfidence like when receiving online help, but rather can relatively accurately evaluate their abilities like individuals who have not received help. (3) The reason for the difference in the impact of online help and human peer help on overconfidence is that individuals who receive online help lack thinking about problems and are unable to recognize their cognitive limitations. Forcing people to "think before receiving help" can effectively alleviate their overconfidence and better calibrate their assessment of their abilities.

Keywords： Internet help, human peer help, overconfidence, thinking strategies

经历未来：动态未来情景思维对跨期决策的影响

齐怀远[1]　毕翠华[2]（通讯作者）　罗扬眉[1]
1 陕西师范大学心理学院，西安，710062
2 四川师范大学心理学院，成都，610011，通讯作者 E-mail: cuihuabi@sicnu.edu.cn

摘 要　人类是天生短视的动物，在面对眼前的小收益和未来的大收益时人们更容易选择前者(如吸烟、储蓄、消费乃至医疗决策)。而未来情景思维(episodic future thinking, EFT)能引发对未来的感知、目标追求、行为动机、对未来可能性的探索，从而引发人们对未来收益的关注，缓解人们的短视。但传统 EFT 操作过于强调对未来某些时间点或片段进行片面思考，这种思维模式容易受到许多条件限制，所以对决策的积极作用常常大打折扣。庆幸的是，人类也是天生会讲故事的动物，人们可以将自身过去的生活经历随时间不断叙述出来。根据已有理论观点，个体具有依据头脑中的主客观规律，随时间动态建构未来情景的思维能力，即动态叙事。通过动态叙事，设想未来事件一系列的发生发展过程，人们可以体验到未来预期事件在时间上的关联性和新颖性，更深入地影响人们对跨期决策时间和收益的认知加工，从而弥补以往 EFT 作用的局限。因此，本研究基于理论和研究基础上提出构建了“动态未来情景思维(dynamic episodic future thinking, DEFT)”的概念、操作与检验方式。将传统对未来短暂的想象操作，拓展为对未来进行动态叙事的想象操作。通过 1 项预实验和 3 项实验研究来探索 DEFT 对跨期决策的影响效果和内在机制：

（1）预实验编制了 DEFT 的唤醒程序，发现通过任务程序能够有效地唤醒个体的 DEFT 的思维模式，并体验到想象事件的关联性、时间顺序等特点。而进行 EFT 唤醒的被试则缺少类似的体验，证明了 DEFT 在操作上的有效性。

（2）基于预实验，研究一采用 2(唤醒类型： EFT，DEFT)×2(测验顺序：前测 AUC 值，后测 AUC 值)两因素混合设计。结果显示，唤醒 DEFT 比唤醒 EFT 对个体跨期决策的延迟偏好有更强的促进作用。

（3）基于研究一，研究二使用未来时间感知任务，以探索时间感知在唤醒类型(EFT，DEFT)对跨期决策的作用机制。结果显示 DEFT 可能会调用更多的认知资源，使被试对时间感知进一步主观收缩，这种促使人们主观放大了延迟收益价值，更偏好选择延迟收益。

（4）基于研究二，研究三采用 2(唤醒类型：DEFT、EFT)×2(注意偏向：左侧，右侧)两因素混合设计，通过操作被试对跨期决策即时和延迟奖励的注意偏向（左侧偏向更关注隐喻时间起点的即时选项；右侧偏向更关注隐喻时间终点的延迟选项），比较 EFT 和 DEFT 的时间感知与决策的差异，来进一步探索 DEFT 在心理表征上的的特点。结果支持了 DEFT 可能唤醒被试对未来事件的动态叙事的心理表征，这种表征包括对事件起点、过程和终点的关注，区别于传统 EFT。

综合而言，本研究提出了一种新的未来情景思维模式，并通过行为实验从认知资源和心理表征角度给出了其影响跨期决策的理论解释，在拓展未来情景思维与跨期决策领域的研究有重要的理论贡献，也为进一步改善人们的跨期决策行为提供了理论上的指导。

关键词　动态未来情景思维，未来情景思维，跨期决策，时间感知，心理表征

Experience the future: The impact of dynamic episodic future thinking on intertemporal decision-making

Huaiyuan Qi　Cuihua Bi　Yangmei Luo

School of Psychology, Shaanxi Normal University, Xi'an
School of Psychology, Sichuan Normal University, Chengdu

***Abstract*:** Humans are naturally short-sighted, and when faced with small immediate gains versus large future gains, they are more likely to choose the former (e.g., smoking, saving, spending, and even medical decisions). Episodic future thinking (EFT) can arouse the perception of the future, goal pursuit, behavior motivation, and exploration of future possibilities, thereby arousing people's interest in future benefits and reducing their myopia. However, traditional EFT operations overemphasize one-sided thinking about certain points or segments of the future, and because this mode of thinking is easily constrained by numerous conditions, its positive effect on decision-making is frequently diminished. Thankfully, humans are also natural storytellers, and they can recall their past life experiences over time. Individuals can construct future scenarios based on subjective and objective laws in their minds in a dynamic manner over time, i.e., dynamic narratives, according to existing theories. Through dynamic storytelling, envisioning the sequential development of future events, people can experience the temporal relevance and novelty of anticipated future events. This process deeply influences individuals' cognitive processing of intertemporal decision-making and benefits, thereby addressing the limitations of previous Episodic Future Thinking (EFT). Therefore, the purpose of this study is to develop the concept, operation, and evaluation of "dynamic episodic future thinking (DEFT)" based on theory and previous research. This study extends the conventional practice of imagining the future for a brief period of time into the practice of imagining a dynamic narrative of the future. Explore the effect and internal mechanism of DEFT on intertemporal decision-making through one pre-experiment and three experimental studies:

(1) The pre-experiment prepared an arousal program for DEFT, and it was discovered that the task program was effective at arousing individuals' thinking patterns of DEFT and allowing them to experience the correlation and chronological order of imagined events, among other characteristics. In contrast, the subjects who underwent EFT arousal lacked similar experiences, demonstrating the operational efficacy of DEFT.

(2) Study 1 utilized a 2 (type of arousal: EFT, DEFT) x 2 (order of testing: pre-test AUC value, post-test AUC value) two-factor mixed design based on the pre-experiment. Results indicated that arousal to DEFT had a greater facilitative effect than arousal to EFT on the delayed preference of individuals for intertemporal decision making.

(3) Based on the findings of Study 1, Study 2 employed a future time perception task to investigate the mechanism of time perception in the role of arousal type (EFT, DEFT) on intertemporal decision making. The results demonstrated that DEFT may mobilize additional cognitive resources to further subjectively contract subjects' time perception, resulting in a subjective enhancement of the value of delayed gains and a greater preference for delayed gains.

(4) Based on the findings of Study 2, Study 3 used a 2 (arousal type: DEFT, EFT) 2 (attentional bias: left-side, right-side) two-factor mixed design to compare the time perceptions of EFT and DEFT by manipulating subjects' attentional biases toward immediate and delayed rewards for intertemporal decision making (left-side bias focuses more on the immediate option with a metaphorical temporal origin; right-side bias focuses more on the delayed option The results support the notion that DEFT may elicit a mental representation of subjects' dynamic narratives of future events that includes attention to event beginnings, processes, and endings, differentiating it from conventional EFT.

In conclusion, the current study proposes a new model of future scenario thinking and provides theoretical explanations from the perspectives of cognitive resources and mental representations through behavioral experiments, which makes an important theoretical contribution to expanding the research in the field of future scenario thinking and intertemporal decision-making, and also provides theoretical guidance to further improve individuals' intertemporal decision-making behavior.

Keywords：dynamic episodic future thinking, episodic future thinking, intertemporal decision-making, time perception, mental representations

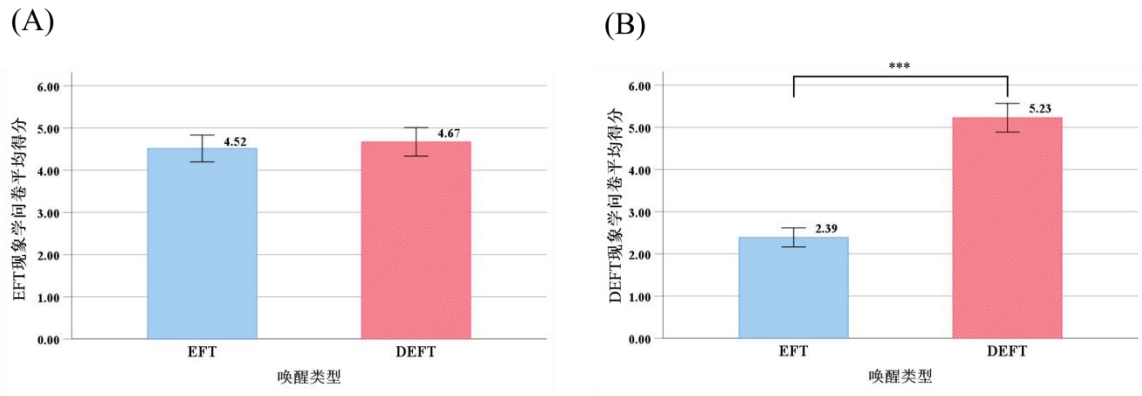


图 1 预实验：唤醒类型的有效性与差异性结果

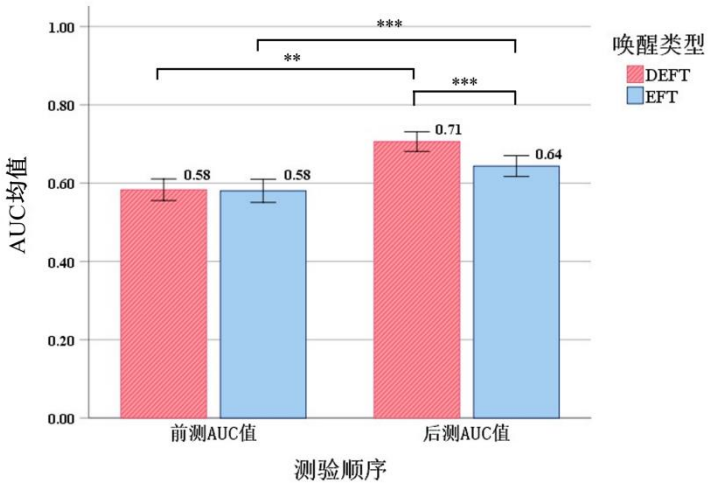


图 2 研究一：唤醒类型与测验顺序的交互作用结果

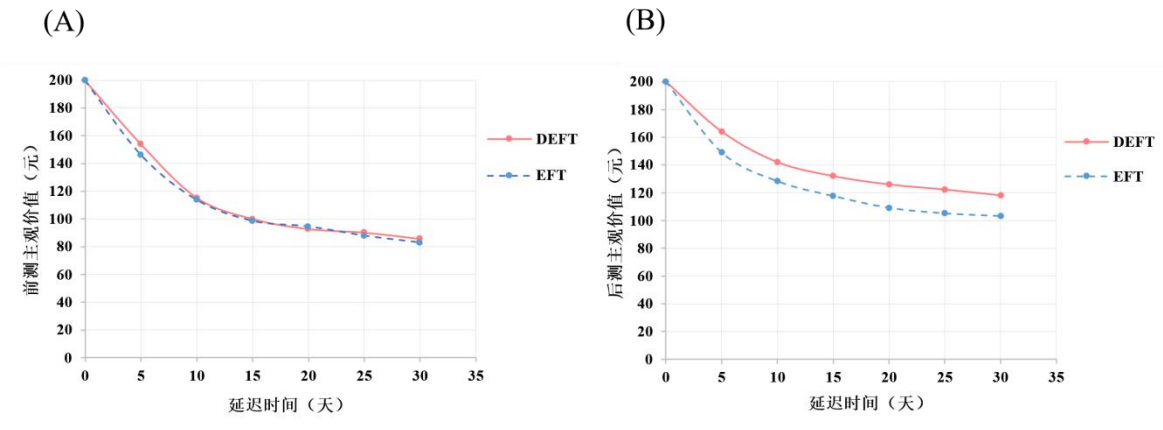


图 3 研究一：主观价值随延迟时间变化 AUC 曲线结果

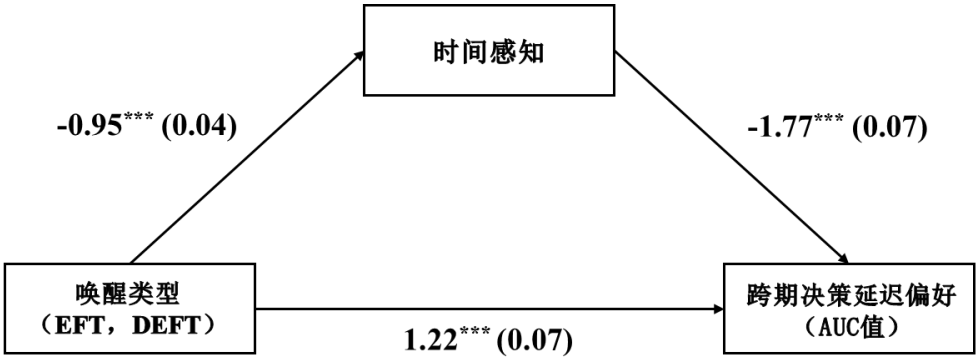


图 4 研究二：认知资源机制——时间感知的中介作用结果

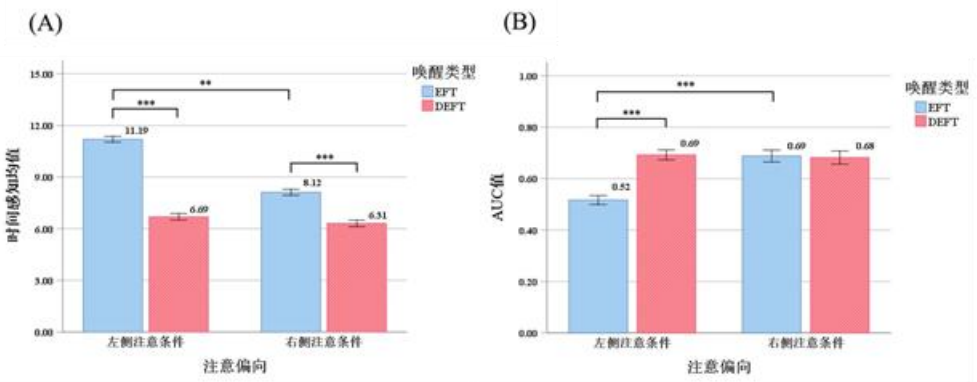


图 5 研究三：注意偏向和唤醒类型的交互作用结果

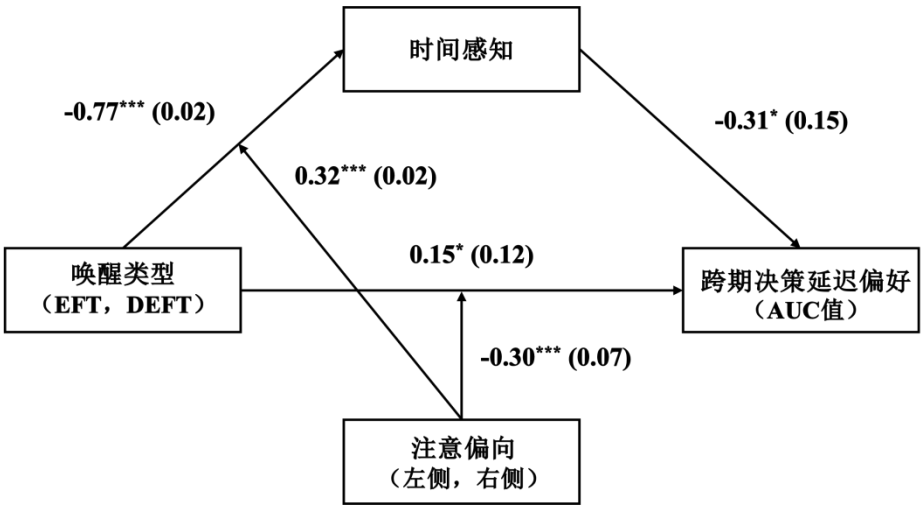


图 6 研究三：心理表征机制——注意偏向的调节作用结果

来源偏好决策中熟悉性偏差的漂移扩散分解

雷鹏[7]

1 西南财经大学，中国行为经济与行为金融研究中心，四川成都，611300,lp.rab1214@gmail.com

摘要 即使面对同等概率分布的收益或损失，人们也会因为对与之关联的来源熟悉度不同，而产生不同的价值估计，从而给予更熟悉来源更强的决策偏好。Fox 和 Tversky 在对于 Ellsberg 双瓮问题和模糊厌恶的相关研究中，发现了正是由于对不确定情境下风险来源的偏好，导致了熟悉性偏差（Fox & Tversky, 1995）。以往关于来源偏好的研究中，更多聚焦在其公理化（Chew & Sagi, 2008）、实证检验（Chew, Ebstein & Zhong, 2012；Chew, Li & Sagi, 2021）和生物行为基础（Chark et al, 2022）等, 而对于其认知过程的计算建模则较少涉及。本研究中，采用北京-东京城市最高温度尾数的奇偶性作为彩票来源的依据（Chew, 2022）。通过设定彩票来源的熟悉程度（北京/东京/电脑）和收益规模，最终构建一系列二元化来源偏好决策任务，在 100 名大学生被试中进行行为实验收集数据。行为研究结果显示，在熟悉程度更高的决策来源中，个体更倾向于不确定的收益和确定的损失。进一步基于决策反应时和决策结果，利用漂移扩散模型进行计算建模，使用贝叶斯分层估计分解出刻画决策过程的四个基本参数：决策阈限(a)、非决策时间（t）、漂移率（v）和 决策起点（z）。建模结果发现，在收益情境下，北京的 a、t 和 z 都显著低于东京低于电脑，只有 v 高于电脑高于东京。在损失情境下，北京的 a、t 和 z 都显著高于东京高于电脑，只有 v 低于东京低于电脑。这意味着对于，面临收益时，被试对更熟悉来源的决策，谨慎程度有所下降，但对决策任务的理解更加迅速，价值累积的速度也更快，同时具有对彩票更强的先验偏好。而面临损失时，被试对更熟悉来源的决策，谨慎程度提高，任务理解速度减缓，价值累积速度变慢，但对固定损失的先验偏好更强。在来源偏好决策中，熟悉性偏差意味着对于收益的确定性，和对于损失的不确定性的感知提升，从而放大个体的损失厌恶倾向，使个体更加偏好不确定的收益和确定的损失。同时，相比高熟悉性来源，低熟悉性来源关联的决策出现更加不一致的行为倾向。这些发现有助于加深对来源偏好决策过程的理解，也为后续更深入的神经经济方法提供参照。

关键词 来源偏好，熟悉性偏差，漂移扩散模型，潜在偏好

（注：本研究同时受中国行为经济与行为金融研究中心和四川省科技厅重点研发项目“吸毒人员毒品渴求精准评估与靶向干预技术应用示范研究”（2023YFS0423）支持，作为后者在正常人群体决策特征研究中的重要组成部分）

Drift Diffusion Decomposition of Familiarity Bias in Source Preference

[7] 雷鹏，西南财经大学，中国行为经济与行为金融研究中心在读博士生，研究方向为行为经济与实验经济学，主要研究领域为来源偏好、计算建模、神经经济学和遗传行为学等. 邮箱：lp.rab1214@gmail.com.

Lei Peng
1 Southwestern University of Finance and Economics，China Center for Behavioral Economics and Behavioral Finance，Chengdu，611300, lp.rab1214@gmail.com

Abstract: Familiarity bias in source preference is observed using the parity of the trailing digits of city temperatures and computer-generated random numbers. Employing a drift-diffusion model (DDM) and Bayesian hierarchical estimation, four basic parameters are estimated: decision caution level (a), speed of task comprehension (t), speed of value information accumulation (v), and latent initial preference (z).* For subjects in Chengdu, the estimated a, t, and z are significantly lower (higher) for Beijing than for Tokyo except for v which is higher under the gain condition. This pattern is reversed for estimates of a, t, z, and v under the loss condition. Notably, for the computer-generated random numbers, the estimated parameters are more extreme than the corresponding estimates for both city temperatures under the gain as well as the loss condition.

Key words*:* Source preference, familiarity bias, drift diffusion model, latent preference

*In the original DDM (Ratcliff, 1978), these parameters are defined in terms of decision threshold (a), non-decision time (t), drift rate (v), and decision starting point (z).

(Note: This study was also supported by the Demonstration Study on Accurate Evaluation of Drug craving among drug Addicts and Application of targeted intervention Technology (2023YFS0423), a key R&D project of Sichuan Provincial Science and Technology Department, as an important part of the study on group decision-making characteristics of normal people.)

如何使 1 度电更有价值？机会成本凸显对环保节电行为的助推研究

沈丝楚[1]（通讯作者） 王耀民[1]
1 福建师范大学心理学院，福州，350117，shensc@fjnu.edu.cn

摘 要 气候变化严重威胁地球环境，亟需推动“双碳”目标的实现，减少能源使用量，共同推动绿色发展。我国居民用电量近几年居高不下，如何促进居民节省用电，达到节能减排的目的？行为决策领域已有研究尝试用助推的方式推动人们在经济、健康等领域做出更具有适应性的决策，而在环保领域此类策略是否能起作用所知甚少。为了推动人们做出环保节电行为，我们通过 3 个研究考察了机会成本凸显这一效应对环保行为的影响及其边界条件，即凸显了用电所消耗能源的机会成本这一信息后能否助推人们做出更加环保的节电行为。研究 1 通过对比不同凸显方式，探讨机会成本凸显对环保意愿的影响。研究 2 通过对比不同的信息表征方式，探讨机会成本凸显起作用的边界条件，并探究不同环保意识水平个体的适用程度。研究 3 通过启动机会成本凸显的程度，进一步揭示了机会成本凸显对真实，而非自我报告的环保行为的影响。研究结果发现，机会成本凸显能够提高人们的环保意愿（研究 1），也能够增加真实的环保行为（研究 3），而在机会成本凸显的表征形式上，使用图文混合表征的效果更好，在受众群体上对高环保意识个体更有效（研究 2）。以上研究结果揭示了机会成本凸显对环保行为的积极助推作用，为节省电力的宣传及降低成本提供了证据支撑和参考价值。

关键词 助推，机会成本，亲环境行为

How to enhance the value of 1 kilowatt-hour? The nudging effect of opportunity cost salience on electricity saving behavior

Shen Si-Chu[1*], Wang Yao-Ming[1]
1. Department of Psychology, Fujian Normal University

Abstract: Climate change poses a significant threat to the global environment, demanding urgent action to promote the realization of the "dual carbon" goal, reduce energy use, and jointly promote green development. However, electricity usage among residential consumers has remained persistently high in recent years. How to promote the residents to save electricity and achieve the purpose of energy saving and emission reduction? There are studies in the field of behavioral decision making that try to nudge people to make more adaptive decisions in areas such as economics and health, but little is known about whether such strategies work in the field of environmental protection. To address this issue, this research examines the effectiveness of opportunity cost salience in encouraging electricity conservation behavior, exploring its impact on environmental intentions as well as its boundary conditions through three distinct studies. Study 1 investigates the influence of different approaches to opportunity cost salience on individuals' environmental intentions. Study 2 explores the boundary conditions of opportunity cost salience by comparing various representation formats and target demographics. Study 3 examines opportunity cost salience effects on actual environmental behavior by priming opportunity cost. The findings reveal that opportunity cost salience leads to an increase in individuals' environmental intentions (Study 1) and fosters actual electricity conservation behavior (Study 3). Moreover, the combination of textual and visual representation proves to be the most effective format, while the efficacy of opportunity cost salience varies among individuals with a stronger environmental consciousness (Study 2). These results highlight the positive impact of opportunity cost salience on environmental behavior and provide valuable evidence and guidance for electricity saving campaigns and cost reduction initiatives.

Keywords: nudge, opportunity cost, pro-environmental behavior

伴侣选择中的价值导向信息搜索

王弘毅[1, 2]　马佳欣[2]　何黎胜[3]（通讯作者）
1 华东师范大学心理与认知科学学院，上海市心理健康与危机干预重点实验室，上海，200062
2 华东师范大学心理与认知科学学院，上海，200062
3 上海大学悉尼工商学院，上海，201800，hlisheng@shu.edu.cn

摘 要　找到合适的伴侣是绝大多数人的重大人生决策之一。主流择偶理论认为，由于需要考虑的因素和可供考虑的选择过多，人们依靠并不充足的信息来寻找伴侣，从而会使用非补偿性的启发式策略（non-compensatory choice heuristics）。然而，近期的实验研究通常发现，人们在选择伴侣时似乎会考虑所有的相关信息，其策略结果也更加符合补偿性的选择策略（compensatory choice strategies）。为了解决这一理论与实证结果不一致的问题，本研究将伴侣选择中的信息搜索过程与评估过程区分开来，并对两个认知过程分别进行建模分析。

通过两个过程追踪实验（眼动实验和 MouseLab 在线鼠标追踪实验），本研究发现，人们对所有类型的线索（外貌、月收入以及创造力）都表现出强烈的价值导向搜索启发式策略（value-directed search heuristics）：高价值的线索（例如，外表吸引力高）能增加人们后续对于同一对象的信息获取；低价值的线索则会降低后续对于同一对象的信息获取。并且价值导向搜索的规模随着线索首要性的增加而增加。例如，男性对于外表吸引力这一线索比女性表现出更强的价值导向的信息搜索；而女性对于资源或智力相关的线索比男性表现出更强的价值导向的信息搜索。线索首要性还解释了线索类型和参与者性别对价值导向搜索程度的交互作用:男性比女性进行更多的“面孔→其它”价值导向互动搜索；女性相比男性进行更多的“收入→其它”和“创造力→其它”的价值导向互动搜索。

本研究通过区分决策过程中的信息搜索和评估过程，弥合了理论和实验证据之间的鸿沟。与主流的理论观点一致，我们发现伴侣选择过程中采用了价值导向的搜索启发式。我们进一步论证了价值导向搜索不一定导致非补偿性选择，但可能为补偿性决策策略服务。本研究结果表明，人们在选择伴侣时会采用启发式搜索，从而更有效地找到理想的伴侣。

关键词　信息搜索，伴侣选择，线索重要性，过程追踪技术，启发式

Value-directed information search in partner choice

Hongyi Wang[1, 2] Jiaxin Ma[2] Lisheng He[3]

1 Shanghai Key Laboratory of Mental Health and Psychological Crisis Intervention, School of Psychology and Cognitive Science, East China Normal University, Shanghai

2 School of Psychology and Cognitive Science, East China Normal University, Shanghai

3 SILC Business School, Shanghai University, Shanghai

Abstract：Finding the right person as a relationship partner is one of the most important decisions grown-ups make in life. Mainstream theories of partner selection suggest that, considering the vast number of potential candidates and cues, people search for and choose romantic partners efficiently by using non-compensatory choice heuristics, relying on incomplete information. However, recent experimental work typically finds that partner choice follows compensatory choice strategies which take all relevant information into consideration. To bridge this gap between theory and experimental evidence, we distinguished the information search process from the evaluation process in the mate choice problem and, critically, modeled the two cognitive processes separately, drawing upon research on the cognitive processes of human decision-making.

In two process-tracing experiments (an eye-tracking experiment and a MouseLab experiment), we show that people display strong value-directed search heuristics in response to all types of cues(facial attractiveness, monthly income, and creativity): High cue values increased subsequent information acquisition within profiles, and low cue values decreased subsequent information acquisition within profiles. The magnitude of value-directed searches increases with cue primacy. For example, men displayed a stronger value-directed search in response to attractiveness cues than women did and women displayed a stronger value-directed search in response to resource- or intelligence-related cues than men did. Cue primacy also explains the interaction effect of cue type and participant sex on the extent of valued-directed search: men made more attractiveness directed interactive search than women did, while women made more income- and creativity-directed interactive search.

By distinguishing the information search process from the evaluation process in the decision process, our work bridged this gap between theory and experimental evidence. In line with the celebrated theoretical claims, we find that preferential partner choice involves strong value-directed search heuristics. However, such value-directed search heuristics do not necessarily lead to non-compensatory choices but rather serves compensatory decision-making. Our results demonstrate that people adopt remarkably smart search heuristics to find an ideal partner efficiently.

Keywords：Information Search, Partner Choice, Cue Primacy, Process Tracing, Heuristics

高自尊者的双面性：“投”“取”困境中的合作行为差异

孙庆洲（通讯作者） 黄靖茹 郭浩智

浙江工业大学 管理学院，杭州 310023，通许作者 sunqingzhou2008@163.com

摘 要　在个人利益和集体利益冲突的两难困境中，高自尊者更合作还是低自尊者更合作？过往研究并未得到一致结论，一个潜在原因是并未区分“投入”型困境和“索取”型困境。通过三项研究，我们探究了投取困境下不同自尊者的合作行为差异：发现高自尊者具有双面性，低自尊者相对稳定。研究一通过设置对等的“投入”型困境（公共物品博弈）和“索取”型困境（公共资源博弈），发现相对于低自尊者，高自尊者在“投入”型困境中更加合作，而在“索取”型困境中更不合作。我们推测这可能是投取困境诱发的账户指向性差异所致（投入框架指向个人账户，索取框架指向公共账户），为此，研究二改变了投取困境中的账户指向性，发现无论在“投入”型困境还是“索取”型困境中，当指向公共账户时高（vs.低）自尊者更合作，而当指向个人账户时高（vs.低）自尊者更不合作。投取困境的账户指向性为何影响高、低自尊者的合作行为？研究三通过投射法对此进一步探究，测量了四种困境下（指向个人账户的投入困境、指向公共账户的投入困境、指向个人账户的索取困境、指向公共账户的索取困境）投取行为与自我利益关注、社会声望关注及个人能力的关联性，发现指向个人账户激活了自我利益关注，（个人）账户数额越多体现了能力越强；指向公共账户激活了社会声誉关注，（公共）账户数额越多体现了能力越强。这些发现表明，投取困境诱发的账户指向性影响了认知关注和知觉关联，进而影响了不同自尊者的合作表现，这为现实投取困境下的合作行为助推提供了决策参考。

关键词　自尊，投入困境，索取困境，账户指向性，合作行为

Duplex of high self-esteem individuals: differences in cooperative behavior under the giving vs. taking dilemma

SUN Qingzhou（corresponding author）, HUANG Jingru, GUO Haozhi
School of Management, *Zhejiang University of Technology*, *Hangzhou* 310023

Abstract：In dilemmas of interest conflicts between individual and collective, are high or low self-esteem individuals more cooperative? One potential reason for the lack of consistent findings in previous studies is that they did not distinguish giving and taking dilemmas. Through three studies, we explored differences of cooperative behavior among self-esteem individuals under giving and taking dilemmas: high self-esteem individuals have duplex and low self-esteem individuals are relatively stable. By setting up reciprocal giving dilemma (public goods dilemma) and taking dilemma (public resources dilemma), Study 1 found that high(vs. low) self-esteem individuals were more cooperative in the giving dilemma and less cooperative in the taking dilemma. We hypothesized that this might be due to the difference in account direction induced by different dilemma (the giving frame points to the public account and the taking frame points to the personal account), thus, Study 2 changed the account direction in two dilemmas and found that both in the giving dilemma and the taking dilemma, high (vs. low) self-esteem individuals were less cooperative when directed to the personal account, and more cooperative when directed to the public account. Why does account directions of dilemmas affect the cooperative behavior of high and low self-esteem individuals? Study 3 further explored this by projection, measured the association between the withdrawal behavior and self-interest concern, social prestige concern, as well as personal competence under four dilemmas (giving dilemma pointing to personal account, giving dilemma pointing to public account, taking dilemma pointing to personal account, and taking dilemma pointing to public account). The study found that personal account direction activated self-interest concern, more amount in (personal) accounts reflect greater capacity, and public account direction activated social reputation concerns, more amount in(public) accounts reflect greater capacity. These findings suggest that account direction induced by two dilemmas influences

cognitive concerns and perceptual associations, which in turn affects the cooperative performance of different self-esteem individuals, and this provides decision references for cooperative behavior facilitation under realistic dilemmas.

Keywords：self-esteem, giving dilemma, taking dilemma, account direction, cooperative behavior

感知经济流动性正向影响利他惩罚

杨莎莎[1]　杜婧依[1]　李莹[1]　陈思静[2]　刘永芳[1]（通讯作者）

1 华东师范大学心理与认知科学学院，上海市心理健康与危机干预重点实验室，上海 200062

2 浙江科技学院经济与管理学院，杭州 310023

（通讯作者 E-mail：yfliu@psy.ecnu.edu.cn）

摘要 感知经济流动性是个体对于自身或他人的社会经济地位在不同社会层级之间上下流动可能性的评估。先前研究表明，感知经济流动性能够正向预测个体的亲社会行为，但局限于参加慈善组织、志愿活动、公益项目及慈善捐赠等典型的亲社会行为，较少关注到利他惩罚——惩罚者承担成本去惩罚那些违反社会规范的个体——这种特殊的亲社会行为。而此种亲社会行为又是一种强合作行为，对于维系社会稳定具有重要作用。那么，感知经济流动性是否及如何影响利他惩罚呢？本文通过 4 项研究较为完整地考察了这一问题。

研究 1 利用 2013 年中国综合社会调查数据发现感知经济流动性正向影响利他惩罚，其中包含牺牲自身利益举报环境污染项目和反抗上司不端行为。研究 2 让被试回忆过去 1 个月内目睹真实违规事件时的反应，结果发现：感知经济流动性正向影响直接惩罚，但对间接惩罚的影响不显著；此外，公正世界信念是“感知经济流动性-直接惩罚”这一路径中的潜在中介变量。研究 3 通过直接操纵感知经济流动性，为研究 2 的中介模型提供了因果证据。研究 4 同时操纵感知经济流动性和结果效能，并发现：感知经济流动性对利他惩罚的正向影响仅在结果效能较高时（即惩罚能够有效地维护社会规范）成立。

本文的发现有助于将感知经济流动性对个体行为的影响扩展至社会层面。具体而言，经济流动性的下降会在一定程度上减少个体在违规情境中的惩罚行为，从而降低社会规范对个体行为的约束力并带来更低的合作水平和更高的违规行为发生率，最终对社会福利水平、危机应对能力等产生深远的负面影响。

关键词 感知经济流动性，利他惩罚，公正世界信念，结果效能

Perceived economic mobility positively affects altruistic punishment

Shasha Yang[1], Jingyi Du[1], Ying Li[1], Sijing Chen[2], Yongfang Liu[1] (corresponding author)

1 Shanghai Key Laboratory of Mental Health and Psychological Crisis Intervention, School of Psychology and Cognitive Science, East China Normal University, Shanghai 200062, China

2 School of Economics and Management, Zhejiang University of Science and Technology, Hangzhou 310023, China

(Corresponding author Email: yfliu@psy.ecnu.edu.cn)

***Abstract*:** Perceived economic mobility can be defined as an individual's assessment of the likelihood that their own or another person's socioeconomic status would move up or down between hierarchical levels of society. Previous research suggests that perceived economic mobility has a positive correlation with individual pro-social behavior. However, existing studies have primarily focused on conventional pro-social behaviors, such as participation in charitable organizations, volunteering, philanthropic projects, and charitable donations. The specific pro-social behavior of altruistic punishment, wherein the punisher incurs costs to enforce social norms, has not received sufficient attention. This particular manifestation of prosocial behavior represents a strong and pivotal form of cooperation crucial for maintaining social stability. It becomes imperative to explore the influence of perceiving economic mobility on altruistic punishment. This paper comprehensively investigates the above influence through four studies and presents a preliminary answer.

Study 1 examined the relationship between perceived economic mobility and altruistic punishment using the *Chinese General Social Survey (2013)* obtained from the National Survey Research Center at Renmin University of China. The results indicated a positive influence of perceived economic mobility on altruistic punishment. Specifically, participants demonstrated altruistic punishment by voluntarily reporting environmental pollution at personal cost and retaliating against a foreign boss who insulted China. Expanding on these findings, Study 2 involved participants recalling their reactions when they witnessed an actual violation. The results indicated that perceived economic mobility positively affects direct punishment, but not indirect punishment. Additionally, beliefs in a just world were identified as a potential mediator in the pathway between perceived economic mobility and direct punishment. To provide causal evidence for the mediation model proposed in Study 2, Study 3 manipulated perceived economic mobility and established a mediation framework. Lastly, Study 4 manipulated both perceived economic mobility and outcome efficacy. The results indicated that the positive effect of perceived economic mobility on altruistic punishment only holds when outcome efficacy is high.

The findings of this paper have the potential to extend the understanding of the effects of perceived economic mobility on individual behavior to the societal level. Specifically, reduced economic mobility may result in a decrease in individuals' punishment for violations, consequently leading to less stringent social norms and diminished levels of cooperation. These outcomes can contribute to higher rates of violations and have far-reaching negative consequences on social welfare and the ability to address crises.

***Keywords*:** perceived economic mobility, altruistic punishment, belief in a just world, outcome efficacy

减轻痛苦还是节省金钱?医生偏好低疼痛超过低价格时的人际与行为成本

朱冬青[1]（通讯作者） 郑金孟[1] 赵睿雯[1]

1 北京学习与认知重点实验室，首都师范大学心理学院，北京，100037，zdq@cnu.edu.cn

摘 要 疼痛与金钱的权衡是医疗决策领域特有的典型问题，不同倾向方案的推荐可能会对医生产生不同的人际和行为反应。以往的研究往往围绕疼痛与金钱的关系，而缺少了对人们在这两者之间做权衡后的人际影响的探究。本文关注当医疗方案的疼痛与价格不可兼顾时，医生的偏好将在何时、以及如何影响

患者对医生的人际反应和行为反应。基于社会评价两维度模型和双避冲突的属性权衡等动机归因领域的研究，本文预测，当医生偏好减轻痛苦优先的高价格方案时（相较于低价格高疼痛方案），患者会对医生产生更负面的人际与行为反应，这一过程是由患者对医生的动机归因所中介的。本文通过 4 项研究对上述假设进行验证。研究 1 为田野研究，通过患者对真实就诊经历的记忆回溯，初步发现了医生推荐高价格低疼痛方案会带来的相应的人际与行为成本的趋势，患者倾向以价格（而不是疼痛）线索作为指导他们对医生反应的信号；研究 2 通过实验操纵医生推荐，验证了患者对推荐高价格低疼痛方案的医生的负性人际与行为反应之间的因果关系（在第三方视角和医生同行视角下依然成立）；研究 3 旨在探究上述关系的心理机制，通过实验验证了患者对医生利他、利己动机的归因对人际反应的平行中介作用，利他动机中介了患者对医生的行为反应。同时，排除了医患决策差异与感知匹配两种替代性解释；研究 4 再次检验了中介模型，并加入家属建议作为对照，结果发现与医生推荐时完全相反的影响。这说明推荐高价格低疼痛方案之所以会带来人际和行为成本，其根源是医患关系的特殊性，而不是方案本身的疼痛价格属性。本文揭示了在疼痛价格权衡的医疗决策中，患者的动机归因对医生人际反应的心理机制，强调了医疗实践中的认知偏差和感知动机管理等方面的必要性，并提供了启示。

关键词　属性权衡，动机归因，医患关系

To Reduce Pain or to Save Money? The Interpersonal and Behavioral Costs of Physicians' Preference for Low Pain over Low Price

Dongqing Zhu[1](Corresponding author), Jinmeng Zheng[1], Ruiwen Zhao[1]
1 Beijing key lab of Learning and Cognition, Department of Psychology, Capital Normal University, Beijing, 100037, zdq@cnu.edu.cn

Abstract: The trade-off between pain and money is a typical problem specific to the field of medical decision making, and the recommendation of different preferred options may produce different interpersonal and behavioral responses for physicians. Previous research has tended to focus on the relationship between pain and money, and has lacked an exploration of the interpersonal effects of people making trade-offs between the two. This paper focuses on when and how physician preferences will influence patients' interpersonal and behavioral responses to physicians when pain and price of medical options are not traded off. Based on research in the area of motivational attributions such as the two-dimensional model of social evaluation and attribute trade-offs for dual conflict avoidance, this paper predicts that patients will have more negative interpersonal and behavioral reactions toward their physicians when physicians prefer a high-price option that prioritizes pain reduction (compared to a low-price, high-pain option), a process mediated by patients' motivational attributions toward their physicians. In this paper, the above hypothesis is tested by four studies. Study 1 was a field study that initially identified a trend toward corresponding interpersonal and behavioral costs associated with physician recommendations of high-price, low-pain options through patients' memory recall of real visit experiences, and patients tended to use price (rather than pain) cues as a signal to guide their reactions to physicians; Study 2 validated patients' negative interpersonal and behavioral responses to physicians who recommended high-price, low-pain options by experimentally manipulating physician recommendations causal relationship with behavioral responses (which still holds under the third-party perspective and physician peer perspective); Study 3 aimed to explore the psychological mechanisms of the above relationship and experimentally verified the parallel mediating role of patients' attributions of altruistic and self-interested motives to physicians on interpersonal responses, with altruistic

motives mediating patients' behavioral responses to physicians. Also, two alternative explanations, doctor-patient decision differences and perceived matching, were excluded; Study 4 tested the mediation model again and added family recommendations as a control, and found exactly the opposite effect as when physician recommendations were made. This suggests that the interpersonal and behavioral costs associated with recommending high-price, low-pain options are rooted in the specificity of the doctor-patient relationship rather than in the pain-price properties of the options themselves. This paper reveals the psychological mechanisms underlying patients' motivational attributions to physicians' interpersonal responses in medical decision making in pain price trade-offs, highlighting the need for and providing insights into aspects of cognitive bias and perceived motivational management in medical practice.

***Keywords*:** attribute balance, motivation attribution, doctor-patient relationship

追随群体还是坚守道义？

嵌套社会困境下道德认同和群体认同对合作的影响

朱泓锦 孔繁聪 陈银燕 王晓明（通讯作者）

曲阜师范大学心理学院，山东曲阜，273165，xmwang2019@qfnu.edu.cn

摘 要 在嵌套社会困境中，人们既可以为所属的群体做出贡献（狭隘合作），也可以为更大的集体（群体所隶属的集体）做出贡献（普遍合作）。社会认同理论(SIT)指出，基于群体身份的认同会驱使人们与内群体合作。道德即合作理论(MAC)与行为调节模型(BRM)则认为，道德是指导人类合作行为的关键，人们出于对自身道德品质的认同会做出合作行为。尽管群体认同与道德认同都能促进合作行为，但群体认同的核心驱力是使群体利益最大化，道德认同则是彰显道德品质或形象。也就是说，群体认同促进狭隘合作，而道德认同促进普遍合作。研究期望探索两种认同对合作行为产生的影响，尝试通过嵌套社会困境博弈范式区分合作行为并挖掘深层动机。研究设计了三个实验，采用嵌套社会困境，考察道德认同对合作行为的影响(实验 1)及道德认同与群体认同的共同作用(实验 2 和 3)。结果发现：(1)道德认同启动组的普遍合作水平显著高于控制组（实验 1）；(2)道德认同启动组和群体认同启动组的普遍合作水平均显著高于控制组（实验 2）；(3)在群体认同控制条件下，道德认同启动组的普遍合作水平显著高于控制组。而在道德认同控制条件下，群体认同启动组的普遍合作水平显著高于控制组（实验 2 和 3）；(4)两者共同作用时普遍合作行为水平与单一认同作用时无显著差异（实验 2 和 3）。据此，研究结果反映了道德认同和群体认同对合作行为的影响，但在实验 2 和 3 均未发现两者对合作行为的共同促进作用。由此推测，道德认同和群体认同会使人们基于不同动机做出合作行为。研究对探索自身道德与群体身份的双重认同及其与合作行为的关系具备一定的价值，为理解嵌套社会困境中合作行为的类型与动机提供一定参考。

关键词 嵌套社会困境，道德认同，群体认同，合作行为

Follow your group or your morality?

The influence of moral identity and group identity on cooperation under nested social dilemmas

Zhu Hongjin, Kong Fancong, Chen Yinyan, Wang Xiaoming (Correspondence)
Qufu Normal University, Shandong Qufu, 273165, xmwang2019@qfnu.edu.cn

Abstract: In nested social dilemmas, people can either contribute to their own group (parochial cooperation) or to a larger collective (universal cooperation). Social Identity Theory (SIT) suggested that identity based on group membership drives people to cooperate with ingroup members. Morality as Cooperation (MAC) and Behavioral Regulation Model (BRM) proposed that morality is a key to guide human cooperative behavior, and people cooperate out of identification with their own moral quality. Although both group identity and moral identity can promote cooperative behavior, the core motivation of group identity was to maximize group interests, moral identity was to manifest moral quality or image. That is, group identity promoted parochial cooperation, while moral identity promoted universal cooperation. The study aimed to explore the effects of the two identities on cooperative behavior, and attempted to distinguish cooperative behavior and uncovered the underlying motives by using nested social dilemma game paradigms. The study designed three experiments, using nested social dilemmas, to examine the effect of moral identity on cooperative behavior (Experiment 1) and the joint effect of moral identity and group identity (Experiment 2 and 3). The results showed that: (1) The universal cooperation level of the moral identity priming group was significantly higher than that of the control group (Experiment 1); (2) The universal cooperation level of both the moral identity priming group and the group identity priming group was significantly higher than that of the control group (Experiment 2); (3) Under the control condition of group identity, the universal cooperation level of the moral identity priming group was significantly higher than that of the control group. Under the control condition of moral identity, the universal cooperation level of the group identity priming group was significantly higher than that of the control group (Experiments 2 and 3); (4) There was no significant difference in the level of universal cooperation behavior between the joint effect and the single effect of the two identities (Experiments 2 and 3). Based on this, the results reflected the effects of moral identity and group identity on cooperative behavior, but no joint promotion effect of the two identities on cooperative behavior was found in Experiment 2 and 3. It is speculated that moral identity and group identity may make people cooperate based on different motives. The research has certain value for exploring the dual identification of self-morality and group identity and their relationship with cooperative behavior, and provides some reference for understanding the types and motives of cooperative behavior in nested social dilemmas.

Keywords: nested social dilemmas, moral identity, group identity, cooperative behavior

求助者低估不耻下问后他人对自己的好感

邱天[1]　陆静怡[1]（通讯作者）
1 华东师范大学心理与认知科学学院，上海，200062，jylu@psy.ecnu.edu.cn

摘 要　对于需要求助的人来说，选择向谁求助至关重要，因为求助对象的选择既影响问题解决，也影响他人对求助者的社会评价。在可选求助对象中，即使是专业胜任力不如求助者的下级也常常能为求助者提供帮助，向他们不耻下问可灵活高效解决问题。然而，求助者往往耻于下问，不能充分发挥下级的帮助功能。我们认为，求助者之所以耻于下问，是因为他们低估了他人在评价自己时更关注灵活性而非胜任力的程度，进而低估求助下级带来的社会评价。

我们通过四项研究考察了求助者对不耻下问后所得社会评价的预测偏差。研究将被试随机分配至求助者或旁观者组。情境中求助者遭遇无法自己解决的困难，而下级能够为求助者提供有效帮助。求助者预测自己若求助下级能否获得旁观者好感，旁观者评价对不耻下问的求助者的好感。研究 1 表明，求助者低估了旁观者对自己的好感，并且该低估在求助下级时（相比求助与求助者专业水平相当的同级时）被放大，从而揭示求助下级导致独特的错误预测。研究 2 对比了旁观者评价求助者时对胜任力和灵活性的关注程度以及求助者的预测，发现求助者以为旁观者关注灵活性和胜任力的程度相当，而实际上旁观者关注灵活性远超胜任力，从而揭示了预测偏差的机制。研究 3 通过操纵旁观者和求助下级者对胜任力和灵活性的关注程度，进一步检验了错判关注点的机制。研究 4 揭示了效应的后果，发现即使求助下级伴随代价，求助者仍然耻于下问，进而遭受损失。

理论方面，本研究通过考察求助者的错误预测，在帮助研究领域推进了对求助对象选择的深入认识，亦揭示回避求助下级并不能达到求助者预期的印象管理效果，从而拓展了印象管理研究。实践方面，本研究结果有助于鼓励人们不耻下问。

关键词　预测偏差，求助，胜任力，灵活性，社会评价

Not bowing down thine ear: Underestimating the liking by observers after seeking inferiors' help

Tian QIU[1]　Jingyi LU[1]

1 School of Psychology and Cognitive Science, East China Normal University, Shanghai, China

Abstract：For help-seekers, the choice of whom to ask for help is crucial as it may affect whether they can resolve the problem as well as how they are perceived by others. The inferiors who have lower expertise than help-seekers can also help the them solve the problem efficiently. However, help-seekers rarely ask help from inferiors. We propose that help seekers avoid seeking inferiors' help because they underestimate observers' liking of them when they ask for help from inferiors. The mechanism underlying this misprediction is that help-seekers underestimate the extent to which observers weighed flexibility over competence in their evaluations.

Four studies examined the proposed misprediction. In our studies, we randomly assigned participants as help-seekers or observers. Help-seekers encountered difficulties that cannot be solved by themselves but can be solved by inferiors. Observers rated their liking of help-seekers if they asked help from inferiors, while help-seekers predicted observers liking of them. Study 1 showed that help-seekers underestimated the observers' liking when seeking help from inferiors. This underestimation was reinforced when compared with asking for help from peers. Study 2 revealed that observers focused more on flexibility than on incompetence compared to help-seekers' predictions. As a result, help-seekers underestimated observers liking of them. Study 3 further test the focus account by manipulating the observers' and help-seekers' focus on flexibility and competence. Study 4 showed that help-seekers avoided seeking help from inferiors, even when doing so was costly.

Theoretically, our research contributes to the help-seeking literature by examining how help-seekers' miscalibration of social evaluations when seeking help from inferiors guides their choice of helpers. We also contributed to research on impression management by revealing that people misjudged the effectiveness of avoiding seeking help from inferiors as an impression-management strategy. Practically, our research encourages help-seekers to "bow down their ears."

Keywords：misprediction, help-seeking, competence, flexibility, social evaluation

5.18 老年心理学专业委员会

中国成年人的未来时间知觉与繁衍感的发展特征

吴婧轩　彭华茂（通讯作者）
北京师范大学发展心理研究院，北京，100875，penghuamao@bnu.edu.cn

摘 要　**背景：**繁衍感是个体在关心培育后代方面的动机及行为表现。繁衍感既包括生理层面的繁殖(生儿育女延续下一代)也涉及精神层面的创造(利用自己的经验财富对家庭外的晚辈予以关爱和引导)。繁衍感对个体自身身心健康、家庭家族福祉以及社会可持续进步有重要作用。未来时间知觉是指个体对自己人生中未来时间的感知和评价，且未来时间知觉会影响个体的动机、目标和行为计划。社会情绪选择理论提出，在人的一生中，未来时间知觉的变化会导致繁衍感水平的变动。**目的：**现有实证研究发现繁衍感毕生发展趋势存在一定跨文化差异。繁衍感通常与人际活动、非利己的社会性贡献等息息相关，这与集体主义文化所强调的群体归属及为集体付出的观念存在一定相容性。因此，本研究旨在阐明中国成年人繁衍感的随龄衍变特征及未来时间知觉在其中发挥的作用。**方法：**利用洛约拉繁衍感量表和未来时间知觉量表对 691 名 18 岁到 76 岁的中国成年人进行测查。分别检验全部样本及分年龄段的子样本(青年人、中年人和老年人)中成年人的繁衍感和未来时间知觉发展特征以及未来时间知觉与繁衍感之间的关系。**结果：**中国成年人的繁衍感从青年到老年期一直保持恒定。无论对于全样本还是子样本而言，中国成年人都表现出未来时间知觉越充裕则繁衍感越高的模式。未来时间知觉在年龄影响成年人繁衍感中发挥遮掩作用。**讨论：**中国成年人的未来时间知觉与繁衍感之间的关系模式虽然从结果上看不支持社会情绪选择理论，但其产生的潜在原因与原理论的观点有共通之处。因为在集体主义文化下中国人更重视重视人情关系，参与亲社会活动、培育晚辈、获得积极的声誉都会被融入进个人发展目标，这些高繁衍行为还会是一种促进个人达成发展目标的重要途径。其次，虽然个体随着年龄的增长，各种机能有所衰退，感知未来时间和机会渺茫，客观条件不足会阻碍个体生成繁衍感。但实际上，他们依然有借助其他社会载体繁衍精神财富的需求和能力。所以两条路径共同促成中国成年人繁衍感的维持。

关键词　繁衍感，未来时间知觉，遮掩效应

The Developmental Characteristics of Adults' Future Time Perspective and Generativity in China

Jingxuan Wu; Huamao Peng*
Institute of Developmental Psychology, Beijing Normal University, Beijing, 100875,
penghuamao@bnu.edu.cn

***Abstract*：Background:** Generativity refers to an individual's concern and actions regarding the cultivation of offspring. Generativity encompasses both the physiological aspect of reproduction (having children to continue the next generation) and the psychological aspect of creation (using one's experiential wealth to care for and guide younger generations outside the family). Generativity plays an important role in an individual's physical and

mental well-being, family welfare, and societal progress. Future time perspective (FTP) refers to an individual's perception and evaluation of future time in their life. FTP could influence an individual's motivation, goals, and behavioral plans. The Socioemotional Selectivity Theory (SST) proposes that changes in FTP throughout a person's life can lead to variations in the level of generativity. **Objective:** Existing empirical research has found certain cross-cultural differences in the lifelong developmental trends of generativity. Generativity is often closely related to interpersonal activities and selfless social contributions, which are compatible with the concept of collective belonging and collective sacrifice emphasized in collectivist cultures. Therefore, this study aims to elucidate the age-related developmental characteristics of generativity in Chinese adults and the role of FTP in this process. **Methods:** The Loyola Generativity Scale (LGS) and the Future Time Perspective Scale were used to assess 691 Chinese adults aged 18 to 76 years. The developmental characteristics of Chinese adults' generativity and FTP in the entire sample and in sub-samples divided by age groups (young adults, middle-aged adults, and older adults) were examined, as well as the relationship between FTP and generativity. **Results:** Chinese adults' generativity remained constant from young adulthood to late age. Both the entire sample and sub-samples showed a pattern where higher levels of FTP were associated with higher levels of generativity among Chinese adults. FTP played a suppressor role in the age-related impact on adults' generativity. **Discussion:** Although the pattern of the relationship between FTP and generativity among Chinese adults does not directly support SST, underlying reasons align with the theory's viewpoint. In collectivist cultures, such as China, individuals place greater emphasis on interpersonal relationships, participating in prosocial activities, nurturing younger generations, and gaining a positive reputation, all of which are integrated into personal developmental goals. These higher generative behaviors also serve as important pathways to achieving personal developmental goals. Furthermore, despite the decline in various functions, and limited FTP and opportunities that come with aging, individuals still have the desire and ability to generate generative wealth through other social means. Therefore, these two pathways collectively contribute to the maintenance of generativity among Chinese adults.

Keywords: Generativity, Future time perspective, Suppressor effect

维度水平改变对老年刻板印象内化的影响及其中介机制

林瑶[1]　张宝山[2]（通讯作者）

1 西安体育学院运动与健康科学学院，西安，710065

2 陕西师范大学心理学院，西安，710062，zhangbs@snnu.edu.cn

摘 要　消极刻板印象内化是老年期个体容易面临的困境，会对老年人身心健康、认知及行为等多方面产生不良影响。一般来讲，老年刻板印象在效价和内容上都被认为是多维和复杂的。而当前研究尚难以全面回答老年刻板印象不同维度的内化特征，更缺乏对内化机制的探讨。于是本研究着眼于老年刻板印象的内化，进一步考察维度之间的相互作用对老年刻板印象内化的影响及其机制。研究一从内隐测量和外显测量两个层面展开，探讨了刻板印象单一维度的改变对老年刻板印象内化的影响及机制。研究一 a 通过单一操纵温暖维度，检验能力维度是否会发生变动趋向，从而影响老年刻板印象的内化。内隐层面和外显层面的研究结果一致地发现低温暖操纵降低了老年刻板印象内化水平。并且研究发现自我归类在温暖操纵和能力维度内化之间起中介作用。研究一 b 通过单一操纵能力维度，检验温暖维度是否会发生变动趋向，从

而影响老年刻板印象的内化。内隐测量的结果分析表明，低能力启动组被试的内化水平更低，能力维度与自我联系更紧密。外显测量的结果中并未发现两组被试内化程度上的差异。此外，自我归类与能力内化水平显著相关，但并未在能力操纵和能力刻板印象的内化之间起中介作用。根据研究一中的结果，研究二旨在通过对自我归类进行干预，进一步验证自我归类在老年刻板印象内化中的作用。外显测量和内隐测量的结果均一致地验证了自我归类影响老年刻板印象能力维度的内化。研究结果丰富和补充了老年刻板印象内化的理论体系，为现实生活中干预消极老年刻板印象内化提供了借鉴和启示。

关键词　刻板印象内化，温暖，能力，自我归类，老年人

The Influence of Changes in Dimension Levels on the Aging Stereotype Internalization and the Underlying Mediating Mechanisms

Yao Lin[1]　Baoshan Zhang[2*]

1 Xi'an Physical Education University, Xi'an, China

2 School of Psychology, Shaanxi Normal University, Xi'an, China

Abstract：The internalization of negative stereotypes poses a challenge for individuals in old age and has adverse effects on various aspects of older adults' well-being, cognition, and behavior. Generally, stereotypes about older adults are considered to be multidimensional and complex in terms of valence and content. However, previous research has not comprehensively addressed the internalization characteristics of different dimensions of stereotypes in old age, and there is a lack of exploration of the underlying mechanisms of internalization. Therefore, this research focuses on the internalization of stereotypes in old age and further investigates the influence of interactions between dimensions on stereotype internalization, as well as the underlying mechanisms.

Study 1 investigated the impact and mechanism of manipulating a single dimension on the aging stereotype internalization, using both implicit and explicit measures. Study 1a manipulated the warmth dimension to test whether changes in the competence dimension occurred, affecting the internalization of aging stereotypes. The results did not reveal compensatory effects of the warmth dimension on the competence dimension but showed that lower warmth reduced the level of internalization of aging stereotypes. Self-categorization plays a mediating role between warmth manipulation and the internalization of competence. Study 1b manipulated the competence dimension to test whether changes in the warmth dimension occurred, affecting the internalization of aging stereotypes. Similarly, no compensatory effects of the competence dimension on the warmth dimension were found. The analysis of implicit measures revealed that the internalization level of the low competence group was lower. There was no significant difference between the low competence group and the high competence group in terms of the level of internalization in the explicit measures. In addition, self-categorization was significantly correlated with competence internalization but did not mediate the relationship between competence manipulation and stereotype internalization. Study 2 aimed to further verify the role of self-categorization in the aging stereotypes internalization. Both the implicit and explicit measures confirmed that self-categorization affects the aging stereotypes internalization of the competence dimension, rather than the warmth dimension.

The findings of this study enrich and supplement the theoretical framework of stereotype internalization in old age and provide insights and guidance for interventions targeting the negative internalization of stereotypes among older adults.

Keywords：aging stereotype internalization, warmth, competence, self-categorization, older adults

基于心理理论的农村老年人社会网络增强干预研究

付江宁[1,2] 郭蓉霞[1,3] 翟博宇[1,2] 李娟[1,2]（通讯作者）
1 中国科学院心理研究所心理健康重点实验室老年心理研究中心，北京，100101
2 中国科学院大学心理学系，北京，100049
3 宁波大学教师教育学院，宁波，315211
通讯作者：李娟 ijuan@psych.ac.cn

摘 要 背景：社会网络是影响老年人心理健康的关键因素，且随着年龄增长有削减的趋势。研究显示，相较于城市老年人，我国农村老年人的社会网络各项指标均较弱，因此，增强农村老年人的社会网络具有实践意义。基于心理理论的可塑性及老年人的心理特点，我们编制出一套老年人社会网络增强干预训练方案，本研究验证了该方案的有效性。**方法：**在北京市门头沟区和通州区分别选取两个农村社区，招募社区中全部符合入组标准的 60 岁以上老年人作为干预组（n=82）和对照组（n=81）。干预组接受为期 12 周，每周 1 次，每次约 60 分钟的社会网络增强干预课程，且课后完成家庭作业；对照组保持日常生活，不接受任何干预。干预前后考察心理理论水平，个体网络指标及整体网络指标。**结果：**与对照组相比，干预后干预组被试的心理理论水平（包括眼区情绪识别得分及失言任务得分）得到了显著提升（*Ps*<0.001），个体网络指标（包括规模及异质性）及整体网络指标（包括点入中心度和互惠性）也得到了显著提升（*Ps*<0.01）。干预后干预组的整体网络密度相较干预前有显著增强（*P*<0.001）；与对照组相比，干预组后测时的整体网络密度也显著更强（*P*<0.001）。结论： 本研究验证了在我国农村老年人中 12 周的社会网络增强干预训练的有效性，为后续大规模的实践工作提供了有效理论支撑。

关键词 老年人，农村老年人，社会网络，心理健康

Theory-of-Mind-based social network enhancement intervention for Chinese rural older adults

Jiangning Fu[1,2] Rongxia Guo[1,3] Boyu Zhai[1,2] Juan Li[1,2]
1 Center on Aging Psychology, CAS Key Laboratory of Mental Health, Institute of Psychology, Chinese Academy of Sciences, Beijing 100101, China
2 Department of Psychology, University of Chinese Academy of Sciences, Beijing 100049,China
3 School of Teacher Education, Ningbo University, Ningbo 315211, China
Corresponding author: Juan Li, lijuan@psych.ac.cn

Abstract: Background: Social networks are a critical factor influencing the mental health of older adults and tend to decrease with age. Studies have shown that compared with urban older adults, the social networks of

rural older adults in China are weaker in all indicators. Therefore, it is of practical significance to strengthen the social network of rural older adults. Based on the plasticity of the Theory of Mind and the psychological characteristics of older adults, we developed a training program for social network enhancement intervention for older adults, and this study verified the effectiveness of the program. Methods: Two rural communities in Mentougou district and Tongzhou District of Beijing were selected, and all the older adults over 60 who met the inclusion criteria were recruited as the intervention group (n=82) and the control group (n=81). The intervention group received a 12-week, 60-minute weekly social network enhancement intervention session with homework. The control group maintained daily life and did not receive any intervention. The level of Theory of Mind, ego network index, and whole network index were compared before and after intervention. Results: After the intervention, the level of Theory of Mind (including the eye emotion recognition scores and faux pas task scores) was significantly improved in the intervention group compared with the control group (*Ps*<0.001), ego network metrics (including size and heterogeneity) and whole network metrics (including in-degree centrality and reciprocity) were also significantly improved (*P*s<0.01). After the intervention, the whole network density of the intervention group was significantly stronger than that before the intervention (*P*s<0.001).The whole network density at the posttest was also significantly stronger in the intervention group than in the control group (*P*s<0.001). Conclusions: This study verified the effectiveness of the 12-week social network enhancement intervention in rural older adults in Chinese rural areas and provided effective theoretical support for subsequent large-scale practical work.

Keywords：Older adults, rural area, social network, mental health

新冠疫情下中国老年人的死亡焦虑及其与应对方式和人格特质的关系

杨登乐

广东外语外贸大学，广州，510420

Email：yangdengle@foxmail.com

摘 要

目的：本研究探究了新冠疫情下中国老年人的死亡焦虑状况及其与应对方式和人格特质的关系。

方法: 本研究运用了死亡焦虑量表（DAS）、大五人格量表（NEOFFI）和简明应对方式量表（BCOPE）对中国大陆 4 个城市的 264 名老年人进行了一对一的面谈。

结果: 1) 疫情期间是否经历隔离对老年人的死亡焦虑没有显著影响（t=-0.847,P＞0.05）；2) 对高低死亡焦虑组的老年人的人格特质和应对方式进行了比较，发现在尽责性,外倾性, 宜人性和神经质四个人格特质上均存在显出差异，在积极应对, 正性重构, 自我分散, 行为脱缰, 计划, 幽默和工具性支持七个应对方式上差异显著; 3) 多元线性回归分析发现神经质、开放性以及新冠影响对死亡焦虑分数起到 44.6%的预测作用（F=45.845，p<0.001）。

结论: 结果支持压力易感模型以及恐惧管理理论，在后疫情时代，建议关注具有人格易感性的老年人心理健康状况，结合中国文化帮助老年人建立积极的应对方式。

关键词: 死亡焦虑，人格特质，应对方式，隔离，中国老年人，新冠病毒

Death anxiety during COVID-19 and its relationship with coping strategies and personality traits among Chinese elderly people

Yang Dengle
Guangdong University of foreign Studie,
2 Baiyun Avenue, Baiyun District, Guangzhou 510420, China

***Abstract*:**

Objectivity：This study aimed at investigating the death anxiety and its relationship with coping method and personality traits of the Chinese elderly during COVID-19.

Methods: This study totally interviewed 264 participates from 4 regions, Death anxiety scale (DAS), NEO-Five-Factor Inventory and Brief COPE were utilized, One-on-one interviews with the elderly were conducted by interviewers.

Results: 1) Quarantine experience didn't make significant difference in death anxiety among the elderly（t=-0.847,P＞0.05）; 2) The personality traits and coping styles of elderly people with high and low death anxiety groups were compared，it has significant difference in four personality traits: Conscientiousness, Extraversion, Agreeableness and Neuroticism，and seven coping strategies: Active copping, Positive Reframe, Self-distraction, Behavior Disengagement, Plan, Humor and Instrumental support; 3) Multiple linear regression analysis showed that neuroticism, openness and COVID impact predicted 44.6% of the variance in the death anxiety among elderly people（F=45.845，p<0.001）。

Conclusions: Results support theories of vulnerability-stress model and terror management theory, In the post-epidemic era, what the author found suggests that it is important to pay attention to the mental health status of elderly people with personality susceptibility to handling the stress of infection badly. The authors recommend helping the elderly establishing positive coping strategies in combination with Chinese cultural supports.

Key words: Death anxiety, Personality trait, Coping, Quarantine, Chinese elderly people, COVID-19

年轻人与老年人的认知-情绪双任务协调差异

何娟[1] 陈睿[2*]（通讯作者） 何晓英[3]
1 雅安职业技术学院，雅安，625107
2 云南师范大学教育学部，昆明，650500，13759599505@163.com
3 四川商务职业学院，成都，611131

摘 要：双任务协调是指当需要同时完成两项任务时，注意力在两者之间进行分配的能力。随着年龄的增长，老年人在感知觉、认知、思维、情绪等心理功能方面都会发生变化。以往研究从认知-运动双任务的角度，对年轻人和老年人双任务协调能力差异进行探讨并得出了不同的结论，但对于认知-情绪双任务上的表现却很少关注。本研究旨在探讨年轻人与老年人认知-情绪双任务的年龄差异，并对双任务协调理论模型

和双任务协调的年龄差异假说进行验证。为此共选取了 32 名年轻人(平均年龄 19.59±1.13 岁)和 30 名老年人(平均年龄 64.19±4.9 岁)参与本研究的认知任务、情绪任务、认知-情绪任务三个实验任务。

实验结果显示：（1）年轻人在简单/困难认知任务中的表现均优于老年人，且在困难认知任务中，这种年龄差异更明显；（2）年轻人在情绪任务上的表现优于老年人；（3）在同时执行两项任务时，老年人仅在认知任务的双任务亏损上与年轻人差异显著。在情绪任务的双任务亏损上，老年人与年轻人无显著差异。同时，当认知任务为困难水平，老年人情绪任务的正确率显著低于当认知任务为简单水平时，而年轻人的情绪任务正确率却不受认知任务难度的影响。

研究结果表明：(1)无论是年轻人还是老年人，其在竞争共同资源的认知-情绪双任务中所表现出的任务干扰均符合资源模型假设。与年轻人相比，老年人在认知-情绪双任务中表现较差，可能是其资源容量不足造成的。(2)考虑了单任务基线中与年龄相关的差异之后，老年人双任务亏损符合双任务缺陷假说。表明双任务协调是一项独特的能力，可以将其作为老年人认知衰退的可靠标记物。(3)老年人的认知任务与情绪任务在双任务亏损上表现出不同的趋势，随年龄的增长，认知任务成绩下降趋势更明显。

关键词 ：双任务协调，年龄差异，认知老化，双任务亏损

The Difference in Cognitive-emotional Dual-task Coordination Between Younger and Older Adults

He Juan[1] Chen Rui[2*] He Xiaoying[3]

1 Ya'an Polytechnic College,Ya'an,625107

2 Faculty Of Education, Yunnan Normal University,Kunming,650500,13759599505@163.com

3 Sichuan Business Vocational College,Chengdu,611131

Abstract：Dual-task coordination is one of the sub-components of executive function, which refers to the ability to allocate attention between two tasks when they need to be completed at the same time.With the increase in age, there will be changes in the psychological functions of the elderly, such as sensory perception, cognition, thinking, emotion and so on. From the perspective of cognitive-motor dual-task, previous studies have discussed the differences in coordination ability between the young and the elderly and drawn different conclusions. However, little attention has been paid to the performance of cognitive-emotional dual-tasks.The aim at this study is to explore the age differences in cognitive-emotional dual-tasks between young and elderly people, and to validate the theoretical models of dual-task coordination and the age difference hypotheses of dual-task coordination.For this reason, 32 younger adults (average age 19.59 ±1.13) and 30 elderly people (average age 64.19 ±4.9) were selected to participate in the three experimental tasks of this study.

The experimental results show that: (1) young people perform better than elderly people in simple/difficult cognitive tasks.The age differences are more pronounced in difficult cognitive tasks;(2) Young people perform better in emotional tasks than older people;(3) When performing two tasks at the same time, the elderly only showed significant differences compared to young people in the dual-task costs of cognitive tasks.There is no significant difference between elderly and young people in the dual-task costs of emotional tasks.Meanwhile, when the cognitive task is at a difficult level, the accuracy of emotional tasks in elderly people is significantly lower than when the cognitive task is at a simple level, while the accuracy of emotional tasks in young people is not affected

by the difficulty of cognitive tasks.

The research results indicate that:(1) Whether young or old, the task interference in cognitive-emotional dual-tasks competing for the same resources is consistent with the resource model hypothesis. Compared with younger adults, older adults perform poorly in cognitive-emotional dual-tasks, which may be due to their insufficient resource capacity.(2) After considering the age-related differences in the single-task baseline, the dual-task costs of the elderly conform to the dual-task deficit hypothesis. It shows that dual-task coordination is a unique ability and can be used as a reliable marker of cognitive decline in the elderly.(3) The cognitive task and emotional task of the elderly show different trends in dual-task costs, and the cognitive task performance decreases more obviously with age.

Keywords：dual-task coordination,age difference, cognitive aging, dual-task cost

非痴呆进行性核上性麻痹患者序列工作记忆的损伤

张冠宇[1]（通讯作者） 马敬红[2] 陈彪[2] 叶铮[3]（通讯作者）

1 国家体育总局体育科学研究所，北京，100061，1601466858@qq.com

2 首都医科大学宣武医院神经内科，北京，100053

3 中国科学院脑科学与智能技术卓越中心神经科学研究所，上海，200031，yez@ion.ac.cn

摘 要 序列工作记忆是指在短时间内保持和操作序列信息的能力。进行性核上性麻痹（PSP）患者在需要排列思想或行动的任务中表现不佳。本研究评估了 36 名非痴呆 PSP 患者、36 名非痴呆帕金森病（PD）患者和 36 名健康对照者(HC)的序列工作记忆情况。所有参与者完成了数字顺背测验（DST-F）、数字倒背测验（DST-B）和改良版数字序背测验（DOT-A）三项神经心理测试。每项测验主试均以每秒一个数字的速度朗读一串数字，要求被试立即以原来顺序（DST-F）、完全倒序（DST-B）、从小到大顺序（DOT-A）说出主试念的数字。也就是说，DST-F 仅需要保持序列，而 DST-B 和 DOT-A 则需要操作序列。PSP 组在 DST-B 和 DOT-A 上的得分低于 PD 组和 HC 组，但在 DST-F 上的得分与 PD 组和 HC 组无显著差异。这表明 PSP 患者损伤的是对序列的操作能力，而非序列保持能力。此外，在 PSP 患者和 PD 患者中，DOT-A 得分和 DST-B 得分分别与非运动症状和运动症状的严重程度相关。多巴胺 D2/3 受体激动剂剂量与 DST-B 得分、DOT-A 得分呈正相关，说明服用大剂量多巴胺 D2/3 受体激动剂的患者在 DST-B 和 DOT-A 中的表现更好。左旋多巴实际剂量与 DST-B 得分和 DOT-A 得分呈负相关，说明服用大剂量左旋多巴的患者在 DST-B 和 DOT-A 中的表现更差。多巴胺 D2/3 受体激动剂剂量与倒背代价（DST-F 与 DST-B 的得分差值）和序背代价（DST-F 与 DOT-A 的得分差值）呈负相关，说明服用大剂量多巴胺 D2/3 受体激动剂的患者在 DST-B 和 DOT-A 中付出了较小的代价。左旋多巴实际剂量与序背代价呈正相关，说明服用大剂量左旋多巴的患者在 DOT-A 中付出了较大的代价。这些结果表明刺激多巴胺 D2/3 受体可以改善 PSP 患者和 PD 患者的序列操作能力。

关键词 进行性核上性麻痹，序列工作记忆，多巴胺 D2/3 受体激动剂，左旋多巴

Impaired sequential working memory in non-demented patients with progressive supranuclear palsy

Guanyu Zhang[1*], Jinghong Ma[2], Piu Chan[3], Zheng Ye[4*]
[1]China Institute of Sport Science, Beijing 100061, E-mail: 1601466858@qq.com
[2]Dept. of Neurology, Xuanwu Hospital of Capital Medical University, Beijing 100053
[3]Department of Neurobiology, Neurology and Geriatrics, Xuanwu Hospital of Capital Medical University, Beijing Institute of Geriatrics, Beijing 100053
[4]Institute of Neuroscience, Center for Excellence in Brain Science and Intelligence Technology, Chinese Academy of Sciences, Shanghai 200031, E-mail: yez@ion.ac.cn

Abstract: Sequential working memory is the ability to maintain and manipulate sequential information in a short period of time. Patients with progressive supranuclear palsy (PSP) perform poorly in tasks which need to arrange thoughts or actions. We assessed the sequential working memory in non-demented patients with PSP (N=36), non-demented patients with Parkinson's disease (PD, N=36), and healthy controls (HC, N=36). All participants completed three neuropsychological tests, including digit span forward (DST-F), digit span backward (DST-B), and adaptive digit ordering tests (DOT-A). Participants heard a sequential of random digits at speed of one digit per second in each trial and immediately recall the digits in original order in DST-F, in reversed order in DST-B, and in ascending order in DOT-A. Namely, the DST-F needs to maintain sequences, and the DST-B and DOT-A need to manipulate sequences. The PSP group scored lower than both PD and HC groups in DST-B and DOT-A but not in DST-F, indicating that the ability to manipulate sequences was impaired in PSP patients regardless of the ordering rule but maintenance was preserved. Moreover, in PSP and PD, the DOT-A score and DST-B score correlated with the severity of non-motor symptoms and motor symptoms, respectively. The levodopa equivalent dose of D2/3 receptor agonists was positively correlated with the DST-B score and DOT-A score. The patients who took a greater dose of D2/3 receptor agonists tended to perform better in the DST-B and DOT-A. The actual levodopa dose was negatively correlated with the DST-B score and DOT-A score. The patients who took a greater dose of levodopa tended to perform worse in the DST-B and DOT-A. The levodopa equivalent dose of D2/3 receptor agonists was marginally negatively correlated with the DST-B ordering cost (DST-F score vs DST-B score) and DOT-A ordering cost (DST-F score vs DOT-A score). The patients who took a greater dose of D2/3 receptor agonists tended to have smaller ordering cost in the DST-B and DOT-A. The actual levodopa dose was marginally positively correlated with the DOT-A ordering cost. The patients who took a greater dose of levodopa tended to have larger ordering cost in the DOT-A. Stimulating D2/3 receptors might improve the manipulation of sequences in PSP and PD.

Keywords: Progressive supranuclear palsy, sequential working memory, dopamine D2/3 receptor agonists, levodopa

老年群体提取遗忘的独特性——更持久的记忆损伤

刘绍航[1] 杨春亮[1]（通讯作者）

1 北京师范大学心理学部，北京，100875，通讯作者邮箱：chunliang.yang@bnu.edu.cn

摘 要 提取练习（retrieval practice）可以增强对提取目标的记忆，但同时也会损伤对非提取相关信息的记忆，该现象被称为提取遗忘（retrieval-induced forgetting）。提取遗忘被认为是对干扰信息的适应性抑制控制，因此，研究发现，提取遗忘往往会在 24 小时后消失，并不会造成长期的记忆损伤。然而，对老年人而言，其睡眠期的记忆巩固（sleep-dependent memory consolidation）和编码阶段的记忆整合（integration）能力相比年轻人均有显著降低。因此，老年人的选择性提取的持续时间可能相对较长，即选择性提取可能会给老年人造成长期甚至是永久的记忆损伤。

本研究通过两个实验对此假设进行了验证。实验一（45 名 65-75 岁老年人，M = 69.8 岁，44 名 18-25 岁年轻人，M = 21.1 岁）采用经典的提取遗忘材料。年轻人和老年人在实验的第 1 天学习分属于不同类别的词汇（如：水果-猕猴桃），在第 3、5、7 天进行选择性的提取练习（提取一半类别的一半词汇，每次提取内容相同），并在第 8 天进行总测试。结果发现：总测试中，年轻人并未表现出提取遗忘，但老年人的提取遗忘显著（与提取词同类别词的成绩显著低于不同类别的词）。实验二（47 名 65-75 岁老年人，M = 70.4，45 名 18-25 岁年轻人，M = 22.5）与实验一流程相同，但采用了两篇科学短文作为学习材料，以增加被试对相关信息的整合进而促进记忆。结果发现，年轻人不仅没有出现提取遗忘，选择性提取反而增加了与提取目标相关的未提取内容的记忆；而老年人提取遗忘仍然显著。不仅如此，实验后的问卷显示，老年人能够意识到整合是一种有效的记忆策略，且在编码过程中主动使用该策略。然而，年轻人所报告的使用整合的程度显著预测了选择性提取对非提取内容的记忆促进，但该预测关系对老年人并不显著。可见，并非是老年人的策略失当，而是其整合能力的下降导致了选择性提取产生了长期的提取遗忘。

选择性提取在日常生活中时常发生。虽然对于年轻而言，其只产生了短期的消极影响，但对于老年人而言，选择性提取所导致的长期，甚至是永久记忆损伤应当引起重视。

关键词 提取遗忘，选择性提取，认知老化

Retrieval-induced Forgetting Causes Long-term Memory Impairment of Old Adults

Shaohang Liu[1]，Chunliang Yang (corresponding author)
Faculty of Psychology, Beijing Normal University, Beijing, China, Email: chunliang.yang@bnu.edu.cn

Abstract: Retrieval practice enhances memory but is at a price of impairing memory of unretrieved information, a phenomenon known as retrieval-induced forgetting (RIF). RIF was considered as an adaptive inhibitory control of interfering competitors. Previous studies have demonstrated that RIF disappeared 24 hours after learning phase and will not cause long-term memory impairment. However, due to old adult's deficits in sleep-dependent memory consolidation and integration, RIF may lead to long-term or even permanent memory impairments of older adults.

We conducted two experiments to test this possibility. Experiment 1 (45 older adults from 65 to 75 years, M = 69.8; 44 younger adults from 18 to 25 years, M = 21.1) used typical category-exemplar as materials (e.g., *fruit-kiwi*). Both old and young adults learned all exemplars on day 1, and three retrieval practice sessions respectively on day 3, 5 and 7. In the retrieval practice session, only half of exemplars of half of the categories were retrieved. On day 8, all participants had a final recall covering all the exemplars. The results showed insignificant RIF of young adults in the final recall but significant RIF of old adults. Experiment 2 (47 older adults

from 65 to 75 years, *M* = 70.4; 45 younger adults from 18 to 25 years, *M* = 22.5) employed identical procedure to Experiment 1 but with different materials. Participants learned scientific proses so that they could more actively integrate related information to promote memory. The result showed that young adult group showed significant retrieval-induced facilitation, i.e., memory of unretrieved but related items were boosted. However, RIF was still significant for the olds. Additionally, both age groups reported well-matched level of integration usage and perceived utility of integration, while the level of integration usage only significantly predicted the size of retrieval-induced facilitation for the young adults but not the olds.

Selective retrievals are ubiquitous in daily life. Although it only generates transient negative effect on young adult's memory, it is worth-noting that it can cause long-term even permanent memory impairment of older adults.

Keywords: retrieval-induced forgetting, selective retrieval, cognitive aging

认知与情绪功能对老年人饮食模式转变的调节作用

牛程程[1] 姜海鑫[1] 喻婧[1]（通讯作者）

[1]西南大学心理学部，重庆，400715，yujingpku@gmail.com

摘 要 背景：常言道病从口入，长期饮食模式潜移默化的影响着老年人的身心健康，研究不同饮食模式老年人的心理特点以及影响老年人饮食模式转变的心理因素对于促进老年人的身心健康具有重要意义。方法：采用中国老年健康影响因素跟踪调查（Chinese Longitudinal Healthy Longevity Survey，CLHLS），使用潜类别分析（LCA）和潜在转换分析（LTA）对 3441 名年龄为 52~116 岁的老年人在 T1（2014）和 T2（2018）的数据进行分析。确定中国老年人饮食模式的亚组，探究这些潜在饮食模式类别在时间上的转换关系以及有助于调节老年人饮食模式的心理因素。结果：潜类别分析确定了中国老年人饮食模式的 4 类亚组：第一类为"单一饮食"，第二类为"偏素食主义饮食"，第三类为"高蛋白饮食"，第四类为"多样化饮食"。四类饮食模式的老年群体在认知功能，焦虑，抑郁和生活满意度及自评健康上均具有显著差异，具体表现为，多样化饮食特点的老年人具有更好的认知功能和生活满意度及自评健康，和更低的焦虑、抑郁水平，因此，多样化饮食被认为是更健康的饮食模式。高蛋白饮食模式和多样化饮食模式的老年群体具有较高的稳定性，四年间分别有 0.59 和 0.50 的概率仍然停留在相同的饮食模式下。T1 为单一饮食、偏素食主义饮食和高蛋白饮食老年群体在 T2 转变为多样化饮食模式的概率分别为 0.01、0.17 和 0.20. 我们的研究结果还发现认知功能，焦虑和生活满意度及自评健康等心理因素在调节老年人饮食模式的转变方面发挥着重要作用，心理因素的有益方面能够显著促进老年人的健康饮食。结论：本研究采用以人为本的研究方法（LCA 和 LTA）确定了中国老年人饮食模式的潜在亚组特征，探究了认知与情绪功能对改善老年人饮食模式的作用。表明可通过认知和情绪功能来对老年人的饮食模式进行干预，从而促进老年人的身心健康。

关键词 认知与情绪功能，饮食模式，潜在转换分析（LTA），老年人

The moderating effect of cognitive and emotional functions on dietary transition in older adults

Cheng-Cheng Niu[1], Hai-Xin Jiang[1], Jing Yu[1*]

[1] Faculty of Psychology, Southwest University, Chongqing, China

Abstract： Background: It is often said that disease enters through the mouth, and long-term dietary patterns

implicitly affect the physical and mental health of older adults. In order to promote the health of older adults, it is important to study the associations between psychological characteristics and different dietary patterns and the psychological factors that influence transitions in their dietary patterns. Methods: Longitudinal data from the Chinese Longitudinal Healthy Longevity Survey (CLHLS) were used. A total of 3441 older adults aged 52-116 years were recruited in T1 (2014) and T2 (2018). Latent class analysis (LCA) and latent transition analysis (LTA) were used to identify meaningful subgroups of Chinese older adults' dietary patterns, the transformation relationships of these latent dietary pattern classes, and the effect of psychological factors on moderating older adults' dietary patterns. Results: Four subgroups of dietary patterns were identified by latent class analyses. The first class was " *Mono-diet* ", the second was " *Vegetarian diet* ", the third was " *High protein diet* ", and the fourth was " *Diversified diet* ". The results showed that there were significant differences in cognitive function, anxiety, depression, and life satisfaction and self-rated health among the four dietary patterns. Specifically, older adults in *Diversified diet* had better cognitive function, life satisfaction and self-rated health, and lower levels of anxiety and depression, suggesting that the *Diversified diet* was a healthier dietary pattern. Older adults in the *High protein diet* and *Diversified diet* had higher stability, with 0.59 and 0.50 odds of remaining on the same dietary patterns over the four years, respectively. However, some individuals also showed changes to the *Diversified diet* status over the two time points. The probabilities of moving to the *Diversified diet* for older adults in the *Mono-diet, Vegetarian diet* and *High protein diet* status at T1 were 0.01, 0.17 and 0.20, respectively. Our results also showed that psychological factors such as cognitive function, anxiety, and life satisfaction and self-rated health played an important role in moderating changes in older adults' dietary patterns. The positive aspects of psychological factors may significantly contribute to healthy dietary patterns in older adults. Conclusion: This study used person-centered approaches (LCA and LTA) to identify potential subgroup characteristics of Chinese older adults' dietary patterns, and explored the role of cognitive and emotional functions in improving older adults' dietary patterns. It suggests that the dietary habits of older adults can be influenced by cognitive and emotional functions of older adults, thereby promoting their physical and mental health.

Keywords：cognitive and emotional functions, dietary patterns, latent transition analysis (LTA), older adults

5.19 民族心理学专业委员会

中华民族共同体意识的隐喻表征建构

吴佳臻 丁凤琴（通讯作者）孙逸舒

宁夏大学教师教育学院，银川，750021，dingfqin@nxu.edu.cn

摘 要:中华民族共同体意识是一个复杂抽象的概念，在认知维度上，表现为个体对中华民族身份及共同价值理念等方面的积极认知；在情感维度上，体现为个体对中华民族共同体的亲近感、自豪感等正向积极情绪；在意志维度上，呈现为怀抱实现中华民族伟大复兴的共同目标，并愿为之付出自觉性行为的态度倾向。概念隐喻理论指利用熟悉、具体概念去理解和构建陌生、抽象概念，几乎所有概念都可成为隐喻研究的主题。探究中华民族共同体意识概念背后的隐喻架构，需要结合文化本土性进行拓展阐释与延伸建构。

受儒家、道家等传统文化影响，国人的家国情怀、人格内涵中包含了深刻地隐喻思维。“天”作为一种超验存在的，具有“包罗万象”“容纳万物”的容器属性；同时，古人“天人合一”思想将“天”赋予了“德配天地”价值属性；红色是五千年传统文化精髓嬗变而来的文化底色,也是中华民族最具代表性的情感符号；“大我”和“小我”是中国人独特的自我结构，“大我”“小我”需要同时得到均衡适度满足，能够推动个体自我实现与共同体发展互促共融。

基于中华民族文化心理特征，中华民族共同体意识的隐喻建构与解读，可以从容器隐喻、垂直空间隐喻、颜色隐喻、大小隐喻四个维度切入。（1）共融于器：“中华民族共同体”认知存在容器隐喻表征，共同的血缘纽带和地缘关联，使 56 个民族产生像石榴籽一样紧紧抱在一起的家庭归属感。（2）道不离器：“价值理念”认同存在垂直空间隐喻表征，国家至上、民族至上是中华儿女不变的信仰。（3）知情合一：“中华民族情感”存在红色隐喻表征，中国红承载着深厚的爱国主义情感。（4）立身行道：“共同意志”存在大小隐喻表征，将“小我”融入“大我”，才能担当民族复兴时代大任。未来可采用实验方法进一步验证多种维度隐喻的心理现实性。

关键词： 中华民族共同体意识，空间隐喻，颜色隐喻，隐喻表征

The Construction of Metaphorical Representation in the Sense of Community for the Chinese Nation

WU Jia-zhen　DING Feng-qin　Sun Yi-shu
School of Teacher Education，Ningxia University，Yinchuan，750021

Abstract： The sense of community for the Chinese nation is an abstract mental concept.In terms of the cognitive dimension, it is manifested as the positive cognition of community for the Chinese nation and common values.In terms of the emotional dimension,it is manifested as the positive emotion of closeness to and pride in the community for the Chinese nation. In the dimension of will, it is represented as having a common goal of achieving the great rejuvenation of the Chinese nation and the willingness to engage in conscious behaviour towards it.Conceptual metaphor theory refers to the use of familiar and specific concepts to understand and construct unfamiliar and abstract concepts. Almost all concepts can become the subject of metaphor research.In order to explore the metaphorical structure behind the concept of the sense of community for the Chinese nation, we need to expand the interpretation and extension construction in combination with cultural localization.

Influenced by traditional cultures such as Confucianism and Taoism, the Chinese people's national sentiment and personality connotation contain profound metaphorical thinking.Firstly, as a transcendental existence, the 'heaven' has container properties of 'encompassing everything' and 'accommodating all things';the ancients' thought of "Unity of Heaven and humanity" endows "heaven" with the value attribute;red is the cultural background that evolved from the essence of 5000 years of traditional culture, and it is also the most representative emotional symbol of the Chinese nation; the ego structure of the Chinese can be divided into "big ego" and "small ego",the "big ego" and "small ego" need to be satisfied in a balanced and moderate way, which can promote the mutual promotion and integration of individual self-realisation and community development.

Based on the cultural psychological characteristics of the Chinese nation, the metaphor construction and interpretation of the sense of community for the Chinese nation can be started from four dimensions: container metaphor, vertical space metaphor, color metaphor, and size metaphor.(1)The "community for the Chinese nation" is represented by the container metaphor, the common blood ties and geographical connections make the 56 ethnic groups have a sense of family belonging like pomegranate seeds;(2)the "common values" are represented by the vertical space metaphor,the supremacy of the country and the nation is the unshakable belief of the Chinese people;(3)the "Chinese national emotion" is represented by the red metaphor,China red carries a deep patriotic sentiment;(4)the "common will" is represented by the size metaphor,the integration of the material self into the larger self,we can assume the great responsibility of realising the Chinese dream of national rejuvenation.In the

future,experimental methods can be used to further verify the psychological realism of the multiple dimensions of the metaphor.

Keywords：the sense of community for the Chinese nation;metaphorical representation; construction

少数民族大学生心理素质现状特点及其常模制定

朱政光[1]　张大均[1]（通讯作者）　刘广增[2]　张李斌[3]

1 西南大学心理学部/心理健康教育研究中心，重庆，400715，通讯作者 E-mail：zhangdj@swu.edu.cn

2 西南民族大学教育学与心理学学院，成都，610225

3 北京师范大学中国基础教育质量监测协同创新中心，北京，100875

摘 要　近年来，在铸牢中华民族共同体意识成为新时代党的民族工作主线的时代背景下，党和政府对少数民族教育的关注与支持不断提升，越来越多的少数民族青少年进入高等院校深造。然而，由于语言文字、风俗习惯等方面的不同，使得他们面临着更多的心理压力与挑战。因此，加强少数民族大学生心理健康研究至关重要，而良好的心理素质又是青少年心理健康维持和发展的关键。为此，本研究旨在调查我国少数民族大学生心理素质的发展现状，并建立全国常模，以期为后续少数民族大学生心理素质相关研究提供参考借鉴。研究一采用整群随机抽样抽取 9 所高校的 1249 名汉族学生和 756 名少数民族学生作为调查对象，使用大学生心理素质问卷（简化版）（College Student Psychological Suzhi Questionnaire-Simplified version，CSPS-SV）进行测试。对调查数据进行验证性因素分析多组比较，结果显示 CSPS-SV 在汉族和少数民族大学生样本间的形态等值、单位等值、截距等值和误差方差等值模型均可被接受。即 CSPS-SV 的双因子模型结构在汉族和少数民族大学生之间具有测量等值性，该问卷可以作为良好的心理素质测评工具应用于全国大样本施测中。研究二采用 CSPS-SV，在全国范围内整群抽取 6689 名少数民族大学生作为调查对象。研究对象来自 47 个少数民族，具有较强的代表性。调查结果表明，少数民族大学生心理素质整体得分较高，且呈现负偏态分布，表明绝大部分学生的心理素质得分向高分趋近；个性品质得分显著较高，认知品质和适应能力得分处于中等水平。性别层面，男生认知品质得分显著高于女生，而个性品质和适应能力的性别差异不显著。年级层面，心理素质总分以及各维度得分随年级的升高均呈现出先降低再升高的趋势；其中，在认知品质上，大四学生得分显著高于其它三个年级的学生；在个性品质上、适应能力和心理素质总分上，呈现出大一和大四学生得分差异不显著，但均显著高于大二和大三学生的得分。家庭居住地层面，认知品质和心理素质总分呈现三级阶梯式递减态势。同时，本研究据此制定了相应的全国常模。

关键词　少数民族大学生，心理素质，测量等值，现状特点，常模

The Characteristics and National Norm of Psychological Suzhi for Minority College Students

Zhu Zhengguang[1]　Zhang Dajun[1]*　Liu Guangzeng[2]　Zhang Libin[3]

1. Faculty of Psychology, Research Center of Mental Health Education, Southwest University, Chongqing 400715, China

2. School of Education and Psychology, Southwest Minzu University, Chengdu 610225, China

3. Collaborative Innovation Center of Assessment for Basic Education Quality, Beijing Normal

University, Beijing 100875, China

Abstract：Under the background of the Party's ethnic work in the new era, the Party and the government have paid increasing attention to and supported the education of ethnic minorities, and more and more ethnic minority teenagers have entered colleges and universities for further study. However, due to the differences in language, customs and other aspects, they are facing more psychological pressure and challenges. It is very important to strengthen the mental health research of minority college students, and good psychological suzhi is the key to the maintenance and development of adolescent mental health. Therefore, the purpose of this study is to investigate the development status of psychological suzhi of ethnic minority college students in China, and establish a national norm, in order to provide reference for subsequent research on psychological suzhi of ethnic minority college students. In the first study, 1249 Han students and 756 minority students from 9 universities were selected by cluster random sampling. College Student Psychological Suzhi Questionnaire-Simplified version (CSPS-SV) was used for the test. Multi-group confirmatory factor analysis was conducted to test the survey data. The results showed that configural, weak, strong and strict invariance of the CSPS-SV across nation were all acceptable. In the second study, a total of 6689 minority college students from 47 ethnic groups were selected as the survey objects by using CSPS-SV. The results show that the psychological suzhi of minority college students develops well. Among them, the scores of personality quality were significantly higher, and the scores of cognitive quality and adaptive ability were at a medium level. At the gender level, the cognitive quality score of male students was significantly higher than that of female students, but the gender differences in personality quality and adaptability were not significant. At grade level, the total score of psychological quality and scores of all dimensions showed a trend of first decreasing and then increasing with the increase of grade level. At the level of family residence, the total score of cognitive quality and psychological quality showed a three-step decline trend. At the same time, this study has formulated the corresponding national norm.

Keywords：Minority college students, Psychological suzhi, Measurement equivalence, Characteristics, National Norm

学校氛围与少数民族大学生中华民族认同的关系：文化心理适应和群际接触的作用

朱政光[1]　张大均[1]（通讯作者）　刘广增[2]

1 西南大学心理学部/心理健康教育研究中心，重庆，400715，通讯作者 E-mail：zhangdj@swu.edu.cn

2 西南民族大学教育学与心理学学院，成都，610225

摘 要　中华民族认同体现着对中华民族的情感归属与认可，是中华民族共同体意识的基底与主干，铸牢中华民族共同体意识的重要途径之一就是提升中华民族认同。校园是学生学习生活最主要的场所，学校的氛围环境对学生的影响是深远持久的，提升学生中华民族认同离不开良好的校园氛围环境。为此，基于生态系统理论，本研究采用横断研究设计，探讨学校氛围对少数民族大学生中华民族认同的影响，并考察文化心理适应和群际接触（积极接触和消极接触）在其中的中介和调节作用。参与者包括来自新疆两所高校的 305 名少数民族大学生，其中男生 127 人，女生 178 人；平均年龄 19.8 岁。研究结果表明：（1）学校氛围显著正向预测少数民族大学生的中华民族认同；（2）文化心理适应在学校氛围与中华民族认同的

关系中起部分中介作用；（3）群际接触对于学校氛围到大学生中华民族认同的直接路径的调节效应不显著，而学校氛围经由文化心理适应的中介效应受到了群际接触的调节。具体来看，积极接触增强了文化心理适应对中华民族认同的积极影响，消极接触则阻碍了文化心理适应对中华民族的积极影响。同时，消极接触带来的消极影响要略高于积极接触带来的积极影响，进一步证实了群际接触存在积极-消极不对称效应。研究结果为提升少数民族大学生的中华民族认同提供了启示，即应给予少数民族大学生更多的积极社会支持，同时促进良好的学校氛围的形成。未来研究可进一步比较汉族大学生与少数民族大学生在不同群际接触上的差异特点，并进一步考察其中的内在作用机制。

关键词　少数民族大学生，学校氛围，中华民族认同，文化心理适应，群际接触

The Relationship between School Atmosphere and Minority College Students' Chinese National Identity: The Role of Cultural-psychological Adaptation and Intergroup Contact

Zhu Zhengguang[1]　Zhang Dajun[1]*　Liu Guangzeng[2]

1. Faculty of Psychology, Research Center of Mental Health Education, Southwest University, Chongqing 400715, China

2. School of Education and Psychology, Southwest Minzu University, Chengdu 610225, China

Abstract: The Chinese national identity embodies the emotional belonging and recognition of the Chinese nation, and is the base and backbone of the Chinese national community consciousness. One of the important ways to forge the Chinese national community consciousness is to enhance the Chinese national identity. The campus is the most important place for students to study and live, and the atmosphere of the school has a far-reaching and lasting impact on students. The enhancement of students' Chinese national identity is inseparable from a good campus atmosphere. Therefore, based on the ecosystem theory, this study adopts a cross-sectional research design to explore the influence of school atmosphere on ethnic minority college students' Chinese national identity, and examines the mediating and moderating effects of cultural psychological adaptation and intergroup contact (include positive contact and negative contact). The participants included 305 ethnic minority students from two universities in Xinjiang, 127 male and 178 female. The mean age was 19.8 years. The results show that: (1) School atmosphere positively predicts minority college students' Chinese national identity; (2) Cultural psychological adaptation plays a partial mediating role in the relationship between school atmosphere and Chinese national identity; (3) School atmosphere is regulated by intergroup contact through the mediating effect of cultural-psychological adaptation. Specifically, positive contact enhances the positive impact of cultural psychological adaptation on Chinese national identity, while negative contact hinders the positive impact of cultural psychological adaptation on Chinese national identity. At the same time, the negative impact of negative contact is slightly higher than that of positive contact, which further confirms the existence of positive-negative asymmetric effect in intergroup contact. The results of the study provide enlightenment for the promotion of ethnic minority college students' Chinese national identity, that is, more positive social support should be given to ethnic minority college students, while promoting the formation of a good school atmosphere.

Keywords: Minority college students, School atmosphere, Chinese national identity, Cultural-psychological adaptation, Intergroup contact

5.20 护理心理学专业委员会

基于 PERMA 心盛模型的血液透析患者益处发现现状及方案构建的研究

杨婕　吴菁　燕宏丽　储静（通讯作者）
海军军医大学，上海，200433
通讯作者 E-mail：chujing1999@smmu.edu.cn

摘 要

目的：本研究拟从“积极心理学”的视角出发，通过横断面调查析出血液透析患者益处发现现状并分析其核心影响因素，在此基础上，通过文献回顾初步制定基于 PERMA 心盛模型的血透患者益处发现促进方案并通过专家会议法论证修订，以期为改善患者心理健康，提高生命质量提供参考。

方法：本研究基于量性研究、范围综述、专家会议等方法，初步构建了基于 PERMA 心盛模型的血液透析患者益处发现促进方案。

结果：本研究共调查了 396 名血透患者，平均年龄为 57.91±13.54 岁，男性 235 人（59.3%），女性 161 人（40.7%），平均透析龄为 6.89±6.73 年。经 K-S 检验，本研究的连续型变量均不满足正态性，因此采用中位数与四分位数进行描述。患者益处发现得分为 77（64,87），得分较低，其中年龄、PERMA 心盛、积极应对、领悟家庭支持、血透对生活影响程度与益处发现呈正相关，血透的知识了解程度与益处发现呈负相关，以上共同解释益处发现 45.6%的总变异，F=56.079，P＜0.001。通过范围综述分别归纳整理国内外有关基于 PERMA 心盛模型的心理干预和益处发现促进方案的相关研究，共纳入 65 篇文献，初步构建了基于 PERMA 心盛模型的血液透析患者益处发现促进方案，邀请 8 名资深专家参加专家小组会议修订方案，共进行 2 抡，修订后的干预方案的具体内容为：干预形式为线上线下联合团体辅导；干预实施者为课题组成员和接受干预培训后的血透护士；干预持续 8 周，每周 1 次，每次 60~90 分钟；分别在干预前、第 5 次干预后、第 8 次干预后、干预结束后 1 个月、3 个月进行生理和心理的结果评价。每周的干预主题依次为：（1）走进积极心理；（2）发现积极情绪；（3）感受沉浸体验；（4）建立积极关系；（5）引导增强信心；（6）寻求生命意义；（7）体验成就感觉；（8）提升心理健康。

结论：血透患者益处发现有待提升，其核心影响因素包括年龄、PERMA 心盛、积极应对、领悟家庭支持、血透对生活影响程度和知识了解程度。基于量性调查、范围综述、专家会议等研究方法初步构建了基于 PERMA 心盛模型的血液透析患者益处发现促进方案。

关键词　血液透析，益处发现，PERMA 心盛，社会支持，应对方式，心理干预；方案构建；

Research on the status of benefit finding of HD patients and Promote program construction based on PERMA flourish model

Yang Jie　Wu Jing　Yan Hongli　Chu Jing (Corresponding author)
Naval Medical University, Shanghai 200433, China
Corresponding author, E-mail: chujing1999@smmu.edu.cn

***Abstract*：**

Objectives From the perspective of "positive psychology", this study intends to extract the current status of benefit finding (BF) in hemodialysis (HD) patients through cross-sectional investigation and analyze its core influencing factors. On this basis, through literature review, a promotion plan for BF in HD patients based on PERMA model is initially formulated and revised through expert meeting method, with a view to improving the mental health of patients. Improve the quality of life to provide reference.

Methods Based on quantitative research, scope review, expert meeting and other methods, this study initially constructed a BF promotion scheme for HD patients based on PERMA Flourish model.

Results A total of 396 HD patients were investigated in this study, with an average age of 57.91±13.54 years, including 235 males (59.3%) and 161 females (40.7%). The average dialysis age was 6.89±6.73 years. According to K-S test, none of the continuous variables in this study could satisfy normality, so median and quartile were used to describe them. The BF score of patients was 77 (64,87), which was low. Age, PERMA flourish, positive coping, perceived of family support, and degree of influence of HD on life were positively correlated with BF, while knowledge understanding of HD was negatively correlated with BF. The above combined explanations accounted for 45.6% of the total variation in BF, F=56.079. P < 0.001. Through a scope review, relevant domestic and foreign studies on psychological intervention and BF promotion program based on PERMA heart flow model were summarized, and a total of 65 literatures were included. A BF promotion program for HD patients based on PERMA heart flow model was initially constructed, and 8 senior experts were invited to attend an expert group meeting to revise the plan. The specific contents of the revised intervention plan are as follows: the intervention form is online and offline joint group counseling; The implementers of the intervention were members of the research group and HD nurses who received intervention training. The intervention lasted for 8 weeks, once a week for 60 to 90 minutes each time. The physiological and psychological results were evaluated before the intervention, after the fifth intervention, after the eighth intervention, 1 month after the intervention, and 3 months after the intervention. The themes of each week's intervention were: (1) Entering positive psychology; (2) Finding positive emotions; (3) Experience immersion; (4) Establish positive relationships; (5) Guide and enhance confidence; (6) Seeking the meaning of life; (7) Experience the feeling of achievement; (8) Improve mental health.

Conclusion The benefit of HD patients needs to be improved. The core influencing factors include age, PERMA, positive coping, perceived of family support, degree of influence of HD on life and degree of knowledge understanding. Based on quantitative investigation, scope review, expert meeting and other research methods, a beneficial discovery and promotion scheme for HD patients based on PERMA flourish model was initially constructed.

***Keywords*：** Hemodialysis, Benefit finding, PERMA flourish model, Social support, Coping style, Psychological intervention, Scheme construction

乳腺癌患者及配偶正念与癌症复发恐惧的关系：家庭回避癌症沟通的中介作用

赵香玉[1] 张云雪[2] 覃瑞[1] 高怡明[1] 厉萍[1]（通讯作者）

1 山东大学护理与康复学院，济南，250012，pingli12@sdu.edu.cn

2 武汉大学中南医院护理部，武汉，430000

摘 要 **背景：**乳腺癌是女性中最常见的癌症之一，尽管随着癌症筛查的普及和诊疗技术的进步，乳腺癌患者的生存率有所提高，但由于癌症本身的难以治愈性和复发的不确定性，复发恐惧成为患者及其家庭普遍存在的问题。互倚理论指出，亲密关系中的二元个体间存在较强的相互作用，并且个体的认知、情感或行为等易在两者间转移，也会影响对方的健康结局。基于此，本研究旨在从二元视角探讨乳腺癌患者及其配偶的正念与癌症复发恐惧之间的关系，并分析家庭回避癌症沟通在其中的中介作用，为减轻该群体癌症复发恐惧提供实证支持。 **方法：**采用方便抽样法，于 2021 年 6 月~11 月，在山东省某三级甲等肿瘤专科医院招募 249 对乳腺癌患者及配偶为研究对象，采用一般资料调查表、正念注意觉知量表、家庭回避癌症沟通量表和恐惧疾病进展简化量表进行调查。 **结果：**（1）乳腺癌患者及配偶正念对癌症复发恐惧的主体效应均显著（β = -0.044, P = 0.019, 95%CI = -0.125 ~ -0.007; β = -0.046, P = 0.007, 95%CI = -0.130 ~ -0.009），双方的正念均可通过自身的家庭回避癌症沟通从而作用于自身的癌症复发恐惧；（2）配偶正念对癌症复发恐惧的客体效应显著（β = -0.031, P = 0.019, 95%CI = -0.098 ~ -0.002），即配偶的正念可通过自身的家庭回避癌症沟通作用于乳腺癌患者的癌症复发恐惧。 **结论：**乳腺癌患者及其配偶的正念水平对于缓解癌症复发恐惧具有重要作用，并且家庭回避癌症沟通在其中发挥了中介作用，未来的临床干预应侧重于培养正念技能，同时促进家庭成员之间的沟通，以促进患者及配偶的身心健康。

关键词 乳腺癌，正念，癌症复发恐惧，家庭回避癌症沟通，主客体互倚中介模型

Association of mindfulness with fear of cancer recurrence among breast cancer patients and their spouses: the mediating role of family avoidance of communication about cancer

Zhao Xiangyu[1], Zhang Yunxue[2], Qin Rui[1], Gao Yiming[1], Ping Li[1] (Corresponding author)

1 School of Nursing and Rehabilitation, Shandong University, Jinan 250012, pingli12@sdu.edu.cn

2 Department of Nursing, Zhongnan Hospital of Wuhan University, Wuhan 430000, China

Abstract*: *Background Breast cancer is one of the most prevalent malignancies among women. In recent years, with the widespread dissemination of cancer screening and the advancement in diagnostic and therapeutic technologies, the survival rate of breast cancer patients has gradually increased. However, due to the uncertainty of cure and recurrence, the fear of cancer recurrence (FCR) has become a universal concern for both patients and their families. According to the theory of interdependence, binary persons have strong mutual influences within intimate relationships, where cognition, emotions, or behaviors easily pass between one another, influencing each other's health outcomes. Grounded in this perspective, this study aims to explore the actor and partner effects of mindfulness on FCR, and to examine the mediating role of family avoidance of communication about cancer based on the actor-partner interdependence mediation models, which could provide empirical evidence for improving FCR in this population. ***Methods*** A convenience sampling of 249 dyads of breast cancer patients and their spouses were recruited from June to November 2021 in a tertiary cancer hospital in Shandong Province. The survey tools included general information questionnaire, Mindful Attention Awareness Scale-5, Family Avoidance of Communication about Cancer Scale and Fear of Progress Questionnaire-Short Form. ***Results*** (1) Both the actor effects of mindfulness on FCR were significant in breast cancer patients and their spouses (β = -0.044, P = 0.019, 95%CI = -0.125 ~ -0.007; β = -0.046, P = 0.007, 95%CI = -0.130 ~ -0.009). The mindfulness of both parties can influence their own FCR through the practice of family avoidance of communication. (2) The partner effects of

spouses' mindfulness on FCR were significant (β = -0.031, P = 0.019, 95%CI = -0.098 ~ -0.002), that is to say, the mindfulness of spouses can influence FCR in breast cancer patients through family avoidance of communication. ***Conclusion*** Both breast cancer patients' and spouses' mindfulness had actor effects on FCR by the mediating role of their family avoidance of communication about cancer. Future clinical interventions should focus on cultivating mindfulness skills while promoting communication among family members, thereby fostering the physical and mental well-being of both patients and their spouses.

Keywords: breast cancer, mindfulness, fear of cancer recurrence, family avoidance of communication, actor-partner interdependence mediation model

病耻感和结直肠癌肠造口患者社会隔离的关系：造口接纳和价值行动的链式中介作用

李国鹏　覃瑞　赵迪　厉萍（通讯作者）

山东大学护理与康复学院，济南，250012，pingli12@sdu.edu.cn

摘 要 目的：结直肠癌肠造口患者普遍具有较高的病耻感和社会隔离，然而，病耻感和社会隔离的内在关联却不清楚。基于此，本研究拟探讨病耻感和结直肠癌肠造口患者社会隔离的关系，并基于接纳承诺疗法理论，进一步验证造口接纳和价值行动在上述关系间的中介作用。

方法：采用便利抽样法，选取山东省肿瘤医院造口门诊的 306 例结直肠癌肠造口患者为被试，研究工具包括病耻感量表、造口接纳和价值行动量表、社会隔离量表以及自行设计的一般资料调查表。通过 SPSS26.0 和 PROCESS4.0 插件进行数据分析。

结果：结直肠癌肠造口患者社会隔离、病耻感、造口接纳和价值行动评分分别为：（16.51 ± 2.58）、（7.39 ± 2.07）、（29.27 ± 6.84）、（34.89 ± 4.90）分。社会隔离与病耻感呈显著正相关（r = 0.207, P < 0.001），与造口接纳（r = -0.350, P < 0.001）和价值行动（r = -0.488 P < 0.001）呈显著负相关；病耻感与造口接纳（r = -0.316, P < 0.001）和价值行动（r = -0.113, P < 0.05）呈显著负相关；造口接纳和价值行动呈显著正相关（r = 0.406, P < 0.001）。病耻感不仅能直接正向预测社会隔离（直接效应 = 0.112，P < 0.001），还可以通过以下 3 个途径间接预测社会隔离（总间接效应 = 0.132，95%CI = 0.058 - 0.211，总效应量 = 53.9%）：病耻感→造口接纳→社会隔离（间接效应 = 0.052，95%CI = 0.002 - 0.107，效应量 = 21.2%）、病耻感→价值行动→社会隔离（间接效应 = 0.056，95%CI = 0.015 - 0.110，效应量 = 22.9%）、病耻感→造口接纳→价值行动→社会隔离（间接效应 = 0.024，95%CI = 0.006 - 0.048，效应量 = 9.8%）。表明造口接纳和价值行动在病耻感和社会隔离间起链式中介作用。

结论：病耻感、造口接纳和价值行动是结直肠癌肠造口患者社会隔离的重要预测因素。病耻感不仅能直接正向预测社会隔离，还可以通过造口接纳和价值行动的链式中介作用间接预测社会隔离。该结果为开展接纳承诺疗法改善结直肠癌肠造口患者的社会隔离提供理论依据。

关键词　社会隔离，病耻感，造口接纳，价值行动，结直肠癌

Relationship between stigma and social isolation among colorectal cancer patients with stomas: A chained mediation model of stoma acceptance and valued action

Li Guopeng, Qin Rui, Zhao Di, Li Ping (Corresponding author)
School of Nursing and Rehabilitation, Shandong University, Jinan 250012,
pingli12@sdu.edu.cn

Abstract **Objective:** Colorectal cancer patients with stomas typically experience a high level of stigma and social isolation. However, the underlying relationship between stigma and social isolation is still unclear. Hence, based on the theory of acceptance and commitment therapy, this study aimed to investigate the link between stigma and social isolation among colorectal cancer patients with stomas and to further verify the mediating role of stoma acceptance and valued action in this relationship.

Methods: A convenient sample of 306 colorectal cancer patients with stomas was selected from the Ostomy clinic of Shandong Cancer Hospital. The assessments included stigma scale, stoma acceptance and value action scale, social isolation scale and self-designed socio-demographic questionnaire. Data was processed and analyzed through SPSS 26.0 and PROCESS 4.0 plug-ins.

Results: The scores of social isolation, stigma, stoma acceptance, and valued action of participants were (16.51 ± 2.58), (7.39 ± 2.07), (29.27 ± 6.84) and (34.89 ± 4.90), respectively. Social isolation was positively correlated with stigma ($r = 0.207$, $P < 0.001$), and negatively correlated with ostomy acceptance ($r = -0.350$, $P < 0.001$) and valued action ($r = -0.488$, $P < 0.001$); stigma was negatively correlated with stoma acceptance ($r = -0.316$, $P < 0.001$) and valued action ($r = -0.113$, $P < 0.05$); in addition, stoma acceptance was positively correlated with valued action ($r = 0.406$, $P < 0.001$). Stigma could not only positively and directly predict social isolation (direct effect = 0.112, $P < 0.001$) but also indirectly through the following three pathways (total indirect effect = 0.132, 95%CI = 0.058 - 0.211, total effect size = 53.9%) : Stigma → stoma acceptance → social isolation (indirect effect = 0.052, 95%CI = 0.002 - 0.107, effect size = 21.2%), stigma → valued action → social isolation (indirect effect = 0.056, 95%CI = 0.015 - 0.110, Effect size = 22.9%), stigma → stoma acceptance → valued action → social isolation (indirect effect = 0.024, 95%CI = 0.006 - 0.048, effect size = 9.8%). These results indicated a chained mediating role of stoma acceptance and valued action between stigma and social isolation.

Conclusion: Stigma, stoma acceptance, and valued action are important predictors of social isolation in colorectal cancer patients with stoma. Stigma not only positively and directly predicts social isolation, but also indirectly through the chained mediation of stoma acceptance and valued action. These results could provide a theoretical basis for improving social isolation in colorectal cancer patients with acceptance commitment therapy.

Keywords*:* Social isolation, stigma, stoma acceptance, valued action, colorectal cancer

老年慢性病患者照顾者对“网约护士”服务的接受度：基于技术接受模型的调查研究

单瑞洁[1]　王贞慧[2,3]　崔乃雪[1]（通讯作者）
1 山东大学护理与康复学院，济南，250012，cnx@sdu.edu.cn
2 北京医院医疗保险管理处，国家老年医学中心，北京，100730
3 中国医学科学院老年医学研究院，北京，100730

摘 要　**背景与目的:** “网约护士”是数字信息时代下诞生的一种为个体和家庭提供可及的卫生保健服务的新型服务模式，其有望改善医疗资源的分配和利用，减轻特殊群体家庭照顾者的压力。老年慢性病患者的

照顾者是其主要服务对象之一，然而尚不清楚其对“网约护士”的接受度及相关因素。本研究根据修订的技术接受模型 (modified Technology Acceptance Model, mTAM)，旨在分析老年慢性病患者照顾者对“网约护士”的接受度及其相关因素。**方法:** 2023 年 2 月至 3 月，采用方便抽样法从北京市三家三级甲等医院共招募了 299 名住院老年慢性病患者的照顾者。使用问卷星网络研究平台向参与者发放电子问卷，采用自我报告的网约护士服务接受度问卷评估其对“网约护士”服务的感知有用性、感知易用性、感知安全、使用态度以及使用意向。基于 mTAM 建立研究假设，使用结构方程模型分析数据，通过模型拟合指数和变量之间的回归系数判断研究假设是否成立。**结果:** 63.9%的照顾者对使用网约护士有中等到弱积极的使用意向。经过模型修正后的结构方程模型拟合达标 (χ^2/df=2.833, RMSEA=0.078, TLI=0.946, CFI=0.961)，感知易用性与感知有用性显著正相关 (β=.943, t=24.882, P<.001)，感知有用性和感知安全与使用态度显著正相关 (β=.253, t=4.512, P<.001; β=.723, t=12.797, P<.001)，使用态度和使用意向显著正相关 (β=.800, t=15.514, P<.001)。此外，感知有用性与使用意向之间存在直接的正向关联 (β=.184, t=3.586, P<.001)。**结论:** 改善“网约护士”服务的易用性、安全性和实用性可能有助于提高老年慢性病患者照顾者对“网约护士”服务的积极态度，从而增加使用该服务的意向。

关键词　网约护士，互联网+护理服务，技术接受模型，使用意向，照顾者

Investigating the Acceptance of the Internet-Based Sharing Nursing Service among Chinese caregivers of elderly patients with chronic diseases based on the Technology Acceptance Model

Shan Ruijie[1]　Wang Zhenhui[2,3]　Cui Naixue[1]

1 School of Nursing and Rehabilitation, Shandong University, Jinan, 250012, cnx@sdu.edu.cn

2 Social Medical Scheme Management Office, Beijing Hospital, National Center of Gerontology, Beijing, 100730

3 Institute of Geriatric Medicine, Chinese Academy of Medical Sciences, Beijing, 100730

***Abstract*:** **Background and objective:** Internet-based sharing nursing service (IBSNS) is a new model of nursing services for providing accessible health care services to individuals and families, born in the digital information age. IBSNS is expected to improve allocation and utilization of health care resources and ease family caregivers' pressure to care for special groups. However, the acceptance and associated factors of IBSNS among caregivers of elderly with chronic diseases who are the major clients of the service are unclear. The aim of this study is to analyze the acceptance of IBSNS and its associated factors based on a modified Technology Acceptance Model (mTAM) among a sample of Chinese caregivers towards elderly patient with chronic diseases. **Methods:** A total of 299 caregivers of hospitalized elderly with chronic diseases were recruited from three tertiary hospitals in Beijing, China, using the convenient sampling method from February to March 2023. Distributing electronic questionnaires to them through Wenjuanxing, an online survey platform. Self-administrated survey using the IBSNS acceptance questionnaire that assessed perceived usefulness, perceived ease of use, and perceived security of IBSNS, attitude towards IBSNS, and behavioral intention to use IBSNS was conducted. Structural equation modeling was used to analyze the data. **Results:** A total of 63.9% of the caregivers had neutral to weakly positive behavioral intention of using IBSNS. The revised structural equation modeling showed satisfactory fit indices (χ^2/df=2.833, RMSEA=0.078, TLI=0.946, CFI=0.961). Structural equation modeling showed that

perceived ease of use was positively associated with perceived usefulness (*β*=.943, *t*=24.882, *P*<.001). Both perceived usefulness and perceived security were positively associated with attitude towards IBSNS (*β*=.253, *t*=4.512, *P*<.001; *β*=.723, *t*=12.797, *P*<.001) and attitude linked to high level of behavioral intention (*β*=.800, *t*=15.514, *P*<.001). In addition, perceived usefulness was associated with behavioral intention directly (*β*=.184, *t*=3.586, *P*<.001). **Conclusion:** Improving the ease of use, security, and usefulness of the Internet sharing nurse service may be helpful to increase the positive attitude towards IBSNS, which may increase behavioral intention of using the service.

Keywords： Internet plus nursing service, Home visits, Technology Acceptance Model, Usage intention，Caregivers

炎症性肠病患者病耻感的潜在剖面分析

唐李晨[1]，雷阳[1]，李莎[1]，顾珺怡[1]，朱展慧[1]，王清玉[1]，陈佳丽[1]，程涵天[1]，林征[1,2]

1. 南京医科大学护理学院，江苏省南京市，211166

2. 南京医科大学第一附属医院护理部，江苏省南京市，210029，E-mail：linzheng100@163.com

摘 要 **背景** 炎症性肠病患者因疾病症状反复且迁延不愈易导致其身体意象改变、躯体功能下降及劳动力受损等，均会扰乱患者正常生活，使其承受诸多心理压力，极易产生病耻感。 **目的** 探究炎症性肠病患者病耻感的潜在类别，并分析炎症性肠病患者病耻感的的影响因素。 **方法** 采用便利抽样法，选取 2023 年 3 月-7 月在南京市某三级甲等医院的 322 例炎症性肠病患者作为调查对象，选用一般资料调查表、慢性病病耻感量表、中文版疾病认同问卷、炎症性肠病心理韧性量表对其进行调查。并通过单因素分析、Logistic 回归分析探讨炎症性肠病病耻感不同潜在剖面的影响因素。 **结果** 炎症性肠病患者病耻感可分为 2 个潜在类别，分别命名为低病耻感-感受负担组（70.2%）和高病耻感-消极应对组（29.8%）。二元 Logistic 回归分析显示，家庭年收入（*OR*=0.328，*P*=0.014）、吞没感（*OR*=1.196，*P*<0.001）、心理韧性（*OR*=0.960，*P*=0.001）是炎症性肠病患者病耻感的影响因素。 **结论** 炎症性肠病患者病耻感存在明显分类特征，医护人员应重点关注高病耻感-消极应对组的患者，及时纠正其错误认知及消极、回避等不当应对方式，注重患者自我调试和心理干预，不断提升其疾病适应能力和韧性，以降低患者的病耻感水平。

关键词 炎症性肠病，病耻感，潜在剖面分析，影响因素分析

Latent profile analysis of stigma in patients with inflammatory bowel disease

TANG Lichen[1], LEI Yang[1]，LI Sha[1], GU Junyi[1] , ZHU Zhanhui[1], WANG Qingyu[1] , CHEN Jiali[1], CHENG Hantian[1]，LIN Zheng[1,2]

School of Nursing，Nanjing Medical University，Nanjing 211166，China

Nursing Department，the First Affiliated Hospital with Nanjing Medical University，Nanjing 210029，China

[Abstract] **Background** Patients with inflammatory bowel disease are vulnerable to changes in body image, decreased physical function and labor impairment due to repeated and prolonged symptoms of the disease, which will disrupt the normal life of patients, make them bear a lot of psychological pressure, and are prone to stigma. **Objective** To explore the potential categories and influencing factors of stigma in patients with inflammatory bowel disease. **Methods** A total of 322 patients with inflammatory bowel disease from a tertiary first-class hospital

in Nanjing city were enrolled as investigation subjects via convenience sampling methodology. General information questionnaire, Stigma Scale for Chronic Illness (SSCI), Illness Identity Questionnaire (IIQ), and Resilience Scale for Inflammatory Bowel Disease (RS-IBD) were utilized as the investigating tools. At the same time, the influencing factors of stigma in inflammatory bowel disease were explored by univariate analysis and Binary logistic regression analysis. **Results** The characteristics of stigma among patients with inflammatory bowel disease were sub-grouped to 2 potential categories，namely low stigma-perceived burden group(70.2%), and high stigma-negative coping group (29.8%). Binary logistic regression analysis shows, annual household income (*OR*=0.328，*P*=0.014), engulfing (*OR*=1.196，*P*<0.001), psychological resilience (*OR*=0.960，*P*=0.001) were the influencing factors of stigma in patients with inflammatory bowel disease. **Conclusion** There are obvious classification characteristics of stigma in patients with inflammatory bowel disease. Medical staff should focus on patients in the high stigma-negative coping group, correct their misperceptions and improper coping methods such as negativity and avoidance in a timely manner, pay attention to patients' self-debugging and psychological intervention, and continuously improve their disease adaptability and resilience to reduce the level of stigma in patients.

[Keywords] Inflammatory bowel disease, Stigma, Latent profile analysis, Root cause analysis

实习护生品格优势与职业认同的关系研究：以领悟社会支持为中介变量

李晨[1,2]　王蕾[1] 李雁飞[1*]（通讯作者）

（1. 南京医科大学第一附属医院老年消化科，江苏 南京 210029；2.南京医科大学护理学院，江苏 南京 210029；通讯作者 E-mail:448178728@qq.com）

（2.

摘 要 **目的** 基于人环境匹配理论及特质激发理论探讨领悟社会支持在实习护生品格优势与职业认同关系间的中介作用。**方法** 采用便利抽样法，选取 2021 年 10 月至 12 月在江苏省 4 家三甲医院实习的 511 名护生作为调查对象。采用一般资料调查表、三维性格优势问卷、领悟社会支持量表、职业认同量表进行调查。对数据采用 SPSS 24.0 进行描述性统计、Pearson 相关分析，采用 PROCESS 3.5 检验中介作用。**结果** 本组实习护生品格优势、领悟社会支持、职业认同总体得分分别为（3.75±0.57）分、（5.35±0.93）分、（3.76±0.69）分。相关性分析表明，品格优势与职业认同总分及各维度均呈显著正相关(r=0.133~ 0.293,P＜0.01)。品格优势与领悟社会支持总分及各维度均呈显著正相关(r=0.197~ 0.321,P＜0.01)。领悟社会支持与职业认同总分及各维度均呈显著正相关(r=0.259~0.658,P＜0.01)。中介效应检验表明，在控制最高学历、专业选择及未来就业意向的影响后，实习生品格优势对职业认同的直接预测作用显著（β=0.120，P＜0.001）；领悟社会支持在实习生品格优势和职业认同的关系中起部分中介作用（效应值=0.147，Boot95%CI 0.101～0.198），中介效应占总效应的 55%。**结论** 本研究实习护生的职业认同得分处于中等偏上水平，实习生品格优势不仅可以直接影响职业认同，也可以通过领悟社会支持的中介作用间接影响职业认同。帮助护理实习生识别和运用品格优势，使用各种设计提升实习护生对社会支持的感知，通过内外激励或可提高护生对护理专业的职业认同，以稳定护理队伍。

关键词 实习护生，品格优势，领悟社会支持，职业认同

The impact of character strengths on professional identity among nursing interns:the mediating effect of perceived social support

Li Chen[1,2] ,Wang Lei[1],Li Yanfei[1*]

[1] Department of Geriatric Gastroenterology, The First Affiliated Hospital, Nanjing Medical University, Nanjing, People's Republic of China

[2] School of Nursing, Nanjing Medical University, Nanjing, People's Republic of China;

Corresponding Author:Li Yanfei, Email:E-mail:448178728@qq.com

Abstract **Objective:** To explore the mediating effect of perceived social support on the relationship between character strengths and professional identity among nursing interns based on Person-Environment Fit theory and Trait Activation Theory.**Methods:** A total of 511 nursing interns from 4 tertiary A-level hospitals in Jiangsu province were recruited into this study by convenient sampling method and were surveyed by using general data questionnaire, Three-Dimensional Inventory of Character Strengths, Perceived Social Support Scale,Professional Identity Scale for nurse students. SPSS24.0 was used for descriptive statistics of test indexes and Pearson correlation analysis.PROCESS 3.5 was used to test the mediating effect of the data.**Results:** The overall scores of character strengths , social support and professional identity were (3.75±0.57) points, (5.35±0.93) points and (3.76±0.69)points, respectively.Correlation analysis showed that character strengths was positively correlated with the total score of professional identity and all dimensions (r=0.133~ 0.293,P < 0.01). There was a significant positive correlation between character strengths and perceived social support scores (r=0.197~ 0.321,P < 0.01). There was a significant positive correlation between social support and professional identity (r=0.259~0.658,P < 0.01).The mediating effect test showed that, after controlling the influence of final education level, major decision and employment intention, the interns' character strengths had a significant direct prediction effect on professional identity (β=0.120, P＜0.001). Perceived social support played a partial mediating role in the relationship between character strengths and professional identity (effect value =0.147, Boot95%CI 0.101-0.198), and the mediating effect accounted for 55.06% of the total effect. **Conclusions:** The professional identity score of nursing interns was above the average level.The character strengths can not only directly affect the professional identity, but also indirectly affect the professional identity by the mediating role of perceived social support. To help nursing interns recognize and utilize character strengths, apply various designs to improve the perception of social support for nursing interns, and improve the professional identity through internal and external motivation, so as to stabilize the nursing team.

Keywords nursing interns,character strengths,perceived social support, professional identity

临床护士数字能力评价指标体系的构建

张泽宇[1] 杨秀木[1,2][通讯作者] 赵爽[1] 邵瑜娇[1] 段小翠[1]

1.蚌埠医学院 护理学院，蚌埠，233030

2.蚌埠医学院全科医学教育发展研究中心，蚌埠，233030

摘 要 **目的** 构建基于胜任力理论和欧盟数字能力框架的临床护士数字能力评价指标体系。**方法** 以欧盟数字能力框架 2.2 版为主要结构框架，通过文献分析法、德尔菲法拟订临床护士数字能力评价指标体系初稿，并借助 MATLAB 数学建模软件使用层次分析法确定一、二级指标权重。**结果** 2 轮专家咨询问卷有效回收率为 94.44%和 88.89%，专家权威系数分别为 0.83 和 0.86，第 2 轮专家咨询中一、二级指标肯德尔协调系数分别为 0.32 和 0.26（P<0.001）。最终形成的临床护士数字能力评价指标体系包含 5 个一级指标和 15 个二级指标。一级指标按权重大小依次为数字认知与技能（0.2776)、信息与数字素养（0.2439)、数字交流与创新（0.1913)、数字价值与追求（0.1680）和基本人格特质（0.1190)。二级指标组合权重前 3 位分别为，数字技能（0.1851)、数字安全意识（0.1000)、数字认知（0.0925)。**结论** 构建的临床护士数字能力评价指标体系科学、合理，符合实际工作需要，为临床护士数字能力培训提供了一定的标准。

关键词 数字能力，胜任力，评价指标体系，德尔菲法

Construction of a digital competency evaluation index system for clinical nurses

Zhang Zeyu[1], Yang Xiumu[1,2], Zhao Shuang[1], Shao Yujiao[1], Duan Xiaocui[1]

***Abstract*: Objective** To construct a digital competency evaluation index system for clinical nurses based on competency theory and the EU digital competency framework. **Methods** Using DigComp 2.2 as the main structural framework, the first draft of the clinical nurse digital competency evaluation index system was formulated by literature analysis method and Delphi method, and the first and second level index weights were determined by using hierarchical analysis method with the help of MATLAB mathematical modeling software. **Results** The effective recall rates of the questionnaires of the 2 rounds of expert consultation were 94.44% and 88.89%, the authority coefficients of experts were 0.83 and 0.86, and the Kendall coordination coefficients of the primary and secondary indicators in the 2nd round of expert consultation were 0.32 and 0.26, (p<0.001). The final evaluation index system of digital competence of clinical nurses contained 5 primary indicators and 15 secondary indicators. The first-level indicators were digital cognition and skills (0.2776), information and digital literacy (0.2439), digital communication and innovation (0.1913), digital values and pursuit (0.1680), and basic personality traits (0.1190) in order of weighting. The top 3 weightings of the secondary indicator combination were, digital skills (0.1851), digital security awareness (0.1000), and digital cognition (0.0925). **Conclusion** The constructed index system for evaluating the digital competence of clinical nurses is scientific and reasonable, which meets the actual work needs and provides certain criteria for the digital competence training of clinical nurses.

***Keywords*:** digital competency, Competency, Index System, Delphi Technique

组织公平感对新入职护士工作偏差行为的影响及中介机制

姜哲[1]

1.河南大学护理与健康学院，开封，475004，hljjz1225@126.com

摘 要 目的：本研究的目的是探讨情绪劳动和心理资本对新入职护士组织公平感和工作偏差行为的影响。

方法：本研究采用了横断面调查的方法去收集数据。我们于 2023 年 1 月至 2 月在中国河南省 5 家医院对新入职的护士进行调查，一共回收了 546 份完整并有效的问卷。问卷的内容包括参与者的一般人口统计学量表、组织公平感量表、情绪劳动量表、心理资本量表和工作偏差行为量表。本研究采用了 SPSS 26.0 软件和 PROCESS Macro 软件对收集到的数据进行分析。数据分析应用描述性统计去表示频率、均值和标准差；采用皮尔逊相关分析来探讨情绪劳动，心理资本，组织公平感和工作偏差行为这四个变量之间的相关性，并用 PROCESS 模型 4 和模型 14 来验证假设模型。结果：新入职护士的组织公平感与情绪劳动呈负相关（r=-0.461, $P<0.01$），组织公平感和工作偏差行为呈负相关（r=-0.403, $P<0.01$），情绪劳动与工作偏差行为呈正相关（r=0.400, $P<0.01$）。同时，情绪劳动在组织公平感与工作场所偏差行为之间起部分中介作用，占总效应的 32.44%。此外，情绪劳动对工作偏差行为的直接路径受心理资本的调节。结论：护理管理者应建立公平的管理体系，提高新入职护士的组织公平感，同时关注其情绪劳动，提高心理资本水平，从而减少新入职护士的工作偏差行为。这有利于稳定护士队伍和改善医疗环境，并促进医院的长远发展。
关键词　组织公平感，情绪劳动，心理资本，工作偏差行为，新入职护士

The influence of organizational justice on the workplace deviance behavior of new nurses and the mediating mechanism

Zhe Jiang[1]

1.School of Nursing and Health, Henan University, Kaifeng

***Abstract*：** Objective: The purpose of this study was to investigate the influence of emotional labor and psychological capital on the organizational justice and workplace deviance behavior of new entry nurses. Methods: This study used a cross-sectional survey to collect the data. We conducted a survey of new nurses in five hospitals in Henan Province, China from January to February 2023, and collected a total of 546 complete and valid questionnaires. The contents of the questionnaire included the participants' general demographic scale, organizational justice scale, emotional labor scale, psychological capital scale, and workplace deviance behavior scale. In this study, the SPSS 26.0 software and the PROCESS Macro software were used to analyze the collected data. Descriptive statistics were applied to represent frequency, mean and standard deviation; Pearson's correlation analysis was used to explore the relationship between emotional labor, psychological capital, organizational justice and workplace deviance behavior, using PROCESS model 4 and model 14. Results: New nurses' organizational justice was negatively correlated with emotional labor (r= -0.461, P <0.01), organizational justice and workplace deviance behavior was negatively correlated (r= -0.403, P <0.01), and emotional labor was positively correlated with workplace deviance behavior (r=0.400, P <0.01). At the same time, emotional labor plays a partial mediating role between the organizational justice and the workplace deviance behavior, accounting for 32.44% of the total effect. Moreover, the direct path of emotional labor to workplace deviance behavior is modulated by psychological capital. Conclusion: Nursing managers should establish a fair management system, improve the organizational justice of new nurses, pay attention to their emotional labor, improve the level of psychological capital, so as to reduce the workplace deviance behavior of new nurses. This is conducive to stabilizing the nurse team, improving the medical environment, and promoting the long-term development of the hospital.

***Keywords*：** Organizational justice, emotional labor, psychological capital, workplace deviance behavior, new nurse

更年期护士绝经症状与主观认知下降的独立与累积效应

何旭东[1] 申晓娜[1] 赵迪[1] 厉萍[1]（通讯作者）

1 山东大学护理与康复学院健康心理研究所,济南,250012,pingli12@sdu.edu.cn

摘 要 **目的** 绝经症状和主观认知能力下降都是中年女护士更年期较为常见的主诉。然而，绝经症状的严重程度和数量与主观认知能力下降之间的关系尚未明确。因此，本研究的目的是探讨更年期护士绝经症状和主观认知能力下降的个体效应和累积效应。 **方法** 采用方便抽样法对 2019 年 2 月至 9 月 1335 名中国更年期护士进行调查。所有参与者均完成一般信息调查问卷、更年期评定量表和主观认知下降量表。根据主观认知下降量表的截断值将参与者分为主观认知下降组和无主观认知下降组。倾向性评分匹配用于平衡两组之间的协变量。使用逐步二元 logistic 回归和 Cochran-Armitage 线性趋势检验分析绝经症状和主观认知能力下降的个体和累积效应。 **结果** 倾向性评分匹配后，无主观认知下降组与主观认知下降组差异无统计学意义（P>0.05）。 Logistic 回归分析显示，有四种绝经症状（“血管舒缩症状”、“身体/精神疲惫”、“性问题”和“肌肉和关节不适”）与主观认知能力下降密切相关。 Cochran-Armitage 线性趋势检验结果显示，这四种绝经症状的数量与主观认知能力下降之间的比值比呈上升趋势，绝经期护士在同时经历两个以上绝经症状时，患 SCD 的可能性增加四倍。 **结论** 更年期经历单个绝经症状和同时经历多个绝经症状均对主观认知能力下降有显着影响。这可能有助于医疗保健提供者制定指导方针，以改善护士在更年期的认知功能。

关键词 累积效应，护士，绝经症状，主观认知下降

Individual and additive-effect relationships of menopausal symptoms and subjective cognitive decline among nurses during the menopausal transition

Xudong He[1] Xiaona Shen[1] Ping Li[1]

1. Department of Health Psychology, School of Nursing and Rehabilitation, Shandong University, Jinan, 250012, pingli12@sdu.edu.cn

Abstract

Objective: Menopausal symptoms and subjective cognitive decline are relatively common complaints among middle-aged female nurses. However, the association between the severity and number of menopausal symptoms and subjective cognitive decline has not been well established. Therefore, the aim of this study was to examine the individual and additive-effect of menopausal symptoms and subjective cognitive decline among nurses during the menopausal transition.

Methods: A convenience sampling method was used to survey 1335 Chinese menopausal transition nurses from February to September 2019. All participants completed a general information questionnaire, the Menopause Rating Scale, and the Subjective Cognitive Decline Scale. Participants were divided into the subjective cognitive decline group and the non-subjective cognitive decline group according to the cut-off value of the Subjective

Cognitive Decline Scale. Propensity score matching was used to balance covariates between the two groups. The individual and cumulative effects of menopausal symptoms and subjective cognitive decline were analyzed using stepwise binary logistic regression and Cochran-Armitage trend test.

Results: After propensity score matching, no significant difference was observed between the non-subjective cognitive decline group and subjective cognitive decline group (*Ps* > 0.05). Logistic regression analysis showed that four menopausal symptoms. ("vasomotor symptoms", "physical/mental exhaustion", "sexual problems", and "muscle and joint discomfort") were closely associated with subjective cognitive decline. The Cochran-Armitage trend test showed an upward trend in odds ratios between the number of these four menopausal problems and subjective cognitive decline, and menopausal transition nurse were more than four times more likely to have SCD when they experienced more than two of these individual menopausal symptoms occurred simultaneously.

Conclusion: Both the individual and additive numbers of menopausal symptoms had a significant effect on subjective cognitive decline. This may help healthcare providers develop guidelines to improve cognitive function among nurses during the menopausal transition.

Key Words: Additive effect, Menopausal symptoms, Nurse, Subjective cognitive decline

组织支持对规培期新护士工作投入的影响：自我调节疲劳与个人-工作匹配的链式中介作用

温高芹[1]　高敏[1]　徐明雨[1]　严伟[1]　孙国珍[1,2]（通讯作者）

1 南京医科大学第一附属医院心血管内科，南京，210029

2 南京医科大学护理学院，南京，210000，通讯作者：孙国珍，Email：gzsun100@126.com

摘 要　**目的**　了解江苏省规培期新护士工作投入的现况，并探讨其自我调节疲劳及个人-工作匹配在组织支持与工作投入之间的路径关系。**方法**　采用便利抽样法，使用一般资料调查表、组织支持量表、自我调节疲劳量表、个人-工作匹配量表、工作投入量表于 2022 年 8 月至 9 月对江苏省 12 所三级医院（苏北、苏中、苏南各 4 所）的规培期新护士进行横断面调查。**结果**　共回收有效问卷 440 份，其组织支持得分为（56.75±11.38）分，个人-工作匹配得分为（3.45±0.53）分，自我调节疲劳得分为（43.82±8.59）分，工作投入得分为（37.95±7.59）分。Pearson 相关分析结果表明，规培期新护士的工作投入与组织支持和个人-工作匹配呈正相关（r=0.682，0.647，均 P<0.01），与自我调节疲劳呈负相关（r=-0.381，P<0.01）；自我调节疲劳与个人-工作匹配、组织支持呈负相关（r=-0.565，-0.414，均 P<0.01）；个人-工作匹配与组织支持呈正相关（r=0.787，P<0.01）。Bootstrap 分析显示，组织支持可正向预测工作投入，直接效应值为 0.304（95%CI= 0.232～0.376），占总效应的 66.81%；个人-工作匹配在组织支持与工作投入间的中介效应显著，效应值为 0.118（95%CI= 0.095～0.259），占总效应的 25.93%；此外，自我调节疲劳和个人-工作匹配在组织支持与工作投入间的链式中介效应显著，效应值为 0.021（95%CI= 0.015～0.054），占总中介效应的 13.91%。**结论**　规培期新护士工作投入程度尚待进一步提高，护理管理者应尽可能给规培期新护士提供资源与组织支持，帮助新护士在规培期找到工作契合点，提高其个人-工作匹配程度，激发工作热情；同时应充分重视该群体的自我调节疲劳，应采取多种方法延缓其自我控制资源的进一步消耗并探索此种心理资源补给的途径与形式，以改善自我损耗，促进工作投入，提高护理质量。

关键词　规培期新护士，组织支持，个人-工作匹配，自我调节疲劳，工作投入

Effects of organizational support on work engagement of new nurses during standardized training period: the chain mediating effect of self-regulated fatigue and individual-work matching

Wen Gaoqin[1] Gao Min [1] Xu Mingyu[1] Yan Wei[1] Sun Guozhen[1,2](corresponding author)
1 The Department of Cardiovascular Medicine, the First Affiliated Hospital of Nanjing Medical University, Nanjing, 210029
2 School of Nursing, Nanjing Medical University, Nanjing, 210000, corresponding author: Sun Guozhen, Email: gzsun100@126.com

***Abstract*：** **Objective** To understand the status of new nurses in standardized training period in Jiangsu Province, and to explore the relationship between self-regulating fatigue and individual-work matching in organizational support and work engagement. **Methods** From August to September 2022, convenience sampling was used to conduct a cross-sectional survey of new nurses during the standardized training period in 12 tertiary hospitals in Jiangsu Province (4 in northern, central and southern Jiangsu respectively) using the general information questionnaire, Organizational Support Scale, Self-regulatory Fatigue Scale, Areas of Worklife Scale and Work Engagement Scale. **Results** A total of 440 valid questionnaires were collected, with organizational support score (56.75 ± 11.38), individual-work matching score (3.45 ± 0.53), self-regulation fatigue score (43.82 ± 8.59), and work engagement score (37.95 ± 7.59). Pearson Correlation analysis results showed that the work engagement of new nurses was positively correlated with organizational support and individual-work matching (r=0.682,0.647, all P <0.01) and negatively correlated with self-regulating fatigue (r= -0.381, P <0.01); self-regulating fatigue was negatively correlated with individual-work matching and organizational support (r= -0.565, -0.414, all P <0.01); individual-work matching was positively correlated with organizational support (r=0.787, P <0.01). The Bootstrap analysis revealed that, organizational support for positive predictive work engagement, the direct effect value was 0.304 (95% CI = 0.232 to 0.376), 66.81% of the total effect; significant mediation effect of individual-work matching between organizational support and work engagement, the effect value was 0.118 (95% CI = 0.095 to 0.259), for 25.93% of the total effect; besides, the chain mediation effect of self-regulating fatigue and individual-work matching between organizational support and work engagement is significant, the effect value was 0.021 (95% CI = 0.015 to 0.054), accounting for 13.91% of the total mediation effect. **Conclusions** The work engagement of new nurses in the standardized training period needs to be further improved. Nursing managers should provide resources and organizational support to new nurses in the standardized training period as much as possible, help them find a job fit during the period, improve their individual-work matching degree, and stimulate their work enthusiasm. At the same time, managers should pay attention to the ego depletion of the group, take a variety of methods to delay the further consumption of self-control resources and explore the ways and forms of replenishable such psychological resources, so as to improve the ego depletion, promote work engagement and improve the quality of nursing.

***Keywords*：** New nurses in standardized training period, Organizational support, Individual-work matching, Self-regulating fatigue, Work engagement

5.21 语言心理学专业委员会

面向大学生心理健康的微博文本语言表达特征分析

柴昭甲[1]（通讯作者）王萌[1] 王天[1] 柴昭元[2]
1 江南大学教育技术系，无锡，214122，chaizhaojia0905@163.com
2 江西省分宜县第三中学，新余，336600

摘 要 Web2.0 的发展促进了以用户交互为主的在线社交媒体的产生，如微博、博客等。《微博 2020 用户发展报告》显示 90 后和 00 后两个年龄段使用微博的人数占比接近 80%，用户群体明显呈年轻化趋势。以微博为主流的短文本社交平台中富含了大量情绪信息，用户通过发表观点、转发博文、评论内容等方式进行信息交互。由于字数的限制，社交文本的情感内容更加集中，其个体使用语言的表达方式在一定程度上可以反映用户的性格与情绪特点。通过分析大学生用户的微博文本语言表达特点，可以为后续的智能化心理健康评估提供支持。因此，本研究爬取了患有抑郁症的心理异常学生用户与心理健康学生用户的微博文本数据，经过人工筛选和数据清洗后得到 12758 条数据，分别使用不同的方法从文字语言特征和非文字语言特征两个方面进行了分析。文字语言文字特征分为词汇层级和句子层级，非语言文字特征包含表情符号、标点符号和数字语言三个方面。研究发现：在词汇层级，对词性进行分析，我们可以看出在微博平台中使用名词频率最高，占一半以上，其次是动词的使用频率，占四分之一，形容词和代词的使用频率最少。在词频方面，心理异常的人群会在微博中发表包含大量的消极情绪词，如“哭”“累”“死”等，反映出用户内心的低落与绝望；而正常用户则更多地使用了积极情感词和中性情感词。在词类方面，可以发现心理异常用户的第一人称单数、否定词、消极词使用频率相比心理正常用户高出很多，在文本表达中多是陈述性和感觉性的自我描述信息。在句子层级中，心理异常的学生用户在平均句长和句子总数两方面的数值均高于心理正常的用户。通过 LDA 对句子主题进行分析，可以发现两类人群的关键词聚类主题区分度明显，心理异常用户的主题基本聚焦于人生思考、生活状态和抑郁症治疗等方面，心理正常用户的话题多集中于人际关系、学习生活、情感表达等。最后，在非文字语言特征方面，心理异常用户与心理正常用户相比较少使用表情符号、标点符号和数字语言。

关键词 大学生，心理健康，文本分析，微博文本，语言表达特征

基金项目 2021 年教育部人文社会科学研究项目“面向心理健康的文本情绪识别研究”（No. 21YJA740037）；2023 年江苏省研究生科研与实践创新计划项目“融合深度学习的大学生心理健康分析研究——基于社交文本”（No.KYCX23_2535)的阶段性研究成果

Analysis of Language Characters of Weibo Text for Psychological Health of College Students

CHAI Zhao-jia[1] (Correspondence), WANG Meng[1], WANG Tian[1], CHAI Zhao-yuan[2]
1 Department of Educational Technology, Jiangnan University, Wuxi 214122, China
2 No. 3 Middle School of Fenyi County, Jiangxi Province, Xinyu 336600, China

***Abstract*：** The development of Web 2.0 has promoted the emergence of online social media primarily focused on user interaction, such as Weibo and blogs. The Weibo 2020 User Development Report shows that the proportion of people born in the 1990s and 2000s who use Weibo is close to 80%, and the user group is clearly showing a younger trend. Short-text social media platforms dominated by Weibo are rich in a large amount of emotional information, and users interact with each other through methods such as expressing opinions, forwarding blog posts, and commenting on content. Due to the limitation of word count, the emotional content of

social texts is more concentrated, and the way individuals express themselves in language can to some extent reflect the user's personality and emotional characteristics. By analyzing the language expression characteristics of college student users' Weibo texts, it can provide support for subsequent intelligent mental health assessments. Therefore, this study crawled the microblog text data of students with mental disorders and students with mental health who suffered from depression. After manual screening and Data cleansing, 12758 pieces of data were obtained. Different methods were used to analyze the text language characteristics and non-text language characteristics. The features of text language can be divided into lexical level and sentence level. The features of non-text language include emoticons, Punctuation, and digital language. Research has found that, at the lexical level, analyzing part of speech, we can see that nouns are used the most frequently on Weibo platforms, accounting for more than half, followed by verbs, accounting for a quarter, and adjectives and pronouns are used the least frequently. In terms of word frequency, people with psychological abnormalities will post a large number of negative emotional words on Weibo, such as "crying", "tired", "dead", etc., reflecting users' inner depression and despair; normal users use more positive and neutral emotional words. In terms of parts of speech, it can be found that the frequency of first-person singular, negative, and negative words used by users with psychological abnormalities is much higher than that of users with normal psychology. In text expression, there is mostly declarative and sensory self-description information. At the sentence level, students with psychological abnormalities have higher values in terms of average sentence length and total number of sentences compared to users with normal psychology. Through LDA analysis of sentence themes, it can be found that there is a clear distinction between the keyword clustering themes of the two groups of people. The themes of users with psychological abnormalities mainly focus on life thinking, life status, and depression treatment. The topics of users with normal psychology are mostly focused on interpersonal relationships, learning and life, emotional expression, and so on. Finally, in terms of non-text language features, users with mental disorders use fewer emoticons, punctuation, and digital language than users with mental health.

Keywords：college students, mental health, text analysis, microblog text, language character

中央凹负荷对副中央凹词汇加工的影响

李芳 [1,2] 张慢慢 [2,3,4] 李馨 [2,3,4] 白学军 [2,3,4]（通讯作者）

1 天津中医药大学管理学院，天津，301617

2 天津师范大学心理学部，天津，300387

3 教育部人文社会科学重点研究基地天津师范大学心理与行为研究院，天津，300387

4 学生心理发展与学习天津市高校社会科学实验室，天津，300387

摘 要　在自然阅读过程中，读者的每次注视既能加工中央凹视觉区的当前注视信息，也能预先加工右侧副中央凹视觉区的信息。中央凹负荷假说认为副中央凹词汇加工受中央凹词汇识别负荷调节。当前的眼动控制模型基于该假说提出不同的理论观点，但是仅有少量基于拼音文字的研究提供实验证据，该假说仍然有待验证。基于汉语的研究发现中央凹词汇识别负荷不调节一致预视效应，但是尚不清楚其是否调节副中央凹词汇加工的形、音、义提取阶段。汉语形、音、义信息的激活时间和激活必要性存在差异，如果中央凹词汇识别负荷导致副中央凹注意资源或者预视时间有限，那么读者可能选择性地提取副中央凹词的词形、

语音、或者语义信息。本实验采用2（中央凹负荷：低、高）×5（预视类型：一致、形近、音近、义近、无关）的被试内设计。以双字词为前目标词，基于该词的词频操纵中央凹负荷：高频前目标词的中央凹负荷低；低频前目标词的中央凹负荷高。以单字词为目标词，采用边界范式，基于预视词与目标词关系操纵预视类型：。使用Eyelink 1000 plus眼动仪记录130名大学生阅读汉语句子（170个实验句）的眼动数据。结果发现：（1）与无关预视条件相比，一致预视条件下读者对目标词的跳读率更低、第一遍注视时间更短；与无关预视条件相比，形近/音近/义近预视条件与无关预视条件下读者对目标词的跳读率、第一遍阅读时间均没有显著差异；（2）中央凹负荷与一致/形近/音近/义近预视效应的交互作用在各眼动指标均不显著，即没有发现中央凹负荷对副中央凹词汇加工的调节作用。
关键词　中央凹负荷, 副中央凹预视, 眼动

The Influence of Foveal Load on Lexical Parafoveal Processing during Chinese Reading

LI Fang, ZHANG Manman, LI Xin, BAI Xuejun

1 School of Management, Tianjin University of Traditional Chinese Medicine,301617

2 Faculty of Psychology, Tianjin Normal University, Tianjin, 300387

3 Key Research Base of Humanities and Social Sciences of the Ministry of Education, Academy of Psychology and Behavior, Tianjin Normal University, Tianjin, 300387

4 Tianjin Social Science Laboratory of Students' Mental Development and Learning, Tianjin, 300387

Abstract：Readers can not only process the currently fixated word in foveal vision, but also preprocess the upcoming word in parafoveal vision during natural reading. Foveal Load Hypothesis is a central feature of current major models of eye movement control, such as E-Z Reader model and SWIFT model. However, whether increased foveal lexical processing load induces a reduction of parafoveal processing remains uncertain. We sought to establish whether observing a foveal load effect depends on the types of parafoveal lexical information, because necessity of the activation of orthographic, phonological and semantic information differs in Chinese when limited attention or time is distributed to parafoveal processing. Participants'eye movements were recorded in this experiment as they read Chinese sentences in which foveal load was manipulated by word frequency of pretarget words, with a low-frequency word n causing high foveal load and a high-frequency one causing low foveal load. The boundary paradigm was used to present parafoveal previews of single-character target words, in which identical, phonologically-related, orthographically-related, and semantically-related preview words were compared with unrelated ones. Results showed readers benefited from a preview of an identical word, but no such benefits were found from all non-identical preview conditions on target skipping and first-pass measures of target fixation duration. In addition, no modulation of foveal load on each type of parafoveal processing was found in Chinese reading.

Keywords：foveal load, parafoveal processing, eye-tracking

40Hz 经颅交流电刺激对汉语阅读障碍个体语音加工技能的干预效果研究

李森 [1,2]　贾尧 [1,2]　赵晶晶 [1,2]（通讯作者）

1 陕西师范大学心理学院，西安，710062

2 陕西省行为与认知神经科学重点实验室，西安，710062

通讯作者: jingjing.zhao@snnu.edu.cn

摘 要　汉语阅读障碍个体存在语音加工缺陷，并且在听觉皮层表现出异常的神经振荡。经颅交流电刺激(tACS)是一种重要的非侵入性脑刺激(NIBS)技术，通过向大脑皮层输送特定频率电流，诱发相应脑区脑电频率的相位同步，具有改善个体认知功能的效果。本研究旨在通过结合神经调控、脑电与认知测验技术，探究阅读障碍个体是否存在左侧听觉皮层低频 Gamma（40Hz）振荡缺陷，以及经颅交流电刺激能否通过改善障碍患者对应皮层振荡幅值进而促进语音加工技能的改善。研究前期通过阅读历史问卷（Adult Reading History Questionnaire, ARHQ）筛选出 20 名阅读障碍风险组大学生（10 男：10 女），并匹配 20 名对照组大学生（8 男：12 女），分为 4 组：阅读障碍真刺激组、阅读障碍伪刺激组，对照组真刺激组与对照组伪刺激组，每组各 10 名。研究采用双盲随机对照组前后测组间实验设计。在听觉皮层区域进行 20 分钟 1mA 40Hz 经颅交流电或假刺激前后，分别使用脑电采集、音位删除测验、语音编码测验和快速阅读测验测查被试左侧听觉皮层的 40Hz 频率幅值、音位意识、语音编码和阅读流畅性。结果发现，干预前，阅读障碍风险组的音位意识和左侧听觉皮层 25Hz、40Hz、50Hz 振荡能量值均显著弱于对照组；40Hz 经颅交流电刺激干预后，阅读障碍风险组与对照组的音位意识与阅读流畅性显著提高；与伪刺激相比，两组在语音加工技能、阅读流畅性以及左侧听觉皮层不同频率幅值的改善不显著。

关键词　阅读障碍，经颅交流电刺激，40Hz，语音加工缺陷，低频 Gamma 振荡

Role of 40 Hz low-gamma activity in linguistic performance and its implication in Chinese dyslexia

Sen Li[1, 2], Yao Jia[1, 2], Jingjing Zhao[1, 2, *]

1 School of Psychology, Shaanxi Normal University, Xi'an, China, 710062

2 Child and Adolescent Psychological and behavioral Health Research Center, Xi'an, Shanxi, 710062

* Corresponding Author: jingjing.zhao@snnu.edu.cn

***Abstract*:** Individuals with Chinese reading difficulties have been found to exhibit deficits in phonological processing and abnormal neural oscillations in the auditory cortex. Transcranial Alternating Current Stimulation (tACS) is a significant non-invasive brain stimulation technique that delivers specific frequency currents to the cerebral cortex, inducing phase synchronization of corresponding brain regions' electroencephalogram frequencies, thus improving individual cognitive functions. This study aims to explore whether individuals with reading difficulties exhibit deficits in low-frequency gamma (40Hz) oscillations in the left auditory cortex and whether transcranial alternating current stimulation can enhance phonological processing skills by improving cortical oscillation amplitudes. In the initial phase of the research, 20 university students at risk of reading difficulties (10 male: 10 female) and 20 matched control group students (8 male: 12 female) were selected using the Adult Reading History Questionnaire (ARHQ). They were divided into four groups: reading difficulties real stimulation group, reading difficulties sham stimulation group, control group real stimulation group, and control group sham stimulation group, each containing 10 participants. The study adopted a double-blind randomized controlled pre-test and post-test experimental design. Before and after receiving 20 minutes of 1mA 40Hz transcranial alternating current or sham stimulation in the auditory cortex region, the participants underwent electroencephalogram recordings, phoneme deletion tests, speech coding tests, and rapid reading tests to assess the 40Hz frequency amplitude, phonemic awareness, speech coding, and reading fluency in the left auditory cortex. The results showed that before the intervention, the phonemic awareness and left auditory cortex oscillation energy at 25Hz, 40Hz, and 50Hz in the reading difficulty risk group were significantly weaker than those in the control group. After 40Hz transcranial alternating current stimulation, the phonemic awareness and reading fluency in the reading difficulty risk group significantly improved to levels comparable to those in the control group. Compared to a pseudo-stimulus, there was no significant improvement in speech processing skills, reading fluency, or left auditory cortex oscillation amplitudes at different frequencies between the two groups.
***Keywords*:** dyslexia, transcranial alternating current stimulation, 40Hz, phonological deficit, low-gamma activity

汉语发展性阅读障碍听觉采样的神经振荡缺陷：来自 EEG 的证据

贾尧[1,2] 赵跃野[1,2] 刘建邑[1,2] 何雨潇[1,2] 唐久晴[1,2] 赵晶晶[1,2]（通讯作者）

1 陕西师范大学心理学院，西安，710062

2 陕西省行为与认知神经科学重点实验室，西安，710062

通讯作者：jingjing.zhao@snnu.edu.cn, 029-85303395

摘要 阅读障碍个体通常表现出听觉加工损伤，即在听觉皮层表现出异常的偏侧化神经振荡代偿，但汉语阅读障碍是否存在偏侧化神经振荡缺陷有待研究。本研究旨在考察具有阅读障碍风险的个体在听觉加工过程中的大脑颞叶区域神经振荡偏侧化的表现。研究招募了 500 名在校大学生，通过汉语成人阅读历史问卷（Chinese-Adult Reading History Questionnaire, C-ARHQ）筛选出具有阅读障碍风险的 32 名大学生，并选取 44 名年龄、性别、非言语智力、利手与阅读障碍风险组匹配的大学生作为无阅读障碍风险控制组。研究进一步对两组被试进行汉语阅读准确性和流畅性、语音意识、语音工作记忆、快速自动化命名任务测量，并对两组被试采用时长 8 分钟的调制白噪音来诱发脑电听觉稳态反应（Auditory Steady State Responses, ASSR）。研究发现：1）阅读障碍风险组的识字量和语音意识均显著低于控制组，但语音工作记忆和快速自动化命名与控制组没有显著差异；2）调制白噪音在颞叶区域所诱发的低 gamma 频段脑电波组间差异显著：阅读障碍风险组在左侧颞叶区域的激活值低于控制组，而在右侧颞叶区域的激活值高于控制组；3）阅

读障碍风险组存在听觉采样神经振荡的右偏侧化代偿，即阅读障碍风险组比控制组更加偏右侧化。研究结果表明，通过汉语阅读历史问卷筛查出的存在汉语阅读障碍风险的成人存在阅读能力和语音加工缺陷，并在听觉加工中表现出右偏侧化代偿。研究为深入理解阅读障碍听觉加工机制提供了实证证据。

关键词 阅读障碍，听觉稳态反应，偏侧化，颞叶

Neural Oscillations Deficits in Low-Gamma Auditory Sampling for Chinese Developmental Dyslexia: Evidence from EEG

Yao Jia[1,2] Yueye Zhao[1,2] Jianyi Liu[1,2] Yuxiao He[1,2] Jiuqing Tang[1,2] Jingjing Zhao[1,2]

1 School of Psychology, Shaanxi Normal University, Xi'an, China, 710062
2 Shaanxi Provincial Key Laboratory of Behavior and Cognitive Neuroscience, Xi'an, China, 710062
Corresponding author: jingjing.zhao@snnu.edu.cn, 029-85303395

***Abstract*:** Developmental dyslexia (DD) typically exhibit auditory processing impairments. Individuals with DD always show abnormal lateralized neural oscillations compensations in the auditory cortex. However, the lateralization of neural oscillations deficits in Chinese DD has been not systematically investigated. The aim of the present study was to examine the lateralization in the temporal lobe during auditory processing in individuals at risk of DD. A total of 500 university students were recruited. From them, 32 students at risk of DD were screened by the Chinese-Adult Reading History Questionnaire (C-ARHQ), and 44 students matched for age, gender, non-verbal intelligence, and handedness with the DD risk group were selected as controls without DD risk. The study further measured Chinese reading accuracy and fluency, phonological awareness, phonological working memory, and rapid automatic naming. An eight-minute modulated white noise was adopted to evoke auditory

steady state responses (ASSR) presented for both groups. The results of the present study showed that: (1) The DD risk group showed significantly lower reading ability and phonological awareness than the control group. But the difference of phonological working memory and rapid automatic naming were not significant between DD and control group. (2) Activation in the low gamma band induced by modulated white noise in the left temporal lobe in the DD risk group were lower than those in the control group, while activation in the right temporal lobe in the DD risk group were higher than those in the control group. (3) There was a right lateralization compensation of auditory sampling neural oscillations in the dyslexia risk group. Specifically, the DD group was more right lateralization than the control group. The results of the present study suggest that adults at risk of Chinese DD screened by C-ARHQ showed deficits in reading ability and phonological processing. They also showed atypical right lateralization compensation in auditory processing. The study provides empirical evidence for a deeper understanding of the mechanisms of auditory processing in DD.

***Keywords*:** Dyslexia, Auditory steady state responses (ASSR), Lateralization, Temporal lobe

成人汉语阅读障碍和计算障碍共病的语音加工缺陷

王文娟[1, 2, 3] 黄薇[3] 张璐[1, 2] 唐久晴[1, 2] 赵晶晶[1, 2]（通讯作者）

1 陕西师范大学心理学院， 西安， 710062

2 陕西省行为与认知神经科学重点实验室， 西安， 710062

3 湖州师范学院， 湖州， 313000

通讯作者：jingjing.zhao@snnu.edu.cn, 029-85303395

摘 要 阅读障碍和计算障碍是两种常见的学习障碍，其共病普遍存在。已有研究表明拼音文字阅读障碍核心缺陷为语音缺陷，计算障碍也存在语音缺陷，具体表现为语音意识、快速自动化命名和言语短时记忆缺陷，两种学习障碍语音缺陷共病的认知机制有待深入探究。本研究旨在考察汉语环境中，成人阅读障碍与计算障碍的语音加工缺陷共病特征。通过成人阅读历史问卷和成人数学历史问卷对 3300 多名中国大学生进行筛查，问卷得分高于 10%的成人分别被认定为阅读障碍风险和计算障碍风险，筛选出纯阅读障碍风险组成人 52 人、纯计算障碍风险组成人 49 人、共病风险组成人 49 人、控制组成人 55 人。研究进一步从语音意识、快速自动化命名和语音短时记忆三方面对他们的语音加工能力进行评估，结果发现：三个障碍风险组共同的认知缺陷是语音意识，共病风险组语音意识缺陷几乎等于阅读障碍风险组和计算障碍风险组相加；共病风险组和阅读障碍风险组共同认知缺陷是语音短时记忆，共病风险组缺陷几乎等于阅读障碍组。逻辑回归分析发现，仅能通过语音意识区分共病风险组与阅读障碍风险、计算障碍风险组。结果表明：成人汉语阅读障碍和计算障碍语音意识缺陷和语音短时记忆缺陷的共病机制存在差异，语音意识缺陷符合双分离模型，而语音短时记忆缺陷符合共同病因模型。为语音意识可能是阅读障碍、计算障碍、共病的共同风险因素提供进一步证据，可基于语音意识发展针对不同障碍的有效筛查和干预手段。

关键词 阅读障碍，计算障碍，共病，语音加工缺陷

The Phonological processing deficits in comorbidity between adult Chinese dyslexia and dyscalculia

Wenjuan Wang[1, 2, 3] Wei Huang[3] Lu Zhang[1, 2] Jiuqing Tang[1, 2] Jingjing Zhao[1, 2]
1 School of Psychology, Shaanxi Normal University, Xi'an, China, 710062
2 Shaanxi Provincial Key Laboratory of Behavior and Cognitive Neuroscience, Xi'an, China, 710062
3 Huzhou University ,Huzhou, China, 313000
corresponding author: jingjing.zhao@snnu.edu.cn, 029-85303395

Abstract：Learning disabilities (i.e., dyslexia and dyscalculia) are common, as is their comorbidity. It has been suggested that phonological processing deficits are considered to be the core cognitive deficit in alphabetic dyslexia，besides, there are phonological processing deficits in dyscalculia，which are manifested as phonological awareness(PA), rapid automatized naming(RAN), and verbal short-term memory(v-STM). However, the mechanism of cognitive deficits underlying the comorbidity of phonological deficits in the two learning disabilities needs to be further explored. The current study aimed at investigating the comorbidity of phonological processing between adult dyslexia and dyscalculia in Chinese context. Over 3,300 Chinese university students were screened by the Adult Reading History Questionnaire (ARHQ) and the Adult Math History Questionnaire（AMHD）. Adults who scored consistently above the 10th percentile in ARHQ and/or AMHD were identified as dyslexia risk and/ or dyscalculia risk respectively and 52 adults were screened out in pure dyscalculia risk group, 49 adults were screened out in pure dyslexia risk group, 49 adults were screened out in comorbidity risk group, and 55 adults were screened out in control group. We further assessed three sub components of phonological processing (PA, RAN and v-STM). Results suggested that the common cognitive deficit of adults from the three disability risk groups was in PA，and the PA deficit in the comorbid risk group was almost the addition of that in the dyscalculia risk group and dyslexia risk group. The common cognitive deficit of adults from comorbidity risk group and dyslexia risk group was in v-STM, and the v-STM deficit in the comorbid risk group almost equaled the dyslexia risk group. Multinomial logistic regression analysis revealed that the comorbid risk group could only be distinguished from the dyscalculia/dyslexia risk group by PA. The findings suggest that comorbidity of Chinese dyscalculia and dyslexia fits into double dissociation model in PA deficit and common etiology model in v-STM deficit. This study provides further evidence that language PA appears to be a common cognitive risk factor for dyslexia, dyscalculia and dyslexia & dyscalculia. Effective screening and intervention can be developed based on PA in different disability groups.

Keywords：dyslexia, dyscalculia, comorbidity, phonological processing deficits

口语词汇识别中说话者身份信息和语言信息的表征关系

殷舒琦# 穆凯代斯·艾尔肯# 余可可（通讯作者） 王瑞明（通讯作者）
广东省心理健康与认知科学重点实验室/教育部脑认知与教育科学重点实验室、华南师范大学心理学院/心理应用研究中心，广州，510631，通讯作者 E-mail：kkyu@m.scnu.edu.cn；wangrm@scnu.edu.cn

摘 要 口语词汇识别是言语理解的基础。过去研究主要探讨了口语词汇语言信息的表征，对说话者身份信息的关注不足。近来有研究表明，听者会将说话者的身份信息作为词汇表征的一部分进行编码。然而，身份信息和语言信息在词汇层和概念层的表征关系是分离的还是共享的，这一问题还有待解决。本研究采用长时重复启动范式，通过两个实验，分别从词汇层和概念层考察身份信息和语言信息的表征关系。两个

实验均分为学习阶段和测验阶段。具体而言，实验 1 采用词汇决定任务。学习阶段给两组被试（身份一致组、身份不一致组）呈现一个说话者的语音材料（如，说话者 A-学校），要求被试判断听到的词语是汉语的真词还是假词。测验阶段，一组被试（身份一致组）呈现与学习阶段相同说话者的语音材料（如，说话者 A-学校（学习过），说话者 A-汽车（未学习过））；另一组被试（身份不一致组）呈现另一名说话者的语音材料（如，说话者 B-学校（学习过），说话者 B-汽车（未学习过））。测试阶段的任务与学习阶段相同。实验 1 结果显示：在身份不一致条件下，学习过的词和未学习过的词的正确率不存在显著差异，即被试未出现显著的重复启动效应，表明身份信息和语言信息在词汇层的表征是分离的。实验 2 采用概念决定任务，被试需要判断听到的词语是生物词还是非生物词，其余实验流程均与实验 1 相同。实验 2 结果显示：在身份不一致条件下，学习过的词的正确率显著大于未学习过的词，即被试出现了显著的重复启动效应，表明身份信息和语言信息在概念层的表征是共享的。综上所述，总的实验结果表明，在口语词汇识别中，口语词汇所蕴含的说话者身份信息与语言信息在词汇层分离表征，而在概念层共享表征。本研究结果有助于进一步完善口语词汇识别的理论模型。

关键词 口语词汇识别，说话者身份信息，语言信息，表征关系，长时重复启动

The representative relationship between speaker's identity information and linguistic information in spoken word recognition

Shuqi Yin#, Mukaidaisi Aierken#, Keke Yu*, Ruiming Wang*
Guangdong Provincial Key Laboratory of Mental Health and Cognitive Science,
Key Laboratory of Brain Cognition and Education Science of Ministry of Education,
Center for Studies of Psychological Application, School of Psychology,
South China Normal University, Guangzhou

Abstract: Spoken word recognition is the foundation of speech comprehension. Previous studies mainly focused on the representation of linguistic information in spoken words, while insufficient attention was paid to the speaker's identity information. Recent studies have shown that listeners could encode speaker's identity information as part of word representations. However, whether the representative relationship between identity and linguistic information at the lexical and conceptual levels is separated or shared remains to be resolved. The present study adopted the long-term repetition priming paradigm, and through two experiments, examined the representational relationship between identity and linguistic information in spoken word recognition from the lexical level and the conceptual level respectively. Specifically, Experiment 1 employed a lexical decision task. The experiment was divided into learning block and testing block. In the learning block, two groups of participants (identity-identical vs. identity-inconsistent) were presented with a speaker's auditory stimuli (for example, speaker A-school), and participants were asked to judge whether the word is a real word or a pseudo word in Mandarin (Experiment 1), In the test block, identity-consistent group was presented with the same speaker's auditory stimuli as in the learning block (e.g., speaker A-school (studied), speaker A-car (unstudied)). Another identity-inconsistent group was presented with another speaker's auditory stimuli (e.g., speaker B-school (studied), speaker B-car (unstudied)), and the task was the same as learning block. The results of Experiment 1 showed that in identity-inconsistent condition, there was no significant differences between the accuracy of studied and unstudied

words, that is, there is no significant repetition priming effect for participants, indicating that identity and linguistic information were separately represented at the lexical level. Experiment 2 employed a concept decision task, participants need to judge whether it is a biological word or a non-biological word, the experimental procedure was the same as Experiment 1. The results of Experiment 2 showed that in identity-inconsistent condition, the accuracy of studied words was significantly larger than that of unstudied words, that is, participants showed a significant repetition priming effect, indicating that the representation of identity and linguistic information at the conceptual level was shared. In conclusion, the overall experimental results showed that in spoken word recognition, speaker's identity and linguistic information contained in spoken words are represented separately at the lexical level, while shared representations at the conceptual level. Our findings can further improve the theoretical model of spoken word recognition.

Keywords：spoken word recognition, speaker's identity information, linguistic information, representation relationship, long-term repetition priming

语言越相似双语冲突越小：来自中国七大方言区的证据

刘倩铭[1,2]　王启萍[3]　计艳楠[1,2]　屈鸿馥[1,2]　伍新野[4]　吴俊杰[1,2,5]（通讯作者）

1 教育部人文社会科学重点研究基地天津师范大学心理与行为研究院，天津，300387

2 天津师范大学心理学部，天津，300387

3 北京师范大学国际中文教育学院，北京，100875

4 杭州师范大学附属医院认知与脑疾病研究中心，浙江 杭州，310015

5 学生心理发展与学习天津市高校社会科学实验室，天津，300387，通讯作者 E-mail：psywujunjie@foxmail.com

摘 要　语言相似程度被认为是影响双语冲突的重要因素。前人研究通常比较掌握两种高相似度语言的双语者（如西班牙语-加泰罗尼亚语）与掌握两种低相似度语言的双语者（如西班牙语-巴斯克语）在双语切换任务中的表现，得到了不一致的结果。这可能是因为被试群体数量太少，语言相似度以外的因素（如文化差异和语言使用经历）带来了混淆。本研究以文化背景和语言使用经历等方面有较高同质性的 170 名中国七大方言区的双言者（如：闽方言-普通话使用者[相似度低]、北方方言-普通话使用者[相似度高]）作为研究对象，让他们在单言情境和双言情境下根据颜色提示使用普通话或者方言来产出数字的名称（如：红色-方言、蓝色-普通话）。结果发现：（1）被试呈现出显著的切换代价（即，从另一种语言切换而来比重复使用同一种语言有更长的反应时或者更高的错误率）和混合代价（即，在双言情境下重复使用同一种语言比在单言情境有更长的反应时或者更高的错误率），分别反映了局部语言控制和全局语言控制，重复了前人双语切换的结果；（2）在语言相似度越高的被试群体中，错误率的切换代价越小，反应时的混合代价越小，混合代价的不对称性（即，普通话的混合代价大于方言的混合代价）越小。这些结果表明，语言越相似，语言产出所需要的局部控制和全局控制都越少，双语冲突越小，这可能是因为越相似的语言越少存在有差异的语言加工环节，从而更少地需要双语者使用语言控制功能来防止和解决两种语言在这些环节的冲突。本研究首次招募中国七大方言区的被试，将语言相似程度作为连续变量，更加系统地考察语言相似度与双语冲突的关系，推进了对双语者词汇通达机制的认识。

关键词　语言控制，双语切换，双语冲突，语言相似度，方言

Less Bilingual Language Conflict Exists in Languages of More Similarity: Empirical Insights from Dialect-Mandarin Speakers Across Seven Chinese Dialect Regions

Qianming Liu[1,2] Qiping Wang[3] Yannan Ji[1,2] Hongfu Qu[1,2] Xinye Wu[4]
Junjie Wu[1,2,5](Corresponding author)
1 Key Research Base of Humanities and Social Sciences of the Ministry of Education, Academy of Psychology and Behavior, Tianjin Normal University, Tianjin 300387, China
2 Faculty of Psychology, Tianjin Normal University, Tianjin 300387, China
3 Chinese Language and Culture College, Beijing Normal University, Beijing 100875, China
4 Cognitive and Brain Disease Research Centre, Affiliated Hospital of Hangzhou Normal University, Hangzhou, Zhejiang 310015, China
5 Tianjin Social Science Laboratory of Students' Mental Development and Learning, Tianjin 300387, China

Abstract **:** The degree of linguistic similarity is essential to bilingual conflict. Previous studies have usually compared the performance of bilinguals with mastery of two languages of high similarity (e.g., Spanish-Catalan) with that of bilinguals with mastery of two languages of low similarity (e.g., Spanish-Basque) in bilingual switching tasks, obtaining inconsistent results. It may be due to only two groups of bilinguals, leading to confounds of factors other than linguistic similarity (e.g., cultural differences and language-use experiences). In this study, 170 bidialectals (e.g., Min dialect-Mandarin bidialectal speakers [low similarity], Northern dialect-Mandarin bidialectals [high similarity]) from the seven Chinese dialect regions were used as the subjects of this study, who had a high degree of homogeneity in terms of their cultural backgrounds and language-use experiences. We asked them to produce the name of the numbers in monodialectal contexts and bidialectal contexts using either Mandarin or dialect based on color cues (e.g., red-Dialect, blue-Mandarin). We found that : (1) participants showed high switching costs (i.e., prolonged response latencies or higher error rates when switching from another language than when repeating the same language) and mixed costs (i.e., prolonged response latencies or higher error rates when repeating the same language in bidialectal contexts than in monodialectal context), replicating results in previous studies on local language control and global language control. (2) Bidialectals of higher linguistic similarity between their dialects and Mandarin showed smaller switching cost of error rates, mixing cost of response latencies, and asymmetry of mixing cost (i.e., the higher mixing cost of Mandarin than that of dialect). These results suggest that the more similar the languages are, the less local and global control is required for linguistic output and the less bilingual conflict there is. We propose that the less distinct language processes in the two languages of higher similarity demand less language control to prevent and resolve the conflict of different processes. This study is the first to examine the relationship between language similarity and bilingual conflict by recruiting participants from seven Chinese dialect regions and taking language similarity as a continuous variable, which advances our understanding of bilinguals' lexical access mechanisms.

Keywords **:** language control, bilingual switching, bilingual conflict, linguistic similarity, dialect

谭丽柔 杨剑峰 王小娟（通讯作者）
陕西师范大学心理学院，陕西西安，710062，wangxj@snnu.edu.cn
摘要 网络学习是当学习材料以组块形式组织呈现时，其学习效率比完全随机呈现时更高。现有语言材料的网络学习研究都集中于探讨网络组块的学习效应，很少有研究将组块与材料本身的内在属性相结合，例如词汇的形-音对应家族本身就是自然词汇学习的组块方式。本研究将网络学习的组块与词汇内在的形-音家族相结合，考察网络组块应用于自然词汇学习的内在机制。具体通过考察汉语母语者学习 15 个维吾尔语四音节词，一组材料由 3 个形-音家族组成，每个家族的 5 个词共享了一个音节的形-音对应；另一组的 15 个词不具有共享的形-音家族属性。根据网络学习的组块方式，5 个词汇构成一个网络学习组块，从而构建了三种实验条件：无形-音家族（条件一）和有形-音家族材料（条件二）的随机组块网络学习、以及按形-音家族组块的网络学习（条件三）。结果发现三种条件下均表现出网络学习的组块效应，即网络组块内试次的反应时要快于组块间试次的反应时。而且，条件一的组块效应在词汇学习的后期更加明显；条件二的组块效应明显受到了形-音家族的抑制作用，后期的组块效应相对第一个条件更弱；而条件三从词汇学习的早期就表现出组块效应，形-音家族组块明显促进了词汇学习。研究结果表明，当刺激呈现的网络组块与词汇原有内在属性网络相符时，能达到更好的学习效果，从而丰富和扩展了网络学习的内在机制探讨，为词汇学习实践应用提供了指导。
关键词 词汇学习，网络学习，组块效应，形音映射，维吾尔语

Grapheme-phoneme correspondence neighborhood influences network learning

Lirou Tan, Jianfeng Yang, Xiaojuan Wang
School of Psychology, Shaanxi Normal University, Xi’an, China

Abstract：Network learning refers to the phenomenon that presenting learning materials in a modular manner results in higher learning efficiency compared to completely random presentation. Current research on network learning with linguistic materials primarily focuses on investigating the learning effects of module. However, there is limited research that combines modular network with the intrinsic properties of the materials themselves, such as the grapheme-phoneme correspondence neighborhood, which is, in itself, a form of module in natural word learning. This study integrates modular network with the inherent grapheme-phoneme correspondence neighborhood in word and investigates the internal mechanisms of applying module to natural word learning. Specifically, this study examined the learning process of 15 four-syllable Uighur words by native Mandarin speakers. One set of materials consists of three grapheme-phoneme correspondence neighborhoods, where each neighborhood group shares a common syllable among five words. The other set of 15 words lacks shared neighborhood attributes. According to the network learning method, five words form a module, resulted in three experimental conditions: random module with no neighbor and random module with neighbors, as well as module based on the grapheme-phoneme correspondence neighborhood. The results showed that all three conditions demonstrated cross cluster effects, meaning that reaction times within module were faster than between modules. Moreover, the cross cluster effects in the first condition became more pronounced in the later stages of learning. The second condition's cross-cluster effects was noticeably suppressed by the neighborhood effects, resulting in a relatively weaker effect in the later stages compared to the first condition. But the third condition exhibited cross-cluster effects from the early stages of learning, indicating that the neighborhood-based module significantly promoted word learning.The research findings indicate that when the presented module align with the inherent attributes of word, better learning outcomes can be achieved. This study enriches and expands the exploration of

the internal mechanisms of network learning, providing guidance for practical applications in word learning.
Keywords： Word learning, network learning, cross-cluster effects, grapheme-phoneme correspondence, Uighur

汉-英双语儿童母语语音意识对二语阅读的跨语言影响机制研究

陈希 [1,2]　黎佳媚 [3]　宋祖俊 [1,4]　樊腾文 [1,5]　李森 [1]　赵晶晶 [1]（通讯作者）

1 陕西师范大学，西安，710062

2 成都大学，成都，610106

3 西安职业技术学院，西安，710077

4 安康学院，安康，725000

5 路易斯安那州立大学，巴吞鲁日，70803

通讯作者 E-mail（jingjing.zhao@snnu.edu.cn）

摘 要　作为元语言意识的一种，语音意识是早期阅读能力发展的一个重要组成部分，之前的研究表明，英语和汉语中不同的语音意识成分在预测早期阅读习得上发挥着不同的作用。目的：本研究以 67 名 6-8 岁的汉语儿童（英语二语初学者）为研究对象，同时采用横断研究和纵向追踪研究，考察其汉语语音意识与英语阅读之间的关系，以及不同水平的汉语语音意识对英语真假词阅读的跨语言迁移作用。方法：研究测试了这些儿童在 T1 水平上的汉语声母意识、韵母意识和音位意识以及 T1 水平和 T2 水平（三个月后）上的英语真词阅读和假词阅读能力。通过建立两个结构方程模型，我们发现汉语音位意识和英语解码能力在汉-英双语学习中的重要作用，并提出了英语二语习得的汉语语音意识-英语解码路径模型（CPA-ED 模型）。研究结果表明：汉语语语音意识中的较小单元——音位意识可以直接预测 T1 水平的英语假词阅读，并且可以通过 T1 假词阅读的完全中介作用预测 T1 真词阅读。而语音意识中的较大单元——汉语声-韵母意识对英语假词阅读的影响则完全通过音位意识进行中介。另外，在英语学习过程的纵向研究中存在一个语音解码和阅读的双向作用机制。最后，我们发现 T1 时间点的汉语音位意识还可以通过当前的英语假词阅读间接预测 T2 时间点的英语假词阅读。结论：研究结果强调了汉语语音意识在英语阅读中的跨语言迁移作用，并证明了语音意识的大单元成分通过小单元成分对阅读起作用。研究结果同样提供了母语能力能够影响二语习得和表现的证据。

关键词　汉语语音意识；英语阅读能力；英语语音解码；跨语言迁移

From Chinese phonological awareness to second language English reading: Cross-language mediation by Chinese phoneme awareness and English decoding

CHEN Xi[1, 2], LI Jiamei[3], SONG Zujun[1, 4], FAN Tengwen[1, 5], LI Sen[1], ZHAO Jingjing[1*]

[1] Shaanxi Normal University, Xi'an, China; [2] Chengdu University, Chengdu, China; [3] Xi'an Vocational and Technical College, Xi'an, China; [4] Ankang University, Ankang, 725000; [5] Louisiana State University, Baton Rouge, USA

***Abstract*:** As a category of metalinguistic awareness, phonological awareness (PA) is an important component of early reading abilities. Previous studies have demonstrated that different phonological awareness components in English and Chinese play diverse roles in predicting early reading acquisition. **Purpose:** This study explored the cross-sectional and longitudinal relationships between Chinese phonological awareness and English reading, and the cross-language transfer of different levels of PA to the English word and pseudoword reading among Chinese primary school children aged 6 to 8, who were beginners in English. **Method:** A sample of 67 Chinese children was tested on concurrent Chinese onset-rime awareness, Chinese phoneme awareness and concurrent and subsequent English word and pseudoword reading. By modeling two structural equations, we found the crucial roles of Chinese phoneme awareness and English decoding ability in Chinese-English bilingual learning. In addition, our study demonstrates the existence of a Chinese PA-English decoding pathway model (CPA-ED model) in ESL acquisition. **Results:** The results showed that children's Chinese phoneme awareness directly contributed to English pseudoword reading and predicted English word reading entirely through pseudoword reading. While the influence of Chinese onset-rime awareness on English decoding is mediated exclusively through Chinese phoneme awareness. Additionally, a bidirectional relationship between phonetic decoding and reading was found in the longitudinal English learning process. On the other hand, concurrent Chinese phoneme awareness could indirectly predict subsequent English pseudoword reading through concurrent pseudoword reading. **Conclusion:** The findings underscore the significant role of the cross-language transfer of Chinese PA in English reading and provided evidence that the coarse-grained representational unit of PA acts on reading through the fine-grained unit. This also shed light on the evidence that native language proficiency directly affects second language acquisition and performance.

Keywords: Chinese phonological awareness, English reading ability, English phonemic decoding, cross-language transfer.

5.22 社区心理学专业委员会

重温旧事：怀旧的适应性作用及其解释

张杉 [1,2,3] 吕厚超 [1,2,3]（通讯作者）

1 西南大学心理学部，重庆，400700

2 西南大学心理学部时间心理学研究中心，重庆，400700

3 西南大学中国社区心理服务与研究中心，重庆，400700，houchao928@163.com

摘 要 近年来，已有大量研究表明怀旧对个体心理和行为有着积极作用，如身心健康（提高自尊、增强社会联系、增加生活意义感、缓冲死亡带来的不利影响、对抗歧视、镇痛）、行为（增加慈善行为、促进求助行为、影响消费行为）和认知（影响时间自我评价和内群体偏好）等。怀旧的适应性作用影响十分广泛，所以关于怀旧的研究领域众多且发散。目前还尚未有综述统合有关怀旧适应性的相关研究。因此，本文旨在系统梳理已有关于怀旧适应性的文献，并尝试基于社会认知基本维度视角（能动性和社群性）解释其心理机制。一方面，当唤起与自我相关的怀旧事件时，可以通过真实性、自尊等能动性内容促进心理健康。与自我相关的怀旧事件可以给个体带来控制感和安全感，抵消当下意义或者其他方面的缺失。另一方面，当怀旧事件涉及和他人关系时，可通过社会联系等社群性内容发挥其适应性作用。当个体回忆过往的亲密关系或有他人在场的事件时，可以感受到温暖、友好的人际关系，带来归属感和社会支持，从而起到适应

性作用。虽然本文从社会认知基本维度的视角来理解怀旧及其适应性功能的关系，但是现有研究还未对此直接进行验证。未来研究将从社会认知的角度探索怀旧及其作用，试图纳入相关变量来探索其中的作用机制。
关键词 怀旧，情绪，心理健康，社会认知基本维度

Revisiting the Past: The adaptive role of Nostalgia and its explanations

Shan Zhang[1,2,3], Houchao Lyu[1,2,3]
1 Faculty of Psychology, Southwest University, Chongqing, China
2 Time Psychology Research Center, Southwest University, Chongqing, China
3 China Community Psychology Service and Research Center, Southwest University, Chongqing, China
Corresponding author at: Faculty of Psychology, Southwest University, No. 2, Tiansheng Road, Beibei District of Chongqing, Chongqing, China

***Abstract*:** In recent years, a large number of studies have shown that nostalgia has positive effects on individual psychology and behavior, such as physical and mental health (improves self-esteem, enhances social connections, increases the sense of meaning in life, buffers the adverse effects of death, combat discrimination, analgesia), behavioral (Increasing charitable behavior, promoting help-seeking behavior, influencing consumer behavior) and cognition (affecting time self-evaluation and in-group preference), etc. The adaptive effect of nostalgia has a wide range of influences, so the research fields on nostalgia are numerous and divergent. At present, there is no review and integration of relevant research on the adaptation of nostalgia. Therefore, this article aims to systematically sort out the existing literature on nostalgia adaptability, and try to explain its psychological mechanism from the perspective of the basic dimensions of social cognition (agency and communion). On the one hand, when nostalgic events related to the self are evoked, mental health can be promoted through authenticity, self-esteem, etc. Nostalgic events associated with the self can bring a sense of control and security to the individual, offsetting a lack of present meaning or otherwise. On the other hand, when nostalgic events involve relationships with others, social connections can play an adaptive role. When individuals recall past close relationships or events in which others were present, they can experience warm, friendly relationships that bring a sense of belonging and social support, thereby playing an adaptive role. Although this paper attempts to understand the relationship between nostalgia and its adaptive functions from the perspective of basic dimensions of social cognition, existing studies have not directly verified this. Our future research will explore nostalgia and its role from the perspective of social cognition, and try to incorporate relevant variables to explore the mechanism of action.
***Keywords*:** nostalgia, emotion, mental health, fundamental dimensions of content in social cognition

上行社会比较对自我损耗的影响：相对剥夺感的中介效应和防御性悲观的调节效应

夏乐怡　吕一麟　郑钰苗　邱梦思　方杰　李美华（通讯作者）
广东财经大学人力资源学院应用心理学系，广州，510320，may_33333@126.com

摘 要： 近年来，“内卷”与“躺平”突然成为了青年群体口中的热词，反对“内卷”，走向“躺平”已成为新的潮流。这种社会心态转变的背后，正是青年群体面对个体“收益努力比”普遍下降的无奈自嘲。根据公平理论，上行社会比较会使青年产生更多“内卷”行为和不公平感，“内卷”行为和不公平感的出现会促使相对剥夺感产生，其带来如愤怒、不满等负面情感体验会增大个体对情绪调控资源的投入，进而加重自我损耗，更容易导致青年选择“躺平”。因此，本研究假设上行社会比较通过相对剥夺感间接影响自我损耗。之后，本研究进一步检验了防御性悲观在上行社会比较与相对剥夺感之间的调节作用。拟采用上行社会比较量表、相对剥夺感问卷、简版自我损耗量表、社会版防御性悲观问卷对 335 名 18-28 岁青年人进行问卷调查并使用 SPSS 和 Process Macro 对本研究所提出的有调节的中介模型进行检验。结果发现：（1）上行社会比较显著正向预测青年的自我损耗；（2）相对剥夺感在上行社会比较与自我损耗之间起部分中介作用，中介效应占总效应的 48%；（3）防御性悲观显著调节了上行社会比较与相对剥夺感之间的关系。具体地，在低防御性悲观条件下，上行社会比较可显著正向预测相对剥夺感（β_{simple}=0.07，*SE*=0.03，*p*<0.001）；在高防御性悲观条件下，上行社会比较对相对剥夺感的正向预测作用更大（β_{simple}=0.14，*SE*=0.04，*p*<0.001）。

关键词：上行社会比较，自我损耗，相对剥夺感，防御性悲观，有调节的中介模型

The effect of upward social comparison on Ego-depletion: The Mediating Effect of Relative Deprivation and the Moderating Effect of Defensive Pessimism

XIA Leyi, LV Yilin, ZHENG Yumiao, QIU Mengsi, FANG Jie, LI Meihua
Department of Applied Psychology, School of Human Resources, Guangdong University of Finance and Economics, Guangzhou, 510320，may_33333@126.com

Abstract: In recent years, "involution" and "lying flat" have suddenly become popular among young people, with opposing "involution" and moving toward "lying flat" has become a new trend nowadays. Behind this change in social mentality is the helplessness of the young in the face of the general decline in the individual "income effort ratio". According to Equity Theory, upward social comparison will make young people have more " involution " behavior and sense of injustice, and the appearance of " involution " behavior and sense of injustice will promote the emergence of relative deprivation, which will bring about negative emotional experiences such as anger and dissatisfaction, increase individuals' investment in emotional regulation resources, further increase ego-depletion, and more easily lead young people to choose "lying flat". Therefore, this study hypothesizes that upward social comparison indirectly influences ego-depletion through relative deprivation. This study then further examined the moderating effect of defensive pessimism between upward social comparison and relative deprivation. A total of 335 young people aged 18-28 were surveyed using Iowa-Netherlands Comparison Orientation Measure (INCOM), the Relative Deprivation Sense Scale，A short version of the Ego-depletion Scale and Defensive Pessimism Questionnaire[DPQ(Social)]. SPSS and Process Macro were used to test the moderated mediation model proposed in this study. Conclusions: (1) Upward social comparison is a significant positive predictor of youth ego-depletion; (2) Relative deprivation plays a partial mediating role between upward social comparison and ego-depletion, and the mediating effect accounts for 48% of the total effect; (3) Defensive pessimism significantly moderates the relationship between upward social comparison and feelings of relative deprivation. Specifically, under low

defensive pessimism conditions, upward social comparison could significantly positively predict relative deprivation (βsimple=0.07, SE=0.03, p<0.001). In the highly defensive pessimistic condition, upward social comparison had a greater positive predictive effect on relative deprivation (βsimple=0.14, SE=0.04, p<0.001).

Keywords: Upward Social Comparison, Ego-depletion, Relative Deprivation, Defensive pessimism, Moderated mediation model

时间比较在自我体验与提升中的优势效应研究

王宇阳　张锋（通讯作者）
河南大学教育学部，开封，475004

摘 要　随着“鸡娃”“内卷”等现象的火热化，义务教育阶段的儿童越来越多地接收到来自“比较”的信息，左右着儿童对自身的态度和情感体验。社会比较的信息在影响个体自我体验的同时，也促使儿童产生 “优于他人”的竞争性目标取向；而时间比较更关注自我随时间的内部变化，可能促进“自我提升”良好目标的形成。本研究选择中小学生为研究对象，采用故事书写法分别启动学生不同方向的社会比较、时间比较、无比较状态，随后要求其完成相关量表，探讨不同的比较方式对中小学生自我体验的影响及其跨学段的发展；同时，测量被试在启动不同比较类型后自我提升的目标倾向。结果显示：（1）在自我体验上，小学生和中学生表现一致，具体表现为：比较方式的主效应显著，与更差的过去自己比较组、与更好的未来自我比较组、与更差的他人比较组的自我体验得分显著高于无比较组，与更好的他人比较组的自我体验得分显著低于无比较组，与更好的过去自我比较组、与更差的未来自我比较组与无比较组无显著差异；（2）在自我提升倾向上，小学生和中学生的表现一致，具体表现为：比较类型的主效应显著，进行时间比较的个体自我提升倾向得分显著高于社会比较组和无比较组。结论：1. 在社会比较中，与更差的他人相比提升中小学生的积极自我体验，与更好的他人相比降低中小学生的积极自我体验; 2. 在时间比较中，与更差的过去自我相比、与更好的未来自我相比提升中小学生的积极自我体验，而相反方向的时间比较并不会降低积极自我体验; 3. 与社会比较相比，时间比较促进中小学生自我提升目标的形成。本研究证明了与社会比较相比，时间比较在中小学生良好自我体验及健康目标取向塑造中的优势作用及其跨学段的稳定性。

关键词　时间比较，中小学生，自我体验，自我提升，社会比较

The Advantage of Temporal Comparison in Self-Experience and Self-Improvement Orientation

WANG Yuyang　ZHANG Feng
School of Psychology, Henan University, Kaifeng 475004

***Abstract*:** Primary and secondary school students are frequently exposed to the information of comparison, which determines their emotional experience and attitude towards themselves. Social comparison affects children’s self-experience, while inadvertently trigger a desire to be superior to others, which demonstrate competitiveness. Temporal comparison focuses on the internal changes of the self over time, which may grow the desire of

self-improvement. So, we randomly chose 421 primary and 503 secondary school students to engage in temporal comparison (compare to worse past, better past, better future, worse future self), social comparison (compare to better or worse others) and no comparison, to explore the impact of different comparison states on the self-experience and self-improvement orientation of primary and secondary school students and their development across two stages. The results showed that: (1) The self-experience of children who compared to worse past, better future self and worse others were significantly higher than those who engaged no comparison; The self-experience of children who compared to better others was significantly lower than those engaged no comparison; No significant difference was found between the children who compared to worse future and no comparison or better past self and no comparison. (2) Compared to social comparison and no comparison, engaged in temporal comparison could significantly grow children's self-improvement orientation. (3) The impact of different comparison states on the self-experience and self-improvement orientation were consistent across primary and secondary stages. Collectively, our findings suggest that compared to social comparison, temporal comparison maintain a good self-experience and contribute a self-improvement orientation, which is similar across primary and secondary stages.

Keywords **：** Temporal comparison, Primary and secondary school students, Self-experience, Self-improvement orientation

中小学家长的家校教育责任认知及其与儿童成长满意度的关系

施静[1]　鄂蓉蓉[1]　邓铸[2]（通讯作者）

1 南京师范大学心理学院，南京，210024

2 南京师范大学大学心理学系，南京，210024，E-mail:zdeng_psy@163.com

摘 要: 自《家庭教育促进法》实施以来，由家校教育责任边界不清带来的家校协同问题引发社会关注。已有研究发现，家长的家校教育责任认知存在模糊。知是行的基础，家长的责任认知与儿童的成长发展有什么关系呢？

为调查家长的家校教育责任认知，本研究在访谈的基础上，对前期编制的《家校教育责任认知调查表》进行修订。其内容包括五个维度，共 43 个题项，其中自尊自信和伙伴交往、劳动素养和健康审美、品德教育和社会规则更多由家庭教育落实，课程学习和团队精神更多由学校教育落实，自我管理和健康生活则是不明显偏向于家或校的教育责任。该问卷题项采用 5 级计分，计分越高，反映该项责任更应属于学校教育；反之，该项责任则更应属于家庭教育。此外，以家长对儿童的成长满意度来侧面反映其孩子的发展状况。在访谈的基础上，编制了信效度较高的《子女成长满意度调查表》，其内容包括五个维度：认知思维与情绪健康、道德品质与社会交往、团队合作与社会认知、运动技能与身体状态、生活习惯与身体发育。该问卷共 40 个题项，采用 5 级计分，计分越高，反映家长对儿童该项能力发展越满意。使用这两个调查表对中小学生家长进行施测，得到 4753 个有效样本。结果显示：（1）除品德教育和社会规则维度外，男性家长相较于女性家长更多地将其他维度的责任归属于学校教育；（2）在课程学习和团队精神维度上，家长存在学历和职业的显著交互作用，全职高学历家长相较于全职低学历家长更多地将该责任归属于家庭教育；（3）家长对自尊自信和伙伴交往的责任认知与其对儿童道德品质和社会交往的满意度呈显著负相关；对课程学习和团队精神的责任认知与其对儿童团队合作与社会认知的满意度呈显著正相关。结论：（1）进一步验证了

家长的家校教育责任认知边界存在模糊，表现为对家庭教育责任认知不足，对学校教育责任过度干预；（2）家长正确的家校教育责任认知与其对儿童积极的成长评价相关联，因此，在家庭教育指导工作中应使家长明确家校教育责任。

关键词:中小学生家长，家庭教育，家校教育责任认知，儿童成长满意度

The Cognition of Family School Education Responsibility of Primary and Secondary School Parents and Its Relationship with Children's Growth Satisfaction

Shi Jing[1] E Rongrong[1] Deng Zhu[2]
1 Psychology, Nanjing Normal University, Nanjing, 210024
2 Psychology, Nanjing Normal University, Nanjing, 210024, E-mail:zdeng_psy@163.com

Abstract：Since the implementation of the "Family Education Promotion Law," the lack of clarity in the boundary between family and school responsibilities has sparked widespread concern about the issue of collaboration between parents and schools. Existing research has revealed that parents' understanding of their educational responsibilities is somewhat ambiguous. Recognizing the fundamental link between knowledge and action, the way parents perceive their responsibilities plays a crucial role in children's developmental growth.

To investigate parents' perception of family-school educational responsibilities, this study built upon previous interviews and refined the "Family-School Educational Responsibility Perception Questionnaire." The questionnaire comprises five dimensions with a total of 43 items. Among these dimensions, aspects related to self-esteem and interpersonal communication, work ethics and aesthetic health, as well as moral education and social rules, are seen as primarily the responsibility of family education. Conversely, curriculum learning and team spirit are viewed as predominantly the responsibility of school education. Self-management and healthy living, however, are perceived as areas where the educational responsibilities are less distinct between family and school. The questionnaire employs a 5-point scoring system, where higher scores indicate a stronger association with school education, and lower scores imply a stronger link with family education. Additionally, the study indirectly assessed children's developmental status by measuring parents' satisfaction with their children's growth. In addition to the "Family-School Educational Responsibility Perception Questionnaire," the study developed the "Child Growth Satisfaction Survey," which demonstrated high reliability and validity. This survey comprises five dimensions: cognitive thinking and emotional health, moral qualities and social interactions, team cooperation and social cognition, physical skills and health status, as well as daily habits and physical development. The 40 items in this questionnaire are also scored using a 5-point scale, where higher scores indicate greater satisfaction with the child's development in the respective area. By administering these two surveys to parents of primary and secondary school students, the study collected 4753 valid samples. The results revealed the following: (1) Except for the dimension of moral education and social rules, male parents tend to attribute responsibilities in other dimensions more to school education compared to female parents. (2) In the dimension of curriculum learning and team spirit, there is a significant interaction effect between parents' education level and occupation. Full-time parents with higher education tend to assign more responsibility to family education compared to full-time parents with lower education levels. (3) Parents' responsibility perception towards self-esteem and interpersonal communication negatively correlates with their satisfaction with children's moral qualities and social interactions. On the other

hand, parents' responsibility perception towards curriculum learning and team spirit positively correlates with their satisfaction with children's team cooperation and social cognition. Based on these findings, the study draws the following conclusions: (1) It further confirms the existence of blurred boundaries in parents' perception of family-school educational responsibilities, manifested by insufficient awareness of family education responsibilities and excessive intervention in school education responsibilities. (2) Parents' accurate understanding of family-school educational responsibilities is positively associated with positive evaluations of their children's growth. Therefore, in the guidance of family education, it is crucial to help parents clarify their family-school educational responsibilities.

Keywords：primary and secondary school parents, family education, cognition of family school education responsibility, satisfaction with children's growth

养育需要社区吗？——一项关于养育社区感的质性研究

侯力琪[1]　马凤芝[1*]

1 北京大学社会学系，北京，100091

*通讯作者（Email: mafzhi@163.com）

摘 要　社区感（Sense of Community）是社区心理学中的一个重要概念，与居民的身心健康、生活满意度与社区参与行为都有着密切的关联。在城镇化快速发展的背景下，城市父母在 0-3 岁儿童的养育过程中的社区感是值得探索的主题。因此，本研究提出了“养育社区感”（Sense of Community for Parenting, SOCP）这一概念，希望探索其内涵、影响因素以及可能的培育路径。

通过文献整理和针对城市社区 0-3 岁儿童的父母的质性访谈，本研究发现，对于许多成长于传统农村社区或单位制社区的研究对象而言，他们对养育社区感有着丰富的回忆和渴望。然而在目前的居住环境中，他们的养育社区感较为薄弱。

诸多因素阻碍了养育社区感的形成，包括城市社区高楼的封闭式居住模式、社区组织活动的欠缺、社区育儿环境的不完善以及可能存在的安全隐患。同时，年轻父母们普遍感到在“内卷”的社会环境中缺乏时间精力开展社交，并在有限的互动中感知到阶层的差异、育儿理念的冲突和已经构成了某种社交规范的边界感。

鉴于养育社区感的重要性，社区社会工作者可以围绕养育这一共同主题，通过科普讲座、亲子工作坊等丰富的活动，打破多重因素带来的藩篱，促进养育者之间的联结，从而使社区成为更有凝聚力的生活共同体。

关键词　社区感，养育社区感，社区心理学，质性研究

Does parenting need a community? A qualitative study on the sense of community for parenting

Liqi Hou; Fengzhi Ma
Department of Sociology, Peking University
Corresponding Author Email: mafzhi@163.com

Abstract：Sense of Community (SOC) is an important concept in community psychology, closely linked to residents' physical and mental well-being, life satisfaction, and community engagement. Against the backdrop of rapid urbanization, the sense of community among urban parents with children aged 0-3 years is a topic worth exploring. Thus, this study introduces the concept of "Sense of Community for Parenting" (SOCP) with the aim to investigate its dimensions, influencing factors, and potential cultivation pathways.

Through literature review and qualitative interviews with parents of 0-3-year-old children in urban communities, this research reveals that for many participants who grew up in traditional rural or institution-based communities, they possess rich memories and yearnings for a sense of parenting community. However, in their current residential environments, their SOCP tends to be relatively weak.

A handful of factors hinder the formation of a sense of parenting community, including the enclosed residential mode of high-rise urban communities, lack of community organizational activities, inadequate parenting environments within the community, and potential safety hazards. Simultaneously, young parents commonly feel a shortage of time and energy for social interactions in the context of a burnout social environment. In their limited interactions, they perceive social class differences, conflicts in parenting philosophies, and new social norms in modern society.

Given the significance of fostering SOCP, community workers can center their efforts around parenting as a common theme. Through informative lectures and various activities, such as parent-child workshops, they can break down barriers resulting from multiple factors and facilitate connections among caregivers. By doing so, the community can transform into a more cohesive space.

Keywords：Sense of community, Sense of community for parenting, Community psychology, Qualitative research.

5.23 网络心理学专业委员会

拟态环境中的意见"变色龙"：
社交媒体情感极化对个体意见立场影响的双刃剑路径

白麒钰[1]（通讯作者） 陈沛[1]
1 北京大学新媒体研究院，北京，100871，通讯作者 E-mail：baiqiyu_pku@163.com

摘 要　极化的表现形式是界定群体分化和对立的重要依据，通常表现为情感、态度、意见、立场等。西方计划以党派差异为主要标签，然而在我国的语境中极化往往表现为思想立场的冲突。通过对新冠疫情时期"动态清零"管控放开的舆论分析，研究发现在国家安全议题牵涉到个体生命健康议题时存在两种意见的分化进路。一种是基于个人健康的以保证社会整体健康稳定、自身不受感染为核心诉求，指责那些建议放开疫情管控使其常态化的行为，称之为"个人健康立场"；另一种是坚持应该放开管控，以维护自身出行，反思批判公权力运作和管理中出现的诸多问题，可以称之为"自由自决立场"。

本研究通过收集中国网民在 2022 年 11 月-12 月期间关于自身健康和心理调节策略的网络问卷（N=1019），进一步研究了这种意见进路分化的影响因素。研究发现，不同个体对社交媒体舆论环境中情感极化不同的感知是影响他们采取不同意见立场的重要因素，并基于群际威胁和社会认同理论建立了情感极化-个体意见表达立场的双刃剑模型。模型说明，当个体因网络情感极化感受到更高的本体安全感威胁时，更倾向于采取“个人健康立场”的意见表达立场；当个体因网络情感极化而唤起更高的社会公正信念时，更倾向于采取“自由自决”的意见表达立场。

本研究将情感极化在中国公共健康领域意见语境下进行了个体微观层次的探讨，进一步延展了情感极化的研究视野与应用外延。选取本体安全感而非传统意义上的心理安全感作为中介变量，并验证了其在危机情境下对个体意见表达产生的作用。这一发现弥补了心理安全感在个体发展和环境连续、稳定性维度的缺失，为后续研究提供了一个可行性的思路。同时研究检验了双路径下系统性式维和启发式思维方式的调节作用。面对当下极易被操纵的网络情绪，本研究提出了侦测情绪“二极管”效应的一种路径，有助于澄清互联网中的虚假共识，真正引导政策和公共安全理论朝着理性和有利于社会建设的方向发展。

关键词　情感极化，本体安全感，社会公正信念，社交媒体，虚假共识

“Hello Chameleon”: The double-edged effects of social media affective polarization on self-regard viewpoints

Qiyu Bai*, Pei Chen
School of New Media, Peking University of China

Abstract：Polarization manifests as a significant basis for defining group differentiation and opposition, often seen in emotions, attitudes, opinions, and positions. In Western contexts, polarization is primarily labeled by party differences, while in China, it often involves conflicts in ideological stances. Through analyzing public opinions during the lifting of "zero-COVID" control measures amid the COVID-19 pandemic, this study identifies two divergent opinion pathways related to national security issues and individual health concerns. One pathway emphasizes safeguarding overall social health stability and individual well-being, criticizing suggestions to normalize epidemic control measures, termed "personal health stance." The other pathway advocates for lifting control measures to safeguard personal freedoms and criticize issues within government operations and management, termed "freedom of choice stance."

Collecting web-based questionnaires from Chinese netizens during November to December 2022 (N=1019) on personal health and psychological coping strategies, this research investigates factors influencing the divergent opinion pathways. Findings reveal that different perceptions of affective polarization in social media discourse environments significantly impact individuals' adoption of distinct opinion stances. Building on intergroup threat and social identity theories, a dual-edge model of affective polarization-individual opinion expression stance is established. The model illustrates that when individuals feel higher ontological security threats due to online affective polarization, they tend to adopt the "personal health stance." Conversely, when online affective polarization triggers stronger beliefs in social justice, individuals lean towards the "freedom of choice stance."

This study provides a micro-level exploration of affective polarization within the context of public health opinions in China, expanding the research scope and application of affective polarization. Choosing ontological security instead of traditional psychological security as a mediating variable validates its role in individual opinion expression during crisis situations. This finding fills the gap in the dimension of individual development and

environmental continuity, offering a feasible approach for future research. Moreover, the study examines the regulatory effect of systemic versus heuristic thinking under the dual pathways. In the face of easily manipulated online emotions, this research proposes a pathway for detecting the "diode effect" of emotions, aiding in clarifying false consensus on the internet, and guiding policies and public safety theories towards rational and socially beneficial directions.

Keywords：Affective polarization, ontological safety, belief in social justice, social media, false consensus

在线合作学习中的情绪对合作学习效果与认知投入的影响及合作脚本干预的作用

聂昕晓　赵明珠　刘忠健　刘海诺　房敏　田媛（通讯作者）

华中师范大学心理学院暨青少年网络心理与行为教育部重点实验室，武汉，430079，tiany@ccnu.edu.cn

摘 要　关于失败的消极反馈是较为常见的教学组成部分，对学习者的情绪、动机等均存在显著影响。在涉及消极反馈的在线合作学习情境中，情绪对合作学习效果的影响如何，目前尚未有实证研究进行考察。此外，学习者情感投入不足是目前在线合作学习面临的挑战之一，考虑到当前计算机支持的合作学习中情感设计的缺陷，亟需采取恰当设计以促进成员间情感联结、提高学生快乐感与愉悦感，实现学习者认知投入与情感投入的提升，进而改善合作学习效果。针对以上局限，本研究聚焦关于成就结果的消极反馈背景，开展了两项实验。具体来讲，实验一对在线合作中的情绪与合作学习效果、认知投入的关系进行了深入研究，即从个人角度，通过回归、相关分析等探究在线合作学习中的情绪对合作学习效果、个人认知投入的影响；从小组交互的角度，通过社会网络分析考察情绪交互对小组认知投入的影响。实验二，基于消极反馈背景，探究合作脚本干预对个人及小组层面的情绪和认知是否有积极影响，采用了单因素 (有干预、无干预) 被试间实验设计。结果表明：(1) 任务前的消极高唤醒情绪能够显著负向预测合作学习效果，任务中的积极和消极情绪与合作学习效果显著相关。此外，任务中的个人消极情绪能显著负向预测其认知贡献度，小组的情绪交互密度显著正向预测小组认知投入。(2) 消极反馈背景下，合作脚本能够显著增加任务中的积极情绪以及任务后的积极高唤醒情绪，并且能够促进合作学习效果、小组情绪交互和小组认知投入。综上，在线同步合作中，学习者的情绪及小组的情绪交互对合作学习、认知投入均具有重要作用，且合作脚本干预能够有效促进互动合作的积极情绪、合作学习与认知投入。

关键词　在线合作学习，情绪，合作学习效果，认知投入，合作脚本干预

The effect of emotion on the effectiveness of cooperative learning and cognitive engagement in online cooperative learning and the role of cooperative script intervention

NIE Xinxiao, ZHAO Mingzhu, LIU Zhongjian, LIU Hainuo, FANG Min, TIAN Yuan
School of Psychology, Central China Normal University, Key Laboratory of Adolescent Cyberpsychology and Behavior (CCNU), Ministry of Education, Wuhan, 430079,
tiany@ccnu.edu.cn

Abstract: Negative feedback about failure is a common component of teaching, which has a significant impact on learners' emotions and motivation. No empirical study has examined how emotions affect the effectiveness of cooperative learning in online cooperative learning involving negative feedback. In addition, the lack of learners' emotional engagement is one of the challenges of online cooperative learning. Considering the defects of emotional design in current computer-supported cooperative learning, it is urgent to adopt appropriate design to promote the emotional connection between members, improve students' happiness and pleasure, and realize the improvement of learners' cognitive and emotional engagement, so as to improve the effectiveness of cooperative learning. To address these limitations, two experiments were conducted, focusing on the context of negative feedback about achievement outcomes. Specifically, in Experiment 1, we explored the relationship between emotions and cooperative learning effectiveness, as well as cognitive engagement in online cooperation. That is, from the perspective of individuals, regression and correlation analysis were used to explore the effect of emotion on cooperative learning effectiveness and personal cognitive engagement in online cooperative learning. From the perspective of group interaction, social network analysis was used to examine the effect of emotional interaction on group cognitive engagement. In Experiment 2, based on the background of negative feedback, we explored whether the cooperative script intervention had positive effects on emotion and cognition at the individual and group levels, using a between-subject design with a single factor (intervention vs. without intervention). The results showed that: (1) the negative high-arousal emotion before the task could significantly negatively predict the cooperative learning effectiveness, and the positive and negative emotions during the task were significantly correlated with the cooperative learning effectiveness. In addition, individual negative emotions during the task significantly negatively predicted their cognitive contribution, and the emotional interaction density of the group significantly positively predicted group cognitive engagement. (2) Under the background of negative feedback, cooperative scripts could significantly increase the positive emotion during the task and the positive high-arousal emotion after the task, and promote the cooperative learning effectiveness, group emotional interaction and group cognitive engagement. In conclusion, in online synchronous cooperation, the emotion of learners and the emotional interaction of the group play an important role in cooperative learning and cognitive engagement, and the cooperation script intervention can effectively promote the positive emotion, cooperative learning effectiveness and cognitive engagement of interactive cooperation.

Keywords: Online cooperative learning, emotion, cooperative learning effectiveness, cognitive engagement, cooperative script intervention

媒体多任务对工作记忆表现的影响：来自行为与脑电的证据

孟素洁[1,2,3]　王伟军[1,2,3]　孔繁昌[1,2,3]（通讯作者）

1 青少年网络心理与行为教育部重点实验室

2 华中师范大学心理学院

3 湖北省人的发展与心理健康重点实验室，武汉，430079

kfcpsy@ccnu.edu.cn

摘 要　随着信息技术的快速发展，个体使用及参与媒体的方式逐渐发生改变。与以往人们通常只处理单一的媒体相比，越来越多的人倾向于进行媒体多任务。工作记忆作为人类认知活动的核心，主要负责对信息进行暂时存储和加工。在日常生活中，媒体多任务这一新兴媒体使用方式的流行可能会影响个体的工作记忆。然而，目前关于媒体多任务和工作记忆关系的研究仍存在一些局限。首先，以往研究大多没有对媒体多任务进行实验操纵；其次，目前关于考察二者关系的认知神经机制方面的研究还相对缺乏。为了弥补前人研究的不足，本研究将结合行为和认知神经证据，系统全面地探究媒体多任务类型对工作记忆的影响，主要开展以下两个研究：

研究一通过启动范式操纵媒体多任务，采用 N-back 任务检验工作记忆，考察了同时（26 名）和顺序媒体多任务组（24 名）在不同认知负荷下的工作记忆差异。研究结果发现，在正确率和辨别力指数 d’指标上，当认知负荷处于 1-back 水平时，同时组在工作记忆上的表现显著差于顺序组；处于 2-back 水平时，同时组的表现显著差于顺序组只体现在正确率指标上，d’无显著差异；而处于 3-back 水平时，两组表现无显著差异。这表明媒体多任务类型损害工作记忆，且受到认知负荷的调节。

研究二重复研究一的实验范式，招募被试 48 名并随机分配至同时、顺序媒体多任务组，考察他们在工作记忆任务上的行为以及事件相关电位和神经振荡指标。结果发现，在行为指标正确率、反应时和 d’上，同时组的工作记忆均显著差于顺序组。在 ERPs 指标方面，同时媒体多任务组在额区 P2 成分上的潜伏期显著长于顺序组，波幅显著小于顺序组；在 EEG 神经振荡方面，同时组和顺序组在额区 theta 振荡上差异显著，在顶区 theta 振荡上差异边缘显著，均为同时组的 theta 振荡能量小于顺序组；两组在顶区 alpha 振荡上无显著差异。

研究结果验证了媒体多任务对认知的损害效应，在行为和认知神经层面全面揭示了媒体多任务对工作记忆的影响及作用机制，为引导正确地使用媒体任务并进行干预具有一定的借鉴意义。

关键词　媒体多任务,工作记忆,事件相关电位,神经振荡

The Effect of Media Multitasking on Working Memory Performance: Behavioral and EEG Evidences

Meng Sujie[abc], Wang Weijun[abc], Kong Fanchang[abc]

[a]Key Laboratory of Adolescent Cyberpsychology and Behavior(CCNU), Ministry of Education, Wuhan 430079, China;

[b] School of Psychology, Central China Normal University;

[c] Key Laboratory of Human Development and Mental Health of Hubei Province, Wuhan 430079, China

***Abstract*:** With the rapid development of information technology, the way individuals use media and engage with them is gradually changing. Compared to the past when people usually only deal with one single media, more and more people tend to engage in media multitasking. Working memory, as the core of human cognitive activities, is primarily responsible for the temporary storage and processing of information. The popularity of media multitasking, an emerging media use in daily life, may affect individuals' working memory. However, there are still some limitations in current research on the relationship between media multitasking and working memory. First, most previous studies have not experimentally manipulated media multitasking; second, there is a relative lack of research on cognitive neural mechanisms underlying the relationship between the two. In order to make up for the shortcomings of previous studies, this present study will combine behavioral and cognitive neural evidence to systematically and comprehensively explore the impact of media multitasking types on working memory by conducting the following two main studies.

Study 1 examined the differences in working memory between the simultaneous (n=26) and sequential media multitasking groups (n=24) at different cognitive loads by using a priming paradigm to manipulate media multitasking and using an N-back task to examine working memory. The results found that the simultaneous group performed significantly worse than the sequential group on working memory when the cognitive load was at the 1-back level on the accuracy and the sensitivity (d'), and the simultaneous group performed significantly worse than the sequential group on working memory when the cognitive load was at the 2-back level only on the accuracy, while there was no significant difference in the working memory performance of the two groups at the 3-back level on the accuracy and the sensitivity (d'). This suggests that media multitasking negatively affects working memory and is moderated by cognitive load.

Study 2 repeated the experimental paradigm of Study 1, recruited 48 participants and randomly assigned them to the simultaneous and the sequential media multitasking groups, and examined their behavioral differences in working memory performance as well as event-related potentials and neural oscillations. It was found that the simultaneous group all performed significantly worse than the sequential group in terms of the behavioral indicators (accuracy, reaction time and d'). In terms of ERPs metrics, the simultaneous media multitasking group had significantly greater latencies and significantly smaller wave amplitudes than the sequential group on the P2 component of the frontal area. In terms of EEG neural oscillations, the differences between the simultaneous and sequential groups were significant in frontal theta oscillations and marginally significant in parietal theta oscillations, both of which were less energetic in the simultaneous group than in the sequential group; there was no significant difference in parietal alpha oscillations.

The results verify the cognitive impairment effect of media multitasking and comprehensively reveal the effect and mechanism of media multitasking on working memory at both the behavioral and cognitive neural levels. Our research has implications for guiding correct media tasks and conducting interventions.

***Keywords*:** Media multitasking, Working memory, Event-related potentials, Neural oscillations

大学生网络视频成瘾倾向与孤独感、弹幕偏好的关系：一项混合方法研究

严志豪[1,2] 杨泽旸[1]（通讯作者）
1 苏州大学教育学院心理系，苏州，215123
2 安徽师范大学教育科学学院，芜湖，241000
通讯作者 E-mail：zyyang@suda.edu.cn

摘 要

背景：网络视频因其高沉浸感、高社交属性、不断刷新等特点，易导致成瘾问题，引起孤独感等心理健康问题。弹幕是观看网络视频时弹出的匿名评论性字幕，能够满足观看视频者“社会互动”的需求，创造出一种许多人陪着你一起看视频的“错觉”。

方法：研究一以处于教育过渡期的大一新生为样本（N=685），进行三次纵向追踪施测（每次间隔四个月），并通过交叉滞后分析探究个体网络视频成瘾倾向与孤独感之间相互影响的关系。研究二调查自我报告的“弹幕偏好”与孤独感、网络视频成瘾倾向之间的关系（N=316）。研究三在实验室中模拟人们观看网络视频的真实情境，并通过眼动追踪仪器（Eyelink 1000 Plus）记录被试观看网络视频时对弹幕区域的注视情况，进一步探究上述研究变量之间的关系（N=204）。

结果：

（1）大一新生网络视频成瘾倾向与孤独感之间存在较为稳定的中等正相关关系，三次施测相关系数分别为 0.24、0.31、0.30，$p < .001$。且交叉滞后分析表明两者之间存在纵向的双向预测关系。

（2）大一新生入学以后，网络视频成瘾倾向得分呈逐步上升趋势。且网络视频成瘾人数有所增加，三次施测成瘾检出率分别为 1.2%、3.7%、4.2%。而大一新生孤独感的平均水平整体较为稳定。

（3）大学生自我报告的弹幕偏好程度整体较高，且在观看网络视频时对弹幕区域注视较多，对弹幕区域的平均注视时间、次数百分比分别为 15%、19%。

（4）孤独的人自我报告的弹幕偏好水平不一定更高，但在观看网络视频时却对弹幕注视更多。网络视频成瘾者自我报告的弹幕偏好水平更高，且在观看网络视频时对弹幕注视也更多。

讨论：基于以上结果，为有效预防和减少大学生网络视频成瘾提出以下两点对策，首先，学校及家庭应加强教育、鼓励大学生养成良好的网络（视频）使用习惯，同时对易感人群（高孤独感、适应不良）保持重点关注和及时干预。其次，网络视频平台应受到更严格的监管，在防止用户“成瘾”方面做出更多的改变，如在视频中加入更多善意的防沉迷弹幕提醒。

关键词 网络视频成瘾倾向,孤独感,弹幕偏好

The relationship between university students' online video addiction tendency, loneliness and danmu preference: a mixed methods study

Zhihao Yan[1,2], Zeyang Yang[1*] (corresponding author)
[1]Department of Psychology, School of Education, Soochow University, Suzhou, 215123
[2]School of Educational Science, Anhui Normal University, Wuhu, 241000
Corresponding author’s E-mail：zyyang@suda.edu.cn

***Abstract*：**

Background： Online videos, due to their high level of immersion, social attributes, and constant refreshing, can easily lead to addiction problems and cause psychological health issues such as loneliness. Danmu is the anonymous comment subtitles that pop up when watching online videos, which can satisfy the viewers' need for "social interaction" and create an illusion of many people watching the video together with you.

Methods： In study 1, we recruited first-year undergraduates who were in the transitional period of education (N=685). A three-wave longitudinal study (with four-month intervals) was conducted to explore the bidirectional relationship between online video addiction tendency and loneliness through cross-lagged analysis. Study 2 investigated the relationship between self-reported "Danmu preference" loneliness and online video addiction tendency (N=316). Study 3 simulated the real situation of people watching online videos in the laboratory, and recorded the participants' fixation on the Danmu area when watching online videos through eye-tracking equipment (Eyelink 1000 Plus), and further explored the relationship between the above research variables (N=204).

Results:

(1) There was a relatively stable moderate positive correlation between online video addiction tendency and loneliness among freshmen ($r = .24, .31, 30$, $p < .001$). The cross-lagged model analysis showed that there was a longitudinal bidirectional relationship between the two variables.

(2) After freshmen entered university, the score of online video addiction tendencies gradually increased. The number of online video addicts increased, and the rates of addiction in the three tests were 1.2%, 3.7%, and 4.2%, respectively. The average level of loneliness among freshmen is relatively stable overall.

(3) College students' self-reported preference for danmu comments was generally high, and they gazed at danmu areas frequently when watching online videos. The average percentages of fixation duration time and counts of danmu areas were 15% and 19%, respectively.

(4) The self-reported danmu preference level of lonely people was not necessarily higher, but they gazed more at Danmu when watching online videos. Online video addicts reported a higher level of danmu preference, and they also gazed more at Danmu when watching online videos.

Discussion： Based on the above results, the following two suggestions are put forward in order to effectively prevent and reduce university students' online video addiction. First, schools and families should strengthen education and encourage students to develop good habits of using the internet (online video). Meanwhile, it is necessary to maintain focused attention and timely intervention on vulnerable individuals (high loneliness, maladjustment). Secondly, online video platforms should be more strictly regulated, and more changes should be made to prevent users from "addiction", such as adding more well-intentioned anti-addiction Danmu comments.

***Keywords*：** online video addiction tendency; loneliness; Danmu preference

教师生成性绘画对学习者视频学习效果的影响研究

刘忠健[1] 聂昕晓[1] 刘海诺[1] 房敏[1] 田媛[1]（通讯作者）

1 华中师范大学心理学院暨青少年网络心理与行为教育部重点实验室，武汉，430079

通讯作者 Email: tiany@ccnu.edu.cn

摘　要 随着在线视频学习的广泛使用，越来越多优质的教学视频被设计出来，而教师生成性绘画作为一种

新颖的视频内容呈现方式，其有效性的相关研究较为缺乏。同时，学习者作为学习的主体，先验知识水平的不同是否均能从教师生成性绘画中受益，以及学习者采用怎样的学习策略更好地发挥其效用等问题尚没有统一结论。基于以上问题，本研究通过两个实验室实验探讨在线视频学习中采用教师生成性绘画的呈现方式对学习者的学习体验和学习结果的影响。实验一通过选择不同先验知识（高 vs 低）的学习者，探讨视频学习环境中教师生成性绘画的呈现方式对不同类型学习者的影响差异。实验二进一步聚焦于低先验知识学习者，考察生成性学习策略（自我解释 vs 重复观看）在教师生成性绘画的呈现方式下，对学习者学习效果的促进作用。结果发现：（1）相比于动画和图片呈现，教师生成性绘画可以提高低先验知识学习者的学习效果，但并不影响高先验知识学习者。（2）对于低先验知识学习者，在生成性绘画条件下，自我解释策略对学习的促进作用显著低于重复观看策略，而在动画条件下，自我解释策略的作用则显著高于重复观看策略。其中教师生成性绘画与重复观看策略的组合对学习效果的促进作用最佳，而动画呈现与重复观看策略组合效果最差。（3）学习者生成自我解释的质量能够显著预测其保持测验和迁移测验成绩。综上，视频学习中，教师生成性绘画对于低先验知识学习者的学习效果具有十分明显的促进作用，并且其与重复观看策略的组合能够取得最佳的效果。

关键词 视频学习，教师生成性绘画，学习者先验知识，自我解释学习策略，学习效果

Research on the Influence of Instructor-Generated Drawings on Learners' Video Learning Performance

LIU Zhongjian[1], NIE Xinxiao[1], LIU Hainuo[1], FANG Min[1], TIAN Yuan[1]

1 School of Psychology, Central China Normal University, Key Laboratory of Adolescent Cyberpsychology and Behavior (CCNU), Ministry of Education, Wuhan 430079, China

Email: tiany@ccnu.edu.cn

Abstract：With the widespread use of online video learning, more and more high-quality teaching videos have been designed. As a novel content presentation mode, instructor-generated drawings lack relevant research on their effectiveness. At the same time, as the main body of learning, whether learners with different levels of prior knowledge can benefit from instructor-generated drawings, and what learning strategies should be adopted to maximize the role of instructor-generated drawings, there is no unified conclusion. Based on the above questions, this study explored the influence of instructor-generated drawings on learning experience and results in video learning through two laboratory experiments. In Experiment 1, learners with different prior knowledge (high vs low) were selected to explore the differences in the influence of instructor-generated drawings in video learning. Experiment 2 focused on learners with low prior knowledge and examined the promotion of generative learning strategies (self-explanation vs repeated watching) on learning performance under the instructor-generated drawings. The research shows that: (1) Compared with animation and pictures, instructor-generated drawings can improve the learning performance of learners with low prior knowledge, but it does not affect learners with high prior knowledge. (2) For learners with low prior knowledge, under the condition of instructor-generated drawings, the effect of self-explanation strategy on learning is significantly lower than that of repeated watching. In contrast, under the condition of animation, the effect of self-explanation strategy is significantly higher than that of repeated watching. Among them, the combination of instructor-generated drawings and repeated watching has the best effect on learning performance. (3) Learners' self-explanation quality can significantly predict their retention and transfer test scores. In summary, in video learning, instructor-generated drawings have apparent improvement on the learning performance of learners with low prior knowledge, and its combination with repeated watching strategies can achieve the best results.

Keywords：video learning, instructor-generated drawings, learners' prior knowledge, self-explanation strategies, learning performance

网络受排斥对青少年人际交往意愿的影响：社交焦虑的中介作用

许春艳　谢笑春（通讯作者）

东北师范大学心理学院，长春，130024，psyxiexc@163.com

摘 要　在线社交媒体正在日益渗透我们的生活，一方面促进了人际互动，但另一方面也增加了问题网络行为的风险，例如网络成瘾和网络受排斥。网络受排斥，是指在网络社会交往过程中，个体对归属和关系的需求因社交关系的中断而受到阻碍的现象和过程。与儿童期和成年期相比，青春期的个体在网络社交过程中情绪更敏感，更容易经历网络排斥。以往研究表明，遭受网络排斥的青少年会表现出更多的攻击行为、精神健康受损等，但较少关注网络受排斥对青少年人际交往方面的影响。基于威胁——需要的时间模型，长期遭受网络排斥的个体会进入退避阶段，不愿进行人际交往。因此，本研究旨在探究网络受排斥对青少年人际交往意愿的影响，并揭示社交焦虑的中介作用。本研究采用问卷法对西南地区 2 所中学 716 名学生（平均年龄 16.46 ± 0.98 岁，其中男生占比为 58.10%）的网络受排斥、人际交往意愿和社交焦虑进行间隔 3 个月的 3 次追踪调查,通过 Mplus 8.3 构建结构方程模型考察网络受排斥对青少年人际交往意愿的预测作用以及社交焦虑的中介作用。结果显示：在控制年龄和性别后，（1）T1 网络受排斥负向预测青少年的 T3 人际交往意愿；（2）T2 社交焦虑在 T1 网络受排斥和 T3 人际交往意愿间起到中介作用。上述分

析本研究得到如下结论：青少年在受到网络排斥一段时间后，会产生更高水平的社交焦虑，进而降低人际交往意愿。本研究一方面丰富了网络受排斥领域以及威胁——需要的时间模型的实证研究；另一方面，为青少年人际交往的干预提出了新的科学依据。

关键词　网络受排斥，青少年，社交焦虑，人际交往意愿

The Effect of Cyber-ostracism on Adolescents' Interpersonal Willingness: The Mediating Role of Social Anxiety

Chunyan Xu, Xiaochun Xie
School of Psychology, Northeast Normal University, Changchun, 130024

Abstract： Online social media are increasingly permeating our lives. It facilitates interpersonal interactions, but increases the risk of problematic online behaviors, such as Internet addiction and cyber-ostracism. Cyber-ostracism, as a form of cyberbullying, refers to the phenomenon and process by which an individual's need for belonging and relationships during online social interactions is hampered by the disruption of social relationships. Compared to childhood and adulthood, adolescents are more emotionally sensitive during online socialization and more likely to experience cyber-ostracism. Previous research has shown that adolescents who experience cyber-ostracism exhibit more aggressive behaviors, impaired mental health, etc. However, less attention has been paid to the effects of cyber-ostracism on the interpersonal aspects of adolescent socialization. Based on the threat-need temporal model, individuals who suffer from cyber-ostracism for a long period of time enter a withdrawal phase and are reluctant to engage in interpersonal interactions. Therefore, this study aimed to investigate the effects of cyber-ostracism on adolescents' willingness to engage in interpersonal interactions and to reveal the mediating role of social anxiety. The present study used the questionnaire method to conduct three follow-up surveys at 3-month intervals on cyber-ostracism, interpersonal willingness, and social anxiety among 716 students (M_{age} = 16.46 ± 0.98, 58.10% boys) in two middle schools in Southwest China. Structural equation modeling with Mplus 8.3 was used to examine the predictive role of cyber-ostracism on adolescents' willingness to engage in interpersonal interactions and the mediating role of social anxiety. The results showed that, after controlling for age and gender, (1) T1 cyber-ostracism negatively predicted adolescents' T3 interpersonal willingness, and (2) T2 social anxiety mediated the relationship between T1 cyber-ostracism and T3 interpersonal willingness. We conclude that adolescents who have been cyber-ostracized for a period of time develop higher levels of social anxiety, which in turn reduces the willingness of interpersonal interaction. On the one hand, this study enriches the empirical research in the field of cyber-ostracism and the temporal threat-need model. On the other hand, the results suggest a new scientific basis for interventions in adolescents' interpersonal interactions.

Keywords： cyber-ostracism, adolescents, interpersonal willingness, social anxiety

大学生社交焦虑与社交媒体使用的纵向关系：一项交叉滞后分析

尹学琴[1,2]，王金良[2]（通讯作者）
1 重庆工商大学文学与新闻学院，重庆，400067
2 西南大学心理学部心理健康教育研究中心，重庆，400715，
通讯作者 E-mail: wangjinliang09@gmail.com

摘 要 社交焦虑是指一种逃避社交互动抑或在与他人互动的过程中表现得压抑的状态。以往研究已经证实，社交焦虑与社交媒体使用之间存在正向关系，社交焦虑程度越高的个体越倾向于使用数字技术来逃避面对面交往。然而，目前关于社交焦虑个体在社交媒体上的具体行为偏好和使用效果仍不清楚。鉴于社交媒体的社交互动功能和潜在网络威胁，本研究拟从寻求社交与寻求安全的角度来探讨社交焦虑与社交媒体两种具体使用行为之间的关系，具体是探讨社交焦虑与主动性使用和网络安全寻求行为之间的关系，并探讨其中潜在的性别差异。通过对 523 名 18 至 26 岁的大学生（$M_{年龄}$ = 19.78, SD = 1.26）开展为期半年的纵向追踪，进行交叉滞后模型分析，结果发现，社交焦虑与社交媒体使用存在交叉滞后关系，但这种关系通过不同的使用行为来实现。具体而言，T1 社交焦虑显著正向预测 T2 社交媒体安全寻求行为；T1 主动性使用负向预测 T2 社交焦虑。此外，多群组分析结果表明，对男生而言，T1 社交媒体主动性使用负向预测 T2 社交焦虑；但对女生而言，T1 社交焦虑正向预测 T2 社交媒体安全寻求行为。上述研究结果表明，就行为偏好而言，社交焦虑与个体在社交媒体上寻求安全（而非寻求联系）的行为倾向有关；但从使用效果层面来看，只有寻求联系（而非寻求安全）的使用倾向有助于降低社交焦虑水平。总之，本研究为理解社交焦虑个体为何无法通过使用社交媒体实现“弱者变强”提供了见解，也为基于性别差异的在线行为干预提供了方向与指导。

关键词 社交焦虑，社交媒体使用，性别差异，交叉滞后分析

The longitudinal relationship between social anxiety and social media use among undergraduate students: A cross-lagged analysis

Xue-Qin Yin [1, 2], Jin-Liang Wang [2*]
[1] School of Literature and Journalism, Chongqing Technology and Business University, Chongqing, Chongqing, China.
[2] Center for Mental Health Education, Faculty of Psychology, Southwest University, Chongqing, China.
[*] Correspondence to: Center for Mental Health Education, Faculty of Psychology, Southwest University, *No. 2 Tiansheng Road*, *Beibei District*, Chongqing, China, 400715. Email: wangjinliang09@gmail.com

Abstract: Social anxiety refers to one’s state of avoiding social interactions and appearing inhibited in such interactions with other people. Previous studies have demonstrated a positive association between social anxiety and social media use, and individuals with higher levels of social anxiety are more inclined to use digital technologies to avoid face-to-face communication. Nevertheless, how these individuals would use social media or what media effect they would receive from that use is unknown. Considering the social function and the potential risks of social media, this study aims to investigate the relationships between social anxiety and two kinds of social media use (i.e., active usage behaviors and online safety-seeking behaviors) and also explore the potential gender difference. Using a longitudinal data of 523 emerging adults aging from 18 to 26 years old (M_{age} = 19.78, SD =

1.26), results of cross-lagged analyses revealed a reciprocal relationship between social anxiety and social media use, while this relation varied across different usage behaviors. Specifically, social anxiety was positively associated with online safety-seeking behaviors over time, while active social media use would decrease the level of social anxiety over time. Moreover, the multi-group analysis indicated that for boys, T1 active use could negatively predict the level of social anxiety at T2, while for girls, T1 social anxiety could positively predict T2 safety-seeking behaviors. These findings suggest that social anxiety was related to the behavioral preference for seeking safety over seeking connection on social media, while one's tendency of seeking connection rather than seeking safety could decrease the level of social anxiety. overall, this study provides insights for understanding why socially anxious individuals cannot get socially richer from using social media, and also provides direction and guidance for online behavioral interventions based on gender differences.
Keywords: social anxiety, social media use, gender difference, cross-lagged analysis

特质愤怒与青少年网络欺负的关系:友谊嫉妒的中介作用与感知学校消极氛围的调节作用

张甜[12]　石慧芬[12]　范翠英[12]（通讯作者）

1 青少年网络心理与行为教育部重点实验室，武汉，430079

2 华中师范大学心理学院，武汉，430079，fancy@ccnu.edu.cn

摘 要　网络欺负是随着电子信息技术的发展而出现的新的欺负形式，它是青少年群体中一种高发的行为问题。特质愤怒是青少年网络欺负的风险因素，然而特质愤怒与网络欺负之间的内在机制还需要进一步探索。本研究综合个体因素（人格特质和情绪）以及学校因素对青少年网络欺负行为的发展进行探究，建立了一个有调节的中介模型，探讨了友谊嫉妒在特质愤怒与网络欺负之间的中介作用，以及感知学校消极氛围的调节作用。本研究以 1699 名青少年为研究对象，采用特质愤怒量表、友谊嫉妒问卷、学校氛围量表和网络欺负量表进行问卷调查。结果表明：（1）在控制了性别、年龄、传统欺负后，特质愤怒显著正向预测青少年网络欺负。（2）友谊嫉妒在特质愤怒与网络欺负的关系中起部分中介作用。（3）感知学校消极氛围在特质愤怒与网络欺负之间的直接路径以及友谊嫉妒中介效应的后半段路径起调节作用。具体来说，特质愤怒与青少年网络欺负之间的正向关系以及友谊嫉妒与青少年网络欺负之间的正向关系都仅在高感知学校消极氛围水平下显著。本研究丰富了网络欺负领域的相关研究，揭示了特质愤怒怎样影响青少年网络欺负以及在何种条件下对青少年网络欺负的影响更强或者更弱，对预防青少年网络欺负具有一定的指导意义。首先，家长与老师需要帮助青少年正确表达愤怒，学会接受友谊的变化，减少友谊嫉妒的情绪。其次，学校要塑造积极的学校环境。通过这两方面以降低青少年出现网络欺负行为的风险。

关键词　特质愤怒，网络欺负，友谊嫉妒，感知学校消极氛围

Trait anger and adolescent cyberbullying: The mediating role of friendship jealousy and the moderating role of negatively perceived school climate

Tian Zhang[12], Huifen Shi[12], Cuiying Fan[12]
1 Key Laboratory of Adolescent Cyberpsychology and Behavior, Wuhan, 430079
2 School of Psychology, Central China Normal University, Wuhan, 430070

Abstract：Cyberbullying is a new form of bullying that has emerged with the development of electronic information technology, and it is a highly prevalent behavioral problem among adolescents. Trait anger has been shown to serve as an adolescent cyberbullying risk factor. However, the mechanisms underlying this relationship need further exploration. The present study explored the development of adolescent cyberbullying by integrating individual factors (personality trait and emotion) as well as school factor, and developed a moderated mediation model to explore the the mediating role of friendship jealousy and the moderating role of negatively perceived school climate in the association between trait anger and cyberbullying. Questionnaires were completed by 1699 Chinese adolescents regarding demographics, traditional bullying, trait anger, friendship jealousy, negatively perceived school climate, and cyberbullying. The study results revealed that trait anger was positively related to cyberbullying and that friendship jealousy partially mediated this relationship. Negatively perceived school climate moderated the direct and indirect effects of trait anger and cyberbullying, and that these effects were significant only for adolescents with a high level of negatively perceived school climate. This study enriches related research in the field of cyberbullying by revealing how trait anger affects adolescent cyberbullying and under what conditions it is stronger or weaker, which is instructive for the prevention of adolescent cyberbullying. First, parents and teachers need to help adolescents express anger properly, learn to accept changes in friendships, and alleviate friendship jealousy. Second, schools need to shape a positive school environment. Through these two aspects in order to reduce the risk of adolescents' cyberbullying.

Keywords：Trait anger, Cyberbullying, Friendship jealousy, Negatively perceived school climate

“越害怕错过越冲动？”

错失恐惧和对社交媒体线索的自发接近反应的实验研究

钟丹[12] 许放[12] 郭嘉程[12] 周宗奎[12]（通讯作者）

1 青少年网络心理与行为教育部重点实验室，武汉，430079
2 华中师范大学心理学院暨湖北省人的发展与心理健康重点实验室，武汉，400379，zhouzk@ccnu.edu.cn

摘 要 现如今，随着社交媒体的发展，人们的生活变得更加便利。但是与此同时，错失恐惧现象变得更加普遍且严重。以往研究发现，错失恐惧对社交媒体成瘾有重要预测作用。然而，关于错失恐惧与社交媒体成瘾的内部作用机制的实证研究还不够丰富，且极少从认知的角度探讨作用机制。因此，本研究拟通

过实验法探讨错失恐惧与对社交媒体线索的自发接近反应之间的因果关系，从而从认知的角度丰富对错失恐惧与社交媒体成瘾的作用机制的认识。此外，由于关于错失恐惧诱发方法的研究相当匮乏，本研究拟通过实验法探讨三种自主设计的诱发方法是否能有效诱发被试产生错失恐惧。围绕以上两个研究目的，本研究进行了两个实验：实验一旨在探究有效的错失恐惧诱发方法。该实验以 112 名在校大学生为有效被试，通过对不同实验组（自己手机振动组、实验室手机振动组、想象任务组）使用不同错失恐惧诱发方法（“让被试在等待时间听到自己手机振动声但不能查看手机”、“让被试在等待时间听到实验室手机振动声但不能查看手机”、“想象范式”），并将实验组被试的焦虑水平与错失恐惧程度与空白对照组进行比较，从而探讨有效诱发方法。研究结果表明，三组实验组中仅有想象任务组被试的焦虑水平与错失恐惧程度显著高于空白对照组的。实验二，基于实验一的结果，探究了错失恐惧与对社交媒体线索的自发接近反应的因果关系。该实验以 64 名在校大学生为有效被试，对实验组进行错失恐惧诱发操作，而不对空白控制组进行任何诱发操作，然后让两组被试完成刺激-反应兼容范式来测量其对社交媒体线索的自发接近反应强度。结果表明，在对社交媒体线索的自发接近反应上，实验组和空白对照组并不存在显著差异。

关键词　错失恐惧，自发接近反应，社交媒体成瘾，冲动系统

“More fear of missing out, more impulsive?” An experimental study of fear of missing out and spontaneous approach reactions toward social media cues

Zhong Dan[a b]　Xu Fang[a b]　Guo Jiacheng[a b]　Zhou Zongkui[a b]

a Key Laboratory of Adolescent Cyberpsychology and Behavior(CCNU), Ministry of Education, Wuhan 430079

b School of Psychology, Central China Normal University; Key Laboratory of Human Development and Mental Health of Hubei Province, Wuhan 430079

Abstract：Nowadays, with the development of social media, people's life has become more convenient, but at the same time, the fear of missing out (FoMO) has become more common and serious. Previous studies have found that FoMO is an important predictor of social media addiction. However, empirical studies on the internal mechanism of FoMO and social media addiction are not rich enough, and the mechanism is rarely discussed from the perspective of cognition. Therefore, this study intended to explore the causal relationship between FoMO and spontaneous approach reactions toward social media cues through experimental methods, so as to enrich the understanding of the mechanism of FoMO and social media addiction from the cognitive perspective. In addition, due to the lack of research on FoMO inducing methods, this study intended to explore whether three self-designed FoMO inducing methods can effectively induce participants’ FoMO through experimental methods. Based on these two research purposes, we conducted two studies:Study 1 was to explore the effective FoMO inducing methods. In this study, 112 college students were selected as valid participants. By using different FoMO inducing methods ("let the participants hear the vibration sound of their own mobile phone but not check it during the waiting time", "let the participants hear the vibration sound of the lab’s mobile phone but not check it during the waiting time", "imagination paradigm") on the different experimental groups (own phone vibration group, lab’s phone vibration group, imagination task group) and comparing anxiety level and the degree of the FoMO of experimental groups and blank control group, we thus discussed the efficient inducing methods.The results showed

that among the three experimental groups, the level of anxiety and FoMO in the imagination task group were significantly higher than those in the blank control group.Study 2, based on the results of Study 1, explored the causal relationship between FoMO and spontaneous approach reactions toward social media cues. In this study, 64 college students were selected as valid participants. And this study conducted FoMO inducing operation in the experimental group, but not in the blank control group.And then let two groups' participants complete the Stimulus-Response Compatibility task. The results showed that there was no significant difference in spontaneous approach reactions toward social media cues between the experimental group and the blank control group.

Keywords：fear of missing out, spontaneous approach reactions, social media addiction, impulsive system

自我肯定缓冲在线沉默对被排斥感的影响：基于亲密关系中即时通讯的研究

刘瑶瑶 谢笑春（通讯作者）

东北师范大学心理学院，长春，130024，xiexc713@nenu.edu.cn

摘　要 信息化时代下即时通讯成为维系亲密关系的重要工具，人们会时常查看手机并保持“永远在线”的状态。不过在人们发出消息后迟迟收不到消息的现象也随处可见。当人们发出求助消息后，很可能面临对方迟迟没有回应的社交情境，这种现象就是在线沉默。在线沉默是一种模糊的社交情境，它会降低亲密关系满意度并威胁个体的基本心理需要满足。但在线沉默与被排斥感之间的关系尚不明确。本研究采用两个研究探讨了处于亲密关系中的个体遭遇在线沉默是否会产生被排斥感，以及这种效应是否能被自我肯定缓冲。研究 1 采用问卷法探究了在线沉默与被排斥感之间的关系。研究 1a 采用自编问卷对 452 名大学生进行调查，结果发现，大多数人经历过使用即时通讯软件紧急求助但遭遇在线沉默，并且大多数人表示在经历在线沉默时会产生被忽视、被排斥的感觉。研究 1b 采用自编问卷探究在线沉默时长与被排斥感的关系(n=427)，结果发现，在线沉默时长与被排斥感之间呈线性关系，在线沉默时间越长个体的被排斥感越高。研究 2 采用 3（情境：立即回复 /短时在线沉默 5-10 分钟/长时在线沉默 120-180 分钟）×3（自我肯定：内部自我肯定/外部自我肯定/无自我肯定）被试间设计进一步探究在线沉默和自我肯定对个体被排斥感的影响（n=151）。结果发现：（1）相比于立即回复组，在线沉默组的被排斥感更高。长时在线沉默组的被排斥感高于短时在线沉默组。（2）相比于无自我肯定组，自我肯定组的被排斥感降低更多。内部自我肯定组的被排斥感降低多于外部自我肯定组。（3）在立即回复条件下，三组的被排斥感无差异；在在线沉默条件下，内部自我肯定组的被排斥感降低多于外部自我肯定组和无肯定组，外部自我肯定组的被排斥感降低多于无肯定组。结果表明：亲密关系一方的在线沉默会使得消息发出者产生被忽视、被排斥的消极体验，而自我肯定能够缓冲在线沉默对被排斥感的这一消极作用。本研究结果有助于理解即时通讯背景下网络社会排斥的内在机制及其与在线沉默的关系。

关键词 自我肯定，在线沉默，网络社会排斥，即时通讯，亲密关系

The effect of self-affirmation buffering online silence on feelings of exclusion: based on instant messaging in intimate relationships

Yaoyao Liu, Xiaochun Xie
School of Psychology, Northeast Normal University, Changchun

Abstract : In the information rea, instant messaging has become an important tool to maintain intimate relationships, and people will often check their mobile phones and stay "always on". However, delays in receiving messages after they are sent out are also common. When people send a message for help, they are likely to face a social situation where the other party has not responded, which is a phenomenon called online silence. Online silence is an ambiguous social situation that reduces intimate relationship satisfaction and threatens individuals' basic psychological needs. But the relationship between online silence and feelings of exclusion is less clear.Two studies were used to investigate whether individuals in intimate relationships who experience online silence experience feelings of exclusion, and whether this effect can be buffered by self-affirmation. Study 1 used a questionnaire to explore the relationship between online silence and feelings of rejection. In study 1a, a self-designed questionnaire was used to survey 452 college students, and the results found that most of them had experienced online silence while using instant messaging for emergency help, and most of them said that they would feel ignored and excluded when experiencing online silence. In study 1b, a self-designed questionnaire was used to explore the relationship between online silence duration and feelings of exclusion (n=427). The results showed that there was a linear relationship between online silence duration and feelings of exclusion, and the longer the online silence duration, the higher the feelings of exclusion. In study 2, a 3 (scenario: immediate response/short online silence 5-10 minutes/long online silence 120-180 minutes) ×3 (self-affirmation: internal self-affirmation/external self-affirmation/non-self-affirmation) intersubject design was used to further explore the effects of online silence and self-affirmation on individuals' feelings of exclusion (n=151). The results showed that: (1) Compared with the immediate response group, the online silence group had a higher sense of rejection. The feelings of rejection in the long online silence group were higher than those in the short online silence group. (2) Compared with no self-affirmation,self-affirmation group feelings of exclusion to reduce more. The internal self-affirmation group had a lower feelings of exclusion than the external self-affirmation group. (3) Under the

immediate response condition, there was no difference in the feelings of exclusion among the three groups;In the online silence condition, the internal self-affirmation group had a greater reduction in the feelings of exclusion than the external self-affirmation group and the non-self-affirmation group, and the external self-affirmation group had a greater reduction in the feelings of exclusion than the non-affirmation group. The results show that the online silence of an intimate relationship can make the message sender have a negative experience of being ignored and excluded, and self-affirmation can buffer the negative effect of online silence on the feeling of exclusion. The results of this study help to understand the internal mechanism of online social exclusion in the context of instant messaging and its relationship with online silence.

Keywords：self-affirmation, online silence, online social exclusion, instant messaging, intimacy

气候变化报道、生态焦虑与亲环境行为：实验证据与弹性悖论

邵 蕾[1] 俞国良[2]（通讯作者）

1 中国人民大学教育学院，北京，100872

2 中国人民大学心理研究所，北京，100872，yugllxl@sina.com

摘 要 媒体作为“风险放大站”，对气候变化的报道会增加人们对生态环境的关注和环保行为。虽然已有较多证据表明，媒体报道是生态焦虑和亲环境行为的重要预测因素，但是很少有研究探讨它们之间的因果关系。此外，弹性悖论指出，个体在面对实际发生的自然灾害时，高心理弹性个体在出现较少的负性情绪的同时也会减少应对行为。然而，弹性悖论是否适用于媒体对气候危机的报道，有待探究。为此，本研究通过线上实验（研究 1，N=284）和问卷调查（研究 2，N=507），分别对气候变化报道与生态焦虑和亲环境行为之间的因果关系，以及生态焦虑的中介作用和心理弹性的调节作用进行检验。结果发现，研究 1 中实验组被试阅读关于全球气候变暖的新闻后，其生态焦虑水平和对环保组织的捐款数额均高于对照组；但生态焦虑与亲环境行为之间的关系不显著。研究 2 发现，日常生活中对气候变化报道的关注与生态焦虑和亲环境行为呈正相关，生态焦虑在其中起中介作用。此外，弹性悖论可以解释个体面对媒体报道时的情绪和行为。高心理弹性者的生态焦虑程度较低，但其亲环境行为也较少。研究结果表明，在利用媒体报道提高人们的环保行为参与度时，应考虑其可能引发的生态焦虑的水平以及个体特征的影响。未来研究应关注个人福祉与环境可持续性之间的平衡发展。

关键词 媒体报道，生态焦虑，亲环境行为，心理弹性

Media coverage of climate change, eco-anxiety and pro-environmental behavior: Experimental evidence and the resilience paradox

Shao Lei[1], Yu Guoliang[2] (Corresponding author)

1 School of Education, Renmin University of China, No.59, Zhongguancun Street, Haidian District, Beijing 100872, China

2 Institute of Psychology, Renmin University of China, No.59, Zhongguancun Street, Haidian District, Beijing 100872, China, yugllxl@sina.com

Abstract：As a risk amplification station, media coverage of climate change affects people's concerns about ecological environment and pro-environmental behaviors. Substantial evidence has revealed that media coverage is a crucial predictor of eco-anxiety and pro-environmental behaviors. However, few studies have explored the causal relationship between them. In addition, the resilience paradox states that individuals who are highly psychologically resilient experience fewer negative emotions along with reduced coping behaviors when faced with an actual natural disaster. However, whether the resilience paradox applies to exposure to media coverage of the climate crisis remains to be explored. To examine these questions, we conducted an experiment (Study 1, N = 284) and a cross-sectional survey (Study 2, N = 507) online. The results found that participants in the experimental group in Study 1 had higher levels of eco-anxiety and more donations to environmental organizations after reading news about global warming than the control group. But there was no significant link between eco-anxiety and pro-environmental behavior. Study 2 found that attention to climate change coverage in daily life was positively correlated with eco-anxiety and pro-environmental behavior, and eco-anxiety played a mediating role. Additionally, the resilience paradox could explain individual emotion and behavior in the face of media coverage. Individuals with high resilience felt less eco-anxious but also engaged in fewer pro-environmental behaviors. Findings suggest that we should consider the degree of eco-anxiety and individual differences when using media coverage to increase people's behavioral engagement. Future research should focus on the balance between individual well-being and environmental sustainability.

Keywords：media coverage; eco-anxiety; pro-environmental behavior; resilience

网络新闻的真实性知觉：共情的作用

俞怡帆[1]　严世振[2]　许祯臻[1]　周广方[1]　张琪涵[1]　金花[1]（通讯作者）

1 天津师范大学心理学部，天津，300387

2 福建医科大学健康学院，福州，350122，jinhua@tjnu.edu.cn

摘 要　目的：虚假新闻一直是互联网治理的难点，已有文献缺少对共情与网络新闻真实性知觉的关系的探讨。本研究以网络新闻为材料，探究了受众特质共情、状态共情与网络新闻真实性知觉之间的关系以及新闻类型在其中的调节作用。旨在揭示影响网络虚假新闻真实性知觉的认知机制，及为遏制虚假新闻的传播提供科学治理的线索。方法：72 名大学生(32 男)志愿参与了本研究。实验材料为真实、虚假新闻各 80 条。虚假新闻取自国内知名的事实核查网站，真实新闻选自央视网等主流媒体。材料经 Photoshop 处理后以一般网络新闻的形式（附有新闻标题、图片且配有描述文字的格式）由 E-prime 软件编程呈现。新闻以伪随机方式逐条呈现在电脑屏幕中间，被试被要求认真阅读每条新闻，并在阅读结束后对新闻进行可信度、状态共情度、效价、唤醒度、熟悉度的 1-7 点李克特评分。可信度为真实性知觉的指标，虚假新闻的评分越高说明其真实性知觉能力越差。特质共情数据通过中文版人际反应指数量表（IRI—C）收集。结果：1 独立样本 t 检验发现，真假新闻的唤醒度、熟悉度无显著差异，但虚假新闻的效价显著低于真实新闻的；2 相关分析发现特质共情与状态共情显著正相关,状态共情和特质共情与对新闻的可信度均呈显著正相关；3. 采用 SPSS26.0 的 PROCESS 插件和 Bootstrap 分析方法进行有调节的中介模型检验发现，状态共情在特质共情对可信度影响中的中介作用显著，控制了中介变量后, 特质共情对可信度的直接效应依然显著。新闻类型在共情度影响可信度中具有显著的调节作用：当新闻类型为真时，中介效应占直接效应的 23.57%，当新闻类型为假时,中介效应占直接效应的 60.67%。结论：受众的特质共情能力既可直接预测其对新闻的真实

性知觉能力，还可通过状态共情间接预测其真实性知觉；且状态共情的中介效应量受新闻类型的调节，虚假新闻的中介效应量更大。结果提示高特质共情的受众可能更容易受到虚假新闻的侵扰，在面对高状态共情的新闻时尤其要注意分辨新闻的真实性。
关键词　状态共情，特质共情，网络虚假新闻，真实性知觉

The perceived accuracy of Online News： a role of Empathy

YU Yifan[1]　YAN Shizhen[2]　XU Zhenzhen[1]　ZHOU Guangfang[1]　ZhangQihan[1]　JIN Hua[1]
1 Department of Psychology, Tianjin Normal University, Tianjin, 300387, China
2 School of Health, Fujian Medical University, Fuzhou, China, jinhua@tjnu.edu.cn

Abstract： Objective: Fake news has always been a difficult point in internet governance, and little literature has explored the relationship between empathy and the perceived accuracy of online news. Taking online headlines as materials, this study investigated the relationship among the trait empathy, state empathy, and perceived accuracy of online news, and the regulatory role of news types in it. The aim was to reveal the cognitive mechanism of susceptibility to online disinforming news and further provide clues for scientific governance to curb the spread of false news. Method: 72 college students (32 males) volunteered to participate in this study. The experimental materials were 80 true and 80 fake news. The fake news was chosen from well-known fact-checking websites in China, and the true news was from official medias such as CCTV. After being processed by Photoshop and programmed by E-prime, each piece of news was presented in the way online news is presented in the real-world situation (with news headlines, pictures, and descriptive text format). The news was presented in the center of the computer screen one by one in a pseudo-random way, and the participants were instructed to read each piece of news carefully and scored the credibility, state empathy, emotion valence, arousal, and familiarity of news with a Richter scale of 1-7 points after reading. Credibility was an indicator of the perceived accuracy, and the higher the score of false news, the lower its perceived accuracy. Trait empathy data were collected by the Chinese version of the Interpersonal Response Index Scale (IRI-C). Result: 1. T-test of independent samples showed that there was no significant difference in arousal and familiarity between true and fake news, but the emotion valence of fake news was significantly lower than that of true news; 2. Correlation analysis showed that trait empathy was positively correlated with state empathy, and both state empathy and trait empathy were positively correlated with the credibility of the news; 3. The PROCESS plug-in of SPSS26.0 and the Bootstrap analysis method were used to test the regulated mediation model. It was found that state empathy played a significant mediating role in the influence of trait empathy on credibility, and the direct effect of trait empathy on credibility was still significant after controlling the mediation variable. News types had a significant regulatory role in the influence of state empathy on credibility: the intermediary effect accounts for 23.57% of the direct effect when news types were true, and it accounts for 60.67% of the direct effect when news types are fake. Conclusion: The audience's trait empathy can not only directly predict their perceived accuracy of online news, but also indirectly predict their perceived accuracy through state empathy. Moreover, the mediating effect of state empathy may be regulated by news types. The mediating effect of fake news may be greater than that of true news. The results suggest that the individual with high trait empathy may be more vulnerable to fake news, and should pay special attention to distinguish the credibility of online news when facing the news evoking high state empathy.
Keywords： state empathy, trait empathy, online fake news, the perceived accuracy

质疑评论对新闻可信度的影响：感知群体态度的中介

刘颖哲[1]　朱敏帆[1]　谢晓非[1]（通讯作者）
1 北京大学心理与认知科学学院，北京，100871，xiaofei@pku.edu.cn

摘 要　评论是社交媒体中网民参与度最高的交互行为之一，在网民理解和评价新闻内容中扮演着重要的角色。一方面，评论可以作为辟谣信号帮助用户鉴别虚假新闻，另一方面，有害或虚假的评论也可能干扰网民对重要信息的理解与评价，目前针对评论与新闻可信度间关系的研究仍有待深入。本研究通过微博数据分析与线上实验，旨在探讨质疑性评论对新闻可信度的影响，并进一步讨论解释机制和边界条件。在研究一中，爬取部分微博新闻与评论内容，通过中文情感词典对 72084 条评论进行分析，检验评论质疑强度对新闻可信度的影响。在研究二中，操纵质疑评论所占比例，在被试阅读评论前后测量对新闻可信度的评价，并进一步测量其转发和评论意愿，共收集了来自 890 名被试的数据。结果发现，（1）质疑性评论会显著降低新闻可信度，并进一步降低个体进行点赞、转发和评论的意愿；（2）这一效应在不同评论构成组中表现不同，当质疑性评论占多数时，效应显著，而认可性评论占多数时，效应不显著；（3）这一效应由感知到的群体态度中介，只有在感知到群体认为新闻为假时，个体才会改变态度，即表现出了从众。本研究探讨了评论与新闻可信度之间的关系，发现其受到评论构成的调节，而感知群体态度在其中起中介作用。研究结果为进一步理解社交媒体中用户生成内容与新闻的关系提供了重要线索，对于帮助用户识别虚假新闻，管理跟帖评论行为，塑造健康积极的网络信息环境有重要的理论和实践意义。

关键词　质疑性评论，新闻可信度，评论构成，感知群体态度，从众

The effect of doubting comments on news credibility:

The mediating role of perceived group attitude

Yingzhe-Liu[1], Minfan-Zhu[1], Xiaofei-Xie[1]
1 School of Psychological and Cognitive Sciences, Peking University, Beijing 100871,
xiaofei@pku.edu.cn

Abstract：Comments, as the highly engaged form of user-generated content, have a significant impact on users' perception of news content. On one hand, comments can serve as social correction cues, aiding individuals in discerning fake news. Conversely, negative and uncivil comments may dampen users' understanding of news content. Currently, there is insufficient research investigating the relationship between comments and news credibility. Hence, this research aims to investigate the influence of doubting comments on news credibility through the analysis of Weibo posts and online experiments, and examine whether this effect will be moderated by the distribution of doubting and affirmative comments. In study 1, we collected news posts and their corresponding comments from Weibo, employing the Chinese emotion dictionary to examine whether doubting comments diminish users' intention to like, share, and comment on the posts. In study 2, we conducted two online

experiments, manipulating the distribution of comments to measure participants' perception of news credibility prior to and after their exposure to the comments. Additionally, we assessed people's intention to share and comment on the news post. Our findings reveal that doubting comments decrease individual's perception of news credibility, consequently reducing their intention to like, share and comment. This effect is moderated by the distribution of comments. When doubting comments constitute the majority (i.e., surpassing 50% of the total comments), the perception of news credibility declines as the proportion of doubting comments increases. In contrast, when affirmative comments prevail, the association between doubting comments and news credibility is not significant. In addition, this effect is mediated by the perceived opinion of the majority. Individuals only alter their perception of news accuracy when they perceive a collective doubt regarding news credibility. In summary, this research demonstrates that doubting comments can have a negative impact on news credibility, especially when they are dominant in the comment section. The research findings yield valuable insights contributing to a deeper comprehension of the relationship between user-generated content and news. Findings of these studies have great implications on how to support users identify fake news, regulate commenting behavior, and foster a healthy and constructive online information ecosystem.

Keywords **：** doubting comments, news credibility, comment distribution, perceived group attitude, conformity

"社恐"的避风港还是新囚笼：线上社交双刃剑效应的质性研究

刘佳琦[1]　唐信峰[1]（通讯作者）

1 中国人民大学心理学系，北京，100872，　xtang@ruc.edu.cn

摘 要

目的：计算机中介交流（CMC, Computer Mediated Communication）对于社交焦虑者而言可以避免面对面的直接接触，减少社交情境中的威胁线索，从而规避焦虑和尴尬情况。然而，随着社交媒体的流行和普及，线上社交弊端逐渐暴露出来。因此，本研究旨在探索社交焦虑者在线互动的优势及弊端。

方法：采用质性研究方法，对 31 名存在社交焦虑症状（社交恐怖症量表 SPIN＞19 分）的大学生（18-25 岁）进行半结构式访谈。访谈内容社交媒体特点、社交焦虑者的线上社交体验、线上社交的优点及弊端等方面展开。采用主题分析法对资料进行分析。

结果：质性分析的结果显示，相比面对面社交，社交媒体的可操控性、匿名性、去线索化、多样性和时空压缩为社交焦虑者带来更好的互动体验。然而社交媒体的单调性、模糊性、异步性、数字留痕和信息超载等特点又会引发社交焦虑问题。此外，研究还发现，技术的可供性致使社交焦虑者在线互动时可能会采取一系列安全行为以避免社交焦虑，具体包括：限制社交动态的发布、检查言语措辞、隐匿身份、设置权限、形象整饬、延迟回复等。然而，安全行为并不能真正帮助社交焦虑者逃避社交情境中的尴尬和不适，反而可能会进一步加重社交焦虑体验。

结论：研究结果表明线上社交对社交焦虑存在双刃剑效应，网络的媒介特点在一定程度上缓解了社交焦虑，为社交焦虑者带来更为轻松的互动体验。另一方面，社交焦虑者在网络社交情境中同样存在社交焦虑问题，甚至出现了技术引发的新社交困境。

关键词　社交焦虑，线上社交，双刃剑效应，质性研究

The Safe Haven or the New Cage of Social Anxiously Individuals: A Qualitative Study of the Double-Edged Sword Effect of Online Social Interaction

Jiaqi Liu Xinfeng Tang
Department of Psychology, Renmin University of China, Beijing, China
Corresponding author: xtang@ruc.edu.cn (X. Tang)

***Abstract*:**

Objective: The present study aims to explore the advantages and disadvantages of Computer-Mediated Communication (CMC) for individuals experiencing social anxiety. CMC offers an opportunity for socially anxious individuals to avoid direct face-to-face interactions, thereby reducing perceived threat cues and mitigating feelings of anxiety and embarrassment. However, as social media become increasingly popular and prevalent, the drawbacks associated with online social interaction have begun to surface.

Methods: To investigate this phenomenon, a qualitative research approach was employed, involving semi-structured interviews with 31 college students aged 18 to 25 who exhibited symptoms of social anxiety (as indicated by a Social Phobia Inventory score greater than 19). The interviews focused on various aspects of online social interactions, including the characteristics of social media, the experiences of socially anxious individuals in online social contexts, as well as the strengths and limitations of online social interactions. Thematic analysis was used to analyze the collected data.

Results: The results of qualitative analyses show that the manipulability, anonymity, de-cueing, diversity and spatio-temporal compression of social media provide a better interactive experience for socially anxious people compared to face-to-face socialising. However, the monotony, ambiguity, asynchrony, digital traceability and information overload of social media can trigger social anxiety problems. Furthermore, the study discovered that the availability of technology leads socially anxious individuals to adopt a range of safety behaviors during online interactions to avoid anxiety. These safety behaviors include limiting the release of social updates, monitoring speech and language, concealing identity, setting privacy controls, curating one's image, and delaying responses. However, it is important to note that these safety behaviors may not effectively help socially anxious individuals escape awkwardness and discomfort in social situations. On the contrary, they may exacerbate the overall experience of social anxiety.

Conclusion: The results indicate that online social interaction has a double-edged sword effect on social anxiety, where the distinctive characteristics of social media partially alleviate social anxiety, providing socially anxious individuals with a more relaxed interactive experience. On the other hand, within the context of online social interactions, socially anxious individuals still encounter social anxiety issues, and there may even arise new social dilemmas triggered by technology.

***Keywords*:** Social anxiety, Online social interaction, Double-edged sword effect, Qualitative study

谁更可能减少社交媒体成瘾行为？性别和主动性人格的差异

毛建[1] 陈沛[1] 何嘉杰[1] 聂衍刚[1]（通讯作者） 钟沛枝[1]

1 广州大学教育学院心理学系/青少年心理与行为研究中心，广州，510006

nie-yangang@gzhu.edu.cn

摘 要 近年来，社交媒体的使用规模呈指数增长。社交媒体为使用者提供了诸多便利，但频繁的使用也可能会导致社交媒体成瘾行为。以往学者们围绕社交媒体成瘾的成因开展了大量的研究，为社交媒体成瘾的干预提供了理论指导。然而，个体减少社交媒体成瘾行为的意向对他们是否接受干预技术起着重要作用。最近的研究发现并非所有人都愿意主动减少社交媒体成瘾行为，换句话说，尽管随着社交媒体成瘾倾向越高，个体的社交媒体减少使用意向越大，但两者的关系因人而异。因此，为了提高个体主动减少社交媒体成瘾行为的动机，有必要深入探讨社交媒体成瘾与个体社交媒体减少使用意向之间的关系。本研究将从性别和主动性人格的视角探讨社交媒体成瘾与社交媒体减少使用意向关系间的个体差异。365 位大学生社交媒体用户分别在两个时间段（间隔两周）完成了社交媒体成瘾问卷、社交媒体减少使用问卷、主动性人格问卷的调查。结果表明：(1)社交媒体成瘾显著正向预测社交媒体减少使用意向(β=0.29, 95% CI [0.192,0.389], p<0.001)；(2)社交媒体成瘾对减少使用意向的预测效应存在性别差异，即相较于女生(β=0.13, 95% CI[-0.0002, 0.258], p=0.05)，预测效应在男生中更大(β=0.49, 95% CI [0.353,0.646], p<0.001)；(3)社交媒体成瘾对减少使用意向的正向预测效应受到了主动性人格的调节作用，该预测效应在主动性人格水平高的个体中显著(β=0.43, 95% CI[0.313, 0.548], p<0.001)，在主动性人格水平低的个体中不显著(β=0.10, 95% CI[-0.034, 0.248], p>0.05)。结果有利于提高大学生减少社交媒体成瘾倾向行为的动机，进一步地促进社交媒体成瘾行为的改善。

关键词 社交媒体成瘾,性别,社交媒体减少使用意向,主动性人格

Who is More Likely to Reduce Social Media Addictive Behavior? Differences in Gender and Proactive Personality

Jian Mao[1], Pei Chen[1], Jiajie He[1], Yangang Nie[1], Peizhi, Zhong[1]

1 Department of Psychology/Center for studies of Adolescent Psychological and Behaviors, Guangzhou University, Guangzhou, 510006

Abstract：The usage of social media has grown exponentially on a large scale in recent years. Social media offers many conveniences to users, but frequent use can also lead to social media addictive behaviors. Previous scholars have conducted numerous studies around the causes of social media addiction, providing theoretical guidance for social media addiction interventions.However, individuals' intentions to reduce social media addictive behaviors play an important role in whether they accept interventional techniques.Recent studies have found that the willingness to actively reduce social media addictive behaviors is not shared by all; in other words, while social media addiction increases, the greater the individual's intention to reduce social media use， but this relationship varies from person to person. Therefore, in order to increase the motivation of individuals to actively reduce their social media addictive behaviors, it is necessary to explore in depth the relationship between social media addiction and the intention to reduce social media use. This study will explore individual differences between the relationship between social media addiction and the intention to reduce social media use from the perspectives of gender and proactive personality.365 college social media users completed the Social Media Addiction Questionnaire, the Social Media Reduced Use Questionnaire, and the Proactive Personality

Questionnaire at two separate time periods (two weeks apart). The results showed that (1) social media addiction significantly and positively predicted social media use reduction intention (β=0.29, 95% CI [0.192,0.389], p<0.001); and (2) there was a gender difference in the predictive effect of social media addiction on use reduction intention, such that compared to girls (β=0.13, 95% CI [-0.0002, 0.258], p = 0.05), the predictive effect was greater among boys (β=0.49, 95% CI [0.353,0.646], p<0.001); (3) the positive predictive effect of social media addiction on intention to reduce use was moderated by proactive personality, and this predictive effect was significant among individuals with high levels of proactive personality (β=0.43, 95% CI [0.313, 0.548], p<0.001) and not significant in individuals with low levels of proactive personality (β=0.10, 95% CI [-0.034, 0.248], p>0.05).The results are conducive to increasing college students' motivation to reduce social media addictive tendency behaviors, further contributing to the reduction of social media addictive behaviors.
Keywords: social media addiction, intention to reduce social media use, gender, proactive personality

被动性社交网站使用对自尊的影响：基于潜在剖面分析

方俊燕[1]（通讯作者） 黄熙彤[2]

1 广州体育学院休闲与数字体育学院，广州，510500，fangjy12@126.com

2 华南师范大学心理学院，广州，510631

摘 要 **目的**：识别大学生被动性社交网站使用的潜在类别，并分析其与自尊之间的关系。**方法**：采用被动性社交网站使用问卷、错失焦虑问卷和自尊量表对 436 名大学生进行调查，运用潜在剖面分析探讨被动性社交网站使用的潜在类别及特征，并通过稳健三步法和 BCH 法进行后续分析。**结果**：①大学生被动性社交网站使用可以分为三个潜在类别：深度沉迷组（n =134，30.7%），适度使用组（n =159，36.5%）和低度使用组（n =143，32.8%）。②性别和错失焦虑是大学生被动性社交网站使用的危险性因素，性别为女和错失焦虑水平高的大学生更容易沉迷于被动性社交网站使用。具体而言，相比于“深度沉迷组”，女生属于“适度使用组”的发生比要低 49%（OR =0.51, p<0.01）,属于“低度使用组”的发生比要低 61%（OR =0.39, p<0.001）；相比于“深度沉迷组”，个体的错失焦虑每升高一个单位，其属于“低度使用组”的发生比会降低 46%（OR =0.54, p<0.01）。③被动性社交网站使用的各潜在类别在自尊上的差异具有统计学意义（χ^2=7.38，p<0.05），“深度沉迷组”的大学生自尊得分最低，“低度使用组”的大学生自尊得分最高。**结论**：大学生的被动性社交网站使用存在显著的群体异质性，未来可根据人群分类特点制定针对性的干预措施，应重点关注女生群体，可以通过降低错失焦虑来减少被动性社交网站使用，进而避免自尊受损。

关键词 被动性社交网站使用，错失焦虑，自尊，潜在剖面分析

Effects of Passive Social Network Site Use on Self-esteem: A Latent Profile Analysis

Fang Junyan[1] Huang xitong[2]

1 School of Leisure Sports and E-sports, Guangzhou Sport University, Guangzhou 510500, China
2 School of Psychology, South China Normal University, Guangzhou 510631, China

Abstract: **Objective:** To identify potential categories of passive social network site use among college students and further analyze the association of different categories with self-esteem. **Methods:** A total of 436 college students by convenient sampling method were taken as the object of the research. Students completed the Passive Social Network Site Use Questionnaire, Fear of Missing Out Scale, and Rosenberg Self-Esteem Scale. The latent profile analysis was used to explore the potential categories of passive social network site use, and the R3step method and the BCH method were used for further analyses. **Results:** ①College students' passive social network site use can be divided into three potential categories: high addiction group (n=134, 30.7%), moderate use group (n=159, 36.5%), and minor use group (n=143, 32.8%). ②Gender and the fear of missing out were risk factors of passive social network site use. Compared with the high addiction group, the girl's incidence rate of moderate use group decreased by 49% (OR=0.51, p<0.01), and the girl's incidence rate of minor use group decreased by 61% (OR=0.39, p<0.001). Compared with the high addiction group, when the fear of missing out increased by one unit, the incidence rate of minor use group would decrease by 46% (OR=0.54, p<0.01). ③There were significant differences in self-esteem among different potential categories of passive social network site use (χ^2=7.38，p<0.05). The high addiction group scored lowest on self-esteem and the minor use group scored highest. **Conclusion:** There is significant group heterogeneity in passive social network site use among college students, and there are differences in self-esteem among different groups. Targeted prevention and intervention measures can be carried out according to the characteristics of population classification. Passive social network site use can be reduced by alleviating the fear of missing out, so as to avoid low self-esteem.

Keywords: Passive social network site use, fear of missing out, self-esteem, latent profile analysis

网络游戏与独处行为的关系：基于交叉滞后分析的探讨

刘歆阳[2] 万富裕[2] 刘拓[1,2,3]（通讯作者）
1 教育部人文社会科学重点研究基地天津师范大学心理与行为研究院，天津，300387
2 天津师范大学心理学部，天津，300387
3 学生心理发展与学习天津市高校社会科学实验室，天津，300387，liutuo@tjnu.edu.cn

摘 要 在信息时代的背景下，网络游戏已经从一个新兴的娱乐活动逐渐转变为全球最大的产业之一。据调查，我国网络游戏用户规模已达 5.22 亿，占网民整体的 48.9%，是非常普遍的娱乐方式。适度地使用网络游戏能降低压力和焦虑，过量的网络游戏不仅会对个体的生理产生负面影响，还可能导致一系列严重的心理健康问题，例如社交的减少、成瘾行为的增加、情绪控制的降低，以及工作和学业受到干扰，并且这些负面影响可能会在较长时间内持续存在，因此网络游戏对于个体的影响备受心理学界的关注。近些年的研究发现独处行为与网络游戏有着密切的联系。独处行为指个体独自一人、没有与他人进行交流的状态，可以划分为积极独处、孤僻、社交回避和孤独。根据自我决定理论，个体健康的发展依赖于自主需要、胜任需要和关系需要，三种基本需要的满足。当个体在不同独处状态时，存在不同程度的关系需求，可能通过网络游戏来满足这种需求，并进一步影响个体的独处行为。本研究运用交叉滞后分析探讨网络游戏与独处行为的相互作用关系，采用简版独处行为量表（Short Form of Solitude Behavior Scale）和改编自前人研究的媒体使用问卷（Media Use Questionnaire）对 417 名大学生进行间隔两周的三次追踪测量，数据分析分别在 SPSS 26.0 和 Mplus 8.3 中进行。交叉滞后分析的结果表明，（1）积极独处、孤僻、社交回避、孤独和网络

游戏使用具有一定程度的稳定性。（2）积极独处与网络游戏使用具有双向预测关系，积极独处显著负向预测后一时间点的网络游戏使用，网络游戏使用也显著负向预测后一时间点的积极独处。孤独对随后的网络游戏使用具有显著的正向预测作用，但孤僻和社交回避无法预测随后的网络游戏使用。研究的模型均为饱和模型，故没有再报告模型拟合指标。本研究揭示了网络游戏与独处行为相互影响与预测的联系，特别是积极独处和孤独影响个体随后的网络游戏使用的研究结果，提示应对非适应性独处行为及早发现并进行干预，以减少对心理健康影响。
关键词　网络游戏，独处行为，积极独处，孤独，交叉滞后分析

The relationship of video game and solitude behavior: A Cross-Lagged Panel Analysis

Xinyang Liu [2] Fuyu Wan [2] Tour Liu [1,2,3](Corresponding Author)
1 Key Research Base of Humanities and Social Sciences of the Ministry of Education, Academy of Psychology and Behavior, Tianjin Normal University, Tianjin 300387, China
2 Faculty of Psychology, Tianjin Normal University, Tianjin 300387, China
3 Tianjin Social Science Laboratory of Students' Mental Development and Learning, Tianjin 300387, China, liutuo@tjnu.edu.cn

***Abstract*:** Video games have gradually transformed from an emerging entertainment activity to one of the largest industries in the world. According to the survey, the number of video game users in China reached 522 million, accounting for 48.9% of the overall Internet users. Moderate use of video games can reduce stress and anxiety. Excessive use of video games not only negatively affected an individual's physiology, but may also lead to a series of serious mental health problems, such as reduced socialization, increased addictive behaviors, reduced emotional control, and interference with work and schooling, and these negative effects may persist over a long period of time, so the effect of video games on individuals have received a great deal of attention from the psychological community. Studies have found a close relationship between solitude behaviors and video games in recent years. Solitude behavior refers to a state in which an individual is alone and does not interact with others, and can be classified as positive solitude, eccentricity, social avoidance, and loneliness. According to Self-Determination Theory, the healthy development of an individual is dependent on the fulfillment of three basic needs, autonomy needs, competence needs, and relationship needs. When individuals are in different states of solitude, there are different levels of relational needs, which may be satisfied through video games and further influence the individual's solitude behavior. In this study, cross-lagged analysis was used to explore the relationship between video games and solitude behavior, and the Short Form of Solitude Behavior Scale and the Media Use Questionnaire were used to measure video game and solitude behavior among 417 college students three times at two-week intervals. Data analysis was performed in Mplus 8.3 and IBM SPSS 26.0. The results showed: (1) Positive solitude, eccentricity, social avoidance, loneliness, and video game use had stability. (2) Positive solitude negatively predicted video game use at a later time point, and video game use also negatively predicted positive solitude at a later time point. Loneliness was a significant positive predictor of subsequent video game use. Eccentricity and social avoidance did not predict video game use. The present study revealed the link between video games and solitude behavior, particularly the findings that positive solitude and loneliness influence individuals' subsequent video game use, suggesting that non-adaptive solitude behavior should be detected and intervened with early to reduce the impact on mental health.
***Keywords*:** Video Game, Solitude Behavior, Positive Solitude, Loneliness, Cross-lagged Analysis

儿童青少年人工智能的使用状况及其与人工智能依赖的关系

黄顺森[1] 来枭雄[1,2] 王欢蕾[1] 张彩[3] 黎亚军[4] 赵心媚[1] 代欣然[1] 王耘[1]（通讯作者）

1 北京师范大学认知神经科学与学习国家重点实验室，北京，100875

2 中国教育科学研究院未来教育研究所，北京，100088

3 北京师范大学中国基础教育质量监测协同创新中心，北京，100875

4 光明区教育科学研究院，深圳，518107

通讯作者 E-mail: wangyun@bnu.edu.cn

摘 要

背景：儿童青少年在日常生活中正逐渐使用人工智能（Artificial intelligence, AI），同时他们也是技术依赖的风险人群，探讨儿童青少年 AI 使用现状及其与技术依赖的关系具有重要意义。为此，借助层级 CMC 分类框架，本研究从 AI 使用数量、使用时间、使用类型和使用内容四个水平调查儿童青少年 AI 使用现状，并探讨 AI 使用与儿童青少年 AI 依赖的关系。

方法：研究 1 分析了 5015 名青少年（男=2498，年龄 = 13.47±2.46）的 AI 使用数量和 AI 使用时间及其对 AI 依赖的影响。研究 2 分析了 3021 名四/八年级学生（四年级=1610，男=793；八年级$_{男}$=730）的 AI 使用类型和使用内容的现状及其对 AI 依赖的影响。测查工具包括 AI 使用数量（1 题）、使用时间（2 题）、使用类型（4 题）、使用内容（13 题）和 AI 依赖问卷（5 题）。

结果：研究 1 中，青少年使用 AI 数量占比为：从未使用过(11.4%)、1-5 种(70.7%)、5 种以上(18%)。上学日使用 AI 情况为：不使用 AI(56.2%)、2 小时及以上(3.4%)；休息日 AI 使用情况：不使用(21.7%)、2 小时及以上(18.9%)。回归分析表明 AI 使用时间正向预测 AI 依赖，AI 使用数量负向预测 AI 依赖。研究 2 中，四年级学生在虚拟助手、AI 小程序或 APP、类人化 AI 机器、非类人化 AI 机器等四种使用类型上的“未使用”的比例分别是 13%、48.8%、63.3%、53.7%；八年级学生该比例依次是 10.7%、41.4%、77.7%、62.0%。AI 使用类型最多的是移动设备及对应的虚拟助手，其次是智能音箱、扫地机器人等。回归分析表明，四年级中，仅使用虚拟助手正向预测 AI 依赖；八年级中，使用虚拟助手和使用 AI 小程序均正向预测 AI 依赖。此外，13 种 AI 使用内容中（如使用 AI 辅助学习、绘画、创作等），四年级仅使用 AI 辅助游戏和使用 AI 辅助康复正向预测 AI 依赖；八年级中使用 AI 日常聊天、辅助游戏、音乐创作、辅助学习正向预测 AI 依赖。

结论：大部分儿童青少年有 AI 使用的经历，且集中在周末，基于移动设备的虚拟 AI 是其主要的使用类型。使用 AI 数量越多更不容易依赖 AI，而使用 AI 时间越长则越容易依赖 AI。不同的 AI 类型和 AI 使用内容对四/八年级学生 AI 依赖影响不一致。

关键词 人工智能使用，人工智能依赖，儿童青少年

Status of artificial intelligence use among children and adolescents and its relationship with artificial intelligence dependence

Shunsen HUANG [1], Xiaoxiong LAI [1,2], Huanlei WANG [1], Cai ZHANG [3], Yajun LI [4], Xinmei ZHAO [1], Xinran DAI [1], Yun WANG [1]

[1]State Key Laboratory of Cognitive Neuroscience and Learning, Faculty of Psychology, Beijing Normal University, Beijing 100875, China

[2]Institute of Future Education, China National Academy of Educational Sciences, Beijing 100088, China

[3]Collaborative Innovation Centre of Assessment toward Basic Education Quality, Beijing Normal University, Beijing 100875, China

[4]Guangming Institute of Education Sciences, Shenzhen, Guangdong, 518107, China

***Abstract*:**

BACKGROUND: Children and adolescents are gradually using artificial intelligence (AI) in their daily lives, and at the same time, they are also at risk for technology dependence, so it is important to explore the current status of AI use among children and adolescents and its relationship with technology dependence. To this end, based on hierarchical CMC taxonomy framework, this study investigated the current status of AI use among children and adolescents in terms of the number of AI use, AI use duration, AI use types, and AI use content, and explored the relationship between AI use and children's and adolescents' dependence on AI.

METHODS: Study 1 analyzed the amount of AI use and time spent on AI use and its effect on AI dependence in 5015 adolescents (male = 2498, age = 13.47 ± 2.46). Study 2 analyzed the current status of type of AI use and content of use and its effect on AI dependence in 3021 fourth/eighth graders (fourth grade = 1610, male = 793; eighth grade male = 730). Measurement instruments included AI use quantity (1 item), AI use time (2 items), AI use types (4 items), AI use content (13 items), and the AI dependency questionnaire (5 items).

RESULTS: In Study 1, the percentage of the number of AI use was: never used (11.4%), 1~5 products (70.7%), and more than 5 products (18%). AI use on school days was: no AI use (56.2%), 2 hours or more (3.4%), and AI use on weekends: no use (21.7%), 2 hours or more (18.9%). Regression analysis showed that AI use time positively predicted AI dependence and AI use quantity negatively predicted AI dependence. In Study 2, the proportions of fourth-grade students who “did not use” virtual assistants, AI mini program or APPs, human-like AI machines, and non-human-like AI machines were 13%, 48.8%, 63.3%, and 53.7%, respectively; and the proportions of eighth-grade students were 10.7%, 41.4%, 77.7%, and 62.0%, respectively. The most popular AI use types were mobile devices and the corresponding virtual assistants, followed by intelligent speakers, sweeping robots, and so on. Regression analysis showed that in grade 4, only the use of virtual assistants positively predicted AI dependence; in grade 8, both the use of virtual assistants and the use of AI Mini Program/Apps positively predicted AI dependence. In addition, of the 13 AI use contents (e.g., use AI for assisted learning, drawing, and creating, etc.), only the use of AI-assisted gaming and the use of AI-assisted rehabilitation positively predicted AI dependence in grade 4; in grade 8, the use of AI for daily chatting, assisted gaming, music creation, and assisted studying positively predicted AI dependence.

CONCLUSION: The majority of children and adolescents experienced AI use and their usage were mainly on weekends, with virtual AI on mobile devices being the main AI use type. More number of AI use was less likely to be AI dependent, while longer AI use time was more likely to be AI dependent. Different AI use types and AI use content had inconsistent effects on AI dependence among 4th/8th graders.

Keywords: Artificial intelligence use, Artificial intelligence dependence, Child and adolescent

ChatGPT 使用可以预测发散思维 但不能预测聚合思维

张正 [1,2] 宁纪岚 [3] 谢慧 [4] 周建松 [1*]

1 中南大学湘雅二医院，国家精神心理疾病临床研究中心，国家精神障碍中心，精神病学科，长沙

2 安徽师范大学心理学系，芜湖

3 上海体育大学心理学院，上海

4 Zilber School of Public Health, University of Wisconsin-Milwaukee, Milwaukee, Wisconsin, United States

通讯作者 E-mail：周建松 zhoujs2003@csu.edu.cn

摘 要 【背景】包括 ChatGPT 在内的人工智能工具对人们生活产生了革命性影响，例如可能影响个体的创造性思维。然而，个体使用 ChatGPT 可能会受到人工智能焦虑的影响。因此，本研究旨在探讨认知思维类型与 ChatGPT 使用之间的关系。【方法】本研究招募 454 名中国人（平均年龄 22.7±3.6 岁），基于问卷法和在线实验法，分别使用人工智能焦虑量表、自编 ChatGPT 使用问卷、多用途任务范式和远距离联想范式，分别用于测量人工智能焦虑、ChatGPT 使用时间、ChatGPT 使用频率、发散思维和聚合思维。【结果】结果显示，AI 焦虑与 ChatGPT 使用时间（r=-0.176，p＜0.001）、ChatGPT 依赖（r=-0.097，p＜0.05）和聚合思维呈负相关（r=-0.134，p＜0.01）。ChatGPT 使用时间与发散思维呈正相关（r=0.116，p＜0.05）。在中介分析中，AI 焦虑通过直接路径显著预测聚合思维（Estimate=-0.173，p=0.003）。AI 焦虑可以通过 ChatGPT 使用时间显著预测个体的发散思维（Estimate=-0.087，p=0.013），但不能预测个体的聚合思维（Estimate=0.005，p=0.69）。也就是说，当个体的 AI 焦虑水平较低且 ChatGPT 使用时间较长时，其发散思维较高，但聚合思维并不增加。ChatGPT 依赖不能作为 AI 焦虑与创造性思维之间因果关系的中介。随着 AI 焦虑水平的降低，个体可能变得依赖于 ChatGPT，但这种依赖并不能帮助提高他们的发散或聚合思维。【结论】本研究结果表明 AI 焦虑对个体的发散思维有一定影响，ChatGPT 使用时间作为 AI 焦虑与发散思维之间的中介，这对于理解人们在使用人工智能技术时的心理状态和思维方式具有重要意义。

关键词 人工智能焦虑，ChatGPT，创造性思维，发散思维，聚合思维

ChatGPT use can predict divergent thinking, but not convergent thinking

Zhang Zheng [1,2] Ning Jilan [3] Xie Hui [4] Zhou Jiansong [1*]

1Department of Psychiatry, National Clinical Research Center for Mental Disorders, and National Center for Mental Disorders, The Second Xiangya Hospital of Central South University, Changsha, Hunan, China.

2College of Educational Sciences, Anhui Normal University, Wuhu, Anhui, China

3School of Psychology ,Shanghai University of Sport, Shanghai, China.

4Zilber School of Public Health, University of Wisconsin-Milwaukee, Milwaukee, WI, U S

***Abstract*：** The advent of artificial intelligence (AI) tools, such as ChatGPT, has revolutionized various

aspects of human life, including potentially influencing individual creative thinking. However, the use of ChatGPT may also be associated with AI anxiety. This study aims to explore the relationship between cognitive thinking styles and the utilization of ChatGPT, while considering the influence of AI anxiety. A total of 454 Chinese participants (mean age 22.7±3.6 years) were recruited for this research. Data was collected through questionnaires and online experiments, including the Artificial Intelligence Anxiety Scale, a self-developed ChatGPT usage questionnaire, a multitasking paradigm, and a remote association paradigm. These measures were utilized to assess AI anxiety, ChatGPT usage time and frequency, divergent thinking, and convergent thinking.The results revealed significant negative correlations between AI anxiety and both ChatGPT usage time ($r=-0.176$, $p<0.001$) and ChatGPT dependency ($r=-0.097$, $p<0.05$), as well as a negative correlation with convergent thinking ($r=-0.134$, $p<0.01$). Moreover, a positive correlation was found between ChatGPT usage time and divergent thinking ($r=0.116$, $p<0.05$). Mediation analyses indicated that AI anxiety significantly predicted convergent thinking directly (Estimate=-0.173, $p=0.003$), while it indirectly influenced divergent thinking through ChatGPT usage time (Estimate=-0.087, $p=0.013$). However, AI anxiety did not predict individual convergent thinking (Estimate=0.005, $p=0.69$), suggesting that longer ChatGPT usage time and lower AI anxiety levels were associated with increased divergent thinking, but not with enhanced convergent thinking. Furthermore, ChatGPT dependency was not found to mediate the relationship between AI anxiety and creative thinking.These findings highlight the impact of AI anxiety on individual divergent thinking and indicate that ChatGPT usage time acts as a mediator between AI anxiety and divergent thinking. Understanding the psychological state and thinking patterns of individuals when utilizing AI technology is crucial in the context of the increasing prevalence of artificial intelligence in society.

***Keywords*：** Artificial intelligence anxiety, ChatGPT, creative thinking, divergent thinking, convergent thinking

在线风险暴露的基本状况与潜在类别：变量与个体中心双视角

靳康悦　张亚利

河北师范大学教育学院，石家庄，050024，33342052352@qq.com

目的：近年来，大量研究关注了网络过度使用现象，对该现象的发生率以及在人口学变量上的表现特点进行了探讨。然而，关于网络使用中可能存在的风险暴露问题却未充分关注，对不同人群中表现出的差异未做详实的分析，同时，关于在线风险暴露的研究大都基于变量中心视角，尚未有研究基于个体中心的视角对该现象的特点和影响因素加以分析。因此本研究拟从变量与个体中心双视角下探究在线风险暴露的基本状况与潜在类别，弥补国内该领域研究资料不足的现状，为相关领域的研究人员和决策者提供一手资料。方法：本研究使用在线风险暴露量表对我国 11 个省份的 14 所高校共 2538 名大学生进行施测。结果：(1)大学生在线风险暴露的发生率为 70.9%，其中不良内容接触的发生率为 54.8%占比最高。此外，性别、独生与否、生源地和恋爱状态是影响在线风险暴露程度的重要因素。(2)大学生在线风险暴露的潜在类别可分为安全组(67.8%)、内容暴露组(24.4%)和风险组(7.8%)。此外，性别、生源地、恋爱状态和每日上网时长是影响在线风险暴露潜在类别划分的重要因素。结论：大学生在线风险暴露较为普遍且存在异质性，应从变量和个体中心双视角分析在线风险暴露的基本情况和潜在类别，从而有针对性的对大学生在线风险暴露问题加以预防和控制。

关键词：大学生，在线风险暴露，发生率，潜在剖面分析

The Basic Situation and Potential Categories of Online Risk Exposure: A Dual Perspective of Variables and Person -Centered

JIN Kang-yue ZHANG Ya-li
Hebei Normal University , Shijiazhuang, 050024

Abstract Objective: In recent years, a large number of studies have focused on the phenomenon of Internet overuse, and discussed the incidence of this phenomenon and its characteristics in Demography variables. However, insufficient attention has been paid to the potential risk exposure issues in online use, and detailed analysis has not been conducted on the differences exhibited by different populations, At the same time, research on online risk exposure is mostly based on a variable centered perspective, and there is no research that analyzes the characteristics and influencing factors of this phenomenon from an individual centered perspective. Therefore, this study aims to explore the basic situation and potential categories of online risk exposure from a dual perspective of variables and individual centers, to make up for the lack of research data in this field in China, and to provide first-hand information for researchers and decision-makers in related fields. Method: This study used the online risk exposure scale to test a total of 2538 college students from 14 universities in 11 provinces of China.Result: (a) The incidence of online risk exposure among college students is 70.9%, with the highest incidence of adverse content exposure being 54.8%. In addition, gender, only child status, place of origin, and romantic status are important factors that affect the level of online risk exposure. (b) The potential categories of online risk exposure for college students can be divided into security group (67.8%), content exposure group (24.4%), and risk group (7.8%). In addition, gender, place of origin, romantic status, and daily online duration are important factors that affect the classification of potential categories of online risk exposure. Conclusion: College students' online risk exposure is common and heterogeneous. The basic situation and potential categories of online risk exposure should be analyzed from the perspectives of variables and individual centeredness, in order to prevent and control the problem of college students' online risk exposure in a targeted manner.

Keyword: College students, online risk exposure, incidence, potential profile analysis

父母干预与青少年手机成瘾的关系：心理阻抗和获益解释的作用

张永欣[1] 陈冰然[1] 彭欠欠[2]（通讯作者）孙会杰[1] 黄辉洋[1]
1 信阳师范大学教育科学学院，信阳，464000
2 商丘工学院教育与现代艺术学院，商丘，476000，shangpqq@163.com

摘 要 随着网络不断发展和手机日益普及，电子游戏、短视频、电子小说等数字化内容日益渗透儿童青少年的日常生活，父母因此不得不对儿童青少年的手机使用进行监控、管理，以帮助其合理正确使用尤其是避免手机成瘾，父母的这些行为被研究者称为父母干预 (parental mediation)。但以往研究发现父母干

预对青少年手机成瘾的影响不一致，本研究将父母干预分为积极型干预（如共同使用、主动干预）和限制型干预（如约束、监控、技术限定），基于心理阻抗理论考察两类干预与青少年手机成瘾的关系及其心理机制。采取方便抽样，对河南省三所中小学六至九年级学生共计 822 人（被试平均年龄为 13.38 岁，标准差为 1.35 岁）进行问卷调查，采用青少年手机成瘾量表、父母干预问卷、状态心理阻抗量表、父母干预的获益解释问卷，以班级为单位进行团体施测，结果表明：（1）本研究中 172 名中小学生可诊断为手机成瘾，检出率为 20.9%；（2）限制型父母干预和积极型父母干预均与青少年获益解释、手机成瘾呈显著正相关；限制型父母干预与青少年状态心理阻抗呈显著正相关，但积极型父母干预与青少年状态心理阻抗相关不显著；（3）限制型父母干预显著正向预测青少年手机成瘾，但积极型父母干预对青少年手机成瘾预测作用不显著；（4）状态心理阻抗在限制型父母干预和青少年手机成瘾之间起中介作用，获益解释调节该中介路径前半段，具体表现为：当青少年的获益解释较高时，限制型父母干预对青少年状态心理阻抗的影响被减弱。该研究结果表明，不同类型的父母干预策略对青少年手机成瘾的作用不同，相较于积极型干预，限制型父母干预是青少年手机成瘾的风险因素，主要通过激发青少年的心理阻抗起作用，而青少年对父母干预的主观认知（获益解释）会影响干预的效果。

关键词　父母干预，手机成瘾，状态心理阻抗，获益解释。

The relationship between parental mediation and adolescent mobile phone addiction: The role of psychological resistance and benefit explanation

Zhang Yongxin[1], Chen Bingran[1], Peng Qianqian[2*], Sun Huijie[1], Huang Huiyang[1]
1 School of Education Science, Xinyang Normal University, Xinyang 464000;
2 School of Education and Modern Art, Shangqiu Institute of Technology, Shangqiu, 476000

Abstract：With the continuous development of the Internet and the increasing popularity of mobile phones, digital content such as electronic games, short videos and electronic novels are increasingly penetrating into the daily lives of children and teenagers. Therefore, parents have to monitor and manage the use of mobile phones by children and teenagers to help them use mobile phones reasonably and correctly, especially to avoid mobile phone addiction. These behaviors of parents are called parental mediation by researchers. However, previous studies have found that parental mediation has inconsistent effects on adolescent mobile phone addiction. In this study, parental mediation is divided into active mediation (such as co-use and active mediation) and restrictive intervention (such as restraint, monitoring and technical restriction). Based on the psychological resistance theory, the relationship between these two types of parental mediation and adolescent mobile phone addiction and its psychological mechanism are investigated. A total of 822 students (M_{age} = 13.38, *SD* = 1.35) from grades 6 to 9 in three primary and secondary schools in Henan Province were investigated by means of convenient sampling. Adolescent mobile phone addiction scale, parental mediation questionnaire, state psychological resistance scale, and benefit explanation questionnaire of parental mediation were used as a group test unit. The results showed as follows: (1) In this study, 172 primary and secondary school students could be diagnosed as mobile phone addiction, with a detection rate of 20.9%. (2) Both restrictive parental mediation and active parental mediation were significantly positively correlated with adolescents' benefit explanation and mobile phone addiction; there was a significant

positive correlation between restrictive parental mediation and adolescent state psychological resistance, but there was no significant correlation between active parental mediation and adolescent state psychological resistance. (3) Restrictive parental mediation is a significant positive predictor of adolescent mobile phone addiction, but active parental mediation is not a significant predictor of adolescent mobile phone addiction. (4) State psychological resistance played a mediating role between restrictive parental mediation and adolescents' mobile phone addiction, and benefit explanation moderated the first half of this mediating pathway. Specifically, when adolescents' benefit explanation was high, the influence of restrictive parental mediation on adolescents' state psychological resistance was weakened. The results of this study showed that different types of parental mediation strategies have different effects on adolescents' mobile phone addiction. Compared with active parental mediation, restrictive parental mediation is a risk factor for adolescents' mobile phone addiction, mainly through stimulating adolescents' psychological resistance, and adolescents' subjective cognition of parental mediation (such as benefit explanation) will affect the effect of the intervention.

Keywords：parental mediation, mobile phone addiction, state psychological resistance, benefit explanation

情绪状态与求助者类型对网络利他行为的影响

鲁婷（通讯作者） 刘珂菁 高香莉

湖北大学心理学系，武汉，430062，tinglu@hubu.edu.cn

摘 要 随着互联网的发展，网络利他行为已成为了新的利他行为模式。感恩、负债感等情绪状态与大学生现实中的利他行为的关系已被许多研究所证实。另有研究表明求助者类型与利他行为有密切关联，具体表现为相较于陌生人，人们更倾向于对施助者表现出利他行为。但以往研究多是探讨现实中利他行为的影响因素，且较多从单一角度探讨利他行为的影响因素。本研究通过实验选取湖北省某高校 120 名大学生，采用施助者和陌生人两种刺激情境以及改编的感恩和负债感两种剧本，通过微信聊天软件创造真实的网络情境，采用人性的哲学量表(PHN)利他主义分量表、自编的情绪状态和网络利他行为测评工具测量大学生的利他观念、情绪状态、利他行为以及再利他行为。实验采用 2(情绪状态：感恩、负债感)*2(求助者类型：施助者、陌生人)被试间实验设计。最终回收有效数据 118 份，其中男生、女生均 58 人，平均年龄 20.38±1.29 岁，通过构建结构方程模型分析，考察情绪状态(感恩、负债感)与求助者类型(陌生人、施助者)对大学生网络利他行为的作用及差异。结果显示：(1)在利他行为上，求助者类型主效应显著，情绪状态与求助者类型的交互作用显著；在再利他行为上，情绪状态与求助者类型的交互作用显著；(2)在感恩情绪状态下，相较于陌生人，施助者更能获得网络利他行为；在负债感情绪状态下，相较于施助者，陌生人更能获得网络再利他行为。(3)在施助者背景下，感恩情绪能够显著正向预测网络利他和再利他行为；在陌生人背景下，负债感能够正向预测网络利他行为，并且利他行为能够正向预测再利他行为。研究结果表明不同情绪状态对于施助者/陌生人的网络利他及再利他行为存在不同的影响，研究结果有助于了解网络利他行为的作用机制，同时对于维护网络环境的安定和谐具有一定的参考价值。

关键词 网络利他行为，求助者类型，感恩，负债感，情景实验

The effect of emotional state and help-seeker type on online altruism

LuTing Liu Kejing Gao Xiangli
Department of Psychology, Hubei University, Wuhan, 430062, tinglu@hubu.edu.cn

Abstract: With the development of the Internet, outline altruism has become a new model of altruism. The relationship between emotional states such as gratitude and sense of debt and college students' altruistic behavior in reality has been confirmed by many studies. Other studies have shown that the type of help seekers is closely related to altruistic behavior, specifically, compared with strangers, people are more inclined to show altruistic behavior toward the help giver. However, most of the previous studies focused on the influencing factors of altruistic behavior in reality, and most of them discussed the influencing factors of altruistic behavior from a single perspective. In this study, 120 college students in a university in Hubei Province were selected through the experiment, and the real outline situation was created through wechat chat software by using two stimulus situations of helper and stranger and two adapted scripts of gratitude and debt. The altruistic concept, emotional state, altruistic behavior and re-altruistic behavior of college students were measured by the Philosophical Scale of Human Nature (PHN) altruism subscale, self-designed emotional state and online altruistic behavior assessment tools. The experiment was designed among 2 subjects (emotional state: gratitude, sense of debt)*2(type of help-seeker: donor, stranger). Finally, 118 valid data were collected, including 58 males and 58 females, with an average age of 20.38±1.29 years old. Through structural equation model analysis, the effects and differences of emotional state (gratitude, debt) and types of help seekers (strangers, helpers) on online altruism of college students were investigated. The results showed that: (1) In altruistic behavior, the main effect of help-seeking type was significant, and the interaction between emotional state and help-seeking type was significant; In the re-altruism behavior, the interaction between emotional state and help-seeking type is significant; (2) In the state of gratitude, compared with strangers, donors are more likely to obtain online altruistic behavior; In the indebted emotional state, strangers are more likely to obtain realtruistic behavior online than helpers. (3) In the context of helpers, gratitude can significantly positively predict outline altruism and re-altruism behavior; In the context of strangers, the sense of debt can positively predict the outline altruistic behavior, and the altruistic behavior can positively predict the re-altruistic behavior. The results show that different emotional states have different effects on the outline altruism and re-altruism behavior of helpers/strangers. The study results are helpful to understand the mechanism of outline altruism behavior, and have certain reference value for maintaining the stability and harmony of outline environment.

Keyword: altruistic behavior online, types of help-seekers, gratitude, debt, situational experiment

手机自我扩展对大学生手机拍照中“谷歌效应”的影响

车天可[1]　谢笑春[1]（通讯作者）
1 东北师范大学心理学院，长春，130024，xiexc713@nenu.edu.cn

摘 要　随着科技的发展，手机等移动设备、电脑以及互联网逐渐成为人们存储和提取信息的主要资源。手机拍照功能的广泛使用使得拍摄、存储和分享照片变得更加便利，也使得人们存储一些信息变得更加容易。以往研究发现，互联网的使用可能会对个体的记忆和认知自尊造成损伤，研究者们将这种消极影响称为“谷歌效应”。然而，相关研究集中在互联网使用行为中检验这一结果，较少研究关注智能手机等移动设备使用的影响，也未探讨手机自我扩展对这种“谷歌效应”的作用。本研究以前人研究为基础，通过两个实验，探究手机拍照对个体记忆和认知自尊的影响，检验互联网的“谷歌效应”是否可以推广到智能手机使用中，并探讨手机自我扩展水平对该效应的影响。实验一通过单因素被试间设计考察了手机拍照对个体文本信息记忆效果和认知自尊的影响。结果显示，相比于不使用手机拍照的个体，使用手机拍照的个体对于文本信息的记忆效果更差，拥有的认知自尊更高。实验二在实验一的基础上，通过单因素被试间设计探讨手机自我扩展水平在手机拍照影响个体记忆和认知自尊中的作用。结果显示，相比于不使用手机拍照的个体，无论是使用自己手机（高自我扩展）还是他人手机（低自我扩展）拍照的个体，对于文本信息的记忆效果都更差；相比于使用他人手机拍照的个体，不拍照和使用自己手机拍照的个体拥有的认知自尊都更低。本研究将互联网中的“谷歌效应”推广到智能手机使用当中，丰富了该领域的研究结果，对该方面的探讨有利于青少年生活、学习方式的改善与优化。

关键词　手机自我扩展，交互记忆，认知自尊，谷歌效应，大学生

The effect of self-expansion via smartphone on the Google effect in photo-taking of college students

Tianke Che, Xiaochun Xie
School of Psychology, Northeast Normal University, Changchun

Abstract：With the advancement of technology, mobile devices such as smartphones, computers, and the internet have gradually become the primary resources for people to store and retrieve information. The widespread use of camera phones has made it easier than ever to capture, store, and share photographs. Previous studies have found that internet use may have detrimental effects on individuals' memory and cognitive self-esteem, which researchers refer to as the “Google effect”. However, these studies have mainly focused on the internet use behavior and have paid less attention to the effects of using mobile devices like smartphones, as well as the role of self-extension via smartphone in this “Google effect”. Based on previous studies, the present study investigates the effects of photo-taking on individuals' memory and cognitive self-esteem in two experiments, examines whether the "Google effect" can be generalized to smartphone use, and explores the influence of the self-expansion via smartphone on this effect. Experiment 1 examined the effects of taking photos on smartphones on individuals' memory effects for textual information and cognitive self-esteem through a one-factor between subject design. The results showed that individuals who used smartphones to take photos had poorer memory for text information and higher cognitive self-esteem than those who did not take photos. Experiment 1 examined the effects of taking photos on smartphones on college students' memory effects for textual information and cognitive self-esteem

through a one-factor between subject design. The results showed that participants who used smartphones to take photos had poorer memory for text information and higher cognitive self-esteem than those who did not take photos. Building upon Experiment 1, Experiment 2 explored the role of self-expansion via smartphone in the effect of photo-taking on college students' memory and cognitive self-esteem through a one-factor between subject design. The results showed that participants who took photos with their own smartphones (high self-expansion level) or control smartphones (low self-expansion level) remembered the text information more poorly than those who did not take photos, and that participants who did not take photos and those who took photos with their own smartphones had lower cognitive self-esteem than those who took photos with control smartphones. This study extends the "Google effect" observed on the internet to smartphone usage, enriches the research findings in this field, and contributes to the improvement and optimization of the lifestyles and learning styles of young people.

Keywords：self-expansion via smartphone，transactive memory，cognitive self-esteem，Google effect, college students

心理忽视对大学生网络引战的影响：孤独感和反刍思维的中介作用以及网络去抑制的调节作用

周艺萍[1] 梁静静[1] 杨伍作[1] 刘静[1] 刘虹宇[1] 李放[2]（通讯作者）

1.四川师范大学心理学院，四川，610066

2.四川师范大学心理学院，四川，610066，lifang_sicnu@126.com

摘 要 网络引战是一种新兴网络攻击行为，其通过传播具有挑衅性、攻击性和恶意的信息来故意制造冲突，引发网络骂战。与网络欺负相比，网络引战的攻击对象更广泛，对网络环境和社会的影响也更严重。其容易导致受害者出现负面心理、自杀行为和社会舆论极化，严重扰乱社会秩序。研究显示，高达 71.2%的大学生每周至少参与一次网络引战。因此，网络引战已经成为一个严重的社会问题。目前研究主要集中于负性心理特征，而较少考虑家庭因素。本研究从心理发展和家庭教养方式的角度，以心理忽视作为自变量探究其与网络引战的关系。心理忽视指监护人长期忽视儿童在情感、教育、身体健康等方面的基本需求，其破坏了儿童与依赖者的安全依恋，严重危害儿童的心理健康成长，阻碍情绪调节、共情、认知归因和应激反应正常发展，使个体在人际交往中容易表现出敌意和攻击行为。以往研究表明，大学生儿童期心理忽视与网络欺凌行为呈正相关。因此，研究根据依恋理论和风险增强效应选择心理忽视作为自变量，孤独感和反刍思维作为中介变量，网络去抑制作为调节变量，构建有调节的链式中介模型，探究四者与网络引战的关系。研究使用心理忽视量表、孤独感量表、反刍思维量表、网络引战量表、网络去抑制量表对 1014 名大学生进行施测，使用 SPSS26.0 对数据进行统计分析。结果表明：（1）大学生童年期受到的心理忽视越多，网络引战行为越多。（2）反刍思维在心理忽视对网络引战的影响中的中介作用显著，且反刍思维和孤独感的链式中介作用显著。（3）网络去抑制增加反刍思维对大学生网络引战行为的预测作用。本研究以网络使用主体青年群体为研究对象，关注了网络中普遍存在的引战行为，首次探索了童年心理忽视与成年大学生网络引战之间的关系和作用机制。同时，研究综合考虑了个人特质、家庭教养方式和网络环境三个方面的变量，为中小学家庭教育和学校教育提供思路，旨在寻找改善恶劣引战的解决方案，以建立更文明的网络环境并促进青少年的健康成长。

关键词 心理忽视，网络引战，孤独感，反刍思维，网络去抑制

The Relationship between Psychological Neglect and College Students' Online Trolling: Mediating Effect of Loneliness and Rumination and Moderating Effect of Online Disinhibition

Yiping Zhou, Jingjing Liang, Wuzuo Yang, Jing Liu, Hongyu Liu, Li Fang
School of Psychology, Sichuan Normal University, Chengdu, China

Abstract ： Online trolling is a new type of cyberattack, which intentionally creates conflicts and triggers users by disseminating provocative, offensive and malicious information. Compared to cyberbullying, online trolling has wider targets and more serious impacts on online environment and society. It often leads to negative psychology, suicide among victims and polarization of public opinion, thus seriously disrupting the social order. Research shown that up to 71.2% college students engage in online trolling at least once a week, highlighting the severity of this social problem. Previous studies mainly focus on negative psychological traits associated with online trolling. Present study, with psychological neglect as the independent variable, explores the relationship between psychological neglect and online trolling from psychological development and family upbringing. Psychological neglect refers to when children's basic needs for emotional support, education, and physical health are ignored by their guardians for a prolonged period. This neglect destroys the secure attachment between children and caregivers, putting their psychological well-being at risk. Furthermore, it hinders the development of crucial skills such as emotion regulation, empathy, cognitive attribution, and stress response. As a result, individuals are more likely to exhibit hostile and aggressive behaviors in their relationships with others. Previous studies have shown that college students' childhood psychological neglect is positively associated with cyberbullying. The study chose psychological neglect as the independent variable, loneliness and rumination thinking as the mediating variables, and online disinhibition as the moderating variables based on attachment theory and risk enhancement effect, constructing a moderated chain mediation model to explore its' relationship with online trolling. To explore the relationship between psychological neglect and college students' online trolling and the mediating mechanisms between them, a total of 1014 college students completed the Child Psychological Neglect Scale, the Loneliness Scale, the Ruminative Responses Scale, the Online Disinhibition Scale, the Global Assessment of Internet Trolling. The data were statistically analyzed by using SPSS 26.0. The results showed that psychological neglect was positively related to college students' online trolling. Rumination played a mediating role between psychological neglect and online trolling. Loneliness and rumination played a chain mediating role between psychological neglect and online trolling. Online Disinhibition moderated the relationship between rumination and online trolling. With the youth group as the primary of internet users and concerned about the prevalence of online trolling, this study is the first to explore the relationship and mediating mechanism between childhood psychological neglect and college students' online trolling. Additionally, this study takes personal traits, family upbringing, and online environment as important variables. It aims at offering insights for primary and secondary school education, as well as cultivating the awareness to foster a more civil online environment. Ultimately, the study is beneficial for the healthy development of young individuals.

Key words**:** psychological neglect, rumination, loneliness, online trolling, online disinhibition

基于网络分析的听障青少年心理健康问题研究

张思羽[1] 翟梦晓[1] 吴瑞强[1] 徐夫真[1]（通讯作者）

1 山东师范大学心理学院，济南，250014，徐夫真，xufuzhen@sdnu.edu.cn

摘 要 听障青少年由于先天或后天原因导致了不同程度的听力损失，这种生理缺陷可能会引发心理健康问题。已有研究发现，总体上听障青少年的焦虑、抑郁水平高于听健青少年。先前研究更多采用心理健康问题相关问卷得分来测查其心理健康问题，难以识别症状之间的联系。精神疾病网络理论指出，干预心理健康问题的核心是改变网络核心症状的状态，促使网络分布结构发生变化，从而达到治疗效果。而使用网络分析方法能够可视化听障青少年心理健康问题之间具体症状的关联，识别网络核心症状，提供更有针对性的听障青少年心理健康服务。本研究旨在关注听障青少年心理健康问题的网络结构，选取山东省特殊教育学校中 829 名听障青少年为研究对象，采用听障青少年自我报告的中文健康问卷，使用 R 语言进行网络模型的建构与估计。结果表明，“失去信心了吗”是心理健康问题网络的中心节点，其预期影响值为 2.21，表明其在网络中发挥重要作用。其中，节点“感到痛苦和忧虑吗”和节点“失去信心了吗”联系最为紧密，表明两者具有很强的关联性。项目相关稳定性系数为 0.52，表明该网络结构具有较好的稳定性。因此，失去信心是本研究听障青少年心理健康问题网络的核心症状，在针对听障青少年心理健康的干预措施中注重增强听障青少年的自信心可能会提升干预效果，有助于缓解听障青少年的心理健康问题。

关键词 听障青少年，心理健康问题，网络分析

Network analysis for mental health problems in hearing-impaired adolescents

Siyu Zhang[1], Mengxiao Zhai[1], Ruiqiang Wu[1], Fuzhen Xu[1](Corresponding Author)

1 School of Psychology, Shandong Normal University, Jinan, 250014, Fuzhen Xu, xufuzhen@sdnu.edu.cn

Abstract: Hearing-impaired adolescents may experience varying degrees of hearing loss due to congenital or acquired reasons, which may lead to mental health problems. Existing research has indicated that hearing-impaired adolescents have higher levels of anxiety and depression compared to their hearing peers. However, most prior studies have relied on scores from questionnaires assessing mental health problems, making it difficult to identify the interconnections among symptoms. The network theory of mental disorder suggests that the core of intervening in mental health problems lies in altering the state of core symptoms in the network, inducing changes in the distribution structure, and thus achieving therapeutic effects. Therefore, using network analysis methods can visualize the specific associations among mental health problems in hearing-impaired adolescents, identify core symptoms in the network, and provide more targeted mental health services for this population. The aim of this study is to examine the network structure of mental health problems among hearing-impaired adolescents. A sample of 829 hearing-impaired adolescents from special schools in Shandong Province was recruited, and a self-reported Chinese health questionnaire was employed. Network models were constructed and estimated using the R programs. The results indicate that “Have you lost confidence?” is the central node in the network of mental health problems, with an expected influence value of 2.21, highlighting its critical role in the network. Specifically, the node “Do you feel pain and anxiety?” has the strongest association with the node “Have you lost confidence?”, indicating a robust linkage between the two. The item-related stability coefficient is 0.52, suggesting good stability of the network structure. Therefore, loss of confidence emerges as the core symptom in the network of mental health problems among hearing-impaired adolescents in this study. Emphasizing the enhancement of

self-confidence among hearing-impaired adolescents in interventions targeting their mental health may improve intervention effectiveness and contribute to alleviating their mental health problems.
***Keywords*:** hearing-impaired adolescents, mental health problems, network analysis

“人比人，气死人”？游戏玩家群体内与群体外社会比较的神经机制：一项 fMRI 研究

方子杰[1] 文宏伟[1] 周玉红[1] 高雪梅[1]（通讯作者）

1 西南大学心理学部，重庆，400715，通讯作者 zhenggao@swu.edu.cn

摘 要 社会比较是个人定义其社会特征的重要方式，而拥有大量社交信息的在线游戏为玩家之间的社交比较提供了一个方便的平台。然而，很少有研究关注电子游戏背景下玩家之间的社会比较机制。本研究试图通过功能磁共振成像（fMRI）和点估计范式探讨玩家在群体间和群体内情境下社会比较的神经机制。

实验纳入了 26 名被试（17 名男性，9 名女性，平均年龄 21.62 岁）。社会比较的维度（同化/对比）和方向（向上/向下）被同时纳入实验变量，经由最小群体范式操控维度，而使用点估计范式操控方向。通过 2×2 的实验设计，详细分析了大脑区域在不同社会比较情境下的激活情况。研究结果发现，与向上比较相比，向下比较导致的大脑激活显著不同。当比较对象的群体身份与玩家的群体身份相同时，引起同化效应，向下比较显著激活了梭状回、壳核、豆状核、楔前回和中央前回。当比较对象的群体身份与玩家的群体身份不同时，引起对比效应，向下比较显著激活了角回、额中回和额上回。一方面，无论是群体内还是群体间比较，向下的社会比较都激活了奖赏相关的脑区。另一方面，不同群体比较情境下，脑区激活存在差异，群体内的向下比较会引发自我参照与负面情绪，群体外则会因为激发积极情绪和目标导向动机。这表明，社会比较方向和维度的认知过程相对独立却又存在交互效应。

研究结果发现，群体认同对玩家社会比较的认知过程具有调节作用，并从神经机制的角度为游戏成瘾的原因提供了一种新的可能性。

关键词 社会比较，群体认同，社会神经科学，游戏成瘾

Comparisons are Odious? The Neural Mechanism of Intergroup and Intragroup Social Comparison among Game Players : An fMRI Study

Zijie Fang [1], Hongwei Wen [1], Yuhong Zhou [1], Xuemei Gao[1]

[1] Faculty of Psychology, Southwest University, Chongqing, China

Abstract：Social comparison is an important way for individuals to define their social characteristics, and online games with a large amount of social information provide a convenient platform for social comparison between players. However, few studies have focused on the social comparison mechanisms between players in the context of electronic games. This study tried to explored the neural mechanism of intergroup and intragroup social comparison among players through fMRI and dot estimation paradigm.
26 participants participated in our experiment. We considered the dimensions (assimilation/contrast) and directions (up/down) of social comparison simultaneously, manipulated the dimensions through the minimum group paradigm, and used dot estimation paradigm to manipulate the direction. Through a 2×2 experimental design, we set a detailed analysis of the activation of brain regions in different social comparison contexts. The results showed that compared to upward comparison, downward comparison resulted in significantly different brain activation. When the group identity of the comparison object is as same as that of the player, it causes assimilation effect, and downward comparison significantly activates the fusiform gyrus, putamen, lentiform nucleus, precuneus and precentral gyrus. When the group identity of the comparison object is different from that of the player, the contrast effect is caused, and downward comparison significantly activates the angular gyrus, middle frontal gyrus and superior frontal gyrus. On the one hand, whether it's intergroup or intragroup, downward social comparisons activate reward related brain regions. On the other hand, there are differences in brain activation between intergroup and intragroup comparison. Intragroup downward comparison within the group can trigger self-reference and negative emotions, while Intergroup downward comparison can trigger positive emotions and goal oriented motivation. This indicates that the cognitive process of social comparison direction and dimension is relatively independent but has interactive effects.
Our research proves that group identity can moderate the cognitive process of players' social comparison and provides a new possibility for the causes of gaming addiction from the perspective of neural mechanisms.
Keywords：social comparison, group identity, social neuroscience, gaming disorder

5.24 情绪与健康心理学专业委员会

对自然界积极情绪性声音线索的注意偏向及认知神经机制

王艳梅[1,2]，汤镇委[1]，王麟子

（1 华东师范大学心理与认知科学学院，上海市心理健康与危机干预重点实验室，上海， 200062）

（2 上海市长宁区精神卫生中心，上海，200335）

摘要 自然界声音可以携带情绪性信息，近年来研究已经发现人类健康个体对积极视觉情绪刺激存在优先加工的注意偏向，但对积极情绪性声音刺激是否存在注意偏向尚不清楚。本研究以自然界情绪性声音作为线索刺激（正性、负性、中性），采用经典的考察空间注意分配任务的线索-提示任务范式，结合事件相关电位技术（ERP）和经颅电刺激技术（tDCS），在四个实验中，考察了对自然界的情绪性声音刺激的听觉注意偏向及听-视跨通道注意偏向，以及对自然界积极情绪性声音引发的注意资源分配在大脑时间变化上的进程，并进一步通过脑调控技术，考察了增强左背外侧前额皮层（lDLPFC）是否能够影响人类健康个体对自然界

积极情绪性声音的注意偏向。结果发现，人类健康个体对自然界消极情绪性声音（如警笛声）和积极情绪性声音（如鸟鸣声）均存在听觉注意偏向及听-视跨通道注意偏向，具体表现为在有效提示条件下，对自然界情绪性声音（积极和消极）线索的反应时显著快于中性声音线索时的反应时。且相比于中性听觉线索，自然界积极情绪性线索刺激引发了更大的 N1 平均波幅，说明对积极情绪性声音的注意偏向为一种自下而上的、自动化的注意朝向。另外，自然界积极情绪性声音线索引发的 P300 平均波幅比中性声音线索引发的 P300 波幅更大，说明自然界积极情绪性声音线索也增强了注意的保持。对健康个体的左背外侧前额皮层的进行 tDCS 阳极刺激，相比于伪刺激，减弱了对自然界情绪性声音（积极情绪声音和消极情绪声音）的注意偏向。本研究为人类健康个体对自然界积极听觉刺激存在早期自动化的注意朝向提供了行为学和神经学层面的证据，这种积极听觉注意偏向对人类寻求奖赏、保持稳定的积极心境可能有进化上的适应意义。

关键词：注意偏向，自然界积极情绪性声音，线索-提示任务，事件相关电位，左背外侧前额皮层

The Neural correlates of auditory and cross-modal attentional bias toward positive natural sounds

Yanmei Wang[1,2 *], Zhenwei Tang[1], Linzi Wang[1]

(1 Shanghai Key Laboratory of Mental Health and Psychological Crisis Intervention, School of Psychology and Cognitive Science, East China Normal University, Shanghai, China, 200062)

(2 Shanghai Changning Mental Health Center, Shanghai, China, 200335)

***Abstract*：** Recently, researchers have expanded the investigation into attentional biases toward positive stimuli; however, few studies have examined attentional biases toward positive auditory information. In three experiments, the present study employed an emotional spatial cueing task using emotional sounds as cues and auditory stimuli (Experiment 1) or visual stimuli (Experiment 2 and Experiment 3) as targets to explore whether auditory or visual spatial attention could be modulated by positive auditory cues. Experiment 3 also examined the temporal dynamics of cross-modal auditory bias toward positive natural sounds using event-related potentials (ERPs). The behavioral results of the three experiments consistently demonstrated that response times to targets were faster after positive auditory cues than they were after neutral auditory cues in the valid condition, indicating that healthy participants showed a selective auditory attentional bias (Experiment 1) and cross-modal attentional bias (Experiment 2 and Experiment 3) toward positive natural sounds. The results of Experiment 3 showed that N1 amplitudes were more negative after positive sounds than they were after neutral sounds, which further provided electrophysiological evidence that positive auditory information enhances attention engagement at early stages in healthy adults. In addition, positive natural sounds evoked higher amplitude of P300 relative to neutral natural sounds, indicating that positive natural sounds information also facilitated attention maintenance. In experiment 4, we adopted used an emotional spatial cueing paradigm combined with a high-definition transcranial direct current stimulation (HD-tDCS) to explore the role of the left dlPFC in attention bias towards positive natural sounds. The results showed that enhancing the activation of the left dlPFC reduced attentional bias towards emotional natural sounds. These findings indicated that humans exhibited an attentional bias toward positive natural sounds, and enhancing the activation of the left dlPFC, which is closely correlated with attention control, reduced positive attentional bias towards natural sounds.

***Keywords*：** attentional bias, positive natural sounds, emotional cueing task, event-related potentials, left dorsolateral prefrontal cortex

通讯作者：王艳梅，华东师范大学心理与认知科学学院教授，ymwang@psy.ecnu.edu.cn

歧视知觉和同伴关系对乡村儿童孤独感的影响：基于潜在剖面分析

王慧[1] 华筝[1] 王彩妹[1] 谢敏玉[1] 温义媛[2]（通讯作者）
1 赣南师范大学教育科学学院，赣州，341000
2 赣南师范大学心理咨询与健康教育中心，赣州，341000，wenyiyuan81@126.com

摘 要： 儿童青少年的情绪适应是发展心理学研究的重要课题之一，良好的情绪适应是个体身心健康及社会发展的重要保证。有研究表明，乡村地区经济欠发达，文化氛围不够，家长大多受文化水平限制，教育方法一般比较简单或粗暴，心理健康教育方面更是一片盲区，因而增加了乡村儿童经历孤独、抑郁和焦虑等消极情绪困扰的可能性。发展情境论指出：影响个体发展的情境因素包括环境和个体因素；个体的发展是它们相互作用的结果；同伴关系是儿童在日常互动中形成的人际关系，是影响儿童发展的重要情境因素；歧视知觉是个体的主观体验，属个体因素。现有研究大多依据量表总分对被试的孤独感进行简单划分，而忽略了被试在各题目上的表现差异。基于此，本研究采用以人为中心的方法，探讨乡村儿童孤独感的潜在类别，并检验同伴关系和歧视知觉与乡村儿童孤独感的关系。采用同伴关系量表、歧视知觉量表以及孤独感量表对 486 名乡村儿童进行测量。结果表明，乡村儿童孤独感存在 3 个潜在类别：低孤独感组（33.2%）、中等孤独感组（41.5%）和高孤独感组（25.3%）。多项 Logistic 回归分析结果表明，歧视知觉对不同孤独感类别乡村儿童的影响不同，与低孤独感组相比，歧视知觉得分越高，被试越可能出现在高孤独感组；同伴关系对不同孤独感类别乡村儿童的影响不同,与高孤独感组相比，同伴关系得分越高，被试越可能出现在低孤独感组。该研究反映了个体和情境因素对不同类别孤独感的影响，对农村留守儿童孤独感的预防有重要意义，同时强调了同伴关系对孤独感的缓冲作用，能有效促进农村留守儿童的身心健康发展。

关键词 歧视知觉，同伴关系，孤独感，乡村儿童

Effects of discrimination perception and peer relationships on loneliness in rural children: Based on potential profile analysis

Wang Hui[1] Hua Zheng[1] Wang Cai mei[1] Xie Min yu[1] Wen Yi yuan[2]
College of Educational Sciences, Gannan Normal University, Ganzhou,341000
Psychological Counseling and Health Education Center of Gannan Normal University,GanZhou,341000, wenyiyuan81@126.com

Abstract: The emotional adaptation of children and adolescents is one of the important topics in developmental psychology research, and good emotional adaptation is an important guarantee for the physical and mental health and social development of individuals. Studies have shown that rural areas are economically underdeveloped, the cultural atmosphere is not enough, parents are mostly limited by the level of education, education methods are generally relatively simple or crude, and mental health education is a blind area, thus increasing the possibility of rural children experiencing negative emotional distress such as loneliness, depression and anxiety. Developmental situational theory points out that the situational factors affecting individual development include environmental

and individual factors; The development of individuals is the result of their interactions; Peer relationship is an interpersonal relationship formed by children in daily interaction, which is an important situational factor affecting children's development; The perception of discrimination is an individual's subjective experience and is an individual factor. Most of the existing studies simply divide participants' loneliness according to the total score of the scale, and ignore the differences in participants' performance on each topic. Based on this, this study uses a human-centered approach to explore the potential categories of loneliness in rural children, and examines the relationship between peer relationships and discrimination perceptions and loneliness in rural children. A total of 486 rural children were measured using the Peer Relationship Scale, the Discrimination Perception Scale and the Loneliness Scale. The results showed that there were three potential categories of loneliness among rural children: low loneliness group (33.2%), moderate loneliness group (41.5%), and high loneliness group (25.3%). The results of multiple logistic regression analyses showed that discrimination perception had different effects on rural children in different loneliness categories, and compared with the low loneliness group, the higher the discrimination perception score, the more likely the participants were in the high loneliness group. Peer relationships had different effects on rural children in different loneliness categories, and the higher the peer relationship score compared to the high loneliness group, the more likely participants were in the low loneliness group. This study reflects the influence of individual and situational factors on different types of loneliness, which is of great significance for the prevention of loneliness among rural left-behind children, and emphasizes the buffering effect of peer relationship on loneliness, which can effectively promote the physical and mental health development of rural left-behind children.

Keywords: Perceived discrimination，peer relationship，loneliness，rural children

疫情政策开放下特质敬畏对心理健康的影响及解释偏向的中介作用：一项纵向研究

罗利[1]　王潇寒[2]　焦立名[3]　袁加锦[2*]

(1.内江师范学院 教育科学学院 四川内江 641112；

2. 四川师范大学 脑与心理科学研究院 四川成都 610066；

3. 内江师范学院 经济与管理学院 四川内江 641112)

摘 要：疫情政策开放后，新冠病毒在短时间内大规模传播。面对突如其来的病毒传播，以及其导致的不确定性，这必然对个体心理健康产生负面影响。为了减轻这一负面影响，本研究从认知-感情相符理论和积极情绪的拓展-建构理论角度，考察了特质敬畏对心理健康的保护作用，以及解释偏向在这一关系间的中介作用。本研究在疫情政策开放的两个月内收集了 527 名被试的数据(年龄：21.18 ± 3.39，16-78 岁之间)。被试共完成了三次在线测试，每次间隔一个月。完成的量表包括特质敬畏量表(DPES-awe)、解释偏向问卷(IQ)、积极消极情绪量表(PANAS)、生活满意度量表(SWLS)、简明抑郁-幸福感量表(SDHS-C)和症状自评检查表 90 (SCl-90)。结果：(1) 相比于 T2 和 T3，疫情政策开放一个月内个体的心理健康(包括负性情绪和自评症状报告)水平最差，负性解释偏向最高。随时间推移，积极和中性解释逐渐提升，心理健康水平也逐渐恢复。(2) 研究以特质敬畏为自变量，正性心理功能(包括幸福感、正性情绪和生活满意度)和负性心理功能(包括 SCL-90)为因变量，解释偏向为中介变量，并控制性别、年龄、感染新冠病毒的次数、感染新冠病毒的严重性、学历、以及来自的区域(农村或城镇)等变量，建立了变量间的交叉滞后模型。结果发现 T1 的特质敬畏

能显著提升 T2 积极解释偏向、减弱 T2 消极解释偏向，从而提升 T3 正性心理功能；同时，T1 特质敬畏能显著地减弱 T2 消极解释偏向，进而降低 T3 负性心理功能。综上，敬畏通过塑造个体的解释偏向，减弱了疫情政策开放后因病毒大规模传染而给心理健康带来的负面影响。这一结果增强了我们对敬畏与心理健康之间关系的认识，也为提升特殊时期个体的心理健康的维护提供了新的思路。
关键词：特质敬畏，心理健康，解释偏向，中介效应，纵向研究

Interpretation bias mediates the protective role of dispositional awe for mental health after loosened COVID-19 policies in China: A longitudinal study

Li Luo[1] Xiaohan Wang[2] Liming Jiao[3] Jiajin Yuan[2*]

[1]The Department of Education Science, Neijiang Normal University, Neijiang, China 641112;

[2]The Affect Cognition and Regulation Laboratory (ACRLab), Institute of Brain and Psychological Sciences, Sichuan Normal University, Chengdu, China 610066;

[3]The Department of College of Economics and Management, Neijiang Normal University, Neijiang, China 641112

Abstract: The loosened COVID-19 policies would lead to the large-scale transmission of the virus in a short period, which will inevitably influence individuals' mental health. To explore ways of alleviating this impact, the current study examined the potential protective effect of awe (as a self-transcendent emotion) on people's mental health and its cognitive pathway during this public health condition. We collected three-time longitudinal data from 527 participants (aged between 16 to 72; M = 21.18, SD = 3.39; Nmale = 368) in China within the first two months after the implementation of loosened COVID-19 policies. Results showed that individuals' negative interpretation bias was the highest and their mental health (including negative affect and SCL-90) was the poorest in Time 1, which was then gradually improved in Time 2 and Time 3. Cross-lagged analysis shows that dispositional awe in Time 1 significantly predicted improved positive interpretation bias and weakened negative interpretation bias in Time 2, and then predicted positive mental health (including happiness, positive affect, and life satisfaction) in Time 3. Meantime, negative interpretation bias in Time 2 mediated the predictive role of dispositional awe in Time 1 for reduced psychological symptoms assessed by SCL90 in Time 3. These results suggest that the inspiration of a trait-like awe feelings may serve as a buffer for people's mental health through shaping interpretation bias during public health conditions.

Key words: dispositional awe, mental health, interpretive bias, mediation effect, longitudinal study

父母情绪教养模式与儿童情绪适应性：基于潜在剖面分析与多角度测量

车俐颖 宋漫漫 徐健捷 安也 朱晨曦 韩卓（通讯作者）
北京师范大学心理学部，北京，100875，rachhan@bnu.edu.cn

摘 要　家庭是儿童发展的重要场所。其中，父母情绪教养对儿童的情绪发展具有重要作用。父母情绪教养包含多种行为，如情绪教导、谈论情绪、情绪表达、情绪回应等。其中，父母对儿童情绪的回应在日常亲子情绪互动中频繁出现，是影响儿童情绪发展非常直接、典型的途径。已有研究多以变量为中心，从群体层面单独考察对儿童不同的消极情绪回应方式对儿童情绪适应性的作用，却忽视了不同家庭可能存在回应方式的异质性与独特性，无法揭示异质性亚群体的差异。因此本研究以个体为中心的视角，采用潜在剖面分析方法，生态揭示中国文化背景下父母情绪教养的多种模式，并异质性地探讨不同情绪教养模式对儿童情绪适应性的影响。研究选取了 150 名儿童（平均年龄为 8.64 岁，标准差为 1.67 岁）及其家长为研究对象，采用多角度测量，儿童自我报告抑郁、自尊，父母问卷报告对儿童消极情绪的回应方式、儿童情绪调节和问题行为，同时通过冲突讨论任务采用观察编码方式更为客观地测量儿童的情绪调节能力。采用基于 BCH 方法的潜在剖面分析方法进行统计推断。结果发现：(1)中国父母的情绪回应方式存在三种潜在类别：支持型 (高支持性回应-低非支持性回应，38.67%)、严苛型 (低支持性回应-高非支持性回应，27.33%)、高投入型 (高支持性回应-高非支持性回应，32.67%)；(2)父母为支持型情绪教养家庭中的儿童在情绪适应的各方面均优于严苛型和高投入型家庭中的儿童；(3)父母情绪教养为严苛型的儿童情绪适应能力最低；(4)父母高投入家庭的儿童与支持型家庭的儿童相比，有更低的自尊水平和更差的情绪调节能力，但与严苛型家庭中的儿童相比，有更少的内化问题和更好的情绪调节能力。本研究启示父母在面对儿童的消极情绪时应有意识觉察自身的情绪反应，进而科学改进情绪回应模式，多采取支持型的情绪教养方式，同时避免采用惩罚等非支持型情绪教养方式，以实现儿童情绪健康的最优发展。
关键词　父母情绪教养，儿童情绪适应，潜在剖面分析，多角度测量

Patterns of Emotion-Related Parenting and Children's Emotional Adjustment: A Latent Profile Analysis with Multi-Methods

CHE Liying, SONG Manman, XU Jianjie, AN Ye, ZHU Chenxi, HAN Zhuo
Faculty of Psychology, Beijing Normal University, Beijing 100875, China

Abstract：Family is an important context for child development, in which emotion-related parenting plays a critical role in children's emotional adjustment. Emotion-related parenting has various components, such as emotion coaching, emotion discussion, emotion expression, and responses to emotion. Among them, responses to child's emotion emerge frequently in the daily parent-child emotional interactions, which is one of the most direct and typical ways to influence children's emotional adjustment. Previous studies have predominantly been based on variable-centered approaches, whereas overlooking the potential heterogeneity and uniqueness of emotion-related parenting among different families. Therefore, this study adopted a person-centered perspective and utilized latent profile analysis to reveal multiple patterns of emotion-related parenting, aiming to heterogeneously explore the impact of different emotion parenting patterns on children's emotional adjustment. Our sample included 150 children (M_{age} = 8.64 years, *SD* = 1.67) and their parents. Using multi-methods, the current study assessed children's depression and self-esteem through self-report measures; parents' responses to children's negative emotions and children's problem behaviors were measured using questionnaires completed by parents; children's emotional regulation abilities were measured through both parents' report and behavior observation. We conducted

latent profile analysis with BCH approach. As the results indicated, there were three subtypes of Chinese emotion-related parenting patterns: “supportive” (high supportive and low unsupportive responses to negative emotions, 38.67%), “harsh” (low supportive and high unsupportive responses to negative emotions, 27.33%) and “over-engaged” (both high supportive and unsupportive responses to negative emotions, 32.67%). Children with supportive parents exhibited the highest emotional adjustment, whereas children of harsh parents exhibited the lowest adjustment. In addition, children with over-engaged parents showed lower levels of self-esteem and higher levels of emotional dysregulation than those with supportive parents, but showed lower levels of internalizing problems and lower levels of emotional dysregulation than those with harsh parents. This study suggests that parents should be aware of their own emotional responses when facing children’s negative emotions. Parents should also adjust their emotional responses to be supportive instead of being unsupportive in order to meet their children’s emotional needs, which helps achieve the optimal development of child adjustment.
Keywords：emotion-related parenting, child emotional adjustment, latent profile analysis, multi-methods

失眠会让人情绪更易感吗？失眠障碍个体情绪感知及神经生理活动特点

李丝雨[1] 何美亨[1] 陈庆伟[2] 汝涛涛[2]（通讯作者）
1 华南师范大学心理学院光与身心健康实验室，广州，510631
2 华南师范大学国家绿色光电子国际联合研究中心，广州，510006
通讯作者：taotao.ru@m.scnu.edu.cn

摘 要 充足的睡眠对个体的身心健康十分必要，而失眠作为最常见的睡眠障碍已经成为一个广泛的社会公共健康问题，睡眠缺失会导致个体生理和心理功能严重受损。当前已有不少研究探讨了急性睡眠剥夺对情绪加工的影响,然而，这些研究结果并不一致。失眠所导致的慢性睡眠缺失是否同样也会干扰个体情绪加工以及这种影响是否具有情绪效价或强度的依赖性尚未可知。此外， 慢性失眠影响情绪加工的时域和频域振荡与行为改变间的关联性如何有待探究。

本研究通过记录脑电图(EEG)信号，探究 25 例非临床失眠个体(失眠组)和 22 例健康人(控制组)分别进行内隐情绪加工 oddball 任务，以及外显情绪加工情绪面孔探测任务的行为差异及脑电活动特征。行为结果显示，在情绪 oddball 任务上，失眠障碍个体的反应时间明显慢于健康人。而情绪面孔探测任务中失眠个体仅对强度为 20%的面孔反应明显慢于健康人。ERPs 结果显示，失眠组诱发比健康组更大的 N2 波幅，且被负性图片诱发比正性图片更大的 N2、P2 波幅，而健康组被正性图片诱发比失眠组被试更大的 EPN 波幅。频域指标上，在后部脑区，失眠组的 delta、alpha、theta 能量显著大于健康对照组。结论: 失眠会干扰情绪加工，表现为低频振荡（theta 和 alpha）和高频振荡（beta）的增加，以及情绪效价依赖的行为与 ERP 时频活动改变，即负性情绪刺激的效价强度变化尤为敏感，失眠障碍个体会对负性情绪投入的更多的注意。

关键词 失眠障碍， 内隐情绪加工，外显情绪加工， 情绪易感性，时频

Does insomnia make individuals more emotionally sensitive? Emotional perception and neurophysiological activity characteristics in individuals with insomnia disorder

Siyu Li[1], Meiheng He[1], Qingwei Chen[2], Taotao Ru[2 *]

1 School of Psychology, South China Normal University, Guangzhou 510631, China

2 Lab of Light and Physio-psychological Health, National Center for International Research on Green Optoelectronics, South China Normal University, Guangzhou 510006, China

Corresponding author: taotao.ru@m.scnu.edu.cn

***Abstract*:** Sufficient sleep is essential for individuals' physical and mental well-being. Insomnia, as the most common sleep disorder, has become a widespread public health issue, as sleep deprivation can severely impair physiological and psychological functioning. Previous research has explored the effects of acute sleep deprivation on emotion processing; however, the findings have been inconsistent. It remains unclear whether chronic sleep loss caused by insomnia also disrupts individuals' emotion processing and whether this effect is dependent on emotional valence or intensity. Furthermore, the relationship between the time-domain and frequency-domain oscillations of emotion processing and behavioral changes in chronic insomnia remains to be investigated.

In this study, we recorded electroencephalogram (EEG) signals to examine behavioral differences and neuroelectric activity patterns during implicit emotion processing (oddball task) and explicit emotion processing (facial detection task) in 25 individuals with non-clinical insomnia (insomnia group) and 22 healthy individuals (control group). The results showed that individuals with insomnia exhibited significantly slower response times in the emotion oddball task compared to healthy individuals. In the facial detection task, individuals with insomnia responded significantly slower to 20% intensity faces compared to healthy individuals. The event-related potentials (ERPs) results indicated that the insomnia group elicited larger N2 amplitudes compared to the control group, and the insomnia group showed greater N2 and P2 amplitudes in response to negative pictures compared to positive pictures, while the control group exhibited larger EPN amplitudes in response to positive pictures compared to the insomnia group. In terms of the frequency domain, the insomnia group exhibited significantly higher delta, alpha, and theta power in the posterior brain regions compared to the control group. In conclusion, insomnia disrupts emotion processing, characterized by an increase in low-frequency oscillations (theta and alpha) and high-frequency oscillations (beta), as well as valence-dependent behavioral and ERP/time-frequency activity changes, with a heightened sensitivity to intensity changes in negative emotional stimuli. Individuals with insomnia exhibit increased attention towards negative emotions.

***Keywords*:** Insomnia disorder, implicit emotion processing, explicit emotion processing, emotional susceptibility, time-frequency

COVID-19 期间和之后的青少年抑郁症状变化：基于潜在剖面和转换分析的结果

龚杰[1]，卞小华[2]，金国敏[1]，周同[1]，刘俊升[1,3]（通讯作者）, Robert J. Coplan[4]，桑标[1,5]

1 华东师范大学心理与认知科学学院，上海，200062，通讯作者 E-mail: jsliu@psy.ecnu.edu.cn

2 郑州师范学院教育科学学院，行为与认知科学国际联合实验室

3 上海市长宁区精神卫生中心

4 Department of Psychology, Carleton University, Ottawa, Canada

5 上海市教育科学研究院教育部“教育大数据与教育决策”实验室

摘要：本研究旨在确定 COVID-19 大流行期间中国青少年抑郁症状的不同剖面特征及预测因素，并采用一年纵向追踪，进一步探索导致居家隔离期间和疫情后不同抑郁症状剖面转变的风险因素（家庭/学校/社区）。**方法**：采用纵向追踪，对 COVID-19 大流行期间 694 名长期居家隔离的青少年进行调查（男孩：48.6%；M_{age} = 12.65; SD = 1.49）。所有被试在居家隔离期间（Time 1）和一年后（Time 2）需报告个人信息，社区感染病例，儿童版流调中心抑郁量表（CES-DC），父母环境问卷—亲子冲突子量表（PEQ）和学业压力等。**结果**：潜在剖面分析(Latent Profile Analysis; LPA)结果表明青少年可能存在三个抑郁亚组：低抑郁组 (74.9% at T1/68.3% at T2); 阈下抑郁组 (20.6% at T1/24.5% at T2)和可能的临床抑郁组(4.9% at T1/7.2% at T2)。个体的年龄，学业压力、亲子冲突和 T1 时间点的社区感染病例可以显著两个时间点抑郁剖面的形成。潜在转化分析(Latent Transition Analysis；LTA)结果表明，低抑郁组别(77.8%)相较于可能的临床抑郁组(36.6%)具有更高的稳定性。学业压力和亲子冲突是导致青少年在一年时间内不同抑郁组之间转换的主要因素，而非社区感染病例（感染风险）。**结论**：本研究提供了 COVID-19 大流行期间中国青少年抑郁模式变化的纵向证据。较高的亲子冲突更有可能导致青少年抑郁症状从较低程度向较高程度的转换，而更高的学业压力则使隔离期间的临床抑郁症组青少年在一年后有更高的概率维持在临床抑郁症组。

关键词：抑郁，潜在转换分析，学业压力，亲子冲突，COVID-19

Depressive Symptoms among Chinese Adolescents during and after the COVID-19 Pandemic: Exploring Subgroups and Changes using Latent Profile and Transition Analyses

Jie Gong[1], Xiaohua Bian[2], Guomin Jin[1], Tong Zhou[1], Junsheng Liu[1,3], Robert J. Coplan,[4] Biao Sang[1,5]

[1] School of Psychology and Cognitive Science, East China Normal University, Shanghai, China
[2] School of Educational Science, Zhengzhou Normal University, Henan, China
[3] Shanghai Changning Mental Health Center, Shanghai, China
[4] Department of Psychology, Carleton University, Ottawa, Canada
[5] Lab for Educational Big Data and Policymaking, Shanghai Academy of Educational Sciences, Shanghai, China

Abstract Background: The primary goals of this longitudinal study were to identify subgroups of Chinese adolescents with different profiles of depressive symptoms and to explore predictors of the transitions between profiles. Method: Participants were 694 adolescents (48.6% boys; Mage = 12.65 years; SD = 1.49) recruited in 2020 during an extended period of home quarantine. At baseline (T1) and then again one year later (T2), participants completed a series of self-reports (i.e., demographic characteristics, depressive symptoms, academic pressure, parent-children conflict). Results: Results from latent profile analysis (LPA) yielded a three-depression subgroups solution: low depression (74.9% at T1/68.3% at T2); subthreshold depression (20.6%/24.5%), and probable clinical depression (4.9%/7.2%). Membership in the probable clinical depression group was predicted by academic pressure and parent-child conflict at both time points, and infected cases in the community at T1. Results from latent transition analysis (LTA) indicated greater stability in the low depression group (77.8%) than the probable clinical depression group (36.6%) from T1 to T2. Transitions between groups were predicted by academic pressure and parent-child conflict rather than infection risk. Limitations: Our assessments were all obtained from the self-report. Conclusions: This study presents initial longitudinal evidence of changes in depression patterns among Chinese adolescents during the COVID-19 pandemic. Parent-child conflict is more likely to cause a transfer from lower to higher levels of depression, while academic pressure leads to more severe depression among those already experiencing clinical depression.

Keywords: depression; latent transition analysis; academic pressure; parent-child conflict; COVID-19 pandemic

抑郁谱系障碍期待性快感缺失的潜在认知机制：来自奖赏表征加工的初步证据

夏峥[1]　杨静雯[1]　陈思路[2]　易正辉[3]　严超[4]（通讯作者）

1 华东师范大学心理与认知科学学院，情绪神经科学与发展病理实验室，上海，200333

2 上海市长宁区精神卫生中心，上海，200050

3 上海市精神卫生中心，上海，200030
4 华东师范大学心理与认知科学学院，上海，200333，cyan@psy.ecnu.edu.cn

摘 要 快感缺失，指对以往的愉快经历失去兴趣，是抑郁症的核心症状之一。该症状包含两个维度：即时性快感缺失与期待性快感缺失。以往大量研究主要探讨即时性快感缺失的病理心理机制，而对期待性快感缺失潜在机制的了解十分有限。根据奖赏多维加工模型，奖赏表征的激活与维持是产生期待性快感体验的关键过程，因此本研究探究临床抑郁症患者的奖赏表征激活与维持功能与其期待性快感体验之间的关系，并试图厘清不同抑郁状态对奖赏表征加工的影响。本研究招募了 12-30 岁的临床抑郁组（n=59）、亚临床抑郁风险组（n=40）及健康对照组（n=55）完成奖赏表征维持任务。结果表明：在表征激活与维持阶段，临床抑郁组在无需维持表征时的表征错误率显著高于亚临床抑郁风险组和健康对照组，并且临床抑郁组在需要维持时的表征错误率显著高于无需维持条件，同时，临床抑郁组患者的抑郁水平越高，其对高金额奖赏表征的激活与维持错误率越高，这表明抑郁症患者的奖赏表征激活与维持均存在损伤。亚临床抑郁风险组在需要维持时，其表征错误率显著低于健康对照组。在期待按键反应阶段，临床抑郁组被试对低金额（1 元）的期待反应程度显著高于亚临床抑郁风险组和健康对照组，而对高金额（10 元）的反应程度显著低于亚临床抑郁风险组和健康对照组，表明临床抑郁症患者对不同奖赏水平的区分度减退，以致对未来的潜在奖赏存在不合理的预期。另一方面，亚临床抑郁风险组在高金额条件下的期待反应程度却显著高于健康对照组。综上所述，本研究发现临床抑郁症以及亚临床抑郁风险群体的奖赏表征激活与维持功能相对于健康人群表现出独特分离的异常加工模式。其中临床抑郁症患者的奖赏表征激活与维持功能均受到损伤，而亚临床抑郁症风险群体的奖赏表征激活与维持功能可能起着“代偿”作用，以弥补抑郁状态对奖赏期待的影响。本研究通过探究抑郁谱系障碍奖赏表征加工能力与期待性快感体验之间的关系，增进了对抑郁症病理发展机制的理解。

关键词 抑郁症 亚临床抑郁症 奖赏表征维持 期待性快感缺失

Exploring the Cognitive Mechanism of Anticipatory Anhedonia in the Depressive Disorder Spectrum: Preliminary Insights from Reward Representation

Zheng Xia[1] Jingwen Yang[1] Silu Chen[2] Zhenghui Yi[3] Chao Yan[4]
Affective Neuroscience & Developmental Psychopathology Laboratory,
East China Normal University, Shanghai

Abstract： Anhedonia, a loss of interest in past pleasurable experiences, is one of the core symptoms of depression with two dimensions: consummatory anhedonia and anticipatory anhedonia. A large number of previous studies have mainly discussed the psychopathological mechanism of consummatory anhedonia, but the understanding of the underlying mechanism of anticipatory anhedonia is limited. According to the multi-dimensional reward processing model, the activation and maintenance of reward representation is the key process to generate anticipatory pleasure. Therefore, this study explored the relationship between the activation and maintenance of reward representation and anticipatory pleasure in patients with major depressive disorder, and attempted to clarify the influence of different depressive states on the processing of reward representation. In this study, 12-to-30-years- old clinical depression group (n=59), subclinical depression risk group (n=40) and healthy control group (n=55) were recruited to complete the reward representation maintenance task. The results showed that: in the stage of representation activation and maintenance, the rate of representation error of the clinical depression group was significantly higher than that in the subclinical group and the healthy control group. The rate of representation error of clinical depression group was significantly higher when maintenance was required than that in the non-maintenance condition. In addition, the higher level of depression of clinical depression group was associated with the higher the error rate of activation and maintenance of high-amount reward representation, indicating that both the activation and maintenance of reward representations were impaired in patients with depression. The rate of representation error of subclinical depression risk group was significantly lower than that of healthy control group when the reward representation needed to be maintained, suggesting that subclinical depression risk group had over-excellent performance in reward representation processing. During the reward anticipation stage, the anticipatory response of clinical depression group to low-amount reward(1 yuan) was significantly stronger than that of subclinical depression risk group and healthy control group, while the anticipatory degree of high-amount reward(10 yuan) was significantly lower than that of subclinical depression risk group and healthy control group, indicating that patients with depression had decreased distinction of different reward levels, resulting in unreasonable anticipation of future reward. On the other side, the anticipatory response of subclinical depression risk group to high-amount reward was significantly higher than that of healthy control group. In conclusion, this study found that reward representation activation and maintenance function in clinical depression group and subclinical depression risk group showed a unique and separate abnormal processing pattern compared with healthy population. The activation and maintenance of reward representation of patients with depression are both impaired while the reward representation function of subclinical depression risk groups may play a "compensatory" role to compensate for the effect of depressive state on reward anticipation. By exploring the relationship between reward representation processing function and anticipatory pleasure of depressive spectrum disorder, this study has enhanced the understanding of the pathological development mechanism of depression.

Keywords： major depressive disorder, subclinical depression, reward representation maintenance

基于治疗性隐喻对研究生负性情绪的干预与预测

张晓雨[1,2]（通讯作者） 张文彩[2]

[1] 北京体育大学心理学院，北京, 100084,

[2] 中国科学院心理研究所，北京，100101，

通讯作者 E-mail:zxy0335@126.com

摘 要　研究生群体面临着科研压力，生活压力及就业压力，个体负性情绪较为普遍。本研究拟使用治疗性隐喻材料作为认知干预材料，观察治疗性隐喻缓解负性情绪的独特性及有效性。本研究拟在实验室条件下，对被试使用“文本微咨询任务”进行单次认知重构干预并同时记录事件相关 fMRI 活动，并在干预前、干预后及干预一周后，对个体积极与消极情绪水平进行重复测量，用以探讨治疗性隐喻诱发认知重构对个体负性情绪的干预效果及神经机制。本研究选取 62 名轻度焦虑的研究生，随机分成两组，一组为隐喻组（n=31）；另一组为非隐喻组（n=31）。要求被试在 fMRI 扫描过程中完成认知重构干预，隐喻组在心理痛苦问题情境下阅读隐喻解答，非隐喻组阅读非隐喻解答。研究结果发现：1)在干预过程中，相较于非隐喻解答，隐喻组阅读隐喻解答诱发了更强的顿悟体验。2）隐喻解答诱发了双侧海马、左侧额下回、左侧颞极的活动；3）与非隐喻组相比，干预后隐喻组被试的积极情绪显著提高，个体心理痛苦水平在干预后和一周追踪显著下降；4）隐喻任务激活的左侧海马和额下回活动性可以分别预测干预后心理痛苦的缓解程度。本研究揭示了隐喻这一语音表达方式可运用于临床干预的潜力，也为未来进行更为广泛的心理干预提供了理论基础。

关键词　治疗性隐喻，负性情绪，认知重构，焦虑，研究生

Intervention and prediction of negative emotions in graduate students based on therapeutic metaphor

Zhang Xiaoyu [1, 2, *] Zhang Wencai [2]

[1] School of Psychology, Beijing Sport University, Beijing, China

[2] Institute of Psychology, Chinese Academy of Sciences, Beijing, China

Abstract：The graduate student population faces research pressure, life pressure, and employment pressure, leading to a prevalent presence of negative emotions. This study aims to use therapeutic metaphorical materials as cognitive intervention tools to observe the uniqueness and effectiveness of therapeutic metaphor in alleviating negative emotions. The study plans to conduct a laboratory-based experiment, using a "text-based micro-counseling task" for a single cognitive reconstruction intervention on participants while simultaneously recording event-related fMRI activity. Positive and negative emotional levels of individuals will be measured before intervention, immediately after intervention, and one week after intervention to explore the intervention effects and neural mechanisms of therapeutic metaphor-induced cognitive reconstruction on negative emotions. A total of 62 mildly anxious graduate students will be randomly assigned to two groups: the metaphor group (n=31) and the non-metaphor group (n=31). Participants will be required to complete the cognitive reconstruction intervention during fMRI scanning. The metaphor group will read metaphorical answers in the context of psychological distress, while the non-metaphor group will read non-metaphorical answers. The study results revealed the following: 1) During the intervention, compared to non-metaphorical answers, the metaphor group experienced stronger moments of insight when reading answers. 2) Metaphorical answers induced activity in the bilateral hippocampus, left inferior frontal gyrus, and left temporal pole. 3) Compared to the non-metaphor group, the metaphor group showed significant improvements in positive emotions after the intervention, and their levels of psychological distress significantly decreased immediately after the intervention and during the one-week follow-up. 4) The activity in the left hippocampus and inferior frontal gyrus, as induced by the metaphor task,

respectively predicted the degree of relief in psychological distress after the intervention. This study reveals the potential of utilizing metaphor as a linguistic expression for clinical interventions and provides a theoretical foundation for future extensive psychological interventions.

Keywords：therapeutic metaphor, negative emotion, cognitive restructure, anxiety, graduate students

共同反刍与大学生日常情绪的关系：依恋风格与心理困扰的调节作用

彭闻捷[1,2]　唐苏勤[2]（通讯作者）

1 华南师范大学心理学院，广州，510631

2 深圳大学心理学院，深圳，518060，通讯作者 E-mail:sqtang@szu.edu.cn

摘 要　共同反刍是常见的人际互动模式，以过度讨论负性事件和消极情绪为特征，对大学生心理健康产生重要影响。然而，目前关于共同反刍的研究较少关注大学生日常互动，对大学生共同反刍及其日常情绪后果缺乏了解，也很少探讨个体间差异是否调节日常共同反刍与日常情绪的关系。因此，这项研究的目的在于进一步探索共同反刍及其与大学生日常情绪的关系。具体而言，采用日记法对 98 名大学生的情绪和共同反刍状况进行为期 14 天的追踪研究，通过基线问卷和每日问卷收集个体间和个体内水平的数据。然后，构建两水平回归模型探究每日共同反刍的预测因素，考察共同反刍与日常情绪的关系并检验依恋风格和心理困扰在每日共同反刍与每日情绪关系中的跨水平调节作用。结果发现，当个体特质共同反刍程度越高、遭遇更多负性事件、与讨论对象更亲密或倾向于讨论双方问题时，每日共同反刍的程度都会越强。每日共同反刍会正向预测每日消极情绪，但前一日的共同反刍会与当日更少的消极情绪相关。此外，特质共同反刍程度更高，个体的平均积极情绪更多。进一步的调节效应检验发现，个体间水平的依恋回避、抑郁、焦虑和压力都会显著调节每日共同反刍对每日积极情绪的预测作用。结果表明，虽然在短期内共同反刍会增加大学生的日常消极情绪，但更长期来看，共同反刍可能表现出效益。不同依恋回避程度和不同心理困扰水平的大学生需要根据自身情况选择是否采用共同反刍这一方式进行情绪调节，优化自身的情绪调节策略。

关键词　共同反刍，依恋风格，心理困扰，日记法

The relationship between co-rumination and daily affects in college students: The moderating roles of attachment style and psychological distress

Wenjie Peng[1,2]　Suqin Tang[2*]

1 School of Psychology, South China Normal University, Guangzhou 510631, China

2 School of Psychology, Shenzhen University, Shenzhen 518060, China

* Correspondence to School of Psychology, Shenzhen University, 3688 Nanhai Avenue, Nanshan District, Shenzhen 518060, China, Email: sqtang@szu.edu.cn (S. Tang).

***Abstract*：** Co-rumination is a common form of interpersonal emotion regulation, characterized by excessively discussing problems and focusing on negative feelings, which has an important impact on the mental health of college students. However, because previous studies on co-rumination seldom considered the daily interactions of college students, little is known regarding co-rumination and its daily emotional consequences in college students. Besides, it is rarely discussed whether between-person differences moderate the relationship between daily co-rumination and daily affects. Therefore, this study aimed to further explore the predictors of co-rumination and its relationship to the daily affects of college students.

Specifically, 98 college students, recruited by convenience sampling, completed baseline assessments including the Chinese versions of the co-rumination questionnaire (CRQ), general attachment subscale of experiences in close relationships-relationship structures scale (ECR-RS), and depression-anxiety-stress scale (DASS-21). Then, participants were asked to complete a 14-day daily diary assessing daily affects, daily co-ruminations, negative events, and behaviors. The total number of daily questionnaires completed was 1269. Through the above process, between- and within-person information was collected. Next, multilevel modeling (MLM) was used to analyze the two-level dataset. Two-level regression models were constructed to explore the predictors of daily co-rumination, test the relationship between co-ruminations and daily affects, and finally examine the cross-level moderating roles of attachment style and psychological distress on the relationship between daily co-rumination and daily affects.

The results showed that higher trait co-rumination, a larger number of negative events, closer relationships, and discussing each other's problems predicted higher daily co-rumination. Daily co-rumination positively predicted daily negative affects, but higher co-rumination the day before was associated with a lower frequency of negative affects that day. In addition, trait co-rumination positively predicted the average frequency of daily positive affects. Further examination of the moderating effects found that attachment avoidance, depression, anxiety, and stress significantly moderated the relationship between daily co-rumination and daily positive affects. Daily co-rumination positively predicted daily positive affects for individuals with high attachment avoidance, but daily co-rumination negatively predicted daily positive affects for individuals with low attachment avoidance. Similarly, higher daily co-rumination was associated with a higher frequency of daily positive affects for individuals with high depression, anxiety, or stress, but higher daily co-rumination was associated with a lower frequency of daily positive affects for individuals with low depression, anxiety, or stress.

The present study uses the daily diary method to explore the predictors of daily co-rumination and how co-rumination relates to daily affects. The results suggested that although co-rumination was associated with a higher frequency of daily negative affects of college students in the short term, it was possible to bring benefits in the longer term. College students should consider whether to use co-rumination as an emotional regulation strategy according to their levels of attachment avoidance and psychological distress. This study is the first one to explore daily co-rumination among Chinese college students. It helps college students reduce negative experiences caused by daily negative events, enabling them to learn what is a more adaptive emotional regulation strategy for themselves, and preventing them from developing mental health problems.

***Keywords*：** co-rumination, attachment style, psychological distress, daily diary study

面孔运动影响情绪面孔整体加工的神经机制*

方海情 连玉净 汪海玲（通讯作者）
山东师范大学心理学院，济南，250358，hailingwang@sdnu.edu.cn

摘 要 先前研究表明，面孔情绪信息的识别既依赖整体加工也依赖特征加工。然而以往的研究主要关注静态情绪面孔的加工机制，而对动态情绪面孔整体和特征加工的神经机制则知之甚少。本研究采用 2 (情绪类型：快乐 vs.愤怒) × 2 (情绪呈现方式：动态 vs.静态）× 3 (面孔区域：眼睛区域 vs.嘴巴区域 vs.完整面孔) 的被试内实验设计，借助整体-部分范式，探究面孔非刚性运动对情绪面孔加工方式的影响。本研究使用延迟匹配任务, 先向被试呈现动态和静态情绪面孔，然后向被试呈现眼睛、嘴巴或完整面孔的情绪刺激，要求被试判断测试面孔和学习面孔所呈现的情绪是否相同，并记录测试刺激诱发的 ERP 成分。行为结果显示，眼睛区域促进愤怒情绪的识别，嘴巴区域促进快乐情绪的识别。ERP 结果主要分析了 N170 (150-200ms)、P2 (200-250ms)以及 EPN (250-320ms)成分所在时间窗口的平均波幅，结果如下。在 N170、P2 和 EPN 成分上发现情绪类型与面孔区域显著的交互作用，进一步分析发现：对于 N170，完整面孔存在愤怒优势；对于 P2，完整面孔和眼睛区域存在快乐优势；对于 EPN，完整面孔和眼睛区域存在愤怒优势。这表明，愤怒和快乐情绪的加工优势不仅受面孔整体和特征信息的影响，而且随时间进程发生变化。对于 EPN 成分，显著性结果集中表现在左半球，即动态条件下，无论是愤怒还是快乐情绪，完整面孔比眼睛区域的平均波幅更大；静态条件下，只有面孔呈现快乐情绪时，完整面孔和嘴巴区域比眼睛区域的平均波幅更大。这表明，面孔运动促进愤怒情绪的整体加工，而对快乐情绪的整体加工影响较小。

关键词 面孔运动，整体加工，愤怒情绪，快乐情绪，整体-部分范式

*国家自然科学基金(32171042)

Facial movement affects the neural mechanism of holistic processing of emotional faces*

Haiqing Fang, Yujing Lian, Hailing Wang (Corresponding Author)
School of Psychology, Shandong Normal University, Jinan, 250358, hailingwang@sdnu.edu.cn

Abstract: Previous studies have shown that the recognition of emotional faces depends on both holistic and featural processing. However, previous studies mainly focused on the processing mechanism of static emotional faces, little was known about the neural mechanism of holistic and featural processing of dynamic emotional faces. In this study, a 2 (emotion: happy vs. angry) × 2 (face format: dynamic vs. static) × 3 (face region: eye vs. mouth vs. whole face) within-subject design was adopted to explore the influence of non-rigid facial motion on emotional face processing with the whole-part paradigm. Participants were initially presented with a dynamic or static emotional face (study face), after which the test face with the eyes, mouth or whole face was presented. Subsequently, they were instructed to match the emotion of the study face and the test face., and the ERP components induced by the test stimuli were recorded. The behavioral results showed that the eyes promoted the recognition of angry emotion and the mouth promoted the recognition of happy emotion. We analyzed the mean amplitude of N170 (150-200ms), P2 (200-250ms) and EPN (250-320ms) with the interested time window, and the results were as follows. There was a significant interaction between emotion and face region in N170, P2 and EPN. Further analysis showed that the N170 response was larger for angry faces in the whole face condition; P2 had a happy advantage for both the whole face and the eye region; and EPN had an anger advantage for both the whole

face and the eye region. This demonstrates that the processing advantages of angry and happy expressions are not only determined by holistic and featural information, but also change over time. For EPN, the significant results were found in the left hemisphere, which indicated that when dynamic conditions were presented, the average amplitude of the whole face was greater than that of the eye region, regardless of whether the face emotion was one of anger or happiness. In static conditions, when only happy expressions were presented, the whole face and mouth region had greater amplitude than the eye region, suggesting that facial movement promoted the holistic processing of angry faces, but had little effect on the holistic processing of happy faces.

Keywords：face movement, holistic processing, angry emotion, happy emotion, whole-part paradigm

*National Natural Science Foundation of China (32171042)

第二语言影响情绪面部表情识别：掩蔽和非掩蔽情绪启动范式的证据

吴成刚[1]　张娟[2]　（通讯作者）

1 上海外国语大学国际教育学院，上海，201620

2 澳门大学教育学院，澳门，通讯作者 E-mail：juanzhang@um.edu.cn

摘 要　已有大量研究表明语言可以显著影响情绪识别，但是现有研究大多关注于第一语言，而对第二语言（L2）如何影响情绪认知尚不明确。本研究结合掩蔽和非掩蔽情绪启动范式通过六个实验研究第二语言情绪词对情绪面部表情识别的影响。因为在掩蔽启动范式中，有证据表明 L2 不能产生语义启动，而情绪启动一般为自动化的。那么如果 L2 情绪词的情绪激活是情绪性激活，L2 情绪词继而能够在掩蔽启动范式中对情绪面部表情产生启动效应。而如果 L2 情绪词情绪激活是基于语义激活的，那在掩蔽启动范式中则不存在情绪启动效应。本研究分别研究 L2 情绪标签词（比如悲伤、开心）和情绪负载词（比如死亡、金婚）在掩蔽（实验 1a,2a,1b,2b）和非掩蔽启动范式（实验 3,4）中对情绪面部表情识别的影响，任务为要求被试判断面部表情的效价（积极还是消极）。结果发现在掩蔽启动范式中，L2 情绪标签词（实验 1a,2a）和负载词（实验 1b,2b）都没有对面部表情识别产生启动效应。此外，提升 L2 熟练度（实验 2a,2b）依旧没有产生启动效应。而在非掩蔽启动范式中，L2 情绪标签词（实验 3）和负载词（实验 4）都对情绪面部表情识别产生启动效应，即当启动词和面部表情的效价一致时，面部表情的效价判断反应时比不一致条件更短，正确率更高。这些发现证实 L2 情绪词表征是非具身的，即 L2 情绪词的情绪表征是基于语义而非情绪性的，L2 情绪词产生情绪效应需要借由语义激活实现。

关键词　情绪标签词，情绪负载词，第二语言，掩蔽启动

Second language shapes emotional facial expression perception: evidence from masked and unmasked affective priming paradigms

Chenggang Wu[1], Juan Zhang[2]

[1] School of Education, Shanghai International Studies University

[2] Faculty of Education, University of Macau

Abstract： Numerous studies have shown that language can significantly influence emotion recognition. However, existing research has mostly focused on the first language (L1), and the effects of the second language (L2) on emotion cognition remain unclear. This study combines masked and unmasked affective priming paradigms in six experiments to investigate the impact of L2 emotion words on facial expression recognition. In the masked priming paradigm, evidence suggests that L2 does not produce semantic priming, while emotion priming generally occurs automatically. Therefore, if the emotional activation of L2 emotion words is affective in nature, they should be able to elicit a priming effect on facial expressions in the masked priming paradigm. On the other hand, if the emotional activation of L2 emotion words is based on semantic activation, no emotion priming effect would be observed in the masked priming paradigm. This study examines the effects of L2 emotion-label words (e.g., sad, happy) and emotion-laden words (e.g., death, golden wedding) on facial expression recognition in both masked (Experiment 1a, 2a, 1b, 2b) and unmasked priming paradigms (Experiment 3, 4). Participants were required to judge the valence of facial expressions (positive or negative). The results revealed that neither L2 emotion-label words (Experiment 1a, 2a) nor emotion-laden words (Experiment 1b, 2b) had a priming effect on facial expression recognition in the masked priming paradigm. Furthermore, increasing L2 proficiency (Experiment 2a, 2b) did not lead to a priming effect. However, in the unmasked priming paradigm, both L2 emotion label words (Experiment 3) and emotion-laden words (Experiment 4) had a priming effect on facial expression recognition. In other words, when the priming word and the valence of the facial expression were congruent, participants showed shorter response times and higher accuracy in valence judgments compared to incongruent conditions. These findings confirm that L2 emotion word representation is dis-embodied, meaning that the emotional representation of L2 emotion words is based on semantics rather than affectivity. The production of emotional effects by L2 emotion words requires semantic activation.

Keywords： emotion-label word, emotion-laden word, second language, masked affective priming

疫情封控期间中国社交媒体用户负面情绪研究：基于情感分析和动态主题模型

张梦楠[1] 朱干成[2] 张红[3] 王鹏[1]（通讯作者）

1 山东师范大学心理学院，济南，250358

2 浙江大学心理科学研究中心，杭州，310058

3 华东师范大学教育学部，上海，200062

通讯作者 E-mail pengsdnu@163.com

摘 要 疫情对人们的生活、工作和学习方式产生了深远影响，显著影响了全球公众的心理健康，导致负面情绪增加。世界范围内实施了各种控制措施，包括限制社会活动的封控政策。虽然很多研究指出未来的公共卫生政策需要解决封控对公众情绪的潜在负面影响，但这方面的研究仍然存在很大空缺。

现有研究主要通过问卷调查和访谈来识别消极情绪的类型及其潜在的影响因素。然而，自我报告方法存在被试效应、生态效度较低等局限性，阻碍了对潜在负面影响的深入探索。此外，很少有研究关注封控期间的情绪分析，且现有研究主要利用机器学习来提取信息，与基于词典或基于机器学习的模型相比，深度学习方法在情感分析中表现出更高的准确率和更好的预测性能。

为了弥补现有研究的不足，进一步理解消极情绪及其影响机制，本研究利用情感分析和文本挖掘技术，利用社交媒体数据考察不同时期消极情绪的变化。2022 年 3 月 15 日至 2022 年 5 月 15 日期间，共收集了 58606 条原始微博，其中包含关键词“上海”“封控”。这些微博经过了严格的爬虫、收集和处理过程。随后，采用基于 Transformer 的情感分析技术对微博文本中表达的 6 种情感（快乐、惊讶、悲伤、恐惧、愤怒、厌恶）进行识别和分类。此外，为了更深入地了解话题的演变发展，研究使用动态主题模型（Dynamic Topic Modeling，DTM）来分析收集到的微博中与负面情绪有关的变化趋势、潜在影响因素和应对策略。结果表明，在封控期间，尽管负性情绪占主导地位，但总体情绪趋向积极发展，愤怒、厌恶和悲伤的变化显著。这些情绪的变化和调整可以通过马斯洛的需求层次理论来解释。首先，满足公众在封控期应对负性情绪时的生理需求和安全需求。第二，关注公众的归属和爱的需求。尤其是带着厌恶和悲伤的情绪，很多人觉得得不到他人的尊重。第三，可以通过强调追求尊重需要，甚至是自我实现来调动积极情绪。

本研究通过创造性地结合定量和定性方法，并利用大数据分析，提供了对情绪的洞察，为通过社交媒体动态检测和干预公众心理健康提供了一种新的方法。从纵向角度理解情绪变化有助于缓解重大突发公共卫生事件或风险对个体的负面影响。这种心理学和计算机科学的跨学科研究为公众心理健康的改善提供了有价值的应用，并为未来该领域的研究提供了参考。

关键词　负性情绪；封控；基本情绪理论；情感分析；动态主题模型分析

Negative emotion of Chinese social media users during the COVID-19 pandemic lockdown period based on sentiment analysis and dynamic topic model

Mengnan Zhang[1]　Gancheng Zhu[2]　Hong Zhang[3]　Peng Wang[1*]

1 School of Psychology, Shandong Normal University, Jinan 250358, China

2 Zhejiang University, Center for Psychological Sciences, Hangzhou 310058, China

3 Department of Education, East China Normal University, Shanghai 200062, China

Correspondence: pengsdnu@163.com

***Abstract*:**

The COVID-19 pandemic has had a profound impact on people's way of life, work, and study, and has significantly affected global public mental health, leading to an increase in negative emotions. Various control measures, including lockdown policies restricting social activities, have been implemented in response to the

infectious nature of the virus. However, these measures have inadvertently caused a surge in negative emotions, leading to emotional overeating, emotional dysregulation among children, and burnout among local social workers. While studies have acknowledged the need for future public health policies to address the unexpected negative impact of lockdowns on public sentiment, this aspect remains underexplored.

Current research primarily relies on questionnaires and interviews to identify types of negative emotions and their potential influencing factors. However, these self-reported methods have limitations, such as researcher-driven content, low ecological validity, and biased self-reporting, hindering in-depth exploration of potential negative effects. Moreover, few studies have focused on analyzing emotions during the lockdown period, with existing research mainly utilizing machine learning analysis to extract information. Deep learning methods have demonstrated higher accuracy and better prediction performance in sentiment analysis compared to lexicon-based or machine learning-based models.

To bridge the gap in existing research and further understand negative emotions and their effects, this study leverages sentiment analysis and text mining technology to examine changes in negative emotions during different periods using social media data. In present study, a total of 58,606 original microblogs were collected, which contain the keywords "Shanghai" and "lockdown" from the period between March 15, 2022, and May 15, 2022. These microblogs were subjected to a rigorous scraping, gathering, and filtering process. Subsequently, a Transformer-based sentiment analysis technique was employed to discern and categorize six emotions (happiness, surprise, sadness, fear, anger, and disgust) expressed in the microblog posts, thereby adopting a longitudinal perspective. Moreover, to gain deeper insights into the evolving discourse, Dynamic Topic Modeling (DTM) was utilized to explore and analyze the changing trends, potential influencing factors, and coping strategies pertaining to negative emotions within the collected microblogs. The results indicate that during the lockdown period, overall emotions tended to become more positive, though negative emotions still dominated, with significant variations observed in anger, disgust, and sadness. These changes and adjustments in emotions are interpreted through Maslow's hierarchy of needs theory. The first is to meet the physiological needs and safety needs of the public when coping with negative emotions during the lockdown period. In this study, each kind of emotional public mentioned the most, is the lack of living supplies, epidemic prevention work is not in place easy to increase the risk of infection, and medical treatment difficulties. Second, pay attention to the public's need for belonging & love. Especially with disgust and sadness emotion, many people feel not respected by them. Third, we can mobilize positive emotions by emphasizing the pursuit of self-esteem needs, even self-realization.

By creatively combining quantitative and qualitative methods and utilizing big data analysis, this study provides insights into emotions, offering a novel approach for dynamically detecting and intervening in public mental health through social media. Understanding emotional changes from a longitudinal perspective can help mitigate the negative impact of major public health emergencies or risks on individuals. This interdisciplinary research in psychology and computer science offers valuable applications for the betterment of public mental health and provides a reference for future studies in this field.

***Keywords*：** negative emotion; lockdown; basic emotion theory; sentiment analysis; dynamic topic model analysis

睡眠问题与青少年抑郁的关系：一项交叉滞后分析

高美慧[1] 郁嘉铭[1] 陈博[1] 甄瑞[1,2]（通讯作者）

1. 杭州师范大学经亨颐教育学院，杭州，311121，zhenrui1206@126.com
2. 浙江省哲学社会科学培育实验室“杭州师范大学婴幼儿发展与托育实验室”

摘 要 青春期是抑郁情绪频发时期，抑郁情绪不仅直接影响青少年的身心健康，还会影响其学业发展和社会适应，因此青少年抑郁及其诱发因素受到社会和学界的广泛关注。近期，被广泛探讨的一个诱发因素是个体的睡眠问题。有研究发现，睡眠质量差可能会给个体带来抑郁风险，但也有研究显示抑郁情绪会引发睡眠问题，这种不一致的研究结果可能是由横断研究的局限性带来的。为此，本研究基于纵向研究设计，对浙江省 1632 名中小学生进行了间隔一年的两次问卷调查，以考察睡眠问题与抑郁情绪的相互作用关系。结果显示，控制性别和年龄后，在两个时间点上，睡眠问题与抑郁呈显著正相关（r_{T1}=0.41，p=0.000；r_{T2}=0.33 ，p=0.000）。T1 睡眠问题能够显著正向预测 T2 抑郁（β=0.20，$p\leq0.05$）和 T2 睡眠问题（β=0.52，$p\leq0.05$）；T1 抑郁能够显著正向预测 T2 睡眠问题（β=0.045 ，$p\leq0.05$）和 T2 抑郁（β=0.39，$p\leq0.05$）。这说明睡眠问题和抑郁存在双向预测作用，但 T1 睡眠问题对 T2 抑郁的预测力要高于 T1 抑郁对 T2 睡眠问题的预测力，即前期由睡眠问题后续引发抑郁的可能性更强。本研究丰富了睡眠问题与抑郁关系的研究，结果提示我们应该对青少年的睡眠问题进行有效的筛查和干预，对青少年的睡眠健康给予更多的关心，帮助青少年形成正确的睡眠习惯，提高睡眠质量，以降低抑郁风险。

关键词 睡眠问题，抑郁，交叉滞后模型，青少年

Longitudinal Relations between Sleep Problems and Depression among Adolescents: A Cross-Lagged Analysis

Meihui Gao[1], Jiaming Yu[1] , Bo Chen[1], Rui Zhen[12]

1 Jing Hengyi School of Education, Hangzhou Normal University, Hangzhou, 311121, China
2 Zhejiang Philosophy and Social Science Laboratory for Research in Early Development and Childcare, Hangzhou Normal University

Keywords **:** Adolescence is a period of frequent depression, which not only directly affects adolescents' physical and mental health, but also affects their academic development and social adaptation. Therefore, adolescents' depression and its inducing factors have been widely concerned by society and academic circles. Recently, a widely discussed inducing factor is the individual's sleep problem. Some studies have found that poor sleep quality may bring depression risk to individuals, but other studies have shown that depression can cause sleep problems. This inconsistent research result may be caused by the limitations of cross-sectional studies. Therefore, based on the longitudinal study design, this study conducted two questionnaires to 1632 primary and middle school students in Zhejiang Province at intervals of one year to investigate the interaction between sleep problems and depression. The results showed that after controlling sex and age, there was a significant positive correlation between sleep problems and depression at two time points (rT1=0.41, P = 0.000; rT2=0.33 ，p=0.000）。T1 sleep problems can significantly positively predict T2 depression (β=0.20, p≤0.05) and T2 sleep problems (β=0.52, P ≤ 0.05). T1 depression can significantly positively predict T2 sleep problems (β=0.045, p≤0.05) and T2 depression (β=0.39, p≤0.05). This shows that there is a two-way predictive effect between sleep problems and depression, but the predictive power of T1 sleep problems on T2 depression is higher than that of T1 depression on T2 sleep problems, that is, it is more likely to be triggered by sleep problems in the early stage. This study enriches the research on the relationship between sleep problems and depression. The results suggest that we should effectively screen and intervene the sleep problems of teenagers, pay more attention to their sleep health, help

them form correct sleep habits, improve their sleep quality and reduce the risk of depression.

Keywords：Sleep Problem，Depression, Cross-Lagged Analysis, Adolescent

青少年自杀意念的相关因素：一项元分析研究

张璐[1,2] 康仪婷[1] 李佳慧[1,2] 马雪儿[1,2] 赵晶晶[1,2]（通讯作者）

1 陕西师范大学心理学院，西安，710062

2 陕西省行为与认知神经科学重点实验室，西安，710062

通讯作者 E-mail（jingjing.zhao@snnu.edu.cn）

摘 要 青少年自杀已成为世界各国广泛关注的问题，而自杀意念是预测个体自杀行为发生与否的有效信号因子。已有大量国内外研究报告了不同地区、不同青少年群体自杀意念的相关和影响因素，这些因素涉及范围广，研究间存在较大差异；且已有元分析研究只纳入国内文献，所得结果并不全面，因此本研究采用元分析的方法整合国内外青少年产生自杀意念的相关因素，并探究文化（亚洲、欧美）、自杀意念测量工具（自编、非自编）、自杀意念发生率对自杀意念和相关因素关系中的调节作用，最终纳入符合标准的文献 92 篇(英文 55 篇，中文 37 篇)，包括 173 个效应量，总样本量 520816 人。结果发现：(1)自杀意念的相关因素包括消极情绪（抑郁、焦虑、悲观绝望）、家庭因素（特殊家庭结构、负性家庭关系）、卷入欺凌行为（受欺凌、暴力）和社会支持四类因素。其中，消极情绪与自杀意念呈显著正相关($r = 0.39, p < 0.0001$)；家庭因素与自杀意念呈显著正相关($r = 0.18, p < 0.0001$)；卷入欺凌行为与自杀意念呈显著正相关($r = 0.23$,p< 0.0001)；社会支持与自杀意念呈显著负相关($r = -0.26, p < 0.0001$)；(2)文化差异可以显著调节社会支持与自杀意念的关系($p < 0.01$)；自杀意念的测量工具可以显著调节抑郁、焦虑、特殊家庭结构、受欺凌和社会支持与自杀意念的关系($p < 0.05$)；而自杀意念发生率则对悲观绝望、社会支持与自杀意念的关系起调节作用($p < 0.001$)。上述结果表明，消极情绪、家庭因素、卷入欺凌行为和社会支持和自杀意念显著相关，调节青少年消极情绪、改善家庭结构与家庭关系、减少欺凌和暴力行为的发生，给予青少年关怀以及社会支持能够显著降低自杀意念，基于此开展针对性的干预措施有益于防控青少年自杀行为。

关键词 自杀意念，青少年，相关因素，元分析，调节效应

The relevant factors of suicidal ideation: A Meta-analysis

Lu Zhang[1,2] Yiting Kang[1] Jiahui Li[1,2] Xue'er Ma[1,2] and Jingjing Zhao[1,2]

1 School of Psychology, Shaanxi Normal University,710062

2 Shaanxi Provincial Key Laboratory of Behavior and Cognitive Neuroscience, Xi'an, China, 710062, corresponding author E-mail (jingjing.zhao@snnu.edu.cn)

Abstract：Adolescent suicide has become a widespread concern around the world, and suicidal ideation is an effective signaling factor in predicting whether an individual's suicidal behavior will occur or not. A large number of domestic and foreign studies have reported the relevant and influencing factors of suicidal ideation in different regions and groups of adolescents, which cover a wide range of factors, with considerable variation among the studies. Moreover, existing meta-analysis studies have only included domestic articles, and the results

obtained were not comprehensive. Therefore, this study adopts a meta-analysis method to integrate the relevant factors of suicidal ideation among domestic and foreign adolescents, and explores the moderating effects of culture (Asia, Europe and America), suicidal ideation measurement tools (self-administered, non-self-administered), and suicidal ideation prevalence on the relationship between suicidal ideation and related factors. Finally, 92 articles (55 in English and 37 in Chinese) were included, including 173 effect sizes, with a total of 520816 participants. The results showed that:(1)The related factors of suicidal ideation include four categories: negative emotions (depression, anxiety, pessimism and despair), family factors (special family structure, negative family relationships), involvement in bullying behavior (being bullied, violent), and social support. Among them, negative emotions are significantly positively correlated with suicidal ideation($r = 0.39, p < 0.0001$); family factors are significantly positively correlated with suicidal ideation($r = 0.18, p < 0.0001$); involvement in bullying behavior is significantly positively correlated with suicidal ideation($r = 0.23, p < 0.0001$);there is a significant negative correlation between social support and suicidal ideation($r = -0.26, p < 0.0001$);(2)Cultural differences can significantly moderate the relationship between social support and suicidal ideation ($p < 0.01$);the measurement tool for suicidal ideation can significantly moderate the relationship between depression, anxiety, special family structure, bullying, and social support with suicidal ideation ($p < 0.05$);and suicidal ideation prevalence moderated the relationship between pessimism and despair, and social support and suicidal ideation ($p < 0.001$). The above results indicate that negative emotions, family factors, involvement in bullying behavior, and social support are significantly correlated with suicidal ideation. Regulating adolescents' negative emotions, improving family structure and family relationships, reducing bullying and violence, and providing adolescents with care and social support can significantly reduce suicidal ideation, and that targeted interventions based on these results are beneficial to the prevention and control of adolescent suicidal behavior.

Keywords：suicidal ideation, adolescents, related factors, meta-analysis, moderating effects

近期负性生活事件和童年负性生活事件对大学生抑郁影响的独立、交互和累积效应模型验证：HPA 轴基因的调节作用

杨阳[1] 刘春雨[1] 黄奥迪[1] 张红梅[1] 王美萍[1]（通讯作者）

1 山东师范大学心理学院，济南，250014，wangmeiping@sdnu.edu.cn

摘 要 抑郁是大学生群体中最为常见的心理健康问题之一，根据《中国国民心理健康发展报告(2021～2022)》，21.48%的中国大学生存在抑郁风险。已有研究发现近期压力与早期压力是抑郁的重要预测因素，但关于二者联合作用的方式尚缺乏系统深入研究，且已有研究结果存在分歧。基于此，本研究采用多基因-环境设计，基于独立效应、累积效应、交互效应框架，以 560 名大学生为被试（$M = 19.74 \pm 0.85$ 岁，女生占 75.5%），探讨近期负性生活事件与童年负性生活事件对抑郁的影响模式以及何种效应模型解释率最高。同时，考察 HPA 轴基因是否调节了不同的效应模型以及是否存在性别差异。研究采用自我报告测评近期负性生活事件、童年负性生活事件和抑郁，采用 *FKBP5* 基因 rs1360780 多态性和 *NR3C1* 基因 rs41423247 多态性两个基因位点计算 HPA 轴多基因累加得分。经过性别不平衡校正和 FDR 校正后，结果发现：（1）近期负性生活事件和童年负性生活事件对不同性别大学生抑郁的独立效应和累积效应显著，但交互效应不显著。（2）独立效应模型和累积效应模型在不同性别中解释率差异均不显著。（3）HPA 轴基因只调节了独立效应模型。近期负性生活事件与多基因累加得分的交互作用对女大学生抑郁的预测作用显著，具体来说，与低多基因累加得分组相比，高多基因累加得分组的女大学生对近期负性生活事件更敏感进而表现出更高的抑郁水平。研究结果强调了从多种环境和多基因视角去探究抑郁的影响因素的重要性，同时，对干预实践也有重要意义。结果提示，应基于不同的环境因素与遗传因素选择最有效的效应模型，以提高抑郁症状预测的准确性，从而提供更精确的治疗方案。

关键词 近期负性生活事件，童年负性生活事件，HPA 轴，抑郁，多基因×环境

Independent, Multiplicative, and Cumulative Effects of Recent Stressful Life Events and Adverse Childhood Events on Depressive Symptoms among Undergraduates: Moderation by the Hypothalamic-pituitary-adrenal (HPA) Axis-related Genetic Variants

YANG Yang, LIU Chunyu, HUANG Aodi, ZHANG Hongmei, WANG Meiping
School of Psychology, Shandong Normal University, Jinan 250014

Abstract：Depression is a prevalent mental health problem among undergraduates. According to the "Report on national mental health development in China (2021-2022)", 21.48% of Chinese undergraduate students are at risk of depression. Previous studies have found that recent stressful and early stress are crucial predictors of depressive symptoms. However, there is a lack of comprehensive and in-depth investigation into the combined effects of these factors, and existing research results are inconsistent. Therefore, the present study adopted a genes-environment design, utilizing the frameworks of independent, cumulative, and multiplicative effects, with 560 undergraduate students (M = 19.74 ± 0.85 years, 75.5% females) to explore the impact modes of recent stressful life events and adverse childhood events on depressive symptoms, identify the effect model with the highest explained variance, investigate moderating effects of HPA-axis related genes, and examine gender differences. The study employed self-report measures to assess recent stressful life events, adverse childhood events, and depressive symptoms. The cumulative genetic score (CGS) of the *FKBP5* rs1360780 and *NR3C1* rs41423247 were used to assess the depressive sensitivity of the HPA-axis related genes. After gender imbalance correction and FDR correction, the results showed that the independent and cumulative effects of recent stressful life events and adverse childhood events were significant, but the multiplicative effects were not significant. There was no significant difference in explained variance between the independent and cumulative effect in either gender. HPA-axis related genes only modulated the independent effect model. The interaction between recent stressful life events and CGS significantly predicted depressive symptoms in female students. Specifically, compared to the group with low CGS, females with high CGS were more susceptible to recent stressful life events and exhibited higher depressive symptoms. The study underscores the importance of considering multiple environmental and genetic perspectives in understanding depressive symptoms and has significant implications for intervention practices. Our findings suggest that selecting the most effective effect model based on different environmental and genetic factors is essential to improve the accuracy of depression prediction and provide more precise treatment strategies.

Keywords：recent stressful life events, adverse childhood events, HPA axis, depressive symptoms, genes-environment interaction

强迫症患者的快感缺失及其神经机制

卢京洁[1,2,3] 王向[1,2] 刘倩[1,2] 于权浩[1,2] 樊洁[1,2] 朱熊兆[1,2]（通讯作者）

1 中南大学湘雅二医院医学心理中心，长沙，410011

2 国家精神心理疾病临床医学研究中心，长沙，410011，xiongzhaozhu@csu.edu.cn

3 广州医科大学附属脑科医院，广州，510370

摘 要 强迫症患者已被发现存在快感缺失，然而快感缺失是一个多维度的症状，存在不同类型或子成分，强迫症具体的快感缺失特征及其神经机制尚不明确。279 名强迫症患者和 136 名健康个体完成了行为学研究。采用一系列快感缺失量表全面评估被试各类型快感缺失水平，包括躯体、社会、期待、完成及状态性快感缺失，并采用协方差分析（ANCOVAs）比较两组被试各类型快感缺失水平的差异；在功能性磁共振成像扫描中，40 名强迫症患者和 39 名健康被试完成了货币奖赏延迟任务（Monetary Incentive Delay Task, MID），38 名强迫症患者和 39 名健康被试完成了社会奖赏延迟任务（Social Incentive Delay Task, SID）。采用独立样本 t 检验比较两组被试在各条件下脑激活的差异。提取强迫症患者在上述有差异脑区的平均激活水平（beta 值），采用相关分析探讨强迫症患者在奖赏延迟任务下的脑激活水平与快感缺失及临床变量之间的关系。结果显示强迫症患者所有类型快感缺失水平均高于健康对照组（$ps < 0.01$），在控制抑郁水平后，躯体性、社会性和完成性快感缺失水平仍显著高于健康对照组（$ps < 0.05$），而期待性和状态性快感缺失水平无显著差异；在 SID 任务中，相比于健康对照组，强迫症患者在惩罚预期阶段表现出右侧楔前叶、左侧梭状回、左侧前扣带回和右侧眶额叶脑激活水平的升高，而在受到社会奖赏时右侧纹状体的激活减少；在 MID 任务中的脑激活未发现显著组间差异；以抑郁水平为协变量的偏相关分析结果显示，惩罚预期阶段，强迫症患者右侧眶额叶的激活水平与人际愉悦体验呈显著负相关关系（$r = -0.35$，$p = 0.039$），左侧前扣带回的激活水平与特质焦虑水平呈显著负相关关系（$r = -0.33$，$p = 0.046$）。奖赏结果阶段，纹状体的激活水平与强迫总严重程度（$r = -0.37$，$p = 0.025$）和强迫思维得分（$r = -0.34$，$p = 0.045$）呈显著负相关关系。以上结果表明，强迫症患者存在快感缺失，表现为躯体性、社会性和完成性快感缺失水平升高，这些快感体验受损独立于抑郁水平而存在；强迫症患者在预期社会性惩罚时楔前叶、梭状回、前扣带回和眶额叶的过度激活，以及在接受社会性奖赏时纹状体的激活不足可能是强迫症患者社会性快感缺失的神经基础。

关键词 强迫症，快感缺失，功能性磁共振成像，货币奖赏延迟任务，社会奖赏延迟任务

Characteristics of Anhedonia in Patients with Obsessive-Compulsive Disorder and its Neural Mechanism

Jingjie Lu[1,2,3] Xiang Wang[1,2] Qian Liu[1,2] Quanhao Yu[1,2] Jie Fan[1,2] Xiongzhao Zhu[1,2]

[1] Medical Psychological Center, the Second Xiangya Hospital, Central South University, Changsha, Hunan, China

[2] National Clinical Research Center for Mental Disorders, Changsha, Hunan, China

[3] The Affiliated Brain Hospital of Guangzhou Medical University, Guangzhou, China

Abstract：Anhedonia has been observed in patients with obsessive-compulsive disorder (OCD). Anhedonia can be classified into different types or subcomponents; however, the specific characteristics of anhedonia in OCD and the underlying neural mechanisms remain unclear. Therefore, this study aims to identify the specific characteristics of anhedonia in OCD patients, and investigate the neural mechanisms of anhedonia in patients with OCD. A behavioral study was conducted in 279 OCD patients and 136 healthy individuals (HCs), with a comprehensive assessment for various types of anhedonia, including physical, social, anticipatory, consummatory, and state anhedonia. ANCOVAs were used to explore the differences in anhedonia levels between OCD patients and HCs, controlling for depression leve. During functional magnetic resonance imaging (fMRI) scans, 40 OCD patients and 39 healthy subjects completed the Monetary Incentive Delay Task (MID), and 38 OCD patients and 39 HCs completed the Social Incentive Delay Task (SID). A two-sample t-test was used to compare brain activation differences between OCD patients and HCs under each condition. For all brain regions that showed significant differences between OCD and healthy individuals, mean activation signals were extracted to investigate the relationship between brain activation and anhedonia, as well as clinical variables in OCD patients by using Pearson correlations analyses. All types of anhedonia were found to be higher in OCD patients than in healthy controls (*ps* < 0.01). However, after controlling for depression levels, physical, social, and consummatory anhedonia remained significantly higher in OCD patients compared to HCs (*ps* < 0.05), while anticipatory and state anhedonia showed no significant differences between two groups. In the SID task, compared to HCs, OCD patients demonstrated increased brain activation in the right precuneus, left fusiform gyrus, left anterior cingulate cortex, and right orbitofrontal cortex during the punishment anticipation phase, and reduced activation in the right striatum (particularly in the caudate nucleus) when receiving social rewards. No significant group differences in activation were observed in the MID task. Pearson correlation analyses revealed that the activation level in the right orbitofrontal cortex during the social punishment anticipation phase was significantly negatively correlated with interpersonal pleasure anhedonia in OCD patients (r = -0.38, p = 0.019). After controlling for depression level, the activation level in the right orbitofrontal cortex during the social punishment anticipation phase was still significantly negatively correlated with interpersonal pleasure (r = -0.35， p = 0.039), and the activation level of right anterior cingulate cortex during the social punishment anticipation phase was significantly negatively correlated with trait anxiety level (r = -0.34， p = 0.046). Meanwhile, right striatum activation during the reward outcome phase was significantly negatively correlated with the overall severity of OC symptoms (r = -0.37, p = 0.025) and obsessive thoughts (r = -0.34, p = 0.045). Physical anhedonia, social anhedonia, and consummatory anhedonia are independent clinical features in patients with OCD, which are not contingent upon the level of depression. Excessive activation of the precuneus, fusiform gyrus, anterior cingulate cortex, and orbitofrontal cortex during anticipated social punishment, along with inadequate activation of the striatum during receipt of social rewards, may constitute the neurobiological basis of anhedonia in individuals with obsessive-compulsive disorder.

Keywords： Obsessive-compulsive disorder, Anhedonia, fMRI, Monetary Incentive Delay Task, Social Incentive Delay Task

陈振锋[1] 赵仁浩[1] 韦俊锋[1] 聂衍刚[1]（通讯作者）
1 广州大学，教育学院，青少年心理与行为研究中心，广州，510006
通讯作者 E-mail: nie-yangang@gzhu.edu.cn

摘 要 本研究从积极情绪的动机性维度出发，考察其对认知控制影响的神经机制。实验招募四十名参与者，采用近红外成像技术(fNIRS)探测被试在实验过程中的氧合血红蛋白浓度变化，透过近红外采集数据揭示趋近动机积极情绪诱发与执行认知控制过程中脑区激活状况，并探究在不同趋近动机水平上的积极情绪对认知控制影响的神经机制。研究结果表明高、低趋近动机积极情绪的刺激下，大脑前额皮层区域激活模式存在显著差异。在高趋近动机积极情绪诱发下的前额皮层区域激活范围更为广泛，包括右中央前回、右内侧额上回、左中央后回、左额中回；而在低趋近动机积极情绪条件下，只有右内侧额上回与左背外侧额上回出现显著激活。两种条件下的右中央前回与左背外侧额上回区域激活存在边缘显著的差异。在不同趋近动机积极情绪条件下，被试完成认知控制任务的脑区激活模式存在显著差异。在高趋近动机情绪条件下被试完成认知控制任务中，没有通道被显著激活($p>0.05$)；而在低趋近动机积极情绪条件下，CH03、CH04、CH07、CH17 等多个通道所探测的多个脑区被显著激活($p<0.05$)，其中包括左背外侧额上回、左额中回、左中央前回、右额中回、右内侧额上回等。这些证据表明，低趋近动机积极情绪组被试在执行认知控制能力时，前额叶脑区存在显著的血氧变化，这与前人研究得出额叶联合区负责计划、调节和控制行为的结论相吻合。此外基于每组趋近动机积极情绪与认知控制的数据分析发现，低趋近动机积极情绪组被试在情绪诱发任务与认知控制任务中，右内侧额上回区域均存在显著激活，且前后的情绪诱发任务与认知控制任务在该区域通道上的 beta 值存在边缘显著的正相关($p=0.055$)，表明右内侧额上回区域可能时低趋近动机积极情绪影响个体认知控制的潜在脑区。

关键词 趋近动机积极情绪，认知控制，近红外成像

fNIRS study on the influence of positive emotions with different approach motivations on cognitive control.

Zhenfeng Chen[1], Renhao Zhao[1], Junfeng Wei, Yangang Nie[1]
1 Research Center of Adolescent Psychology and Behavior, School of Education, Guangzhou University, Guangzhou 510006, China

Abstract: This study examines the neural mechanisms underlying the influence of positive emotions on cognitive control from the motivational dimension of positive emotions. The experiment used functional near-infrared spectroscopy (fNIRS) to detect changes in oxygenated hemoglobin concentration in subjects during the experiment, revealing brain activation patterns during the process of approaching motivation-induced positive emotions and cognitive control through near-infrared data collection, and exploring the neural mechanisms underlying the influence of positive emotions on cognitive control at different levels of approach motivation. The results showed significant differences in the activation patterns of the prefrontal cortex under high and low approach motivation positive emotion stimuli. Under high approach motivation positive emotion induction, the activation range of the prefrontal cortex was more extensive, including the right middle frontal gyrus, right medial superior frontal gyrus, left middle posterior gyrus, and left middle frontal gyrus; under low approach motivation positive emotion conditions, only the right medial superior frontal gyrus and left dorsolateral superior frontal gyrus showed significant activation.

There were marginally significant differences in the activation of the right middle frontal gyrus and left dorsolateral superior frontal gyrus under the two conditions. There were significant differences in brain activation patterns when subjects completed cognitive control tasks under different approach motivation positive emotion conditions. In the high approach motivation emotion condition, no channels were significantly activated ($p > 0.05$) when subjects completed cognitive control tasks; under low approach motivation positive emotion conditions, multiple channels including CH03, CH04, CH07, CH17 detected significant activation ($p < 0.05$) in multiple brain regions including left dorsolateral superior frontal gyrus, left middle frontal gyrus, left middle frontal gyrus, right middle frontal gyrus, right medial superior frontal gyrus. These findings suggest that there is significant blood oxygen change in the prefrontal cortex when subjects in the low approach motivation positive emotion group perform cognitive control abilities, which is consistent with previous research that the prefrontal association area is responsible for planning, regulating and controlling behavior. In addition, based on data analysis of each group's approach motivation positive emotions and cognitive control, it was found that in both emotion induction tasks and cognitive control tasks in the low approach motivation positive emotion group, there was significant activation in the right medial superior frontal gyrus region, and there was a marginally significant positive correlation ($p = 0.055$) between beta values on this region's channel in previous emotion induction tasks and subsequent cognitive control tasks, indicating that the right medial superior frontal gyrus may be a potential brain region for low approach motivation positive emotions to influence individual cognitive control.

Keywords **：** Approach motivated positive emotion, cognitive control, functional near-infrared spectroscopy

童年期情感忽视经历对大学生脑白质结构的影响

金晓康[1]，徐滨[1]，金花[1]（通讯作者）
1 天津师范大学心理学部，天津 300387
jinhua@tjnu.edu.cn

摘 要 背景：童年期情感忽视指看护者未能满足未成年个体基本的情感需求，具有相当高的发生率并且可能独立于其它亚型发生。大量研究发现，即使在成年人中，童年期情感忽视经历也会对心理健康和社会功能产生长期影响。然而，单一性的童年期情感忽视经历对脑白质结构的潜在影响尚未可知。本研究通过比较仅有童年期情感忽视经历的大学生群体和无任何创伤经历的大学生群体的脑白质结构差异，旨在探究童年期情感忽视经历对脑白质结构的影响。**方法**：经过在线问卷调查、访谈以及专业医生的诊断，本研究获得了 20 名有童年期情感忽视经历的大学生(情感忽视组)和 20 名没有童年期情感忽视经历的大学生(对照组)，所有参与者均没有任何精神疾病。应用纤维束自动定量分析(AFQ)，追踪了主要的 20 条纤维束，并将每一条纤维束等分为 100 个节点，考察每条纤维各个节点位置的各向异系数值（FA）的组间差异。**结果**：AFQ 分析发现，情感忽视组在右侧丘脑辐射束的 1-35 节点的各向异系数值(FA)连续低于对照组。**结论**：前人研究表明，丘脑辐射束及其相关白质通路不仅将感觉和运动信息传递到中央前皮质和中央后皮质，丘脑辐射束还在情绪表达、情绪调节中起到重要的作用。而童年期情感忽视经历对个体情绪调节相关的损害已被很好的证明。因此，童年期情感忽视经历可能改变了右侧丘脑辐射束的发育，进而影响情绪调节功能。本研

究有望揭示童年期情感忽视经历增加心理健康风险的机制，为预防和干预童年期情感忽视经历继发的心理、行为问题提供更有针对性的建议和参考；也为早期情感环境对情感/社会功能发展的影响提供了新的视角。

关键词: 童年期情感忽视，童年期创伤，白质，纤维束自动示踪定量(AFQ)，大学生

The Influence of Childhood Emotional Neglect Experience on the Brain White Matter Structure of College Students

JIN Xiaokang[1], XU Bin[1], JIN Hua[1]

[1] Department of Psychology, Tianjin Normal University, Tianjin 300387, China

jinhua@tjnu.edu.cn

***Abstract*：Background**: Childhood emotional neglect, which refers to a failure to provide for the child's basic emotional needs, is highly prevalent and may occur independently of other subtypes. Numerous studies have found that even among adults, childhood emotional neglect experience can have long-term effects on mental health and social functioning. However, the potential impact of a single childhood emotional neglect experience on brain white matter structure is not yet known. By comparing the differences in brain white matter integrity between early adulthood with childhood emotional neglect experience and those without any childhood traumatic experience, our study aimed to investigate the effects of childhood emotional neglect experiences on brain white matter structure. **Method**: After online questionnaires, interviews, and diagnosis by a specialized physician, 20 college students with childhood emotional neglect experiences (emotional neglect group) and 20 college students without childhood trauma were obtained for this study, and all participants did not have any psychiatric disorders. Applying Automating Fiber-Tract Quantification (AFQ), the main 20 fibers were traced and each fiber was equally divided into 100 nodes. The group differences in Fractional Anisotropy (FA) at each node position of each fiber were examined. **Result**: AFQ analysis revealed that the Fractional Anisotropy (FA) at nodes 1-35 of the right thalamic radiation were consecutively lower in the emotional neglect group than in the control group. **Conclusion**: Previous studies have shown that the thalamic radiation tract and its associated white matter pathways not only transmit sensory and motor information to the precentral and postcentral cortices, but the thalamic radiation tract also plays an important role in emotion expression and emotion regulation. Furthermore, the impairment associated with childhood emotional neglect experiences on individual emotion regulation has been well established. Therefore, childhood emotional neglect experience may alter the development of the right thalamic radiation tract, affecting emotion regulation functions. This study expects to reveal the mechanism that childhood emotional neglect experience increases the risk of mental health and provide more targeted suggestions and references for the prevention and intervention of psychological and behavioral problems secondary to childhood emotional neglect experience. It also provides a new perspective on the influence of early emotional environment on the development of emotional/social function.

***Keywords*:** childhood emotional neglect, childhood trauma, white matter, Automating Fiber-Tract Quantification (AFQ), college students

浙江大学动态面部表情数据库的建立和验证

潘之禾，陈惠敏，刘思琦，方霞 (通讯作者：x.fang@zju.edu.cn)
浙江大学心理与行为科学系，杭州，310058

摘 要 面部表情的动态特性传递了丰富而复杂的运动模式，使面孔成为人们情绪交流的重要媒介。然而，以往研究主要集中在对静态、基本情绪种类的考察，并且聚焦于西方文化。近年来，越来越多的研究表明情绪表达具有文化特异性。本研究旨在探究在中国文化背景下，可由动/静态面部表情传递的情绪类别以及是否存在动态识别优势效应，包括两个实验。实验 1 建立了常见情绪词汇库。通过回顾整理以往东西方情绪研究中的情绪词汇，并依据专家和参与者(N = 61)的评价，筛选常见性高且相似性低的情绪词汇纳入情绪词汇库。招募另一批参与者(N = 105)对筛选后的情绪词汇进行情绪表达方式评价(包括面部表情、声音、肢体动作等)。最终，选取面部表情表情选择比例大于 85%的情绪，连同基本情绪，共 28 种情绪(包括害羞，悲伤，开心，胜利等)。实验 2 采集并验证了面部表情。在第一阶段中，招募 64 名参与者表演 28 种情绪的面部表情并进行录制。全部表演完毕后，参与者回看自己的录像并指出最能代表每种情绪的画面，依此得到每种情绪相应的动/静态面部表情。在第二阶段中，招募另一批参与者对所有动态(N = 386)和静态面部表情(N = 415)进行情绪识别和维度评价。结果显示，参与者可以从静态表情中识别 13 种情绪，但能从动态表情中识别 23 种情绪。此外，18 种情绪显示了动态识别优势，其余 10 种情绪则未显示动静态表情识别的显著差异。本动态情绪面孔数据库丰富了国内现有的情绪面孔研究材料，并为面部表情情绪识别、动态面孔识别优势提供了证据。

关键词：动态，面部表情，情绪识别，数据库

Establishment and Validation of the Zhejiang University Dynamic Facial Expression Database

Zhihe Pan, Huimin Chen, Siqi Liu, Xia Fang (x.fang@zju.edu.cn)
Department of Psychology and Behavioral Sciences, Zhejiang University, Hangzhou, 310058

Abstract: The dynamic characteristics of facial expressions convey rich and complex patterns of movements, making the face a vital medium for emotion communication among individuals. However, previous research has mainly focused on static, basic emotions and has primarily been centered on Western cultures. In recent years, research has highlighted the cultural specificity of emotion expression. The present research aims to explore the emotions that can be conveyed through dynamic/static facial expressions as well as whether there exists dynamic advantage effect in emotion recognition in the Chinese culture. The study consists of two experiments. Experiment 1 established the emotion word set. By reviewing emotion words involved in Eastern and Western emotion researches, and based on evaluations from experts and participants (N = 61), emotion words with high commonality and low similarity were selected and included in the emotion word set. Another group of participants

(*N* = 105) self-reported their expression modes for selected emotion words (including facial expressions, vocalizations, and body movements, etc.). Twenty-eight emotions (including shyness, sadness, happiness, triumph, etc.) with facial expression selection rate of over 85% along with basic emotions were ultimately chosen. In Experiment 2, facial expressions were collected and validated. In phase 1, 64 participants posed and recorded facial expressions of 28 emotions. After posing all the expressions, they reviewed their recordings and indicated the images that best represented each emotion, resulting in the corresponding dynamic and static facial expressions. In phase 2, another group of participants performed emotion recognition and dimensional evaluation on all dynamic facial expressions (*N* = 386) and static facial expressions (*N* = 415). The results showed that participants could recognize 13 emotions from static expressions, but 23 emotions from dynamic ones. Additionally, 18 emotions exhibited dynamic advantage, while the remaining 10 emotions did not show significant differences in recognition between dynamic and static expressions. The current dynamic facial expression database enriches the existing materials for facial expression research in Chinese culture as well as provides evidence for the facial expression recognition and its dynamic advantage.

Keywords**:** dynamic, facial expression, emotion recognition, database

睡眠质量与情绪注意偏向之间的关系：一项经验抽样研究

王惠惠[1] 雷鑫鑫[1] 八文瑶[1] 郑铭清[1] 贺桂芬[2,3] 王恩娜[4]

1 宁夏大学教师教育学院，银川，750021,通讯作者 E-mail: wanghh_nx168@163.com

2 宁夏警官职业学院，银川，750021

3 浙江大学心理与行为科学系，杭州，750021

4 天津师范大学教育学院，天津，300074

摘 要 睡眠质量是影响大学生身心健康发展的重要因素。截面研究中发现睡眠质量和积极、消极注意偏向有密切的关系，但关于睡眠质量和积极、消极注意偏向之间的动态机制研究相对较少。本研究基于经验取样法探讨大学生睡眠质量、积极注意偏向和消极注意偏向的作用机制，有利于厘清睡眠质量和注意偏向之间的因果关系。来自中国公立大学的 240 名大学生连续完成 14 天睡眠质量，积极、消极注意偏向的每日问卷调查，每天早晨七点测量睡眠质量，晚上九点测量积极、消极注意偏向，并使用动态结构方程模型分析睡眠质量与积极、消极注意偏向之间的纵向关系。结果显示:(1)大学生睡眠质量、积极注意偏向和消极注意偏向自回归效应显著；(2)睡眠质量和积极注意偏向间呈双向预测效应，即前一天的睡眠质量能够显著正向预测当天的积极注意偏向(β = 0.188, 95% CI [0.148, 0.225])，前一天的积极注意偏向也能够显著正向预测当天的睡眠质量 (β = 0.052, 95% CI [0.014, 0.089])；(3)睡眠质量和消极注意偏向之间具有单向预测效应，即前一天的睡眠质量显著负向预测当天的消极注意偏向 (β = -0.051, 95% CI [-0.089, -0.008])，但前一天的消极注意偏向对当天的睡眠质量没有显著预测作用(β = -0.008, 95% CI [-0.049, 0.027])。本研究揭示了睡眠质量、积极注意偏向和消极注意偏向的动态机制，并发现相对于降低消极注意偏向，提高积极注意偏向是改善睡眠质量的可行路径，该结论对设计改善睡眠质量的相应干预方案有一定的参考价值。

关键词 睡眠质量，积极注意偏向，消极注意偏向，动态结构方程，经验取样

The Relationship Between Sleep Quality and Emotional Attention Bias: An Experience Sampling Study

Huihui Wang[1] Xinxin Lei[1] Wenyao Ba[1] Mingqing Zheng[1] Guifen He[2,3] Enan Wang[4]
1 College of Teacher Education, Ningxia University, Yinchuan, 750000
2 Ningxia Police Vocational College, Yinchuan, 750021
3 Department of Psychological and Behavioral Sciences, Zhejiang University, Hangzhou, 310022
4 School of Education, Tianjin University, Tianjin, 300350
Corresponding author E-mail: wanghh_nx168@163.com

***Abstract*：** **Objectives** Emotional attentional bias are the cognitive tendencies that people have when processing information, and they may affect the emotional and psychological state of individuals.The association between emotional attentional bias and sleep quality in cross-section study has been well documented. However, at the level of short-term dynamics, the extent to which emotional attention bias or sleep quality persists in daily life is under-explored. This experience sampling study aimed to explore the temporal relationship between emotional attention bias and sleep quality. **Methods** There are two sub-studies in this study, 14 consecutive daily diaries (twice daily, 6438 observations) on sleep quality and positive and negative information attention bias completed by 240 subjects from public universities in China, respectively. We combined the two interrelated time series into one model using dynamic structural equation modeling. **Results** The results of the study found different reciprocal effects between sleep quality and positive and negative information attention bias, with both processes showing significant autoregressive. In Study 1, the autoregression of sleep quality (β = 0.203, 95% CI [0.160, 0.244]) and positive information attention bias (β = 0.183, 95% CI [0.143, 0.221]) showed significant stability. Positive emotional attention bias was a significant predictor of subsequent sleep quality (β = 0.052, 95% CI [0.014, 0.089]), while sleep quality was also a significant predictor of subsequent positive emotional attention bias (β = 0.188, 95% CI [0.148, 0.225]). In Study 2, the autoregression of sleep quality (β = 0.235, 95% CI [0.196, 0.281]) and negative information attention bias (β = 0.121, 95% CI [0.076, 0.166]) was significant. Negative information attention bias was not a significant predictor of subsequent sleep quality (β = -0.008, 95% CI [-0.049, 0.027]), but sleep quality was a significant predictor of negative information attention bias (β = -0.051, 95% CI [-0.089, -0.008]). **Conclusions** In summary, at the level of short-term dynamics, we found that sleep quality can be viewed as both an antecedent and an outcome of positive information attention bias. However, sleep quality can only be viewed as an antecedent of negative information attention bias.

***Keywords*：** Sleep quality, Positive information attention bias, Negative information attention bias, Dynamic structural equation modeling, Empirical sampling

父母教养剖面对于青少年脑结构以及内化症状的影响

丁晴雯[1, 2]　李新影[1, 2]（通讯作者）

1 中国科学院心理研究所，北京，100101

2 中国科学院大学心理学系，北京，100101，通讯作者 E-mail：lixy@psych.ac.cn

摘 要　教养方式影响青少年的情感和认知功能，大脑发育被认为是这一过程的神经基础。然而，母亲和父亲教养如何共同影响青少年的大脑结构以及内化症状尚未得到研究。本研究使用纵向双胞胎脑成像数据来确定在不同养育组合中青少年的大脑结构差异以及与抑郁和焦虑的关系，并探索结构差异的遗传基础。招募来自于北京双生子平台的 216 名双胞胎在青春期早期（平均 [SD] = 12.59 [0.94] 岁）完成教养方式量表，在青春期中期（平均年龄 [SD] = 15.76 [0.94] 岁）完成结构脑成像扫描以及焦虑和抑郁症状量表。利用潜在剖面分析在青春早期确定了四种养育方式剖面，分别为“好父母”、“虎爸”、“虎妈”和“虎爸虎妈”家庭。研究发现父母教养剖面对于脑结构的影响显著：与“好父母”家庭抚养的青少年相比，“虎妈”家庭抚养的青少年在青春中期左侧伏隔核体积较小，“虎爸虎妈”家庭抚养的青少年前胼胝体体积较小，“虎爸”家庭抚养的青少年左侧丘脑体积较大。遗传分析表明与教养相关的大脑结构差异也归因于大量的遗传影响。遗憾的是，本研究没有发现父母教养剖面对三年后青少年抑郁和焦虑症状的影响。此外，与教养相关的神经差异与内化症状无关。研究表明，不同养育组合下的青少年会表现出明显不同的大脑结构特征。脑结构的差异主要集中在皮层下区域。我们的研究进一步强调了母亲和父亲教养环境对于青春期神经发育中的重要性。

关键词　青春期；父母教养剖面；大脑结构；神经发育；遗传

The influence of parenting profiles on adolescent brain structure and internalizing symptoms

Qingwen Ding[1,2], Xinying Li[1,2]*

[1] CAS Key Laboratory of Mental Health, Institute of Psychology, Chinese Academy of Sciences, Beijing, China

[2] Department of Psychology, University of Chinese Academy of Sciences, Beijing, China

Abstract：Parenting influences adolescent affective and cognitive function, and the neurodevelopment is widely proposed to underlie the process. Nevertheless, how the combination of maternal and paternal parenting influence adolescent brain structure and internalizing problems has not been investigated. This study used a longitudinal twin neuroimaging study to determine the brain structural heterogeneity in adolescents that raised in different parenting profiles (father and mother) and examine its association with depression and anxiety, and address its genetic basis. A total of 216 twins completed parenting measures in early adolescence (mean [SD] = 12.59 [0.94] years) and MRI scanning in middle adolescence (mean age [SD] = 15.76 [0.94] years). We found four parenting profiles in early adolescence, including the “kindparents,” “tigerdad,” “tigermom,” and “tigerparents” families. Compared to adolescents raised in the “kindparents” families, those raised in “tigermom” families showed smaller volumes in the left nucleus accumbens, those raised in “tigerparents” families showed smaller volumes in the middle anterior corpus callosum, and those raised in “tigerdad” families showed larger volume in

left thalamus in middle adolescence. The structural heterogeneity in these brain regions was also attributed to considerable genetic factors. Unfortunately, there were no effects of parenting profiles on adolescent depression and anxiety symptoms three years later. Furthermore, these structural differences were not associated with internalizing symptoms. Findings suggest that adolescents raised in different parenting combinations exhibited distinct brain structural features. These brain changes converge on subcortical regions. Our study highlights the significance of both maternal and paternal parenting in adolescent neurodevelopment.

Keywords：adolescence; parenting profile; brain structure; neurodevelopment; genetics

表现更好仍被拒绝？人际关系反应性影响急性竞争性社会心理应激下的不公平决策

余思雨[1]，卢京洁[3]，李世佳[1,2]（通讯作者）

1 上海市心理健康与心理危机干预重点实验室，华东师范大学附属精神卫生中心，华东师范大学心理与认知科学学院脑与教育创新研究所，上海，200062，sjli@psy.ecnu.edu.cn

2 上海市长宁区精神卫生中心，上海，200335

3 广州医科大学附属脑科医院，广东，广州，510370

摘要 急性社会心理应激如何影响不公平决策一直未有定论，因为决策过程中的心理过程相对复杂，且受到个体差异影响。为进一步探究此问题，我们设计了竞争性群体特里尔社会应激任务（C-TSST-G），让两名被试同时进行应激诱导并评估双方表现，但宣布表现较差一方获胜，以制造真实的不公平经历。获胜者进行独裁者游戏（DG），落败者进行最后通牒任务（UG），双方都以为在和对方进行金钱分配。控制组被试则经历了无应激双人 TSST，先后完成和匿名对手的 DG 和 UG。人际反应指标（IRI）被用来测量被试的共情程度是否影响应激下的决策行为。

78 名健康年轻男性参与实验，应激组 42 名，控制组 36 名。皮质醇和三维情绪问卷的结果显示应激诱导成功，且 TSST 后应激 DG 组的心情更差，更紧张，而应激 UG 组的清醒程度更高。应激 DG 组的自我评价相比应激 UG 组更低。和控制组相比，应激对 DG 任务中的分配额度和反应时均无影响，对 UG 任务中不同条件的接受率和反应时也没有影响。基于不公平厌恶模型进行计算建模，生成劣势不公平敏感性(α)、行为随机性(τ)、公平适应性(ε)三个行为学指标，也不受到应激影响。在 DG 任务中，被试认为自己相比于对手表现的越差，越倾向于把金钱都留给自己；而表现评分对 UG 无影响。IRI 对 DG 的分配率无影响，但在无应激时，同情关心越高的被试给出分配方案的速度越快；而应激条件下，想象得分越高的被试给出分配方案速度越快。在 UG 任务中，只有在应激条件下，同情关心程度越高，对公平分配方案的反应速度越长；感受到他人的个人痛苦程度越高，个体受到内在公平感的影响也更强。在所有被试中，想象得分越高，劣势不公平敏感性越高，对于不公平分配的接受率越低。

本研究首次使用 TSST 范式同时诱导急性竞争性应激和不公平经历，操纵被试在真实的不公平感受下进行不公平决策任务，发现急性应激放大了共情相关的指标对不公平决策心理过程的影响，为应激的“照料与结盟”亲社会模型提供了证据。

关键词 特里尔社会应激任务，独裁者游戏，最后通牒任务，人际反应指标，同情关心

Perform better but being rejected? The interpersonal reactivity influences the fairness-related decision-making under acute competitive psychosocial stress

Siyu Yu[1], Siyu Yu[3], Shijia Li[1, 2]*

Shanghai Key Laboratory of Mental Health and Psychological Crisis Intervention, Affiliated Mental Health Center (ECNU), Institute of Brain and Education Innovation, School of Psychology and Cognitive Science, East China Normal University, Shanghai, 200062, China, E-mail: sjli@psy.ecnu.edu.cn

Shanghai Changning Mental Health Center, Shanghai, 200335, China

The Affiliated Brain Hospital of Guangzhou Medical University, Guangzhou, 510370, China

Abstract

How acute psychosocial stress affects unfair decision making has been inconclusive because the psychological processes involved in decision making are relatively complex and are influenced by individual differences. To further explore this issue, we introduced a Competitive Trier Social Stress Task for group (C-TSST-G) by having two subjects simultaneously perform a stress induction and assess the performance of both, but declaring the lesser performer the winner in order to create a realistic experience of inequity. The winner performed the Dictator Game (DG) and the loser performed the Ultimatum Game (UG), with each side thinking they were engaging in a monetary distribution with the other. The control group experienced a stress-free version of TSST-G, and finished both DG and UG tasks with anonymous opponent. The Interpersonal Reactivity Index (IRI) were used to measure whether subjects' level of empathy influenced decision-making behavior under stress.

Seventy-eight healthy young men participated in the experiment, 42 in the stress group and 36 in the control group. The results of the cortisol and Mood Questionnaire showed successful stress induction and a worse and more nervousness mood in the stress DG group after TSST, while the stress UG group had a higher level of alertness. Self-evaluation was lower in the stress DG group compared to the stress UG group. Compared to the control group, stress had no effect on both the amount allocated and the reaction time in the DG task, nor did it have an effect on the acceptance rate and reaction time for the different conditions in the UG task. Computational modelling based on the Rescorla-Wagner Model generated three behavioral indicators of disadvantageous aversion (α), decision noise (τ) and norm adaptation rate (ε), which were also not affected by stress. In the DG task, the worse the participants regarded themselves performed compared to their opponents, the more inclined they were to keep most of the money for themselves; and performance ratings had no effect on UG. IRI had no effect on the average money allocation of the DG, but subjects with higher empathetic concern gave the decisions faster in the absence of stress, whereas subjects with higher fantasy scores gave the decisions faster in the stress condition. In the UG task, only in the stress condition, participants with higher empathetic concern scores spent longer time in responding to a fair offer, and participants with higher personal distress scores showed stronger influence by an internal sense of fairness. Among all subjects, the higher the fantasy scores, the higher the unfairness sensitivity and the lower the acceptance rate for unfair offers.

This study is the first to use the TSST-G paradigm to simultaneously induce acute competitive stress and

unfair experiences, and manipulate subjects to perform an unfair decision-making task under actual unfair experience. We found that acute stress amplifies the effects of empathy-related indicators on the psychological process of unfair decision-making, providing evidence for a “Tend-and-Befriend” pro-social model of stress.

Keywords

Trier Social Stress Task; Dictator Game; Ultimatum Game; Interpersonal Reactivity Index; Empathic Concern.

感恩与抑郁症状的关系：来自日记法研究的证据

孔凤[1]（通讯作者） 张琳婷[2] 许沛鸿[2] 蒋达[3]

1 陕西师范大学心理学院，西安，710062，kongfeng87@126.com

2 香港理工大学应用社会科学系，香港

3 香港教育大学特殊教育与辅导学系，香港

摘 要 感恩是个体意识到施恩者给予的恩惠或帮助后产生的一种情感体验，可以促进个体身心健康发展，降低罹患心理问题的风险。而抑郁是最普遍的心理问题之一，表现为兴趣减退和情绪低落等，是影响个人身心健康的重要危险因素。以往研究通过横向或纵向设计揭示了感恩与抑郁症状的负相关关系，但这些研究多采用整体追溯法，存在较大的回忆偏差，并且无法测查自然状态下感恩与抑郁症状的日常波动。因此，本研究基于感恩的放大理论，采用连续 14 天的日记法设计，调查了 243 名大学生的每日感恩（感恩形容词评定量表）和每日抑郁症状（简明心境量表抑郁子量表），探讨感恩与抑郁症状在每日水平上的关系以及特质感恩对每日感恩和每日抑郁症状之间的滞后关系的调节作用。结果显示：（1）在同一天，感恩与抑郁症状呈负相关（b = -0.229, p < .001）；（2）交叉滞后分析的结果表明，前一天的感恩负向预测当天的抑郁症状（b = -0.056, p = .009）；（3）特质感恩对前一天感恩与当天抑郁症状之间的关系的调节作用不显著（b = -0.002, p = .697）；（4）在控制积极情绪、消极情绪和心理幸福感后，交叉滞后分析以及调节效应分析的结果保持稳定。以上研究结果表明，当某一天的感恩水平较高时，个体在同一天以及第二天的抑郁症状会得到减轻，并且特质感恩不能调节每日感恩和每日抑郁症状之间的滞后关系。本研究将感恩与抑郁症状之间的关系拓展到了每日水平上，支持了感恩的放大理论，也为抑郁的预防和干预提供依据。

关键词 感恩，抑郁症状，日记法

The association between gratitude and depressive symptoms: evidence from a daily diary study

Feng Kong[1](corresponding author) Linting Zhang[2] Bryant Pui Hung Hui[2] Da Jiang[3]

1 School of Psychology, Shaanxi Normal University, Xian, 710062，kongfeng87@126.com

2 Department of Applied Social Science, Hong Kong Polytechnic University, Hong Kong

3 Department of Special Education and Counselling, Education University of Hong Kong, Hong Kong

Abstract: Gratitude is an emotion that occurs when an individual realizes that a benefactor has given him or her a favor or help, and it can contribute to physical and psychological health and reduce the risk of developing mental problems. Depression is one of the most prevalent mental problems, which is characterized by loss of interest and depressed mood, and is an important risk factor for an individual's physical and mental health. Previous studies have revealed the negative correlation between gratitude and depressive symptoms through cross-sectional or longitudinal designs, but most of these studies have used global reports, which cause a number of recall biases. Previous studies also failed to measure the daily fluctuations of gratitude and depressive symptoms in the natural context. Therefore, based on the amplification theory of gratitude, the present study utilized a daily diary design for 14 consecutive days and measured daily gratitude (Gratitude Adjective Checklist) and daily depressive symptoms (Depression Subscale of the Profile of Mood States) in 243 college students to explore the relationship between gratitude and depressive symptoms at the daily level and the moderating effect of trait gratitude on the lagged link between daily gratitude and daily depressive symptoms. Results showed that (1) gratitude was negatively related to depressive symptoms on the same day (b = -0.229, p < .001); (2) the cross-lagged analyses indicated that the previous day's gratitude negatively predicted depressive symptoms on the current day (b = -0.056, p = .009); (3) the moderating effect of trait gratitude on the relationship between the previous day's gratitude and the present day's depressive symptoms was not significant (b = -0.002, p = .697); and (4) the results of cross-lagged analyses as well as moderating effect analyses remained stable after controlling for positive affect, negative affect, and psychological well-being. The above findings suggest that when individuals' gratitude levels are higher on a given day, they would experience a reduction in depressive symptoms on the same day as well as the next day, and that trait gratitude does not moderate the lagged link between daily gratitude and daily depressive symptoms. The present study extends the association between gratitude and depressive symptoms to the daily level, supporting the amplification theory of gratitude and providing a basis for prevention and intervention on depression.

Keywords: gratitude, depressive symptoms, daily diary study

孤独感与抑郁、焦虑间关系的网络分析

任垒[1,2]　梁淑怡[3]　刘旭峰[3]　周喻[1,2]（通讯作者）

1 武警后勤学院军事心理学教研室，天津，300309，273325838@qq.com

2 军队心理健康服务与研究中心，天津，300309

3 空军军医大学军事医学心理学系，西安，710032

摘 要　孤独感是抑郁和焦虑的重要风险因素之一。以往研究大多采用自我报告量表总分（障碍/潜变量水平）来探索孤独感与抑郁、焦虑之间的关联。最近研究表明，症状水平而不是障碍水平的分析可能会对理解精神病理方面提供更精细的视角。到目前为止，极少有研究检验孤独感不同成分与抑郁和焦虑不同症状间的关联模式。本研究旨在：1）孤独感不同成分与抑郁不同症状间的关联模式及关联两者的桥变量；2）孤独感不同成分与焦虑不同症状间的关联模式及关联两者的桥变量。以陕西省五所大学 1849 名大学生为研究对象。孤独感采用简版 UCLA 孤独感量表（ULS-6）进行评估，抑郁症状采用抑郁症筛查量表（PHQ-9）进行评估，焦虑症状采用广泛性焦虑量表（GAD-7）进行评估。通过软件 R 中 qgraph 包的 EBICglasso 方

法构建两个正则化偏相关网络（Regularized partial correlation network），即孤独感-抑郁网络和孤独感-焦虑网络。同时，计算两个网络中每个变量的桥预期影响（Bridge expected influence）。在孤独感-抑郁网络中，所有关联均为正性，孤独感成分“感觉自己与别人隔离了起来”与抑郁症状“自杀意念”有较强的跨社团正性关联。孤独感成分“感觉自己与别人隔离了起来”和抑郁症状“觉得自己很糟或觉得自己很失败，或让自己或家人失望”在各自社团中具有最大的桥预期影响值，意味着其是连接孤独感和抑郁的桥变量。在孤独感-焦虑网络中，所有关联均为正性，孤独感成分“感觉自己与别人隔离了起来”和焦虑症状“对各种各样的事情担忧过多”在各自社团中具有最大的桥预期影响值，意味着其是连接孤独感和焦虑的桥变量。因此，孤独感成分“感觉自己与别人隔离了起来”对抑郁（包括自杀意念）和焦虑具有重要的跨诊断风险性作用。我们讨论了研究结果对临床预防和干预的意义，例如通过增加社交活动和减少社交隔离来缓解抑郁（包括自杀意念）和焦虑症状。

关键词　孤独感，抑郁，焦虑，网络分析

The Relations between Loneliness, Depression and Anxiety: A Network Analysis

REN Lei[1,2], LIANG Shuyi[3], LIU Xufeng[3], ZHOU Yu[1,2,*]

1Military Psychology Section, Logistics University of PAP, Tianjin, 300309, 273325838@qq.com

2Military Mental Health Services & Research Center, Tianjin, 300309

3Department of Military Medical Psychology, Air Force Medical University, Xi’an, 710032

Abstract：Loneliness is one of the important risk factors for depression and anxiety. Previous studies have investigated the relations between loneliness, depression and anxiety using total scores on self-report measures (disorder/latent variable level). Existing research proposed that moving from a disorder-level analysis to a symptom-level analysis may provide a more fine-grained understanding of psychopathology. So far, there have been few studies examining the association patterns between different components of loneliness and different symptoms of depression and anxiety. This study aimed to explore: 1) the relations between different components of loneliness and symptoms of depression, and bridge variables bridging them; and 2) the relations between different components of loneliness and symptoms of anxiety, and bridge variables bridging them. We estimated two regularized partial correlation networks (i.e., loneliness-depression network and loneliness-anxiety network) among 1,849 college students from five universities in Shaanxi Province via Package qgraph (EBICglasso) in software R. Loneliness was assessed via the short-form UCLA Loneliness Scale (ULS-6). Depression symptoms were measured by Patient Health Questionnaire-9 (PHQ-9) while anxiety symptoms were measured by Generalized Anxiety Disorder 7-Item Questionnaire (GAD-7). Bridge expected influence was used to quantify the bridge centrality of each variable in these two networks. Within the loneliness-depression network, all associations are positive. There is a strong cross community positive correlation between the component “I feel isolated from others” of loneliness and the symptom “suicidal thoughts” of depression. The component “I feel isolated from others” of loneliness and the symptom “Feeling bad about yourself, or that you are a failure or have let yourself or your family down” of depression have the highest bridge expected influence, indicating these two variables are bridge variables bridging loneliness and depression. Within the loneliness-anxiety network, all associations are positive. The component “I feel isolated from others” of loneliness and the symptom “Worrying too much about different things” of anxiety have the highest bridge expected influence, indicating these two variables are bridge variables bridging loneliness and anxiety. Therefore, the component “I feel isolated from others” of loneliness has an important transdiagnostic risk effect on depression (including suicidal thought) and anxiety. Implications for

clinical preventions and interventions are discussed, such as we could alleviate both depression (including suicidal thought) and anxiety symptoms by increasing social activity and reducing social isolation.

Keywords：Loneliness, Depression, Anxiety, Network analysis

高低数学焦虑在数列推理上的差异——电生理学证据

冯瑾[1]　秦焕超[1]　陈庆飞[2]（通讯作者）

1 深圳大学心理学院，深圳，518060

2 深圳大学心理学院，深圳，518060，myth3233@126.com

摘 要　数学焦虑(Math anxiety)分为了特质数学焦虑(Trait MA)和状态数学焦虑(State MA)，前者将对数学相关场景的消极反应作为一种持久的人格特质，后者指发生在数学活动期间的一种暂时性的、与情境相关的反应。本研究借助事件相关电位技术在电生理学水平上考察高低数学焦虑特质人群在数列推理过程中的差异。研究选取 40 名(20 名高数学焦虑，20 名低数学焦虑)非数学非心理学专业大学生被试进行数学能力测验和数字序列任务(The number series task)，数字序列任务要求被试寻找数字序列中的隐藏规则，并预测一个序列中下一个可能出现的数字，需要寻找的规则分为两种：简单规则和复杂规则。在简单规则中，数字和数字之间的规则是一元的，例如+1,+1,+1...或-2,-2,-2...；在复杂规则中数字之间的规则是二元的，例如+2,+4,+6...-12,-10,-8...。任务将推理过程分为规则搜索、规则发现和规则追随。结果发现：(1)在行为上，高数学焦虑人群和低数学焦虑人群在数字运算能力上没有显著差异，但是在数字序列任务上有差异：不管是简答规则还是复杂规则，高数学焦虑寻找到的数目均低于低数学焦虑；(2)在脑电指标上，在所有正确试次中，不管是简单规则还是复杂规则，相比低数学焦虑，高数学焦虑被试表现出更大的 N400。在规则跟随阶段，复杂规则比简单规则诱发了更大的 P300，在规则发现阶段上无显著差异。上述结果表明，虽然在基础的数学运算上高低数学焦虑个体没有显著差异，但是在数列推理上高数学焦虑个体的表现差于低数学焦虑个体，这说明高数学焦虑个体需要用额外的注意去处理负面情绪，从而影响认知活动上的表现，特别是数学相关的复杂任务。

关键词　数学焦虑，数列推理，事件相关电位，P300，N400

Differences between high and low math anxiety in number series - Electrophysiological evidence

Jin Feng, Huanchao Qin, Qinfei Chen(Corresponding Author)）

Shenzhen University, Shenzhen, 518060, myth3233@126.com

Abstract：Math anxiety has been divided into Trait Math Anxiety (Trait MA), which refers to negative reactions to math-related scenarios as an enduring personality trait, and State Math Anxiety (State MA), which refers to a temporary, contextually relevant reaction that occurs during math activities. The present study examined the differences between people with high and low math anxiety traits during number sequence reasoning at the

electrophysiological level with the help of event-related potentials technique. Forty (20 high math anxiety, 20 low math anxiety) non-math and non-psychology college students were selected to take the Mathematics Aptitude Test and The number series task. The number series task requires subjects to look for hidden rules in a sequence of numbers and to predict the next possible number in a sequence, and there are two types of rules to look for: simple rules and complex rules. The rules to be found are of two kinds: simple rules and complex rules. In simple rules, the numbers and the rules between the numbers are one-dimensional, e.g. +1,+1,+1... or -2,-2,-2... ; in complex rules the rule between numbers is binary, e.g. +2,+4,+6... -12,-10,-8.... The task divides the reasoning process into rule search, rule discovery and rule following. It was found that (1) behaviorally, there was no significant difference between the high and low math anxiety population in number arithmetic ability, but there was a difference in the number sequence task: the number of rules found was lower in high math anxiety than in low math anxiety, regardless of whether the rules were simple or complex; and (2) in terms of electroencephalographic metrics, in all the correct trials, regardless of whether the rules were simple or complex, compared to the low math anxiety, high math anxiety subjects showed greater N400. complex rules induced greater P300 than simple rules in the rule-following phase, and there was no significant difference on the rule-finding phase. The above results indicate that although there is no significant difference between high and low math anxious individuals in basic math operations, high math anxious individuals perform worse than low math anxious individuals in number series reasoning, which suggests that high math anxious individuals need to pay extra attention to deal with negative emotions, which affects the performance on cognitive activities, especially complex tasks related to math.

Keywords：Math Anxiety, Number Reasoning, Event Related Potentials, P300, N400

儿童焦虑的发展轨迹：

父母挑战性教养和害羞气质的作用

菅景康[1]　耿喆[2]　封亚飞[1]　吴艳丽[1]　徐夫真[1]（通讯作者）

1 山东师范大学心理学院，济南，250014，xufuzhen@sdnu.edu.cn

2 山东英才学院，济南，250014

摘要　焦虑是儿童群体中最为常见的心理健康问题之一，童年期持续的焦虑可能会扩展到青春期甚至是成年期，增加个体后来罹患焦虑障碍的风险。发展情境理论认为，个体发展是个体与其所处情境交互作用的结果。儿童焦虑的发展也是个体因素与早期教养等环境因素相互作用的结果。本研究基于变量中心和个体中心的视角考察了儿童焦虑的发展特点以及父母挑战性教养和害羞气质对儿童焦虑发展轨迹的预测作用。本研究对山东省 7 所小学的 558 名三、四年级的学生（$M = 10.98 \pm 0.77$ 岁, 46.80%为女生）及其父母进行了三次问卷调查，每两次调查间隔一年，使用潜增长曲线模型、潜类别增长模型和多元 Logistic 回归进行统计分析。结果发现：（1）儿童焦虑整体上呈线性增长趋势，初始水平和发展速度负相关，即儿童焦虑初始发展水平越高，增长速度越慢；儿童焦虑的发展存在三条异质性发展轨迹，分别是：低水平稳定组（81.18%）、高水平缓慢降低组（9.86%）和中水平快速增长组（8.96%）。（2）父母挑战性教养显著正向预测儿童焦虑的初始水平，而害羞气质显著负向预测儿童焦虑的初始水平和发展速度。（3）害羞气质在父母挑战性教养与儿童焦虑初始水平和发展速度之间起调节作用，即父母挑战性教养可以显著负向预测高害羞气质儿童焦虑的初始水平和发展速度，对低害羞气质儿童焦虑的初始水平和发展速度的预测作用不显著。

（4）害羞气质、父母挑战性教养与儿童焦虑的异质性发展轨迹存在显著关联，以低水平稳定组为参照组，高害羞气质的儿童相较于低害羞气质的儿童更可能属于中水平快速上升组，而父母挑战性教养水平越高，个体属于中水平快速上升组的可能性就越小。上述结果表明儿童焦虑的发展轨迹具有群体异质性，存在不同类别的发展趋势，父母挑战性教养和害羞气质对儿童焦虑的发展轨迹存在显著预测效应。其中，父母挑战性教养对高害羞气质儿童的保护性作用支持了差别易感性模型，综上所述，父母应针对儿童的气质特点采用适宜的教养行为，从而促进儿童情绪健康发展。

关键词　儿童焦虑，父母挑战性教养，害羞气质，发展轨迹

The Development Trajectory of Children's Anxiety: The Roles of Challenging Parenting Behaviour and Shyness Temperament

Jingkang Jian[1], Zhe Geng[1], Yafei Feng[1], Yanli Wu[1], Fuzhen Xu[1] (Corresponding Author)
1 School of Psychology, Shandong Normal University, Jinan, 250014, xufuzhen@sdnu.edu.cn

***Abstract*:** Anxiety is one of the most common mental health problems that affect children and persistent anxiety in childhood may extend into adolescence and even adulthood, increasing an individual's risk of developing an anxiety disorder later in life. From the perspectives of developmental contextualism, individual development is the result of interaction between individuals and their situations. The development of anxiety in children is also the result of the interaction between individual factors and environmental factors such as early parenting. Therefore, the present study examined the developmental characteristics of children's anxiety and the predictive role of parental challenging parenting and shyness temperament on children's anxiety developmental trajectories based on variable-centered and individual-centered analytic orientations. In present study, a total of 558 students (M_{age} = 10.98 ± 0.77, 46.80% girls) and their parents were surveyed from 7 elementary schools in Shandong province were surveyed three times with a gap of one year, and statistically analyzed using latent growth curve modeling, latent category growth modeling, and multivariate logistic regression. Results were as follows: (1) The children's anxiety showed an overall linear growth trend, with initial level and developmental rate negatively correlated, specifically, the higher the initial development level of children's anxiety, the slower the growth rate; There were three heterogeneous developmental trajectories of children's anxiety, namely: low-level stable group (81.18%), high-level slow decrease group (9.86%), and medium-level rapid growth group (8.96%). (2) Parental challenging parenting significantly positively predicted initial level of children's anxiety, whereas shyness temperament significantly negatively predicted initial level and developmental rate of children's anxiety. (3) Shyness temperament moderated the relationship between parental challenging parenting and the initial level and developmental rate of children's anxiety. Specifically, parental challenging parenting significantly negatively predicted the initial level and developmental rate of anxiety in children with high shyness temperament, and did not significantly predict the initial level and developmental rate of anxiety in children with low shyness temperament. (4) Challenging parenting behaviour and shyness temperament were significantly associated with the heterogeneity of children's anxiety trajectories. Taking the low-level stable group as the reference group, children with high shyness temperament are more likely to belong to the medium-level rapid growth group compared to those with low shyness temperament, whereas the higher the level of parental challenging parenting, the less likely the individual is to belong to the medium-level rapid growth group. The above results indicate that the developmental trajectory of children's anxiety is group heterogeneous, with different categories of developmental

trends, and that there is a significant predictive effect of parental challenging parenting and shyness temperament on the developmental trajectory of children's anxiety. Among them, the protective effect of parental challenging parenting on children with high shyness temperament supports the differential susceptibility model. In summary, parents should adopt appropriate parenting behaviors according to children's temperament characteristics, so as to promote children's emotionally healthy development.

***Keywords*:** children's anxiety, challenging parenting behaviour, shyness temperament, developmental trajectory

基于 AI 作图的社交焦虑图片数据库

鞠芊芊[1] 陈梓乐[2] 徐旨健[1] 张涵[3] 彭玉佳[1,4,5]（通讯作者）

1 北京大学心理与认知科学学院和行为与心理健康北京市重点实验室，中国北京，100871；

2 北华大学教育科学学院心理学系，中国吉林，132000；

3 伦敦大学学院脑科学院精神病学部临床心理健康科学系，英国伦敦，W1T7NF；

4 北京大学人工智能研究院，中国北京，100871；

5 跨媒体通用人工智能全国重点实验室，北京通用人工智能研究院，中国北京，100871

摘 要

社交焦虑是一种普遍的焦虑障碍，对患者的生活和工作产生严重影响，亟需研究验证其背后的机制。对于机制的验证，一套标准化图片库将有效作为实验材料，推动通过实验室研究得到社交焦虑相关的客观行为和生理指标。然而，在社交焦虑领域中暂时没有标准化的社交焦虑图片数据库，带来以下局限。首先，实验刺激缺乏针对性，过往研究选取情绪图片作为实验刺激，对社交焦虑的针对性不足。其次，同类研究可比性不足，即不同图片材料的选择对结果的潜在影响难以排除。最后，已有研究缺乏对图片客观属性和主观情绪诱发程度的定量描述，如图片中的人物数量、特征和社交交互特征等，以及参与者观看图片后诱发的情绪感受等。上述原因使得研究者在使用图片刺激时，难以选取社交焦虑针对性刺激，也难以定量控制图片的各类属性，或排除图片本身的属性差异对结果的潜在影响。

为解决上述局限，本研究旨在基于 AI 作图，开发标准社交焦虑图片数据库。本研究基于 Dalle-2、Stable diffusion XL 等深度学习文生图大模型，以较低的成本和高仿真度，基于社交焦虑理论维度、场景和描述，生成多种族、多场景、多样化的图片材料。本研究基于社交焦虑量表的 5 个维度，根据以下三个维度生成图片：1）场景：在公共场所，2）人物：与有压力的人交流，3）动作：负性情绪的表达和接受，生成共 120 张社交焦虑图片和 120 张控制图片。图片包含了多种触发社交焦虑的活动，如公众演讲、小组讨论、社交聚会等。本研究通过线上实验测量图片的主观评价得分，包括社交焦虑感受程度、效价和唤醒度等。同时研究也详细记录了图片的客观属性，包括图片中的人物特征（如人数、种族等）和社交交互特征（如，是否存在社交交互行为）等。

在知识共享许可下，本研究将开放社交焦虑图片数据库，旨在通过提供多维社交焦虑图片信息，为定量化、可重复、可比较的社交焦虑研究提供支持，以促进建立客观评价和诊断体系。

关键词 社交焦虑，AI 作图，深度学习，图片数据库，开放科学

鞠芊芊（第一作者）

邮箱：junoq0420@163.com；电话：18801245851

彭玉佳（通讯作者）
邮箱: yujia_peng@pku.edu.cn；电话： 15201464905

The Development of Social Anxiety Picture System (SAPS): Based on AI Art Generation Model

Qianqian Ju[1], Zile Chen[2], Zhijian Xu[1], Han Zhang[3], Yujia Peng[1, 4, 5]
1 School of Psychological and Cognitive Sciences and Beijing Key Laboratory of Behavior and Mental Health, Peking University, Beijing, China, 100871;
2 Department of Psychology, Beihua University, Jilin, China, 132000;
3 MSc Clinical Mental Health Science, Division of Psychiatry, Faculty of Brain Sciences, University College London, London, England, W1T7NF;
4 Institute for Artificial Intelligence, Peking University, Beijing, China, 100871;
5 National Key Laboratory of General Artificial Intelligence, BIGAI, Beijing, China, 100871

Abstract:

Social anxiety stands out as one of the most prevalent anxiety disorders, significantly impacting the lives and functioning of affected individuals. Consequently, there is an urgent need for research that delves into the mechanisms underlying this social anxiety. To understand the underlying mechanisms of social anxiety, a standardized dataset of pictures would serve as valuable experimental materials to reveal associated behavioral and physiological indicators in laboratory studies. However, there is currently a lack of database containing specific social anxiety pictures, and several limitations need to be addressed. First, traditional experimental stimuli lack specificity, as prior studies mostly employed emotional pictures as experimental materials, which do not specifically target social anxiety, making it difficult to directly compare results across studies. Moreover, existing database lacks quantitative descriptions of objective attributes of the pictures (e.g., the number of characters, their characteristics, and the presence of social interaction features) , or the degree of evoked emotions after viewing the pictures. Consequently, the aforementioned limitations make it challenging for researchers to select visual stimuli targeting social anxiety studies that can control for various picture attributes, and account for potential influences of the pictures on the results.

To address these limitations, the current study aims to develop a standardized Social Anxiety Picture System (SAPS) based on AI art generation models. Employing deep learning AI models of Dalle-2 and Stable diffusion XL, we generate pictures with diverse ethnicity and scenarios, based on theories of social anxiety. This approach is cost-effective and ensures high vividness in the generated pictures. The SAPS consists of 120 social anxiety pictures and 120 control pictures, which were developed based on the five dimensions of the Social Anxiety Questionnaire. The pictures encompass three main dimensions: 1) Scene: being in a public place, 2) Characters: interacting with people under pressure, and 3) Actions: expression and reception of negative emotions. They portray various activities that trigger social anxiety, such as public speaking, group discussions, and social gatherings. To examine the associated attributes of the generated pictures, we collected subjective evaluation scores for the pictures through an online experiment, including measures of evoked social anxiety, valence, and arousal. The dataset also provides detailed information of the objective attributes of the pictures, including characteristics of the depicted individuals (e.g., number of people, ethnicity, etc.) and features of social interactions (e.g., presence or absence of social interaction behaviors).

In line with ethical principles, the Social Anxiety Picture System will be shared under a creative commons license, aiming to promote quantitative, reproducible, and comparable social anxiety research. By providing a comprehensive and standardized dataset, this initiative aims to promote quantitative, reproducible, and comparable social anxiety research studies, and facilitate the establishment of an objective evaluation and diagnostic system

for social anxiety.

Keywords: social anxiety, AI art generation model, deep learning, image databases, open science

Qianqian Ju (First author)
E-mail: junoq0420@163.com, phone: 18801245851

Yujia Peng (Corresponding author)
E-mail: yujia_peng@pku.edu.cn, phone: 15201464905

追踪焦虑情绪的动态变化：

注意偏向与情绪调节的作用

周钰程, 张萌（通讯作者）
浙江大学心理与行为科学系，杭州，310030，mz3822@zju.edu.cn

摘　要　焦虑的认知模型指出焦虑易感性与个体多种功能障碍有关，包括自下而上的自动威胁评估和自动威胁定向（例如，威胁性信息注意偏向），以及自上而下认知过程的干扰（例如，情绪调节）。然而，先前的研究还没有阐明注意偏向的不同成分以及情绪调节是否对焦虑情绪的动态变化具有不同的影响。本研究的目的是在日常生活情境下，考察注意偏向的两个成分(即注意脱离困难和注意增强)和情绪调节困难与焦虑情绪动态变化的关系。被试由 86 名在校大学生构成。所有的被试首先在实验室完成了注意偏向评估任务与情绪调节困难量表，随后，从第二天开始完成持续 7 天的生态瞬时评估任务（每天在 10 个固定时间点报告当下的焦虑状态以及是否遭遇负性应激事件）。结果发现，注意偏向中的注意脱离困难(而非注意增强)成分和情绪调节困难都与个体遭遇负性应激事件后立即出现的焦虑情绪的反应性增加有关。具体而言，在遭遇负性应激事件后：1.高注意脱离困难的个体（相较于低注意脱离困难）焦虑情绪的上升程度显著更大；2.高情绪调节困难的个体（相较于低情绪调节困难）焦虑情绪的上升程度显著更大。本研究结果强调了焦虑情绪动态变化中的风险因素与保护因素，对于高焦虑特质人群的认知干预措施提供了新的见解。

关键词　焦虑，注意偏向，注意脱离困难，情绪调节困难，生态瞬时评估

Attentional bias, emotion regulation and anxiety dynamics: An ecological momentary assessment study

Yucheng Zhou, Meng Zhang*

Department of Psychology and Behavioral Sciences, Zhejiang University, Hangzhou, 310030

* Corresponding Authors:

Meng Zhang, Department of Psychology and Behavioral Sciences, Zijinggang Campus, Zhejiang University, Hangzhou, people's Republic of China, 310030

Telephone-number: 0571-88273337, E-mail: mz3822@zju.edu.cn

***Abstract*:** Cognitive models suggest that vulnerability to anxiety relates to dysfunction in several mechanisms, including bottom-up automatic threat assessment and orientation, and as well as the top-down cognitive interference. Nevertheless, whether different components of attentional biases and emotion regulation play separate roles on anxiety has not been fully elucidated. We aimed to examine the associations between two facets of attentional biases (namely engagement biases and disengagement biases), emotion regulation difficulties, and anxious mood dynamics under a daily life setting. Participants (86 college students) accomplished the modified attentional assessment task and the questionnaires in the laboratory, after which they entered a 7-day ecological momentary assessment (EMA) to collect data on their momentary anxious mood and occurrence of negative events at 10 different time points per day. Then we estimated multilevel models to explore how different components of attentional bias and emotion regulation difficulty affect the dynamic changes of anxiety. We found that Both attentional disengagement bias (not engagement bias) and impaired emotion regulation were associated with a more significant increase in anxious mood immediately after encountering a negative event, but not associated with anxious mood maintenance after a relatively long period. The present study highlights the specific risk and protective factors involved in anxiety dynamics, which could be crucial for designing interventions for populations with high level of trait anxiety.

***Keywords*:** anxiety, attentional bias, attentional disengagement, difficulty in emotion regulation, ecological momentary assessment

自我同情、尾状核功能联结与青少年自杀意念的关系

刘冠民[1]　Karina Quevedo[2]（通讯作者）

1 天津大学应用心理研究所，天津，300350

2 明尼苏达大学精神医学系，明尼阿波利斯，MN 55454，通讯作者 E-mail：queve001@umn.edu

摘 要　自杀是青少年的第二大死因，而抑郁症是青少年自杀的强烈预测因子，找出能够降低抑郁症青少年自杀意念的心理因素非常关键。自我同情可能就是这样一个变量。众多研究证据表明自我同情和自杀意念呈负相关关系，但是这种关系背后的神经机制仍然不清楚。因为自杀意念与自我参照加工时异常的尾状核活动有关，该区域与其他脑区的神经功能联结可能是自杀意念的一个生物标记物。在本研究中，我们以抑郁症和健康的青少年作为被试，考察了他们的自我同情水平与其在进行自我评价任务（考察自我参照加工的典型研究范式）时尾状核的功能联结之间的关系以及两者与自杀意念水平之间的关系。在核磁扫描仪中，79 个抑郁症青少年和 36 个健康青少年听到一系列句子，他们需要判断这些句子是否能从不同的角度描述他们。结果发现，自我同情水平越高，被试在进行积极（相对于消极）自我评价时左侧尾状核跟以下脑区之间的功能联结越强：双侧后测颞上沟/颞顶联合区、左侧颞中回中部以及左侧枕中回。而左侧尾状核与左侧颞中回中部之间的功能联结强度则进一步解释了自我同情和自杀意念之间的负相关关系，这种关系在控制了抑郁程度、焦虑程度和非自杀性自伤行为之后仍然显著。未来的研究可以通过神经反馈等技术增强积极（相对于消极）自我参照加工时左侧尾状核与左侧颞中回中部之间的功能联结，并与自我同情干预相结合，考察其降低青少年自杀意念的效果。

关键词　自杀意念, 青少年抑郁, 自我同情, 自我参照加工, 尾状核功能联结

Self-compassion, caudate functional connectivity and suicide ideation in youth

Guanmin Liu[1]　Karina Quevedo[2,*]

1 Institute of Applied Psychology, Tianjin University, Tianjin, 300350

2 Department of Psychiatry, University of Minnesota, Minneapolis, MN 55454

*Correspondence: queve001@umn.edu

Abstract：Suicide is the second leading cause of death, and depression is a strong proximal predictor of suicidality in youth. It is vital to identify psychological factors that may reduce suicide ideation in depressed adolescents. Self-compassion may be such a factor. Converging evidence indicates the inverse association between self-compassion and suicide ideation, but the neural mechanisms underlying their link remained unknown. Because suicide ideation is associated with distorted self-referential caudate activity, its connectivity may be a biomarker of suicide ideation. In this study we examined the relationship between self-compassion and caudate functional connectivity during self-appraisals, a typical self-referential paradigm, and their associations with suicide ideation in depressed and healthy youth. In the scanner, 79 depressed youth and 36 healthy controls evaluated, from various perspectives, whether phrases heard described them. The results showed that self-compassion was associated with stronger left caudate functional connectivity with bilateral posterior superior temporal sulcus/temporoparietal junction, the left middle middle temporal gyrus (mMTG) and the left middle occipital gyrus during positive versus negative self-appraisals across subjects. Stronger left caudate connectivity with the left mMTG further explained the association between higher self-compassion and lower suicide ideation,

even controlling for non-suicide ideation depression severity, anxiety severity and non-suicidal self-injurious behavior. Functional connectivity between the left caudate and the left mMTG during positive versus negative self-referential processing could be a biomarker to be targeted by neurofeedback interventions for reducing suicide ideation in youth, combined with self-compassion interventions.

Keywords： suicide ideation, depressed adolescents, self-compassion, self-referential processing, caudate functional connectivity

父母元情绪理念与幼儿问题行为的关系:电子媒体使用的中介作用

高千航[1] 赵妍岑[2] 田静[3] 车翰博[4]

（[1]辽宁师范大学教育学部，大连，116021）

（[3]山西师范大学教育科学学院，太原，030000）

通讯作者 E-mail：chbdhr@163.com

摘要：父母元情绪理念对自身情绪健康、幼儿的情绪发展、身心健康和社会适应等方面有着重要影响，本研究在电子媒体时代背景下，考察父母元情绪理念这一重要心理变量和幼儿电子媒体使用情况对幼儿问题行为的影响机制。

本研究以 D 市和 Y 市 436 名幼儿及其父母为调查对象，采用父母元情绪理念问卷、幼儿长处困难问卷、学前儿童电子媒体使用问卷，考察父母元情绪理念对幼儿问题行为的影响，并分析幼儿电子媒体使用在两者间的中介作用。研究内容主要分为现状研究与关系研究两个部分，现状部分主要研究父母元情绪理念、幼儿问题行为、幼儿电子媒体使用的现状与影响因素，关系研究部分以父母元情绪理念各维度为因变量，构建以幼儿电子媒体使用情况在父母元情绪理念与幼儿问题行为间为中介的结构方程模型。研究结果发现：

（1）父母元情绪理念在父母自身性别和受教育程度上存在显著差异，幼儿问题行为在性别、年级和独生情况上存在显著差异，幼儿电子媒体使用在独生情况与父母受教育程度上存在显著差异；

（2）父母元情绪理念、幼儿电子媒体使用与幼儿问题行为之间呈显著相关关系，父母元情绪理念直接影响幼儿问题行为，也可以通过幼儿电子媒体使用间接预测幼儿问题行为；

（3）积极电子媒体使用在父母情绪教导理念、情绪紊乱理念与幼儿问题行为之间起中介作用（中介占比占总效应的 9.46%），消极电子媒体使用在父母元情绪理念各维度与幼儿问题行为之间起中介作用（中介占比占总效应的 52.89%）。

最后，针对研究结果从家庭、幼儿园与社会三方面提出建议，期望家校社共同合作，促进儿童健康成长。父母要重视自身元情绪理念和幼儿问题行为，改善自身媒介养育行为，为幼儿成长营造良好的家庭环境；幼儿园要重视幼儿问题行为，帮助家长正确引导孩子使用电子媒体；社会方面应尽快落实家庭教育促进法，更好为家庭教育赋能，同时强化法治保障，提升幼儿网络环境安全和健康。

关键词：父母元情绪理念，幼儿，电子媒体使用，问题行为

The Relationship Between Parents' Meta-emotional Concept and Children's Problem Behavior: The Intermediary Role of Electronic Media Use

Gao Qianhang[1] Zhao Yancen[2] Tian Jing[3] Che Hanbo[4]
（[1]Education Department of Liaoning Normal University，Da Lian，116021）
（[3] College of Education Science, Shanxi Normal University, Taiyuan, 030000）
Corresponding author E-mail：chbdhr@163.com

Abstract：Parental meta-emotional concept has important influence on their own emotional health, emotional development, physical and mental health and social adaptation. In the background
of electronic media era, the influence mechanism of parental meta-emotional concept on children's behavior is investigated.

In this thesis, parents and children of 436 children in city D and city Y were used to investigate the influence of parents' meta-emotional concept questionnaire, children's strengths and difficulties questionnaire, and electronic media use questionnaire in preschool children to analyze the mediating effect of electronic media use in children. The content of the study is divided into two parts: the present situation research and the relationship research, the present situation research mainly studies the parent meta-emotional concept, the child's problem behavior, the child electronic media use situation and the influence factor, the relationship research part takes the parent meta-emotional concept each dimension as the variable, constructs the structure equation model which mediates the child electronic media use between the parent meta-emotional concept and the child's problem behavior. The study found:

(1) There are significant differences in parents' own gender and educational attainment, in children's problematic behaviour in terms of gender, grade and only child, and in children's use of electronic media in relation to only child and parental education;

(2) There is a significant correlation between parental meta-emotional concept, use of electronic media in young children and children's problem behaviors. Parental meta-emotional concept can predict children's problem behaviors directly or indirectly by using electronic media in young children;

(3) The use of active electronic media mediates between parenting concepts, emotional disorder concepts and problematic behaviors in young children(Mediating effect value=9.46%), and the use of passive electronic media mediates between dimensions of parental meta-emotional concepts and problematic behaviors in young children(Mediating effect value=52.89%).

Finally, according to the research results, some suggestions are put forward from three aspects: family, kindergarten and society, hoping that the family, school and society can cooperate together to promote the healthy growth of children. Parents should attach importance to their own meta-emotional ideas and children's problem behaviors, improve their own media parenting behaviors, and create a good family environment for children's growth; Kindergartens should pay attention to children's problem behaviors and help parents correctly guide their children to use electronic media; The society should implement the family education promotion law as soon as possible to better empower family education, and at the same time strengthen the protection of the rule of law to improve the safety and health of children's online environment.

Key Words: Parents' Meta-emotional Concept, Young Children, Use Of Electronic Media, Problem Behavior

基于微博文本情感分析的大学生心理健康模型构建研究

柴昭甲[1] 王萌[1]（通讯作者）王天[1] 柴昭元[2]
1 江南大学教育技术系，无锡，214122，wangmengly@163.com
2 江西省分宜县第三中学，新余，336600

摘 要　随着生活节奏的加快，学习压力的陡增，大学生心理健康问题日渐突出，给学生的学习和生活带来巨大负担。大学生的情绪特点变化迅速、强度剧烈、起伏明显，而传统心理健康评估方法的被动性、样本规模的有限性、获取数据的回溯性在一定程度上不利于大学生心理健康的监测。相关医学研究表明，心理健康和情绪有着密切的联系。在社交媒体的广泛普及的时代下，越来越多的学生通过社交媒体分享观点，表达情绪，从而在网络空间中留下大量个人数据。这些数据蕴含了丰富且有价值的情绪信息，为建立心理健康文本情感语料库提供了数据支持。文本情感分析是自然语言处理领域中的热点研究问题，具体是指用计算机技术对文本中所带有的主客观属性和所表达的观点、情绪等进行挖掘，从而判断文本具有的情感倾向性。情感分类是文本情感分析中的核心任务之一，心理学中常用的情感分类是根据“效价-唤醒度”来进行的，在自然语言处理中可以表示为情感极性和情感强度。在此背景下，本研究将面向大学生的微博文本数据，构建基于微博文本情感分析的大学生心理健康模型，分别从情感极性分类和情感强度计算两个方面对其进行分析，以期为大学生的心理健康状态识别和动态监测提供参考。本研究采集了华东某高校 100 位学生的微博社交文本数据，经过数据清洗后得到 10694 条数据。在情感极性分类中，分别使用了深度学习中的 Bert、TextCNN 与 Fasttext 模型进行模型训练，最终选择结果最优的 Bert 模型。在情感强度计算方面，根据自建的情感强度词典从词汇层级和句子层级两方面，对文本进行情感强度计算，并将结果归一化处理。最后，根据情感极性和情感强度的结果，绘制面向心理健康的情感状态走势图。在后续的实际应用中，可以从时间维度、情感强度值变化幅度与频率等方面进行心理健康状态的评估。

关键词　心理健康，大学生，文本情感分析，模型构建，深度学习情感词典

基金项目　2021 年教育部人文社会科学研究项目“面向心理健康的文本情绪识别研究”（No. 21YJA740037）；2023 年江苏省研究生科研与实践创新计划项目“融合深度学习的大学生心理健康分析研究——基于社交文本”（No.KYCX23_2535)的阶段性研究成果

Research on the Construction of College Students Mental Health Model Based on Sentiment analysis of Microblog

CHAI Zhao-jia[1], WANG Meng[1](Correspondence), WANG Tian[1], CHAI Zhao-yuan[2]
1 Department of Educational Technology, Jiangnan University, Wuxi 214122, China
2 No. 3 Middle School of Fenyi County, Jiangxi Province, Xinyu 336600, China

Abstract： With the acceleration of the pace of life and the sharp increase in learning pressure, the mental health problems of college students are becoming increasingly prominent, bringing a huge burden to their learning and life. The sentimental characteristics of college students change rapidly, with intense intensity and significant fluctuations. However, the passivity of traditional mental health assessment methods, the limited sample size, and the retrospective nature of data acquisition are to some extent detrimental to the monitoring of college students' mental health. Medical research has shown that there is a close connection between mental health and emotions. In the era of the widespread popularity of social media, more and more students are sharing opinions and expressing sentiments through social media, thus leaving a large amount of personal data in the online space. These data contain rich and valuable emotional information, providing data support for establishing a mental health text sentimental corpus. Sentiment analysis is a hot research issue in the field of natural language processing, specifically referring to the use of computer technology to mine subjective and objective attributes and expressed views, sentiments, etc. so as to judge the sentimental orientation of the text. Sentiment classification is one of the core tasks in Sentiment analysis. Sentiment classification commonly used in psychology is based on "valence arousal", which can be expressed as sentiment polarity and intensity in Natural language processing. In this context, our research will build a college students' mental health model based on the sentiment analysis of microblog text data, and analyze it from two aspects: sentiment polarity classification and sentiment intensity calculation, with a view to providing a reference for college students' mental health status recognition and dynamic monitoring. We collected the social text data of microblogs of 100 students in a university in the east of China and obtained 10694 pieces of data after data cleaning. In sentiment polarity classification, Bert, TextCNN, and Fasttext models from deep learning were used for model training, and the optimal Bert model was ultimately selected. In terms of sentiment intensity calculation, based on the self-built sentiment intensity dictionary, it is performed on the text from both vocabulary and sentence levels, and the results are normalized. Finally, based on the results of sentiment polarity and intensity, we draw a sentiment state trend chart for mental health. In subsequent practical applications, psychological health status can be evaluated from aspects such as time dimension, amplitude, and frequency of sentimental intensity changes.

Keywords： mental health, college students, text sentiment analysis, model construction, deep learning

5.25 心理学脑成像专业委员会

一种皮层脊髓同步功能磁共振成像的新方案：方法和应用

魏朝行 [1, 2]　孔亚卓 [1,2]（通讯作者）

中国科学院行为科学重点实验室(中国科学院心理研究所), 北京 100101;

中国科学院大学心理系, 北京 100049.

通讯作者 E-mail: kongyz@psych.ac.cn

摘 要

中枢神经系统由大脑和脊髓组成，能够自上而下支配个体的全部感觉、运动和自主功能，对人类生存和发展具有重要作用。皮层-脊髓同步功能成像是近十年来新兴的成像方法，它使我们能够无创性、无侵入性且高空间分辨率地探究人类中枢神经系统功能。然而，相较于成熟的脑磁共振成像而言，皮层-脊髓同步功能成像面临方法和技术挑战。例如，大脑和脊髓在神经血管系统方面存在显著差异，对 BOLD 的敏感性不同；头颈信号采集线圈的设计使其对大脑和脊髓的覆盖效率和穿透深度有差异，这影响了图像的信噪比；脊髓区域的 B0 场比大脑更为不均匀，且当前的 fMRI 数据处理软件大多针对大脑设计，缺乏针对皮层-脊

髓同步成像的标准化处理流程等。

我们通过改进现有的西门子 SMS-EPI 成像序列，开发优化了一种新的脑与脊髓同步功能成像方案，并提出了相应的任务态功能像数据分析框架。与前人研究相比，这种功能成像序列采用了扩大的视场，能够一次性获取整个皮层、脑干和颈髓的信号；通过在脑干和脊髓添加局部匀场框，获取稳定高质量的图像；采用了并行多层采集技术，缩短成像时间（TR = 2.68 s），易于临床多站点推广。相匹配的数据分析框架整合了针对脑脊同步结构像的场偏校正、脑与脊髓结构分割和配准等步骤，功能像则包括生理噪声去除、形变失真矫正、运动矫正、空间平滑、时间滤波和配准，以及统计分析等。为了验证这一成像和图像后处理方案的效果，我们在两个数据采集站点（N1=39；N2=23）开展了经典的疼痛、触觉和运动诱发激活任务，证明了这种新的成像方法获取功能像的时间信噪比在常规良好范围内（脊髓 11.39±2.26，大脑 33.38±4.85，mean ± SD），图像预处理步骤对信号质量有显著提升，并且能够捕捉经典的伤害性热痛刺激、非伤害性触觉刺激以及主动运动任务诱发的脑脊激活。本研究将对脑与脊髓同步成像技术在基础科研和临床应用中的推广具有重要意义。

关键词 皮层脊髓同步成像，躯体感觉，运动，疼痛，触觉

A novel protocol for simultaneous cortico-spinal fMRI: Methodology and Applications

Zhaoxing Wei[1, 2] Yazhuo Kong[1,2] (Corresponding Author)
CAS Key Laboratory of Behavioral Science, Institute of Psychology, Chinese Academy of Sciences, Beijing 100101, China;
Department of Psychology, University of Chinese Academy of Sciences, Beijing 100049, China
Corresponding E-mail: kongyz@psych.ac.cn

Abstract:

The central nervous system (CNS), comprised of the brain and spinal cord, plays a fundamental role in human survival and development, acting as a central hub for receiving and integrating external information. It maintains top-down control over all the organism's sensory, motor, and autonomic functionalities. Over the past decade, simultaneous cortico-spinal functional imaging has emerged as a revolutionary tool, providing a high-resolution, non-invasive insight into the functionality of the human CNS. However, this innovation has challenges, particularly when juxtaposed with the brain fMRI technique. Critical differences in neurovascular systems between the brain and spinal cord lead to varying sensitivities to BOLD signals. The design of the head-neck coil, another contributing factor, produces inconsistencies in coverage efficiency and penetration depth across the brain and spinal cord, which in turn impacts the signal-to-noise ratio of the resultant images. Further complicating matters is the inhomogeneous B0 field within the spinal cord region compared to the brain, coupled with the current fMRI data processing software primarily focusing on brain imaging, leaving a gap in the standardization of the processing pipeline for simultaneous cortico-spinal imaging.

We improved the Siemens SMS-EPI sequence and developed a new simultaneous cortico-spinal fMRI protocol. We also proposed a corresponding task-state fMRI data analysis pipeline. Compared to previous methods, this protocol features an expanded field of view that allows us to simultaneously acquire BOLD signals from the entire cortex, brainstem, and cervical spinal cord. Adding 3D shimming volume to the brainstem and spinal cord achieves

relatively high signal quality. We implemented a multiband combined GRAPPA parallel imaging method to shorten the imaging time (TR = 2.68 s), making it suitable for adaptability across multiple imaging sites. The accompanying data analysis framework integrates steps such as field bias correction, segmentation and registration for the structural image. FMRI analysis pipeline includes physiological noise regression, distortion correction, motion correction, spatial smoothing, temporal filtering, registration, statistic, etc. To validate the performance of this protocol, we conducted classical pain, tactile, and motor-induced activation tasks at two data sites (N1=39; N2=23). This novel imaging method achieved a time signal-to-noise ratio (TSNR) within a conventional range for fMRI (spinal cord section: 11.39±2.26; brain section: 33.38±4.85, mean ± SD), and image preprocessing steps could significantly enhance signal quality. This protocol could effectively capture brain-spinal activations induced by classical noxious thermal pain stimulation, non-noxious tactile stimulation, and voluntary motor tasks. This research holds significant implications for promoting simultaneous cortico-spinal imaging technology in basic research and clinical applications.

Keywords: Simultaneous cortico-spinal imaging, Somatosensory, Motor, Pain, Tactile

经颅磁刺激对抑制控制脑区活动的调节作用：效应可能在脑连接而不必然在脑激活

程琦文[1,2]　蒲鑫萍[1,2]　计艳楠[1,2]　柯玉茗[1,2]　闫国利[1,2]　吴俊杰[1,2]（通讯作者）

1 教育部人文社会科学重点研究基地天津师范大学心理与行为研究院，天津，300387

2 天津师范大学心理学部，天津，300387，通讯作者 E-mail：psywujunjie@foxmail.com

摘 要　当人们面对复杂多变的环境时，认知控制能力能够协调知觉、记忆、语言等认知过程，以使得行为与当前的情境和目标保持一致。前人研究表明，右侧额下回是抑制控制的重要脑区，而且对该脑区施加经颅磁刺激（transcranial magnetic stimulation，TMS）可以显著提高被试在抑制控制任务下的行为表现。然而前人研究主要聚焦在该脑区接受 TMS 后的行为改变，尚不清楚相应神经活动的变化。因此，本研究招募了 25 名大学生被试，让他们分三周完成不同 TMS 序列刺激后的功能性核磁共振（Functional magnetic resonance imaging，fMRI）扫描下的西蒙任务。具体来说，这些 TMS 序列都作用在右侧额下回（靶点坐标为 x = 51，y = 19，z = 17；选取自 de Bruin, A., Roelofs, A., Dijkstra, T., & Fitzpatrick, I. (2014). Domain-general inhibition areas of the brain are involved in language switching: fMRI evidence from trilingual speakers. *NeuroImage*, *90*, 348-359.），分别是连续θ爆发式刺激（continuous theta burst stimulation，cTBS，降低皮层兴奋性）、间歇θ爆发式刺激（intermittent theta burst stimulation，iTBS，增加皮层兴奋性）、假打序列（线圈翻转，用作安慰剂），序列顺序在被试间平衡。其中西蒙任务为区组设计：一致区组内全都为一致试次；混合区组有一半为一致试次，另一半为冲突试次，以更强地调用被试的抑制控制功能。结果发现：（1）混合区组比一致区组有更长的反应时和更多的错误率，并且更强地激活了右侧额下回/脑岛前部（峰值坐标为 x = 39，y = 15，z = 0），即在行为和脑激活上都表现出西蒙代价；（2）靶点坐标与峰值坐标相距 2.1 cm，且两者存在紧密的功能连接（$r = 0.775$，$p < 0.001$），提示 TMS 有很大可能作用到了目标脑区；（3）行为和脑激活上的西蒙代价在三种 TMS 序列下没有显著的差异；（4）相比于假打序列，只有抑制序列下右侧额下回与左侧颞上回的功能连接强度减弱。这些结果表明，对右侧额下回施加 TMS 不必然提高或者降低该脑区的激活强度，但抑制序列可能降低该脑区与其他脑区的连接强度。本研究首次考察经颅磁刺激对于

高级的抑制控制相关脑活动的调节作用，提示未来的研究可能要更多关注经颅磁刺激对于脑功能连接的调节作用。

关键词　认知控制，西蒙任务，TMS，fMRI

Effects of Transcranial Magnetic Stimulation on Inhibitory Control: Insights into Brain Connectivity over Activation

Qiwen Cheng [1,2]　Xinping Pu[1,2]　Yannan Ji[1,2]　Yuming Ke[1,2]　Guoli Yan[1,2]　Junjie Wu [1,2]

1 Key Research Base of Humanities and Social Sciences of the Ministry of Education, Academy of Psychology and Behavior, Tianjin Normal University, Tianjin, 300387;

2 Faculty of Psychology, Tianjin Normal University, Tianjin, 300387.

***Abstract*:** Cognitive control ability enables us to coordinate our behaviors with the goals in the complex and ever-changing environment by regulating cognitive processes such as perception, memory, and language. Previous studies have shown that the right inferior frontal gyrus (rIFG) is a critical brain region for inhibitory control, and stimulating this region using transcranial magnetic stimulation (TMS) can significantly improve performance in inhibitory control tasks. However, previous studies have mainly focused on the behavioral changes in this brain region after receiving TMS, leaving corresponding neural activity changes still need to be better understood. Therefore, this study recruited 25 college students to complete the Simon task during functional magnetic resonance imaging (fMRI) scanning after three different TMS sessions stimulation over three weeks. Specifically, these TMS sessions were continuous theta burst stimulation (cTBS, a neuroexcitatory protocol), intermittent theta burst stimulation (iTBS, a neuroinhibitory protocol), sham stimulation (coil flipping, a placebo protocol), which were applied on rIFG (the target coordinates: x = 51, y = 19, z = 17; selected from de Bruin, A., Roelofs, A., Dijkstra, T.,& Fitzpatrick, I. (2014) Domain general inhibition areas of the brain are involved in language switching: fMRI evidence from trilingual speakers. *NeuroImage, 90*, 348-359.). The sequence of the TMS sessions was counterbalanced across participants. We adopted the block design in the Simon task to obtain more robust signals of brain activity for inhibitory control. Specifically, all trials in the congruent block were congruent trials; half of the trials in the mixed block were congruent trials, and the other half were incongruent trials. The results showed that: (1) compared with the congruent block, the mixed block showed longer reaction times, larger error rates, and greater activation in rIFG /anterior insula(AI) (the peak coordinates: x = 39, y = 15, z = 0), that is, there was the Simon cost in both behavior and brain activation; (2) The distance between the target coordinates and the peak coordinates was 2.1 cm, and there was a close functional connection between these two loci (r = 0.7752, p < 0.001), indicating that TMS probably affected the target brain area; (3) There was no significant difference in Simon cost of behavior and brain activation among the three TMS sessions; (4) Compared with the sham TMS, only the neuroinhibitory TMS showed weaker functional connectivity between rIFG and the left superior temporal gyrus (lSTG). These results indicated that TMS applied to rIFG does not necessarily increase or decrease brain activation but may impact brain connectivity. This study is the first to investigate the effect of TMS on brain activities involving high-level cognitive processing (i.e., inhibitory control), suggesting that future research may pay more attention to the TMS effect on brain connectivity.

***Keywords*:** Cognitive Control, Simon Task, TMS, fMRI

心理治疗精神障碍的脑影像机制——基于纵向静息态 fMRI 研究的荟萃分析

郑雅心[1,2,3] 怀一媛[1,2,3] 臧玉峰[1,2,3,4] 骆宏[5] 赵娜[1,2,3]（通讯作者）

1 杭州师范大学附属医院认知与脑疾病研究中心，杭州，310000

2 杭州师范大学心理科学研究院，杭州，311121

3 浙江省认知功能障碍评估技术研究重点实验室，杭州，310000

4 经颅磁刺激中心，德清医院，杭州师范大学，湖州，313000

5 杭州师范大学临床医学院，杭州，311121

通讯作者：赵娜，杭州师范大学心理科学研究院，杭州，311121，nazhaon@163.com

摘 要

背景：心理治疗是治疗精神障碍的重要方法，心理治疗如何调节自发的大脑活动并最终产生效果仍存在困惑。局部一致性（Regional Homogeneity, ReHo）、低频振幅（Amplitude of Low Frequency Fluctuation, ALFF）、度中心性（Degree Centrality, DC）和百分率振幅（Percent amplitude of fluctuation, PerAF）是常用的基于静息态功能磁共振成像全脑体素水平评估自发大脑活动的指标。为了揭示心理疗法治疗精神障碍患者自发大脑活动的潜在神经机制，我们基于涉及全脑体素水平指标的静息态功能磁共振成像研究进行了系统回顾和荟萃分析。

方法：按照 PRISMA 指南（注册编号 CRD42023432388），在 PubMed、PsycINFO 和 Web of Science 进行了系统文献检索。此研究对比了心理治疗前后精神障碍患者自发大脑活动的改变。同时，我们对不同测量方法（ReHo, ALFF），特定心理治疗方法（认知行为疗法）或特定患者群体的自发大脑活动变化是否有所不同进行了亚组分析。

结果和讨论：本研究纳入了 9 项研究，共包括 192 名患者。在经过心理治疗后，右侧前岛叶（anterior insular）活动水平显著降低。前岛叶在个体的认知、情绪和社会功能中起着重要的调控作用，它与其他脑区的连接密切，形成复杂的网络，共同支持着人类的心理过程。这一结果表明心理治疗可以调节患者的认知、情绪与社会功能，从而起到治疗效果。亚组分析显示，在强迫症患者中，心理治疗后左侧壳核（putamen）的 ALFF 值显著降低。壳核在运动控制、认知功能和情绪调节等方面起着重要的作用，心理治疗可能通过调节壳核的功能来改善强迫症患者的强迫思维和强迫行为等核心症状。

结论：此研究表明心理治疗可能通过调节岛叶前侧从而调节精神障碍患者的认知、情绪和社会功能，不同类型的患者对于心理疗法的关键响应区域可能不同。这为我们理解心理治疗的脑影像学机制做出了贡献，并为改进对精神障碍患者，进行精准靶点干预提供了重要价值。

关键词 荟萃分析，静息态功能磁共振成像，精神障碍，心理治疗

Neural correlates of psychotherapy in mental disorders: A meta-analysis of longitudinal resting-state fMRI studies

Ya-Xin Zheng [1, 2, 3], Yi-Yuan Huai [1, 2, 3], Yu-Feng Zang [1, 2, 3, 4], Hong Luo [5], Na Zhao [1, 2, 3]

1 Center for Cognition and Brain Disorders, the Affiliated Hospital of Hangzhou Normal University, Hangzhou, Zhejiang, China

2 Institute of Psychological Sciences, Hangzhou Normal University, Hangzhou, Zhejiang, China

3 Zhejiang Key Laboratory for Research in Assessment of Cognitive Impairments, Hangzhou, Zhejiang, China

4 TMS Center, Deqing Hospital, Hangzhou Normal University, Huzhou, Zhejiang, China

5 School of Clinical Medicine, Hangzhou Normal University, Hangzhou, Zhejiang, China

correspondence to: Na Zhao, Institute of Psychological Sciences, Hangzhou Normal University, Hangzhou, 311121, nazhaon@163.com.

***Abstract*:**

Background: Psychotherapy is a crucial approach in the treatment of mental disorders, and how psychotherapy modulate spontaneous brain activity and finally take effects remain confusion. Regional Homogeneity (ReHo), Amplitude of Low Frequency Fluctuation (ALFF), Degree Centrality (DC) and Percent amplitude of fluctuation (PerAF) are commonly used voxel-wise whole-brain (VWWB) measures based on resting-state functional magnetic resonance imaging (rs-fMRI) to assess spontaneous brain activity. In order to reveal the underlying neural mechanisms of psychotherapy in spontaneous brain activity in patients with mental disorders induced by psychotherapy, we conducted a systematic review and meta-analysis based on rs-fMRI studies involving VWWB measures.

Methods: A systematic literature search was conducted in PubMed, PsycINFO and Web of Science following PRISMA criteria (registration number CRD42023432388) to investigate the differences between pre- and post-psychotherapy. To investigate whether changes in spontaneous brain activity differ across different measures (ReHo, ALFF), specific psychotherapy approaches (Cognitive Behavioral Therapy, CBT) or specific patient populations, subgroup analyses were performed.

Results and Discussion: Nine studies involving a total of 192 patients were included. We observed a significant decrease in activation within the right anterior insular after treatment with psychotherapy. The anterior insula has been shown to play a crucial regulatory role in individual's cognition, emotion, and social functioning. It is closely connected with other brain regions, forming a complex network that collectively supports human psychological processes. This finding suggests that psychotherapy can regulate cognitive, emotional and social functioning of patients, and thus play therapeutic effects. The subgroup analysis revealed significantly decreased ALFF in the left putamen after psychotherapy treatment among OCD patients. The putamen plays an important role in motor control, cognitive functions, and emotional regulation. Psychotherapy may potentially improve the core symptoms of obsessive-compulsive disorder, such as obsessions and compulsions, by modulating the function of the putamen.

Conclusions: The current study indicate that the clinical efficacy of psychotherapy may be modulated by anterior

insular and the key response brain nodes of psychotherapy may vary across different mental disorders. This contributes to our understanding of the neurobiological mechanisms of psychotherapy and provides valuable insights into improving precise targeting interventions for individuals with mental disorders.
***Keywords*:** Meta-analysis, Resting-state fMRI, Mental disorders, Psychotherapy

精神疾病患者在自我参照加工中的大脑活动异常：ALE 元分析的证据

朱珊珊[1] 伍嘉琪[1] 孙淑婷[1] 肖剑[2] 胡传鹏[1*]

1 南京师范大学心理学院，南京，210024

2 南京师范大学计算机与电子信息学院，南京，210024

* 论文通讯作者：胡传鹏（hcp4715@hotmail.com）

摘 要 自我参照加工指的是人们在加工与自己相关的信息时与加工他人相关信息时不同的认知过程。先前研究表明，受到精神疾病困扰的群体在自我参照加工上与健康人群可能存在差异，且这种差异具有跨疾病诊断的特点。但是目前没有研究对不同精神疾病患者与健康人群体在自我参照加工上的差异进行系统地分析。为探索这一问题，本研究通过激活似然估计（ALE）元分析的方法，对基于自我参照加工范式的脑成像研究进行元分析。通过对 PubMed 和 Web of Science 数据库的检索，得到 675 篇文献，筛选后得到 48 篇符合纳入标准的文献，其中健康个体组 24 个（463 名被试，174 个激活坐标点），精神疾病研究 24 个（430 名被试，189 个激活坐标点）。为了得到跨疾病的自我参照加工的差异，未对精神疾病文献进行进一步分类。元分析的结果表明，健康被试在自我参照加工中激活了后扣带回皮层（Posterior Cingulate Cortex, PCC）、前扣带回皮层（Anterior Cingulate Cortex, ACC）、额内侧回（Medial Frontal Gyrus）、额上回（Superior Frontal Gyrus），而精神疾病组则不仅激活了后扣带回皮层（Posterior Cingulate Cortex, PCC）、前扣带回皮层（Anterior Cingulate Cortex, ACC）、额内侧回（Medial Frontal Gyrus）、额上回（Superior Frontal Gyrus），还激活了额下回（Inferior Frontal Gyrus）以及皮层下结构。对报告疾病组与健康组在自我参照加工上差异的文献（31 篇）也进行 ALE 元分析，未发现显著的脑区激活。对健康组和精神疾病组的 ALE 元分析结构进行对比分析，发现精神疾病组在额下回、眶额叶皮层（Frontal Orbital Cortex）和额叶盖（Frontal Operculum Cortex）三个脑区中比健康组表现出更强的激活，健康组在前副扣带皮层（Paracingulate Gyrus）、内侧额叶皮质（Frontal Medial Cortex）、额极（Frontal Pole）、扣带回后部（Cingulate Gyrus, posterior division）比精神疾病组激活更强。这些结果表明，精神疾病患者在自我参照加工中激活的大脑网络与健康个体相比存在明显的差异性，为先前关于精神疾病患者在自我参照加工中功能异常的结果提供了可能的解释。这些发现可能有助于进一步理解精神疾病患者的自我概念及其与精神疾病之间的关系。

关键词 功能磁共振成像，自我参照加工，精神疾病，ALE 元分析

Abnormalities of brain activities in self-referential processing among mental disorders: Evidence from ALE meta-analyses

Zhu Shan-shan[1] Wu Jia-qi[1] Sun Shu-ting[1] Xiao Jian[2] Hu Chuan-Peng[1*]

1 School of Psychology, Nanjing Normal University, 210024 Nanjing, China

2 School of Computer and Electronic Information，Nanjing Normal University，210024 Nanjing, China
*Email: hcp4715@hotmail.com

Abstract：Self-referential processing refers to the cognitive processes by which people process information relevant to themselves differently than they process information relevant to others. Previous research suggests that patients who suffered from mental illness may differ in self-referential processing from healthy populations, and that such differences are transdiagnostic distortions. However, there are not systematically examination of differences of the brain mechanism in self-referential processing between different groups of patients with mental disorders and healthy population. To fill the gap, this study synthesized brain imaging studies based on the self-referential processing paradigm by using activation likelihood estimation (ALE) algorithm. A search of PubMed and Web of Science databases yielded 675 publications, 48 publications were included in the meta-analysis after screening, including 24 in the healthy individual (463 subjects, 174 activation coordinate points) and 24 studies with mental disorders (430 subjects, 189 activation coordinate points). We did not distinguish different mental disorder to obtain transdiagnostic pattern during the self-referential processing. The results of the meta-analyses indicated that self-referential processing activated the posterior cingulate cortex (PCC), anterior cingulate cortex (ACC), medial frontal gyrus (MFG), superior frontal gyrus for healthy controls. For mental disorder group, not only the posterior cingulate cortex (PCC), anterior cingulate cortex (ACC), medial frontal gyrus (MFG), superior frontal gyrus (SFG), and superior frontal gyrus (SFG), and the superior frontal gyrus were activated, the inferior frontal gyrus and subcortical structures were also activated during the self-referential processing. ALE meta-analysis was also performed based for coordinates (from 31 articles) that are significantly different during self-referential processing between the mental disorder group and healthy groups, but no significant brain region survived. Contrast analysis of ALE meta-analytical results from the healthy controls and mental disorder groups revealed that the mental disorder groups showed stronger activation than the healthy group in three brain regions: the inferior frontal gyrus, frontal orbital cortex, and frontal operculum cortex, and that the healthy group showed stronger activation in the paracingulate gyrus, frontal medial cortex, frontal pole, and posterior division of the cingulate gyrus, posterior division. These results suggest that there is a significant difference in the brain regions activated in self-referential processing in individuals with mental illness compared with healthy individuals, providing a possible explanation for the transdiagnostic abnormalities in self-referential processing mental disorders. These findings may contribute to our understanding of the self-concept of individuals with mental disorders.

Keywords：fMRI, self-referential processing, psychiatric disorders, ALE meta-analyses

多重映射远距离语法规则内隐学习的神经机制

凌晓丽 [1]　张丽洁 [1]　孙鹏 [2]　郑丽 [3,4]（通讯作者）　郭秀艳 [3,4]
1 山东师范大学心理学院，济南，250358
2 山东财经大学心理健康教育与研究中心，济南，250014
3 复旦大学国家发展与智能治理综合实验室，上海，200433
4 复旦大学老龄研究院，上海，200433，zheng_l@fudan.edu.cn

摘 要　大量研究表明，人类语言的获得是一个内隐学习的过程，在该过程中掌握远距离语法（尤其是多重映射远距离语法）是学习和加工语言的重要基础。当多重映射远距离语法规则与序列组块知识同时存在时，该语法规则在内隐习得中是否更具优先性还尚待进一步探讨。本研究借助功能磁共振成像技术（fMRI），采用人工语法学习范式，将多重映射远距离语法规则与表面的序列组块知识（即相邻的 2 个或 3 个元素构成的组合）设置在同一维度（即均以声调为载体），进一步考察了该语法规则是否具有内隐学习优势性的问题，并探索与该语法规则内隐学习相关的脑机制。实验包括学习和测验两个阶段，均在磁共振扫描仪内进行。学习阶段先给被试呈现一系列符合多重映射远距离语法规则的 10 音节声音串，并要求被试进行复述。测验阶段则要求被试对呈现的新声音串进行语法判断任务。结果发现，被试能内隐习得多重映射远距离语法规则，但无法习得组块知识，表明多重映射远距离语法规则的内隐学习具有优势效应。脑数据表明，在测验阶段，低组块合法串相对于低组块非法串引发了布洛卡区（Broca’s area）更强的激活。同时，布洛卡区在低组块合法条件下与左侧颞上回（Superior Temporal Gyrus, STG）的功能连接强度显著高于低组块非法条件下的功能连接强度，在学习阶段，该功能连接的强度随着学习进程的增加而逐渐增强。综上，当多重映射远距离语法规则与组块知识处于同一维度时，被试仍可优先内隐习得该语法规则，且学习阶段和测验阶段的脑研究结果一致表明，布洛卡区以及与左侧颞上回的功能连接参与了该语法规则的内隐学习过程。
关键词　fMRI, 内隐学习，多重映射远距离语法，布洛卡区，左侧颞上回

Neural basis of the implicit learning of multiple nonadjacent dependencies

Xiaoli Ling[1] Lijie Zhang [1] Peng Sun[2] Li Zheng[3,4] Xiuyan Guo[3,4]
1 School of Psychology, Shandong Normal University, Jinan, 250358
2 Center for Mental Health Education and Research, Shandong University of Finance and Economics, Jinan, 250014
3 Comprehensive Laboratory of National Development and Intelligent Governance, Fudan University, Shanghai, 200433
4 Fudan Institute on Ageing, Fudan University, Shanghai, 200433

Abstract：A large body of research indicated that acquiring human language is an implicit learning process, in which mastering nonadjacent dependencies (especially multiple nonadjacent dependencies) forms an essential foundation for language learning and processing. The prioritization of these nonadjacent grammar rules during implicit acquisition, when juxtaposed with surface-level sequential chunking knowledge (i.e., combinations of adjacent 2 or 3 elements), remains further investigated. In this fMRI study, the nonadjacent grammar rule and chunk knowledge were placed both on the carrier of Chinese tones to examine whether there is an implicit learning advantage for the knowledge of grammar rules with nonadjacent dependencies and to explore the neural basis of implicit learning of the grammar by the artificial Chinese poetry paradigm. Participants were asked to listen to and repeat back a number of strings of 10 syllables generated from nonadjacent artificial grammar; after the training phase, they were required to judge whether new strings were legal. Results showed that participants implicitly acquired grammar knowledge but not the chunks, showing a grammar-learning advantage. At the neural level, Broca's area was engaged during the low chunk strength grammatical string relative to the low chunk strength nongrammatical strings in the test phase. Furthermore, this region showed significantly higher functional connectivity with the left superior temporal gyrus (STG) in the low chunk strength grammatical string compared with nongrammatical strings, and this strength of functional connectivity increased with the training time. Our results showed that participants prioritized the implicit learning of the nonadjacent grammar rules, even when the grammar and chunks were placed on the same dimension. Broca's area and its functional connectivity with the left STG were engaged in the implicit learning of the nonadjacent dependency rule.

Keywords：fMRI, implicit learning, multiple non-adjacent dependencies, Broca's area, left STG

不同社会情境下道德判断的认知及神经机制研究

靖淑针[1] 范宁[1]（通讯作者）
1 河北大学教育学院，保定，071002，ningfan@hbu.edu.cn

摘 要　以往关于道德两难问题的研究大多基于个人视角，缺乏对公开情境或多人存在的社会情境下道德判断的心理机制的探究。而基于双加工理论的传统道德困境范式受到了许多质疑，如缺乏生态效度，对于功利主义和道义主义的划分过于绝对等。CNI 模型则对道德判断的认知加工过程进行了细致区分，能明确道德决策的变化是由结果敏感性、道德规范敏感性或一般性的行动/不行动倾向引起的。本研究对不同社会情境下道德判断的认知及神经机制进行了探究。实验一采用社会观察范式，考察个体的道德判断是否会受到单纯的决策暴露的影响。结果发现，被试的道德决策不受观察者存在与否的影响。实验二采用平行判断范式，考察社会信息反馈对个体道德判断的影响，同时测量社会性指标。结果发现，被试较低的决策接受性是由于其存在明显的不行动倾向，同时个体的判断信心受到社会压力和潜在的社会评价的影响。实验三采用双人共同判断范式，考察需要达成一致时双方的决策变化。结果发现，被试仍有较低的决策接受性，且一方面是由于道德规范敏感性的提升，另一方面则是由于更明显的不行动倾向，而且被试有着更小的压力知觉和更高的社会赞许性水平。实验四采用 fNIRS 的超扫描技术综合考察平行判断情境和共同判断情境下被试不同脑区的激活程度变化和脑间同步性的表现。结果发现，共同判断相比于单独判断，在左侧前额叶（PFC）引起更高的血氧激活，在左侧颞顶联合区（TPJ）引起较弱的血氧激活，同时在右侧前额叶和左侧颞顶联合区存在更强的脑间同步。本研究表明，在有他人在场的社会情境下，个体更倾向于做出不接受的道德决策，而这种看起来更道义的决策，一方面源于想获得社会赞许而导致的道德规范敏感性的提升，另一方面则是由于责任分散产生的不行动倾向，而且即便没有言语交流，个体之间也会存在相互的脑间同步作用。

关键词　道德判断，CNI 模型，社会情境，脑间同步

Cognitive and Neural Mechanisms of Moral Judgment in Different Social Contexts

Shuzhen Jing　Ning Fan
College of Education Hebei University, Baoding

***Abstract*：** Previous studies on moral dilemmas were mostly based on individual perspectives, lacking exploration of the psychological mechanisms of moral judgment in public or social contexts where multiple individuals exist. The traditional paradigm of moral dilemma based on the dual-process theory has been questioned in many ways, such as the lack of ecological validity and the absolute division between utilitarianism and deontology. The CNI model provides a detailed distinction of the cognitive processing involved in moral judgment, clarifying whether changes in moral decision-making are caused by sensitivity to consequences, sensitivity to norms, or general action/inaction. This study investigates the cognitive and neural mechanisms of moral judgment in different social contexts. Experiment 1 adopts the social observation paradigm to examine whether an individual's moral judgment will be affected by simple decision-making exposure. The results showed that the participants' moral decisions were not influenced by the presence of observers. Experiment 2 adopts the parallel judgment paradigm to investigate the impact of social information feedback on individual moral judgment, and measured social indicators. It was found that the participants' lower acceptance of decision-making was due to their obvious tendency to inaction, and the individual's confidence in judgment was affected by social pressure and underlying social evaluation. Experiment 3 adopts the two-person co-judgment paradigm to examine the decision-making changes of both parties when consensus is required. It was found that the participants still had low acceptance of decision-making, and on the one hand, due to the increased sensitivity of moral norms, on the other hand, due to more obvious inaction tendencies, and the participants had a smaller sense of stress and a higher level of social approval. In Experiment 4, the hyper-scan technology of fNIRS was used to comprehensively

investigate the changes of activation degree of different brain regions and the performance of brain synchronization under the parallel judgment situation and the joint judgment situation. The results showed that compared with individual judgment, joint judgment caused higher activation of blood oxygen in the left prefrontal cortex（PFC） and weaker activation in the left temporoparietal joint area（TPJ）. At the same time, there was stronger inter-brain synchronization in the right prefrontal cortex and the left temporoparietal joint area. This study shows that individuals are more inclined to make unacceptable moral decisions in the presence of others, and this seemingly more moral decision stems from the increased sensitivity of moral norms caused by wanting to obtain social approval on the one hand, and the tendency to inaction due to the decentralization of responsibilities on the other hand, and even if there is no verbal communication, there will be mutual brain synchronization between individuals.

Keywords：Moral judgment, CNI model, Social contexts, Inter-brain synchronization

成年人诗词学习的神经机制：与角回区域建立多样的有效连接

周柳芳[1] 朱芳炜[2] 柳淑滢[2] 江镕[2] 孟明[2]（通讯作者）

1 上海外国语大学大学国际工商管理学院，上海，201620

2 华南师范大学心理学院，广州，510631，mingmeng@m.scnu.edu.cn

摘 要 诗词是人类文明中的语言艺术瑰宝。成年人的诗词学习与大脑终身的功能可塑性密切相关，能有效帮助我们理解人类如何学习这一重要科学命题。近年来对复杂自然语言的加工机制已成为新的前沿热点，但对诗词加工的机制理解仍很不足。此外，诗词学习研究将对语文学科教育等应用领域提供理论和实践指引。

本研究招募了 38 名大学生参加一项连续 13 天的诗经学习项目。通过前后测设计，在学习前和学习后各接受一次功能磁共振扫描。通过实验材料对照设计，在每次功能磁共振扫描中随机呈现学习材料和控制材料。本研究也探索了不同的学习方式如何影响诗词学习：其中一半的被试被伪随机分配至重复学习组（通过反复抄写来学习诗词），另一半被试分配至探索学习组（通过主动搜索信息、理解和反思来学习诗词）。两组被试除了学习方式不同，所接受的其他实验处理和测试材料均一样。

我们进行了两种基于任务的广义心理生理相互作用分析：跨时间对比，即对比学习材料的学前和学后条件；跨材料对比，即对比在学后扫描中学习材料和控制材料条件。令人激动的是，这两种对比分析结果共同指向了以左侧角回为中心的网络内功能连接的变化。在两组被试中，跨时间对比下均呈现角回与中央前回的功能连接增强，跨材料对比下均呈现角回和视觉词形区之间的功能连接增强。无论通过跨时间对比还是跨材料对比，探索学习组的角回和额下回之间的功能连接增强，而重复学习组无显著改变。最后，进一步的相关分析显示，在跨材料对比下的角回与视觉词形区的功能连接变化越大，被试对学习材料的记忆相关测验成绩越好于对照材料（$r = 0.502$，$p = 0.012$）。相比之下，跨材料对比下的角回与额下回的功能连接变化越小，被试对学习材料的理解相关测验成绩越好于对照材料（$r = -0.509$，$p = 0.011$）。

综上，本研究揭示了成年人诗词学习的神经机制，关键在于与角回区域建立有效连接；不同的学习方式下，大脑各功能区与角回建立的多样有效连接网络，可能是学习效果多样性的神经基础。

关键词 角回，有效连接，诗词学习，学习方式，大脑功能可塑性

The neural mechanisms of poem learning in adults:

Building various effective connectivity with angular gyrus

Liu-Fang Zhou[1] Fangwei Zhu[2] Shuying Liu[2] Rong Jiang[2] Ming Meng[2]

1 School of Business and Management, Shanghai International Studies University, Shanghai, China, 201620

2 School of Psychology, South China Normal University, Guangzhou, China, 510631

***Abstract*:** Poetry is a language art treasure in human civilization. Poetry learning in adults is closely related to the lifelong functional plasticity of the brain, which can greatly help to understand the scientific quest of how humans learn. In recent years, the processing mechanism of complex natural language has become a new frontier focus, but the understanding of poetry processing is still insufficient. In addition, the research on poetry learning will provide theoretical and practical guidance for application fields such as language and literature education.

In this study, 38 college students were recruited to participate in a 13-day learning program of the Book of Songs. Through a pre-posttest design, each subject received a fMRI scan before and after the program. Through a material contrasting design, the study material and the control material were presented at each fMRI scan. This study also explored how different learning approaches affect poetry learning: half of the participants were assigned to the learn-by-repetition group, where they memorized and repeated the poems by hand-copying. The remaining half were encouraged to seek information for meaningful comprehension and to reflect upon the poems (learn-by-exploration group). Except for the different learning methods, the two groups received the same experimental treatment and test materials.

Two different task-based gPPI analyses have been conducted: 1) session contrast for the learnt poems; 2) material contrast in the post-learning scan. Surprisingly, these two approaches convergingly pointed to changes of functional connectivity (FC) with the left angular gyrus (AG). Higher FC between AG and Visual Word Form Area (VWFA) was observed in learnt poems than controls in both groups (uncorrected pvoxel < 0.001, FDR-corrected pcluster < 0.05, same below). Interestingly, only in the learn-by-exploration group, there was an increase of the FC between AG and inferior frontal gyrus (IFG) in both cross-session and between-material contrast. Further correlation analysis revealed significant positive relationship between AG~VWFA connectivity and verse memorization in the learn-by-repetition group ($r = 0.669$, $p = 0.003$, $N = 17$) and overall participants (partial correlation with group controlled, $r = 0.502$, $p = 0.012$, $N = 34$). In contrast, there were significant negative correlations between AG~IFG connectivity and lexical comprehension in the learn-by-exploration group ($r = -0.703$, $p = 0.005$, $N = 14$) and overall participants (partial correlation with group controlled, $r = -0.509$, $p = 0.011$, $N = 28$).

In summary, this study reveals that the neural mechanism of adult poetry learning lies in the establishment of effective connections with AG; the variety of effective connection established with AG may explain the diverse learning outcomes with different learning approaches.

***Keywords*:** Angular gyrus, effective connectivity, poem learning, learning approaches, brain functional plasticity

耳听为虚：语音虚假信息对目击者记忆的影响及其脑机制

朱丽[1,2]（通讯作者）　李傲[1]

1 北京师范大学认知神经科学与学习国家重点实验室，北京，100875，通讯作者 E-mail: zhubi@bnu.edu.cn

2 北京师范大学发展心理研究院，北京，100875

摘 要　随着数字化时代的发展，人工合成的语音虚假信息迅速传播，对个体心理行为起到日益重要的影响。虚假信息效应是指：目击者对原始事件记忆因接触到事后虚假信息而发生变化的心理现象。研究分三个阶段：目击者先看到原始事件，随后看到或听到他人对于该事件的叙述（含部分虚假信息），最后根据看到的原始事件进行记忆测验。若目击者在针对原始事件的记忆测验中报告了虚假信息并坚信在原始事件中看到，则被称为虚假信息效应引发的错误记忆。以往研究考察了视觉呈现的文字虚假信息对原始事件记忆的影响，及其跨阶段神经模式相似性。但目前尚不清楚人脑在听语音虚假信息时如何对原始事件进行再现。该研究采用功能磁共振脑成像技术和神经模式相似性分析方法，考察目击者在观看原始事件与倾听语音虚假信息时的跨阶段神经模式相似性，比较真实和错误记忆在神经表征上的异同。30 名健康成年被试在磁共振扫描仪中观看 300 张原始事件图片（如，看到图片显示男子拿起蓝色糖盒）并在随后倾听 300 句事后陈述（如，听到人工合成的语音虚假信息“男子拿起红色糖盒”），最后完成针对原始事件的 156 道记忆测验题（如，在原始事件中，男子拿起什么颜色的糖盒？）。真实记忆、错误记忆、无关记忆分别指选择原始信息（蓝色）、虚假信息（红色）、无关信息（白色）的试次。结果发现：错误记忆选择率高于无关记忆，说明虚假信息效应显著。只有针对真实记忆，在看原始事件和听虚假信息之间的项目特异性神经表征相似性上，左外侧额下回和左侧顶下小叶高于基线，而外侧枕叶皮层低于基线；而对于错误记忆没有这种差异。这说明个体在听事后虚假信息时，如果对原始事件进行模糊神经表征再现（即模糊语义匹配：听到男子拿起糖盒而提取相应语义表征）且进行细节神经表征再现（细节视觉不匹配：听到红色而提取蓝色视觉表征），那么更有可能成功抵御虚假信息效应。该研究支持并拓展了感知觉再激活和模糊痕迹理论，对理解人脑记忆重构本质和司法实践具有应用价值。

关键词　记忆，虚假信息效应，视觉，听觉，功能磁共振脑成像

Hearing is vague: The effect of auditory misinformation on eyewitness memory and its neural basis

Bi Zhu[1, 2] (corresponding author) Ao Li[1]
1 State Key Laboratory of Cognitive Neuroscience and Learning, Beijing Normal University, Beijing, 100875, corresponding author E-mail: zhubi@bnu.edu.cn
2 Institute of Developmental Psychology, Beijing Normal University, Beijing, 100875

***Abstract*:** With the development of the digital age, the rapid spread of AI-generated voice containing misinformation is having an increasingly significant impact on individual psychological behavior. The misinformation effect refers to changes in an eyewitness' memory of an original event due to exposure to post-event misinformation. It involves three stages. A witness first saw an event, then read or heard narratives about that event containing misinformation, and finally took a memory test based on what he or she saw in the original event. False memory from misinformation refers to the reporting of misinformation during the memory test of the original event. Previous research has investigated the effect of visually presented text-based misinformation on eyewitness memory of the original event and its cross-stage neural pattern similarity. However, it is unclear about the neural representations of the original event when hearing misinformation. Using functional magnetic resonance imaging and neural pattern similarity analysis, this study investigates the cross-stage neural pattern similarity between the original-event image and the post-event auditory misinformation, and then compares the neural representations between true and false memories. Thirty healthy adults viewed 300 original-event images (e.g., an image depicting a man taking a blue candy box) and then listened to 300 post-event narratives (e.g., an AI-generated auditory misinformation "the man took a red candy box") in the scanner. Finally, they completed the memory test for the original event containing 156 questions (e.g., "What color of candy box did the man take in the original event?"). True memory, false memory, and foil memory refer to trials in which participants selected the original information (blue), misinformation (red), and unpresented information (white), respectively. The results showed that the false memory rate was higher than the foil memory rate, indicating a significant misinformation effect. Item-specific neural pattern similarity between the original-event image and the post-event misinformation was higher than baseline in the left inferior frontal gyrus and left inferior parietal lobe, whereas it was lower than baseline in bilateral occipital cortex only for true memory. No such differences were found for false memory. When a person hears misinformation, if he or she can reinstate the original event with gist representations (i.e., a semantic match: "the man took a candy box") and verbatim representations (i.e., a visual mismatch: hearing "a red candy box" and reactivating an image of “a blue candy box”), then he or she will be more

likely to resist the misinformation. This study supports and extends the sensory reactivation and fuzzy-trace theories. It may contribute to the understanding of the reconstructive nature of human memory and its application in the legal system.

Keywords：memory, misinformation effect, visual, auditory, functional Magnetic Resonance Imaging

Cognitive and Neural Mechanisms of Moral Judgment in Different Social Contexts

Shuzhen Jing Ning Fan
College of Education Hebei University, Baoding

***Abstract*：** Previous studies on moral dilemmas were mostly based on individual perspectives, lacking exploration of the psychological mechanisms of moral judgment in public or social contexts where multiple individuals exist. The traditional paradigm of moral dilemma based on the dual-process theory has been questioned in many ways, such as the lack of ecological validity and the absolute division between utilitarianism and deontology. The CNI model provides a detailed distinction of the cognitive processing involved in moral judgment, clarifying whether changes in moral decision-making are caused by sensitivity to consequences, sensitivity to norms, or general action/inaction. This study investigates the cognitive and neural mechanisms of moral judgment in different social contexts. Experiment 1 adopts the social observation paradigm to examine whether an individual's moral judgment will be affected by simple decision-making exposure. The results showed that the participants' moral decisions were not influenced by the presence of observers. Experiment 2 adopts the parallel judgment paradigm to investigate the impact of social information feedback on individual moral judgment, and measured social indicators. It was found that the participants' lower acceptance of decision-making was due to their obvious tendency to inaction, and the individual's confidence in judgment was affected by social pressure and underlying social evaluation. Experiment 3 adopts the two-person co-judgment paradigm to examine the decision-making changes of both parties when consensus is required. It was found that the participants still had low acceptance of decision-making, and on the one hand, due to the increased sensitivity of moral norms, on the other hand, due to more obvious inaction tendencies, and the participants had a smaller sense of stress and a higher level of social approval. In Experiment 4, the hyper-scan technology of fNIRS was used to comprehensively investigate the changes of activation degree of different brain regions and the performance of brain synchronization under the parallel judgment situation and the joint judgment situation. The results showed that compared with individual judgment, joint judgment caused higher activation of blood oxygen in the left prefrontal cortex（PFC） and weaker activation in the left temporoparietal joint area（TPJ）. At the same time, there was stronger inter-brain synchronization in the right prefrontal cortex and the left temporoparietal joint area. This study shows that individuals are more inclined to make unacceptable moral decisions in the presence of others, and this seemingly more moral decision stems from the increased sensitivity of moral norms caused by wanting to obtain social approval on the one hand, and the tendency to inaction due to the decentralization of responsibilities on the other hand, and even if there is no verbal communication, there will be mutual brain synchronization between individuals.

***Keywords*：** Moral judgment, CNI model, Social contexts, Inter-brain synchronization

5.26 音乐心理学专业委员会

机器人还是人类：演奏形式对音乐影响食物选择的调控作用

邱林波　宛小昂（通讯作者）
清华大学心理学系，北京，100084，wanxa@mail.tsinghua.edu.cn

摘 要　音乐机器人作为一种融合了人工智能和音乐艺术的创新技术，近年来在科学、艺术和技术领域引起了广泛的关注。在本研究中我们探究了与人类演奏的音乐相比，音乐机器人演奏的音乐对于个体的认知过程是否会产生不同的影响。在消费情境中，音乐可能会通过诱发心理意象这一认知过程从而影响个体的消费选择。例如，相比于诱发城市意象的音乐，诱发自然意象的音乐会让个体做出更多以素菜为主的食物选择。我们将被试随机分为两组，其中一组被试会观看机器人乐队演奏音乐的视频并被告知在本实验中听到的音乐均为机器人乐队演奏的音乐，而另一组被试会观看真人乐队演奏的音乐并被告知在本实验中听到的音乐均为真人乐队演奏的音乐。接着，所有被试都要在在虚拟现实中边听背景音乐边完成食物选择的任务。我们选取了能够诱发城市意象和自然意象的两类音乐片段来作为实验材料。被试需要在两道荤菜和两道素菜中选择三道自己想吃的菜式，因此被试会做出以素菜为主的食物选择和以荤菜为主的食物选择。结果发现，当被试被告知所听到的音乐为真人乐队演奏的音乐后，他们在诱发自然意象的音乐下会比在诱发城市意象的音乐下做出更多的以素菜为主的食物选择；而当被试被告知所听到的音乐为机器人乐队演奏的音乐后，他们在诱发自然意象的音乐下以素菜为主的食物选择比例和在诱发城市意象的音乐下的以素菜为主的食物选择也有显著差异，但是这种差异相比于真人乐队组的被试的差异要小。本研究的结果表明音乐的演奏形式对音乐影响食物选择的认知过程存在影响，相比于真人乐队演奏的音乐，机器人乐队演奏的音乐削弱了音乐对于食物选择的影响。以往的研究主要关注于音乐机器人演奏的音乐对于个体情绪感受的影响，而忽视了音乐机器人演奏的音乐对于个体认知过程的影响。本研究的结论不仅丰富了音乐影响个体认知过程这一领域的研究结果，而且对于人机交互特别是人类感知机器人演奏的音乐具有一定的理论贡献。

关键词　音乐机器人，虚拟现实，心理意象，人机交互

Robots or Humans: the role of performance form in moderating musical influences on food choices

Linbo Qiu & Xiaoang Wan
Department of Psychology, Tsinghua University, Beijing

Abstract：Music robots, as an innovative technology that combines artificial intelligence and the art of music, have gained a lot of attention across the domains of science, art, and technology in recent years. We examined whether music played by music robots has a different effect on individuals' cognitive processes compared to music played by human beings. In the context of consumption, music might influence individuals' consumption choices by impacting cognitive processes, such as inducing mental imagery. For example, music inducing nature imagery leads individuals to make more vegetable-forward food choices compared to music inducing urban imagery. All the participants were assigned into two groups randomly, one group of participants

watched a video in which music robots were playing the music and were told that all music pieces in this study were played by music robots. Another group of participants watched a video in which human beings were playing the same music and were told that all music pieces in this study were played by human beings. Subsequently, all participants were required to complete a food choice task while listening to background music in virtual reality. We selected two types of music that induce urban and natural imagery as music stimuli. The participants were required to choose three dishes out of a set comprising two meat dishes and two vegetable dishes, so they made a meat-heavy food choice or a vegetable-forward food choice in each trial. The results revealed that for the participants who were informed that music was played by human beings, they made more vegetable-forward food choices while listening to music inducing natural imagery compared to urban imagery. Participants who believed the music was performed by music robots also displayed a disparity in vegetable-forward food choices between the natural and urban imagery conditions, albeit to a lesser extent than the human-performed music group. The results suggested that the performance form of music played a role in the cognitive process underlying the influence of music on food choices. The music played by music robots weakened the effect of music on food choices compared to music played by human beings. While several researchers investigated the influence of music played by robots on individuals' emotions, few studies have investigated the influence of robot-performed music on individuals' cognitive processes. The findings of this study not only enrich the findings in the area of music influencing individual cognitive processes, but also make a theoretical contribution to human-robot interaction, particularly on how humans perceive music played by music robots.

Keywords：music robots, virtual reality, mental imagery, human-robot interaction

器乐训练可能增强汉语情绪韵律识别

刘梦婷[1] 江俊[2]（通讯作者）

1 哈尔滨音乐学院艺术学系，哈尔滨，150500

2 上海师范大学音乐学院，上海，200234，jjxytc@163.com

摘 要 Patel (2014)的扩展性 OPERA 假说提出，器乐训练可以提高言语加工能力。这是因为，音乐与言语共享感觉或认知加工机制，而且音乐对这些机制的要求更高。在言语加工中，言语情绪识别能力对社交具有重要的作用。已有研究发现，器乐训练可以增强非声调语言言语情绪识别能力。但是，与非声调语言不同，声调语言言语情绪识别任务相对更难。那么，器乐训练对非声调语言产生的这种促进效应是否会拓展到声调语言？目前，尚未有研究考察器乐训练是否与声调语言言语情绪识别能力相关。为了探究该问题，本研究招募了 36 名从小接受器乐训练的音乐专业大学生和 36 名未接受过任何专业音乐训练的大学生作为被试。两组被试在年龄、性别、受教育年限、非言语 IQ 和偏手性方面进行了匹配，但是音乐大学生自我报告的音乐能力和音乐活动水平高于非音乐大学生。被试在线聆听随机呈现的 210 个表现快乐、悲伤、愤怒、恐惧和中性情绪的汉语伪句子（符合主谓宾结构，但句意无意义）。在听完每个句子后，被试需要尽可能又快又准确地识别句子表达的情绪，并对其情绪强度进行评定。以组别（音乐组、非音乐组）为被试间变量、情绪（快乐、悲伤、愤怒、恐惧、中性）为被试内变量分别对正确率、反应时和情绪强度进行的混合方差分析（基于效应量估计和贝叶斯因子）结果显示，有极强的证据表明存在一个大的组别主效应，

即音乐组在所有情绪识别的正确率、反应时和情绪强度评定方面均高于非音乐组。这些结果表明，器乐训练可能增强听者对汉语情绪韵律的感知，在一定程度上支持了 OPERA 假说。

关键词　音乐训练，声调语言，言语，情绪韵律，情绪识别

Instrumental music training may enhance the recognition of emotional prosody in Mandarin

Mengting Liu[1]　Jun Jiang[2]*

1 Department of Art, Harbin Conservatory of Music, Harbin, 150500
2 Music College, Shanghai Normal University, Shanghai, 200234

Abstract：The expanded OPERA hypothesis by Patel (2014) proposes that instrumental music training can enhance speech processing, as music shares sensory or cognitive processing mechanisms with speech, and music makes higher demands on these mechanisms. In speech processing, the ability to recognize vocal emotion plays an important role in social interaction. Studies have demonstrated that instrumental music training can improve vocal emotion recognition in nontonal languages. However, recognizing vocal emotions in tonal languages is more difficult than in nontonal languages. It remains to be seen if the same facilitating effect of instrumental training on nontonal languages extends to tonal languages, as there is no research that has investigated this. To investigate whether instrumental music training is associated with greater sensitivity to emotional prosody in tonal languages, 36 music students who had received instrumental music training since childhood and 36 students who had received no professional music training were recruited. The two groups were matched for age, gender, years of education, nonverbal IQ and handedness, but the music students reported higher levels of musical ability and activity than the non-music students. The subjects listened online to 210 Chinese pseudo-utterances expressing happy, sad, fearful, angry, and neutral emotions, and were asked to quickly and accurately identify the emotion and rate its intensity. Results from a 2 × 5 mixed ANOVA (based on effect size estimate and Bayes factors) with group (musical, nonmusical) as the between-subjects variable and emotion (happy, sad, fearful, angry, neutral) as the within-subjects variable on accuracy, reaction time and emotional intensity provided extreme evidence for a large main effect of group; that is, the musical group was more accurate, took longer to respond, and gave higher emotional intensity ratings for all emotions than the nonmusical group. These results suggest that instrumental music training may enhance listeners' perception of Chinese emotional prosody and provide some support for the OPERA hypothesis.

Keywords：music training, tonal language, speech, emotional prosody, emotion recognition

5.27 眼动心理研究专业委员会

汉语校对阅读与自然阅读的加工差异：来自词频效应的证据

赖馨　江新（通讯作者）

北京语言大学心理学院，北京，100083，jiangxin@blcu.edu.cn

摘 要 校对阅读是指在阅读过程中检查文本中的错误的阅读。关于拼音文字阅读的研究发现，校对阅读的词汇加工过程与自然阅读是存在差异的，体现在校对阅读的词频效应大于自然阅读的词频效应。但是对汉语校对阅读的词汇加工过程仍缺乏认识。另外，词频和熟悉度关系密切，熟悉度可能会对词频的作用产生影响，但较少研究对两者进行区分。因此，本研究考察以下问题：汉语校对阅读和自然阅读的词频效应大小是否存在差异？汉语校对阅读和自然阅读的词频效应大小是否受到熟悉度的影响而发生变化？实验采用2（阅读任务：自然阅读/校对阅读）*2（目标词的词频：高频/低频）*2（目标词的熟悉度：高熟悉/低熟悉）三因素被试内设计，请汉语母语者在两种指导语的条件下阅读包含高频–高熟悉词、高频–低熟悉词、低频–高熟悉词、低频–低熟悉词的句子，一种是要求检测句子中的错误（校对阅读），一种是要求理解句子（自然阅读）。结果显示：（1）在句子的阅读速度以及目标词的总注视时间和跳读率上，校对阅读的词频效应大于自然阅读的词频效应。（2）在目标词的凝视时间上，熟悉度对校对阅读和自然阅读的词频效应大小产生影响，对于高熟悉度的目标词，自然阅读下没有词频效应，校对阅读有词频效应；对于低熟悉度的目标词，自然阅读和校对阅读都出现词频效应，且校对阅读的词频效应大于自然阅读的词频效应。研究结果表明，汉语校对阅读和自然阅读的词频效应大小存在差异，校对阅读的词汇加工深度可能比自然阅读的更深，它不是一个浅层的加工；在早期的词汇识别中，汉语校对阅读和自然阅读的词频效应大小会受到熟悉度的影响，但始终表现为校对阅读的词频效应大于自然阅读的词频效应。

关键词 校对阅读，词频效应，熟悉度，眼动，汉语

Processing differences between proofreading and reading in Chinese: Evidence from word frequency effect

Lai Xin Jiang Xin

School of Psychology, Beijing Language and Culture University, Beijing, 100083

***Abstract*:** Proofreading means detecting errors in the text during reading. Previous studies have found that word processing of proofreading is different from that of reading, which is reflected in the fact that word frequency effect during proofreading is greater than that during reading. However, we still know little about word processing of proofreading in Chinese. In addition, frequency and familiarity are closely related, and familiarity may have an impact on the effect of frequency, but few studies have distinguished them. Therefore, the present study examined the following questions: Is there a difference in the sizes of word frequency effect between Chinese proofreading and reading? Are the sizes of word frequency effect during Chinese proofreading and reading changed by familiarity? The three-factor within-subject design was used, which was 2(task: reading/proofreading)*2(word frequency of target words: high frequency/low frequency)*2(familiarity of target words: high familiarity/low familiarity). Chinese native speakers were asked to read sentences containing high frequency-high familiarity words, high frequency-low familiarity words, low frequency-high familiarity words and low frequency-low familiarity words under two instructions: One was required to detect errors in sentences(proofreading), the other was required to read for comprehension(reading). The results showed that: (1)word frequency effects during proofreading were greater than those during reading in reading rate of sentences, total fixation duration and skipping rate of target words. (2)Word frequency effects during proofreading and reading were affected by familiarity in gaze duration on target words. On high familiarity target words, word frequency effect was not found

during reading but was found during proofreading. On low familiarity target words, word frequency effects were found during reading and proofreading, and word frequency effect during proofreading was greater than that during reading. These results suggest that there is a difference in word frequency effects between Chinese proofreading and reading, indicating that the word processing depth of proofreading may be deeper than that of reading. Proofreading is not a shallow processing. What's more, in early stage of word recognition, word frequency effects during Chinese proofreading and reading were influenced by familiarity, but it always shows that word frequency effect during proofreading is greater than that during reading.
Keywords**:** proofreading, word frequency effect, familiarity, eye movement, Chinese

中文阅读中词切分的老化效应：来自眼动研究的证据

李琳（通讯作者）[1]　鲍凌珊[1]　李卓尔[1]　李莎[2]　Kevin B. Paterson[3]

[1] 心理与行为研究院，天津师范大学心理学部，天津，300387，linpsy@outlook.com

[2] 心理学院，福建师范大学，福建，350100

[3] 莱斯特大学，心理学和视觉科学学院，莱斯特，英国，LE1 7RH

摘要　在中文文本中，没有空格对词边界信息进行标记。因此，读者必须通过词切分来进行词汇的识别和整合。尽管熟练的读者使用的认知策略目前存在争议，但词切分对他们来说是非常容易的(Li & Pollatsek, 2020; Yu et al., 2021)。随着年龄的增长，老年人在阅读方面存在明显的困难，然而，对中文文本进行高效词切分的能力是得到了保留还是已经丧失，目前还没有研究进行深入探讨(Zhang et al., 2022)。

因此，当前研究在 Zhou 和 Li(2021)研究的基础上，通过两个实验来比较青年人(18-30 岁)和老年人(65 岁以上)的词切分。采用三字增量词作为目标词(如“幼儿园”)，前两个字可以组成一个两字词作为嵌入词(如“幼儿”)，读者在阅读句子过程中，这种增量词会产生暂时性的词切分歧义。实验设置四种条件：两字嵌入词单独与句子上文构成合理或不合理条件；三字增量词作为目标词总是合理的，但其中嵌入的两字词与句子的上文构成合理或不合理的条件(见附件：实验 1 材料举例)。当前实验检验了读者是否会对词汇进行增量地切分，从而对两字嵌入词和目标词产生类似的合理性效应。结果发现，两个年龄组都在仅有两字嵌入词的句子条件下产生了合理性效应；在三字增量词合理的句子条件下，两个年龄组都没有表现出两字嵌入词的合理性效应。结果支持了 Zhou 和 Li(2021)的发现，他们发现青年人不会对文本进行增量式的切分，当前研究进一步表明，老年读者使用了与青年人相同的词切分策略(Zhou & Li, 2021)。

实验 2 将合理与不合理的三字增量词和两字嵌入词交叉嵌入到语境中(见附件：实验 2 材料举例)。结果发现，不论增量词是否是合理的，在首次通过类指标上都没有出现嵌入词的合理性效应，证明了读者不会增量切分文本。与 Zhou 和 Li(2021)的结果不一致的是，当前研究发现嵌入词的合理性在两个实验中均带来了副中央凹-中央凹效应，这表明嵌入词是可以通过副中央凹进行加工的。当前研究表明，老年人依然保留了非增量式的词切分能力，结果支持了 CRM 模型(Li & Pollatsek, 2020)。

关键词　认知老化，眼动阅读，中文词切分，增量词

Novel Evidence for Aging Effects on Word Segmentation in Chinese Reading

Lin Li[1], Lingshan Bao[1], Zhuoer Li[1], Sha Li[2], Kevin B. Paterson[3]
[1] Academy of Psychology and Behavior, Faculty of Psychology, Tianjin Normal University, Tianjin, China
[2] School of Psychology, Fujian Normal university, Fujian, China
[3] School of Psychology and Vision Sciences, University of Leicester, Leicester, UK
Lin Li linpsy@outlook.com

Abstract: Chinese does not use spaces to mark word boundaries. Consequently, readers must segment text to support word recognition and integration. This appears remarkably easy for skilled young adult readers, although the nature of the cognitive strategies they employ is disputed (Li & Pollatsek, 2020; Yu et al., 2021). However, whether this capability is preserved or changes in older adulthood has not been investigated, despite older adults having poorer reading capabilities (Zhang et al., 2022).

Accordingly, we conducted two experiments comparing word segmentation by young (18-30 years) and older (65+ years) adults, based on Zhou and Li (2021). In Experiment 1, participants read sentences that included a three-character target (e.g., 幼儿园) whose first two characters could form a two-character word (e.g., 幼儿) which was plausible or implausible in the sentence context; with performance for these sentences compared with sentences where this two-character word was the target (see Figure). This tested whether, by incrementally segmenting text, readers would produce two-character word plausibility effects for both embedded and target two-character words. However, both age groups produced a plausibility effect for two-character targets only, without an effect for two-character embedded words. This replicated Zhou and Li's finding that young adult readers do not segment text incrementally, while suggesting that older readers employ the same word-segmentation strategy.

Experiment 2 further investigated this issue, employing contexts in which target and embedded word plausibility was crossed. The absence of an embedded word plausibility effect in first-pass measures, regardless of target word plausibility, affirmed that readers do not segment text incrementally. Interesting, however, and contrary to Zhou and Li's findings, we observed parafoveal-on-foveal effects of embedded word plausibility in both experiments, suggesting that the embedded words were processed parafoveally. We take our findings to show that word segmentation is preserved in older readers.

Keywords: cognitive aging, eye movements during reading, Chinese word segmentation, incremental words

附件：

表 1　实验 1 的材料举例

目标词长	两字词合理性	例句
三字符	合理	区教育局积极关注**幼儿园**的一系列措施深受广大市民好评。
三字符	不合理	区教育局积极建设**幼儿园**的一系列措施深受广大市民好评。
两字符	合理	区教育局积极关注**幼儿**的一系列措施深受广大市民好评。
两字符	不合理	区教育局积极建设**幼儿**的一系列措施深受广大市民好评。

注：例句中，加粗的为目标词，下划线的为目标词前动词，动词与两字符的嵌入词或目标词构成合理或不合理的条件。

表 2　实验 2 的材料举例

三字合理性	两字合理性	例句
合理	合理	区教育局积极关注**幼儿园**的一系列措施深受广大市民好评。
合理	不合理	区教育局积极建设**幼儿园**的一系列措施深受广大市民好评。
不合理	合理	区教育局积极培养**幼儿园**的一系列措施深受广大市民好评。
不合理	不合理	区教育局积极扭转**幼儿园**的一系列措施深受广大市民好评。

注：例句中，加粗的为目标词，下划线的为目标词前动词，动词与嵌入词构成合理或不合理的条件。

References

Li, X., & Pollatsek, A. (2020). An integrated model of word processing and eye-movement control during Chinese reading. *Psychological Review, 127*(6), 1139-1162. https://doi.org/10.1037/rev0000248

Yu, L., Liu, Y., & Reichle, E. D. (2021). A corpus-based versus experimental examination of word- and character-frequency effects in Chinese reading: Theoretical implications for models of reading. *Journal of Experimental Psychology: General, 150*(8), 1612-1641. https://doi.org/10.1037/xge0001014

Zhang, J., Warrington, K. L., Li, L., Pagán, A., Paterson, K. B., White, S. J., & McGowan, V. A. (2022). Are older adults more risky readers? Evidence from meta-analysis. *Psychology and Aging, 37*(2), 239-259. http://dx.doi.org/10.1037/pag0000522

Zhou, J., & Li, X. (2021). On the segmentation of Chinese incremental words. Journal of experimental psychology. *Learning, Memory, and Cognition, 47*(8), 1353-1368. https://doi.org/10.1037/xlm0000984

中文阅读中语义透明度对词素位置概率词切分作用的影响

曹海波[1,2] 王敬欣[2]（通讯作者）

1 河北大学教育学院，保定，071002

2 天津师范大学心理学部，天津，300387，通讯作者 wjxpsy@126.com

摘 要 中文词切分的认知机制是心理语言学领域关注的焦点问题之一。中文无词间空格标识词边界，但研究发现读者可运用隐藏的词素位置概率线索帮助词切分，词素位置概率是指汉字出现在词首或词尾时双字词的次数占该汉字组成的所有双字词个数的比重。例如，语料库中“精”可组成 51 个双字词，其在词首可组成 44 个词，如“精神”“精彩”等，其词首词素位置概率为 0.87。可见“精”常居于词首，这为读者提供了较为清晰的词边界信息，同时也表明在复合词加工过程中发生了词素分解。然而，中文复合词是以词素、整词亦或混合方式进行表征尚未形成一致观点，语义透明度的研究中发现不透明词识别时词素与整词的连接较弱、词素发挥的作用较小，研究者认为透明词倾向词素存储，不透明词倾向整词存储。词素位置概率研究揭示出词素在词汇识别中的作用，那么倾向于整体存储的不透明词中是否也存在词素位置概率效应，即词素位置概率在不透明词识别中还能否发挥作用？本研究采用词汇判断和眼动记录法，操控词素位置概率和语义透明度变量，探究词素位置概率在不透明词加工中的作用，以考查语言学统计特征与语义信息联结对中文复合词表征方式的影响。实验 1 采用词汇判断任务，采用 2（词首词素位置概率：高、低）×2（语义透明度：高、低）的两因素被试内实验设计。结果发现，在正确率和反应时指标上，词首的词素位置概率和语义透明度的主效应显著。实验 2 采用句子阅读任务，考察在自然阅读情境中语义透明度对词素位置概率的影响。结果发现，词首词素位置概率在凝视时间、回视路径时间、总注视时间上的主效应显著；语义透明度在首次注视时间、凝视时间、回视路径时间上的主效应显著。结果表明，词素位置概率信息是中文读者重要的语言词切分线索，且可能不受语义透明度的限制。中文复合词的识别受语义透明度和词素位置概率影响，研究结果倾向支持词汇识别的混合通达表征模型。

关键词 词素位置概率，语义透明度，中文阅读，眼动

The Role of Character Positional Frequency and Semantic Transparency on Chinese Reading: Lexical Decision and Eye Movements Studies

Cao Haibo[1,2], Wang Jingxin[2]

1 College of Education, Hebei University, Baoding, 071002

2 Faculty of Psychology, Tianjin Normal University, Tianjin, 300387

***Abstract*:** Understanding the cognitive mechanisms of polymorphemic word representation has been an important focus for research on Chinese reading. Considerable research addressed the issue mainly by comparing the processing of morpheme and whole word representation. The importance of character positional frequency and

semantic transparency in processing polymorphemic word representation has been further underlined. Previous research shows that Chinese readers can make use of their knowledge of the positional frequency of characters (i.e., how often they are used as the first or second character in words) to facilitate word segmentation and recognition, as providing compelling evidence for morphological decomposition during the recognition of compound words. Nevertheless, there is some controversy as to exactly how polymorphemic words are represented in the mental lexicon. Accordingly, with the present research we conducted two experiments, using the lexical decision task and eye movements during reading to investigate the use of positional frequency information and semantic transparency in both visual word recognition and reading.

The design of the experiment was 2 × 2 (character positional frequency [high, low] × semantic transparency [high, low]), within participants and items. In Experiment 1, we manipulated both initial character positional frequency and semantic transparency for target words. There were significant effects of initial character positional frequency and semantic transparency in the latency of lexical decisions. In Experiment 2, we used measures of eye movements to investigate the use of character positional frequency and semantic transparency in natural sentence reading. The results showed a clear effect of character position frequency and semantic transparency on reading times. Participants made shorter fixation duration on transparent words than on opaque words and shorter fixation duration in high character positional frequency conditions than in low character positional frequency conditions.

In sum, findings from both the lexical decision task and measures of eye movements in reading reveal a vital role for initial character positional frequency as a cue to word segmentation and recognition. Furthermore, the initial character positional frequency and semantic transparency play a more important role during Chinese word recognition. These results suggest that a morphological decomposition process co-occurs with whole-word processing. We argue that these findings support the augmented addressed morphology model theory of Chinese word recognition and can help inform the development of a model of character positional processing model in Chinese reading.

Keywords： character positional frequency, semantic transparency, Chinese reading, eye movements

文本与 emoji 情绪一致性对个体情绪感知的影响

王惠珍[1] 李莹莹[1] 尹述飞[1](通讯作者)

1 湖北大学心理学系，武汉，430000，yinshufei121@163.com

摘 要：现实生活中的非语言信息在网络文字交流中难以实现，表情符号便出现在线上辅助表达了非语言信息在交流中表达的信息。其中 emoji 在网络交流中的应用广泛，在 emoji 与其文本配对的使用中，emoji 情绪与文本情绪经常不一致。为探究文本情绪与 emoji 情绪一致性对发送者情绪感知的影响，以及情境情绪的调节作用，本研究设计了 2（背景效价：积极、消极）*3（句子类型：纯文本句、emoji 和文本一致句和 emoji 和文本不一致句）的被试内实验，以情绪感知时反应时、愉悦度和唤醒度为因变量指标。共招募 30 名被试参与研究。结果发现，（1）句子类型主效应显著，emoji 与文本一致句的愉悦度、唤醒度显著高于纯文本句和 emoji 与文本不一致句，纯文本句的愉悦度低于 emoji 与文本不一致句，纯文本句的唤醒度高于 emoji 与文本不一致句；emoji 与文本不一致句的反应时高于 emoji 与文本一致句高于纯文本句。（2）背景效价调节表情在句子中的情感作用。积极情境下 emoji 与文本不一致句的愉悦度和 emoji 与文本一致句的差异大于消极情境下 emoji 与文本不一致句的愉悦度和 emoji 与文本一致句的差异；积极情境下 emoji 与文本一致句的唤醒度大于 emoji 与文本不一致句，消极情境下 emoji 与文本一致句的唤醒度和 emoji 与文本不

一致句无显著差异；积极情境下 emoji 与文本一致句的反应时小于 emoji 与文本不一致句，消极情境下 emoji 与文本一致句的反应时大于 emoji 与文本不一致句。

关键词：emoji 情绪,文本情绪,不一致性,情绪感知

The Impact of Emotional Consistency between Text and Emoji on Personal Emotional Perception

Wang Huizhen[1] Li Yingying[1] Yin Shufei[1](通讯作者)

1 Department of Psychology, Hubei University，Wuhan，430000，yinshufei121@163.com

Abstract： Non-verbal information in real life is difficult to achieve in network text communication, so emojis appear online to help express the information expressed by non-verbal information in communication.The application of emoji in online communication is widespread, and in the use of pairing emoji with their text, emoji emotions and text emotions are often inconsistent. To investigate the impact of consistency between text and emoji emotions on the emotional perception, as well as the moderating effect of situational emotions, this study designed an mixed experiment of 2 (background valence: positive, negative) * 3 (sentence types: pure text sentences, emoji and text consistent sentences, and emoji and text inconsistent sentences), with response time, pleasure, and arousal as dependent variables during emotional perception. A total of 30 participants were recruited to participate in the study. The results showed that (1) the main effect of sentence type was significant. The pleasure and arousal of emoji and text consistent sentences were significantly higher than those of text sentences and emoji and text inconsistent sentences. The pleasure of text sentences was lower than emoji and text inconsistent sentences, and the arousal of text sentences was higher than emoji and text inconsistent sentences; The reaction time between emoji and text inconsistent sentences is higher than that between emoji and text consistent sentences and pure text sentences. (2) Background valence regulates the emotional role of expressions in sentences. The pleasure level of emoji and text inconsistent sentences in positive situations and the difference between emoji and text consistent sentences were greater than those in negative situations; The arousal of emoji and text consistent sentences in positive situations was greater than that of emoji and text inconsistent sentences, while there was no significant difference in arousal of emoji and text consistent sentences and emoji and text inconsistent sentences in negative situations; The reaction time between emoji and text consistent sentences in a positive context was less than that between emoji and text inconsistent sentences, while in a negative context, the reaction time between emoji and text consistent sentences was greater than that between emoji and text inconsistent sentences.

Key words： Emoji emotion，Text emotion，Inconsistency，Emotional perception

5.28 心理学质性研究专业委员会

理想美、身体积极性、社交媒体：社交媒体内容对女性身体意象的影响

郎敏[1]　叶一舵[2]（通讯作者）

1 成都师范学院教育与心理学院，成都，611130
2 福建师范大学大学心理学院，福州，邮编 350117，通讯作者 yeyiduo@163.com

摘 要　近年来随着网络技术的发展，社交媒体在人们日常生活中的应用越来越普遍。已有研究发现社交媒体中蕴含着大量美化的、不现实的女性身体形象，而这些美化的外貌理想美严重影响女性的身体意象。为抵抗这一负面影响，一场全球化的名为“身体积极性”的运动在社交媒体中流行。在这场活动中女性通过展示自己真实的、不同于理想美的身材和相貌来表达女性身体的多样性，同时也鼓励女性不论自己的身材和相貌如何都要接纳和欣赏自己的身体。基于国外社交媒体特别是 Instagram 的研究初步表明，社交媒体中的身体积极性内容对女性身体意象具有积极作用，有望作为干预女性不良身体意象的新途径。然而，尽管国内社交媒体中已经出现了大量类似身体积极性主题的网络内容，如“反容貌焦虑”、“拒绝身材焦虑”等，但这些内容是否被年轻女性所接触和认可尚不清楚。基于此，本研究就社交媒体对女性身体意象的影响，特别是女性对身体积极性社交媒体内容的接触和认知情况，以及身体积极性社交媒体内容对女性身体意象的影响等问题进行探讨。本研究采用自编访谈提纲对 24 名活跃的年轻社交媒体女性用户进行一对一访谈。通过主题分析提取出 4 个主要的主题：（1）社交媒体中的理想美压力：传统、西方、多元审美融合；（2）社交媒体中的身体积极性内容；（3）年轻女性对中国社交媒体中身体积极性内容的接触情况及认知；（4）身体积极性身体媒体内容改善女性身体意象的潜力及存在的问题。研究发现：（1）社交媒体中的理想美压力来自中国文化和西方文化中理想美的传播，同时也出现少量健康和多元的理想美概念。（2）年轻女性已经开始接触社交媒体中身体积极性内容，并认为其有潜力改善女性的身体意象，但对于社交媒体中某些身体积极性内容的专业性有所担忧，且认为在个体身体意象问题较为严重时，身体积极性内容的积极作用可能较小。

关键词　社交媒体，身体积极性、身体意象、理想美、主题分析法

Beauty ideals, social media, and body positivity：The influence of social media content to female body image

Lang Min[1]　Ye Yiduo[2]（Corresponding author）
1 School of Education and Psychology, Chengdu Normal University, Chengdu, 611130
2 School of Psychology, Fujian Normal University, Fuzhou, 350117, E-mail address: yeyiduo@163.com

Abstract：In recent years, with the development of network technology, the application of social media in people's daily life is more and more common. It has been found that social media contains a large number of beautified and unrealistic female body images, and these beautified beauty ideal seriously affect women's body image. To challenge this negative impact, a global momentum called "body positivity" has been trending on social media. In this movement, women show the diversity of women's bodies by showing their real bodies and looks, and encourage women to accept and appreciate their bodies regardless of how their body size and appearance. Studies based on foreign social media, especially Instagram, preliminary showed that body positive social media has a positive effect on female body image, which is expected to be a new way to intervene women’s body image. However, although there has been a large amount of body positive content on domestic social media similar to that on foreign social media, such as "Refusing appearance anxiety" and "Resisting facial anxiety", it is not clear whether these contents have been contacted and recognized by young women. Based on this, this study discusses

the impact of social media on female body image, especially women's exposure to and cognition of body positive social media content, and the impact of body positive social media content on female body image. Active young female social media users (n = 29) participated in individual interviews. Thematic analysis revealed four primary themes: (1) media appearance pressures: the fusion of traditional, Western and multiple aesthetics, (2) presence of body positivity on domestic social media, (3) young women's exposure to and cognition of body positive social media content ; (4) the potential and existing problems of using body positive social media content to improve women's body image. The findings are as follows: (1) The pressure of beauty ideals in social media comes from the spread of beauty ideals in Chinese culture and Western culture, and there are also a few healthy and diversified beauty ideals concepts. (2) Young women have been exposed to body positive social media content and believe that it has the potential to improve women's body image, but they are concerned about the professionalism of some body positive social media content and believe that the positive effect of body positive social media content may be weakened when the individual's body image problems are more serious.

Keywords：Social media, Body positivity, Body image, Beauty ideals, Thematic analysis

粤港澳大湾区大学生国家认同的三维模型构建

——基于个体生活历史记忆视角

张玲燕[1]　林晓琪

1 广东技术师范大学应用心理学系，广州，510665

通讯作者 E-mail（290900363@qq.com）

摘 要　国家认同是一个国家社会成员凝聚力和向心力的集中体现，粤港澳大湾区大学生作为大湾区未来建设的主力军，其国家认同对粤港澳大湾区各领域的发展与合作具有重大影响。本研究从个体生活历史记忆的角度出发，采用深度访谈的方式，运用扎根理论编码，挖掘大湾区大学生的国家认同的内部心理机制。基于 35 位粤港澳大学生的个体生活历史记忆调查，获得大约 40 万字的文本数据，采用 NVivo 编码分析提取出国家认同内涵的内部三维构成和四个国家认同的外部因素，分别为对己对国的辩证认知、对国家的依恋（情感）、利己利国的行为倾向，国家综合实力、教育系统、国家对国民的保障和社会环境氛围，最终构建出粤港澳大学生国家认同的内涵理论模型。本研究厘清了国家认同的内涵、结构及其影响因素，为开展大学生爱国主义教育提供了理论依据。

关键词　国家认同，个体生活历史记忆，粤港澳大湾区，深度访谈，扎根理论

Three dimensional model construction of national identity of college students in Greater Bay Area -- based on the perspective of life history memory

Zhang Lingyan, Lin Xiaoqi
Guangdong Polytechnic Normal University, Guangzhou, Guangdong

Abstract：National identity is a concentrated embodiment of the cohesion and centripetal force of a country's social members. As the main force in the future construction of the Greater Bay Area, college students in the Greater Bay Area have a significant impact on the development and cooperation in various fields of the area.

From the perspective of living history memories, this study adopts the method of in-depth interview and the application of grounded theory coding to explore the internal psychological mechanism of national identity of college students in the Greater Bay Area. Based on the individual life history memory survey of 35 college students in Guangdong, Hong Kong and Macao, about 400,000 words of text data were obtained. The internal three-dimensional composition of the connotation of national identity and four external factors of national identity were extracted by NVivo coding analysis, which were dialectical cognition of oneself to the country, attachment (emotion) to the country, and behavioral tendency of self-interest and benefit to the country, national comprehensive strength, education system, national protection for citizens and social environment. Finally construct the connotation theoretical model of national identity of Guangdong, Hong Kong and Macao college students.

The significance of this study is to build a bridge between individual psychology and national identity, which is conducive to enhancing the national consciousness and national concept of college students in the Greater Bay Area, stimulating rational patriotic feelings, and then generating voluntary patriotic actions, so as to contribute to the economic construction and long-term social stability of the Greater Bay Area.

Keywords： National identity, Individual life history memory, Grounded theory, Greater Bay Area

新冠期间中国农村留守儿童心理健康的质性研究：一项基于留守儿童的访谈

刘宁宁[1] 张敏[1] 高淳海[2]（通讯作者）
1 辽宁师范大学脑与认知神经科学研究中心，大连，116029
2 深圳大学教育学部，深圳，518000，gaochunhai@szu.edu.cn

摘 要 目的：通过质性研究方法，探究新冠疫情期间中国农村留守儿童的心理健康水平，以及学业适应能力和亲子关系对其的潜在影响。方法：以中国西南某省份为例，采用访谈法，对 22 名年龄在 10 至 15 岁之间的农村留守儿童进行深度访谈。结果：研究结果显示，新冠疫情造成留守儿童生活方式的彻底改变，严重影响了农村留守儿童的健康状况：（1）留守儿童在情绪和心理状态调整方面表现出相当大的困难，出现孤独、抑郁、焦虑和悲伤等消极的情绪和心理问题；（2）由于照顾者教育背景有限、学习方式改变以及家务繁重等原因，留守儿童的学习时间减少，学习积极性明显受损；（3）亲子之间长期社会隔离导致沟通减少，对亲子关系和依恋质量产生了负面影响。而亲子关系的变化又进一步影响留守儿童的心理健康和

学业成绩。结论：本研究关注农村留守儿童的心理健康，对新冠疫情期间的农村留守儿童进行了面对面的深度访谈。新冠疫情是全球性问题，由于留守儿童的学业需求、心理需求和社交需求受到的关注和解决较少，新冠疫情对农村留守儿童的影响尤为严重，尤其是中国隔代监护对孩子的发展存在诸多弊端。因此，后疫情时代政府应加强与关注弱势儿童群体的非政府组织的合作，完善识别和监测体系，从而为农村留守儿童提供必要的帮助和支持。

关键词　新冠疫情，留守儿童，心理健康，学业适应，亲子关系

A Qualitative Study on the Psychological Well-being of Left-behind Children in Rural China During COVID-19

Abstract：This study sought to explore the psychological well-being of left-behind children (LBC) in rural China during COVID-19, and to assess the potential influence of academic adjustment and quality of parental attachment on these children. To this end, we adopted a qualitative research method consisting of interviews with 22 LBCs (face-to-face) aged 10-15 in an anonymous rural province of southwestern China. The study results reveal that COVID-19 has caused a complete change in the lifestyle of LBCs, significantly impacting LBC well-being: (1) the children exhibited considerable difficulty adjusting their emotional and psychological state owing to the radical lifestyle changes caused by COVID-19; (2) LBC academic engagement and motivation were notably jeopardized during COVID-19; (3) a long parental absence from a rural household negatively influences the relationships between the parent and child, and the changes in parent-child relationships further impact the psychological well-being and academic performance of LBC. This study focuses on the psychological well-being of LBC in rural China and conducted in-depth face-to-face interviews with them during COVID-19. COVID-19 is a global problem that has severe impact on rural LBCs due to the limited attention and addressing of the academic, psychological, and social needs of them, especially when it comes to understanding the negative impacts of inter-generational care in China on LBCs' development. Therefore, this study suggests that in the post-pandemic era, the Chinese government should seek to identify and monitor these children by working with non-governmental organizations that target such children.

Keywords： COVID-19, left-behind children, psychological well-being, academic adjustment, parental attachment

他们为什么不寻求专业帮助？社交焦虑求助行为影响因素的质性探索

邓嘉琪[1]　宋亦江[1]　唐信峰[1]（通讯作者）

1 中国人民大学心理学系，北京，100872，xtang@ruc.edu.cn

摘 要

背景与目的：青年人群是社交焦虑高发群体，但该群体的求助行为却不高。个体因心理健康问题寻求帮助存在许多促进和阻碍因素。关于社交焦虑的求助行为的促进和阻碍因素研究比较少。本研究旨在基于健康信念模型（The Health Belief Model），探索影响大学生社交焦虑求助行为的影响因素。

方法：我们对 21 名非心理学专业大学生进行了半结构化访谈，受访者在《Social Phobia Inventory》测量得分在 43 分以上。我们询问了大学生对社交焦虑概念、原因、治疗方式等问题的知识和态度。采用质性分析软件 MAXQDA 对文本进行主题分析。

结果：我们发现，大部分同学对社交焦虑（社恐）感知易感性（Perceived Susceptibility）较高，他们认为自己有一定程度的社交焦虑。对社交焦虑严重性（Perceived Severity）的认识则不一致，尽管大部分受访者认为社交焦虑会影响到他们将来的职业选择，但是对他们当前生活而言影响似乎不大。大部分同学也能认为改善社交焦虑有好处（Perceived Benefits），包括得到更多的机会、有更好的人际交往体验等。但是，在求助行为过程中，受访者们感知到了诸多障碍（Perceived Barriers），包括对科学有效的干预方式缺乏知识，对心理咨询的效果缺乏足够的信心，对心理咨询具体干预的方式和内容缺乏了解。因此，即使在社交焦虑易感性、严重性和治疗益处已经有较多的认识，但是诸多阻碍使得人们向专业人士求助的比例较低。

结论：综合来看，目前大学生关于社交焦虑的专业求助行为不理想，将来需要开发课程、工作坊等各种形式，提升他们对社交焦虑各方面的认识，去除各方面的阻碍。

关键词　社交焦虑，求助行为，健康信念模型，质性研究

Why Don't They Seek Professional Help? A Qualitative Exploration of Factors Influencing Help-Seeking Behavior for Social Anxiety

Jiaqi Deng, Yijiang Song, Xinfeng Tang
Department of Psychology, Renmin University of China, Beijing, China
Corresponding author: xtang@ruc.edu.cn (X. Tang)

***Abstract*:**

Background: Young adults represent a high-risk group for social anxiety, yet their help-seeking behavior remains relatively low. Help-seeking for psychological health issues is influenced by numerous facilitating and inhibiting factors. However, there is limited research specifically focused on the facilitators and barriers of help-seeking behavior for social anxiety. This study aims to explore the factors of help-seeking behavior for social anxiety among college students, based on the Health Belief Model.

Methods: A semi-structured interview was conducted with 21 non-psychology major college students who scored 43 or higher on the Social Phobia Inventory (SPIN). Participants were asked about their knowledge and attitudes towards social anxiety, including its definition, causes, and treatment. Qualitative analysis software MAXQDA was utilized for thematic analysis of the interview transcripts.

Results: We found that most students had a high level of *perceived susceptibility* to social anxiety, indicating that they believed they experienced a certain degree of social anxiety themselves. However, their perceptions of the severity of social anxiety (*perceived severity*) were inconsistent. While the majority of respondents believed that social anxiety would impact their future career choices, many perceived its current impact on their daily lives to be relatively minor. Additionally, most students recognized the potential benefits of improving social anxiety (*perceived benefits*), such as accessing more opportunities, and enhancing their interpersonal experiences. Nevertheless, students encountered many *perceived barriers* during the help-seeking process , including a lack of

knowledge about effective interventions, insufficient confidence in the effectiveness of counseling, and a lack of understanding of specific contents in counseling. Consequently, despite having relatively good awareness of the susceptibility, severity, and benefits of reducing social anxiety, these barriers led to a lower proportion of individuals seeking assistance from mental health professionals.

Conclusion: Overall, the professional help-seeking behavior for social anxiety among college students is unsatisfactory. Future efforts should focus on developing various forms of courses, workshops, and interventions to enhance their understanding of social anxiety and address the barriers that hinder help-seeking behavior.

Keywords：Social anxiety, Help-seeking behaviour, Health belief model, Qualitative research

鲁迅自我同一性的心理传记学研究

刘学斌[1] 舒跃育[2]

1 西北师范大学心理学院，兰州，730000

2 西北师范大学心理学院，兰州，730000, shuyueyu@nwnu.edu.cn

摘要：本研究采用心理传记学的方法，以鲁迅本人留下的著作以及记录他生平经历的知名传记作为研究资料，运用新精神分析的相关理论对他少年至成年的成长经历进行了分析，试图揭示其自我同一性的发展过程，并探讨他形成“善感多思，犹豫多疑”个性的缘由。

研究发现：（1）少年时期，书香门第的家族文化与具有父权文化氛围的家庭环境对鲁迅的自我同一性发展具有塑造作用。（2）青年时期，理想实践的一一失败和包办婚姻解决亲密-孤独的矛盾的无效，使他在这一阶段遭遇了同一性发展危机，为了解决这一危机，鲁迅回归大家庭建立消极同一性以对抗危机。（3）成年时期，鲁迅与兄弟周作人失和，在大家庭中建立的消极同一性也随之破灭，鲁迅不得不去寻找新的亲密关系以对抗孤独。46 岁的鲁迅与许广平的结合，以及儿子海婴的出生，让鲁迅发展出关心的品质，至此，鲁迅的自我整合完成。鲁迅的生命成长经验并不是所谓的顺风顺水，可是他依然能从环境中发展出健康的自我同一性，这值得让我们在数字化时代的背景下重新思考鲁迅的意义。

通过探讨鲁迅自我同一性的发展历程，有助于理解家庭环境、社会环境以及亲密关系对个体的自我同一性的影响，启示我们应从多个方面关注自我的成长，从真实自我出发接受全面完整的自我，从而实现融洽的心理健康。

关键词：鲁迅，自我同一性，心理传记学

5.29 脑电相关技术专业委员会

非预期躯体情绪较面孔情绪的神经表征优势

刘建邑 赵晶晶(通讯作者)

陕西师范大学心理学院，西安，710062，赵晶晶 jingjing.zhao@snnu.edu.cn

摘要 面孔和躯体是视觉通道上情绪信息的主要载体，人们所处的社会环境里充斥着由他人面孔、躯体携带的复杂情绪信号。现有研究通常关注单独的面孔或者躯体情绪，这些研究通过视觉失匹配负波(vMMN)揭示了非预期的面孔或躯体表情的自动化加工机制。然而，现实生活中面孔和躯体总是作为整体出现的，这意味着单独呈现某一刺激缺乏生态效度。本研究拟通过呈现完整面孔躯体图片的方式，分别操纵面孔、躯体及二者间一致性，考察面孔和躯体情绪信息的神经表征。研究设计包含四个 block：三个 oddball block 和一个等概率 block。在所有的 oddball block 中，标准刺激均为中性面孔结合中性躯体的图片（呈现概率为 0.8），偏差刺激则分为三组：1)恐惧面孔结合恐惧躯体和快乐面孔结合快乐躯体图片；2)恐惧面孔结合快乐躯体和快乐面孔结合恐惧躯体图片：3)恐惧面孔结合中性躯体和快乐面孔结合中性躯体图片。等概率 block 则以相同的概率呈现六种偏差刺激。被试在整个实验过程中记录脑电信号，并被要求完成无关任务（判断中心十字是否消失）。实验数据分析包括传统的单变量分析（获得不同类型刺激的 vMMN 波幅均值，并执行方差分析）和多变量表征相似性分析。在表征相似性分析中，神经不相似矩阵(neural RDM)通过以 SVM 为分类算法的 10 折交叉验证获得（以两两刺激间的解码正确率作为不相似度），模型不相似矩阵(model RDM)基于两种情绪理论构建（基本情绪理论及维度理论）。结果发现，躯体情绪以及面孔躯体情绪一致性能够在 oddball 和等概率序列中得到显著的神经表征，两个序列中两类信息神经表征的强度差异与单变量分析的结果有很好的对应关系。具体表现为 170-230 毫秒内 vMMN 波幅表现出躯体情绪类型的主效应，这个时间段内刚好仅被检测到躯体情绪神经表征的序列间差异；而在 230-330 毫秒内 vMMN 波幅表现出面孔情绪和躯体情绪的交互作用，在这段时间内检测到了躯体情绪和一致性神经表征的序列间差异。这些结果揭示了复杂环境中大脑快速处理非预期情绪信号时可能更加依赖于躯体表情而非面部表情。

关键词 面部表情，躯体表情，视觉失匹配负波，表征相似性分析

The neural representation advantage of unexpected body expression over facial expression

Jianyi Liu, Jingjing Zhao
School of Psychology, Shaanxi Normal University, 199 South Chang'an Road, Xi'an 710062, China. Email: jingjing.zhao@snnu.edu.cn

Abstract: Faces and bodies are the main carriers of emotional information in the visual channel. The social environment people live in is full of complex emotional signals carried by other people's faces and bodies. Existing studies usually focus on individual faces or body emotions, and these studies reveal the automatic processing mechanism of unexpected face or body expressions through visual mismatch negativity (vMMN). However, in real life, faces and bodies always appear as a whole, which means that presenting a stimulus in isolation lacks ecological validity. Therefore, this study intends to investigate the neural representation of the corresponding information presenting the picture of the complete face-body, and we manipulated the emotion type of face, body and the consistency between them. Specifically, we designed four blocks, including three oddball blocks and one equally probability block. In all oddball blocks, the standard stimulus was a picture of a neutral face combined with a neutral body (presentation probability 0.8), and the deviant stimulus was divided into three groups: 1. Fear face combined with fear body and happy face combined with happy body pictures 2. Fear face combined with happy body and happy face combined with fear body pictures 3. Fearful face with neutral body and happy face with neutral body. Equal probability block present six deviant stimuli with the same presentation probability. EEG

signals were recorded while the subjects performed an unrelated task (determining whether the central cross had disappeared). We performed traditional univariate analysis (obtaining vMMN amplitude averages for different types of stimuli and performing ANOVA) and multivariate representational similarity analysis (RSA) on the experimental data. In the representational similarity analysis, the neural dissimilarity matrix (neural RDM) was obtained by 10-fold cross-validation using SVM classification algorithm (with the decoding accuracy rate between the two stimuli as the dissimilarity), and the model dissimilarity matrix (model RDM) was constructed based on two emotion theories (basic emotion theory and dimension theory). The results showed that body emotion and consistency between face and body emotions could be significantly represented in oddball and equal probability sequences. The difference in the intensity of neural representations of the two types of information in these two sequences corresponded well with the results of univariate analysis. Specifically, the vMMN amplitude in 170-230 milliseconds showed the main effect of body-emotional type, and only the sequence-to-sequence differences in body-emotional neural representations were detected during this time period. The vMMN amplitude showed the interaction between facial emotion and body emotion within 230-330 milliseconds, and the sequence-to-sequence differences between body-emotional and consistency neural representation were detected during this time. These results suggest that the brain may rely more on body expressions than facial expressions to rapidly process unexpected emotional signals in complex social environments.

Keywords: Facial expression, body expression, visual mismatch negativity, representational similarity analysis

提取干扰对知觉识别内隐记忆的影响：一项 ERP 研究

黄发杰[12]　孟迎芳[2]（通讯作者）　黄思捷[2]　董月晴[3]

1 福建医科大学健康学院，福州，350122

2 福建师范大学心理学院，福州，350117，mengyf1978@126.com

3 内蒙古师范大学心理学院，呼和浩特，010020

摘 要　记忆传统观点认为“无意识的内隐记忆是自动化加工”，因为其启动效应免受提取干扰的破坏。内隐记忆主要反应了提取加工，我们近期的系列实验却发现，启动效应会受到提取干扰的破坏，但在不同类型上存在差异，即产生式启动相比识别式启动受到的破坏更小，这对传统观点提出了异议，支持内隐记忆并非完全自动化加工。有意思的是，有一项行为研究发现，知觉识别属于一种识别式启动，竟然与产生式启动一样免受提取干扰的破坏(Lizito & Mulligan, 2010)。对此，我们推测，知觉识别虽然属于识别式启动，但因为刺激呈现短暂，被试需要根据知觉到的部分刺激进行“产生式”提取，由此具备了产生式启动特征，进而具有与产生式启动类似的“抗干扰性”。但目前，知觉识别内隐记忆的“抗干扰性”及其成因的认知神经特征都还不清楚？

为此，本研究延续前期的实验范式(黄发杰, 孟迎芳, 严颖, 2020)，采用事件相关电位技术(ERP)考察提取干扰对知觉识别内隐记忆影响。结果发现：(1)在行为上，在有、无干扰条件下，知觉识别均有显著的新旧效应；(2)在 ERPs 上，注意资源相关的 P3a 成分中，在有、无干扰条件下，知觉识别的 P3a 均有显著的新旧差异；内隐记忆相关的 N400 和 P600 成分中，在无干扰条件下，知觉识别的 N400 和 P600 新旧差异既分布在与识别式启动关联的中央区、顶区，又分布在与产生式启动关联的前额区、额区；在提取干扰条件下，知觉识别在额区的 N400 新旧效应受到了破坏，但随着与“产生式启动”相关的前额区的参与，额区的 P600 新旧效应不会受到破坏，这一趋势在 700~900ms 时间窗继续延伸。

综上所述，本研究认为，知觉识别内隐记忆兼具识别式启动和产生式启动的测验特征，这是首次获得ERP证据的支持；重要的是，知觉识别内隐记忆在额区的N400新旧效应会受到提取干扰的破坏，进一步支持了内隐记忆并非完全自动化加工，此外，该测验具有与“产生式启动”类似的抗干扰性，成因可能与“产生式”关联的前额区参与有关。

关键词　识别式启动,产生式启动，知觉识别，抗干扰性,ERP

The effects of retrieval interference on perceptual identification implicit memory:An ERP Study

Fajie Huang[12]　Yingfang Meng[2]　Sijie Huang[2]　Yueqing Dong[3]

1 School of health，Fujian normal university, Fuzhou，350122

2 School of psychology，Fujian normal university, Fuzhou，350117

3School of psychology，Inner Mongolia Normal University，010020

Abstract：The traditional view of memory holds that "unconscious implicit memory is an automatic process", because its priming effect is protected from the interference of retrieval. Implicit memory mainly reflects retrieval processing, but our recent series of experiments have found that priming effect can be damaged by retrieval interference, but there are differences in different types, that is, production priming is less damaged than identification priming, which contradicts the traditional view and supports that implicit memory is not completely automatic processing. Interestingly, a behavioral study has found that perceptual identification is a kind of identification priming, which is as immune to retrieval interference as production priming (Lizito & Mulligan, 2010). In this regard, we speculate that although perceptual identification belongs to identification priming, because the stimulus is short, the subjects need to extract "production" according to the perceived part of the stimulus, which has the characteristics of production priming, and then has the "anti-interference" similar to production priming. However, at present, the "anti-interference" of perceptual identification implicit memory and the cognitive neural characteristics of its causes are still unclear?

In order to solve the above problems, this study used the previous experimental paradigm (Huang Fajie, Meng Yingfang, Yan Ying, 2020), and used event-related potential (ERP) technology to investigate the effect of retrieval interference on implicit memory of perceptual identification. The results showed that: (1) in behavior, there was a significant new-old effect in perceptual identification with and without interference; (2) in ERPs, there was a significant new-old difference in P3a of perceptual identification with and without interference in the component of P3a related to attention resources; In the N400 and P600 components related to implicit memory, in the condition of no interference, the differences between old and new N400 and P600 of perceptual identification were not only distributed in the central and parietal areas related to identification priming, but also in the prefrontal and frontal areas related to production priming; In the retrieval interference condition, the N400 new-old effect of perceptual identification in the frontal region was destroyed, but with the participation of the prefrontal region related to "production priming", the P600 new-old effect in the frontal region was not destroyed, and this trend continued to extend in the 700-900 ms time window.

In summary, this study suggests that perceptual identification implicit memory has the test characteristics of both identification priming and production priming, which is the first time to be supported by ERP evidence; Importantly, the N400 new-old effect of perceptual identification implicit memory in the frontal area is destroyed by retrieval interference, which supports that implicit memory is not completely automatic processing. In addition,

the test has a similar interference resistance to "production priming", which may be related to the participation of the prefrontal area associated with "production".
Keywords：identification priming, production priming, perceptual idendifiaction test, retrieval interference, ERP

即时奖赏预期和延迟奖赏预期影响抑郁个体认知冲突的神经机制

张妍[1]　荣亚朝[1]　魏萍[1*]（通讯作者）

1 首都师范大学心理学院，北京市“学习与认知”重点实验室，北京，100048

*通讯作者：weiping@cnu.edu.cn

摘 要　延迟折扣现象表明，与即时奖赏相比，人们倾向于赋予延迟奖赏更小的价值。然而，即时或延迟获得的奖赏如何影响抑郁倾向个体在认知冲突任务中的注意分配及其神经机制尚不清楚。本研究共招募37名健康被试和31名抑郁倾向被试，采用金钱激励延迟范式(Monetary Incentive Delay, MID)和脑电技术，结合线性混合模型(Linear-mixed Effect Model, LMM)和表征相似性(Representational Similarity Analysis, RSA)分析方法，探究即时奖赏和延迟奖赏预期对个体认知冲突控制的影响机制。在不同的线索提示后（即时奖赏、延迟奖赏、无奖赏），要求被试进行 Stroop 任务，反应越快越好则会获得相应的奖赏。被试获得的即时奖赏在实验结束后立即支付，延迟奖赏在三个月后支付。行为结果显示，即时奖赏条件下的反应时最快，其次是延迟奖赏，无奖赏条件反应最慢。Stroop 干扰效应显著，且抑郁组的 Stroop 干扰效应大于正常组。脑电结果显示，在奖赏预期阶段，正常组 Cue-P3 显著正于抑郁组，且正常组和抑郁组在即时奖赏条件的组间差异显著大于延迟奖赏和无奖赏条件。在目标阶段，正常组比抑郁组诱发了更正的 Target-P3 波幅，并且正常组即时奖赏和延迟奖赏的差异显著大于抑郁组。在晚期 LPP 成分上，正常组的 Stroop 干扰效应显著大于抑郁组。RSA 结果显示，抑郁组与正常组被试相比，延迟奖赏和无奖赏条件的线索表征时间短于即时奖赏。在目标阶段，两组被试在即时奖赏条件下 Stroop 任务中的神经表征都可以预测被试行为表现，但是只有抑郁组被试的在延迟奖赏条件下的神经表征可以预测行为表现。当前研究结果表明，奖赏预期阶段和目标阶段都表现出即时奖赏编码表征优势，并且正常组的表征优势强于抑郁组，目标阶段的表征决定了认知冲突任务的行为表现。表征相似性分析的结果为进一步理解即时奖赏和延迟奖赏预期对抑郁个体认知控制的神经表征差异提供了证据。

关键词　抑郁，即时奖赏，延迟奖赏，认知控制，表征相似性

Neural mechanisms underlying the influence of immediate reward expectancy and delayed reward expectancy on the cognitive conflict in depression

Yan Zhang[1] Yachao Rong[1] Ping Wei[1*]（Corresponding Author）
1 Beijing Key Laboratory of Learning and Cognition, and School of Psychology, Capital Normal University, Beijing, China, 100048
*Correspondence: weiping@cnu.edu.cn

***Abstract*:** Previous studies have consistently found that individuals have the tendency to prefer an immediate and smaller reward over a larger but delayed reward. The tendency to devaluate rewards over time is referred to as delay discounting. So far, it is unclear whether immediate and delayed rewards expectation influences cognitive control in depression. In the current study, a total of 37 healthy controls (HC) and 31 depressed participants completed the Monetary Incentive Delay (MID) task with event-related potential (ERP) recording. The Linear-mixed Effect Model (LMM) and Representational Similarity Analysis (RSA) were combined to explore the impact of immediate reward and delayed reward expectation on the mechanisms underlying cognitive conflict control.

A pre-cue indicates the potential of gaining a monetary reward including an immediate reward (indicating that participants could receive the reward immediately after the experiment), a delayed reward (indicating that participants could receive the reward three months later), and a no reward baseline condition. The target (Stroop word) was presented requiring a fast and accurate response regarding the color of the stimuli. Then, response-contingent feedback was presented indicating whether the participant would receive the corresponding reward. Behavioral results revealed that reaction times were significantly shorter in the immediate reward as compared with delay reward and no-reward conditions (IR < DR < NR). The Stroop interference effect was significant, and the depression group exhibited a greater Stroop interference effect compared to the HC group. The EEG results revealed that during the reward anticipation phase, the HC group elicited more positive-going Cue-P3 amplitude compared to the depressed group, and the difference between immediate reward versus delay reward conditions or no rewards conditions was significantly higher in the HC group than the depressed group. Moreover, during the target phase, the HC group elicited more positive-going target-P3 amplitudes than the depressed group, and the difference in P3 amplitudes between immediate and delayed reward conditions was significantly greater in the HC group than in the depressed group. For the late LPP component, the HC group showed a larger Stroop interference effect compared to the depressed group. Furthermore, the RSA results indicated that in comparison to the HC group, the depressed group had shorter reward cue representation times for delayed reward and no reward conditions than for immediate reward conditions. During the target phase, the neural representation in the Stroop task can predict performance in the immediate reward in both groups, but only the neural representation in the depressed group predicted behavior performance in the delayed reward condition.

The current study revealed an advantage in encoding representations for immediate rewards than for delayed

rewards in both the reward anticipation phase and the target phase, with the advantage being stronger in the HC group compared with the depressed group. Critically, reward boosted neural coding in both groups, and the extent of this increase was associated with improvements in task performance. These findings help to inform how immediate reward expectancy and delayed reward expectancy shapes neural processing in the depressed human brain.

***Keywords*:** Depression, Immediate reward, Delay reward, Cognitive control, Representational Similarity Analysis

色味一致性和关联强度对视觉搜索的影响：来自行为和电生理的证据

张乐　房欣　蔡思思　全紫涵　林其玉　蔡晨（通讯作者）

青岛大学师范学院心理系，青岛，266071

通讯作者 E-mail：caichen@qdu.edu.cn

摘要：个体倾向于将事物的各种特征通过不同的感官体验联系起来。已有大量研究探讨了视觉和味觉信息的跨通道联结（crossmodal correspondences）对视觉加工的影响机制，但仍缺乏对相关机制的深入解释。因此，本研究通过行为和电生理技术探究多感官注意下视觉搜索过程的深层认知加工机制。初步研究通过一项包含两份问卷的在线调查（$N1 = 219$，$N2 = 269$）来筛选实验材料以确定用于实验的颜色-味道组合，最终筛选出五种组合。正式实验采用 2（色味一致性：一致，不一致）×2（色味关联强度：强关联，弱关联）被试内实验设计，共有 44 名被试（平均年龄 19.34 ± 1.63 岁，19 名男生）参与该实验。在实验流程中，首先提示一个风味标签词，要求被试在随后呈现的四个饮料瓶图片中选择含有该标签词的目标图片。与前人研究不同，考虑到许多水果有多种不同关联强度的常见色（如，柠檬的强关联色为黄色，绿色的柠檬较为少见），本研究通过操控饮料图片中标签词的色味一致性和关联强度，进一步探讨视觉搜索过程中的认知加工机制。行为结果表明，在色味一致条件下搜索弱关联色的标签词要显著慢于搜索强关联色的标签词，不一致条件下则相反。ERP 成分分析发现，色味不一致条件比色味一致条件诱发了显著更小的 N2 波幅以及更大的 P3 和 LPC 波幅。进一步时频分析结果表明，色味一致和强关联目标分别比色味不一致和弱关联目标诱发了更小的顶区 theta 波（200–800 ms，4–8 Hz）。综上所述，本研究表明：（1）色味一致性和关联强度交互影响视觉搜索效率；（2）注意由外部刺激转向内部记忆的过程对于有效的视觉搜索十分必要；（3）顶区在注意加工和记忆提取过程中发挥着关键作用。本研究将注意转向记忆(attentional switch to memory)模型由情景记忆扩展至语义记忆提取过程，揭示了视觉搜索中涉及的复杂认知过程和深层神经认知动态。

关键词：色味不一致效应，关联强度，视觉搜索，注意转向记忆

The effect of color-flavor congruency and association strength on visual search: Evidence from behavior and electrophysiology

Le Zhang　Xin Fang　Sisi Cai　Zihan Quan　Qiyu Lin　Chen Cai*

Department of Psychology, Normal College, Qingdao University, Qingdao, 266071
*E-mail: caichen@qdu.edu.cn

***Abstract*:** Individuals are apt to link various characteristics of an object or event through different sensory experiences. Numerous studies have explored the impact mechanism of crossmodal correspondences between vision and taste perception on visual processing, but a deeper explanation is still lacking. Consequently, we used behavioral and electrophysiological technology to examine the in-depth cognitive processing mechanisms underlying the visual search process in multisensory attention. A pilot study with two questionnaires ($N1 = 219$, $N2 = 269$) was conducted to screen experimental materials and establish the color-flavor combinations used in the experimental study, and five combinations were finally selected. A 2 (color-flavor congruency: congruent, incongruent) × 2 (color-flavor association: strong, weak) within-subject design was implemented in the experimental study, 44 students (mean age = 19.34 ± 1.63 years; 19 males) were recruited in this study, they were prompted with a flavor label and asked to choose the one with it from the following four beverage bottle images during the experimental procedure. Divergent from previous studies, taking into account the fact that many fruits have various typical colors of different associated degrees (e.g., lemons are strongly associated with yellow, and green lemons are relatively rare), the present study attempts to manipulate the color-flavor congruency and association strength of flavor labels in beverage packaging pictures, and further explore the cognitive processing mechanism during the visual search process. The behavioral results showed that searching for a color-flavor weak association target was slower than for a strong association one in the color-flavor congruent condition, opposite to the incongruent condition. The ERP component analysis detected smaller N2 and larger P3 and LPC amplitudes for the color-flavor incongruent targets than for the congruent targets. A further time-frequency analysis elicited that the color-flavor congruent and strong association targets evoked lower parietal theta power (200–800 ms, 4–8 Hz) than the incongruent and weak association targets, respectively. Overall, our research indicated that (1) the color-flavor congruency and association strength interactively impacted the visual search efficiency, (2) the attentional switch from external stimuli to internal memory is necessary for efficient visual search, and (3) the parietal region plays a critical role in attentional processing and memory retrieval. These findings extended the *attentional switch to memory* model from episodic memory to semantic memory retrieval and shed light on the intricate cognitive processes involved in visual search and the underlying neurocognitive dynamics.

***Keywords*:** color-flavor incongruency effect, association strength, visual search, attentional switch to memory

注意模板的边界及其作用机制

付纤[1]　郑田田[1]　王小桃[1]（通讯作者）
1 江西师范大学心理学院，南昌，330022，wangxt@jxnu.edu.cn

摘要 由于视觉系统加工能力的限制，我们只能选择一部分信息进行更深层次的加工，这体现了注意的选择性。而注意模板又在注意选择过程中起着重要作用，注意模板是指在工作记忆中存储的关于目标（目标模板）或非目标（拒绝模板）的特征，可以自上而下地引导注意选择过程，从而促进对目标特征的选择或干扰特征的抑制。注意选择过程还受到特征相似性的影响。特征相似性是指目标颜色和干扰颜色之间的颜色距离，颜色距离越相近，干扰颜色对目标颜色的干扰作用就越大。但是干扰颜色的干扰作用不是随颜色距离增加而线性递减，而是先快速下降然后再渐渐变慢，有研究者认为这个干扰作用由大变小的拐点，即注意模板的边界。我们先前的研究证实，拐点确实与注意模板相关，只有建立注意模板才会产生拐点。但是

现在尚不清楚，拐点的产生是注意模板增强了目标的加工，还是抑制了干扰物的加工，亦或是两者共同作用导致的？本研究采用工作记忆-视觉搜索范式，操纵目标与干扰物之间的颜色距离（分别为 20°、40°、60°、80°、100°、180°），采用事件相关电位技术（ERP），考察目标诱发的 N2PC 和干扰物诱发的 PD 是否会与颜色距离存在线性关系，并且存在明显的拐点。实验 1 的研究结果发现，目标诱发的 N2PC 受颜色距离影响不明显，不存在拐点；但干扰物诱发的 PD 与颜色距离成线性关系，并且存在拐点，拐点出现在颜色距离 80°左右。实验 2 在排除了一些视觉干扰后试图重复实验 1 的结果。结果与实验 1 基本相同，只是干扰物诱发的 PD 的拐点出现在颜色距离 100°左右。本研究的两个实验结果一致表明注意模板的边界取决于对干扰物的抑制而不是对目标的增强。
关键词　注意选择，注意模板，N2PC，PD

The boundary of attention template and its action mechanism

Fu Xian[1]　Zheng Tiantian[1]　Wang Xiaotao[1]
School of Psychology, Jiangxi Normal University, Nanchang, 330022, wangxt@jxnu.edu.cn

Abstract：　Due to the limitation of visual system processing ability, we can only select part of information for further processing, which reflects the selectivity of attention. Attention template plays an important role in the process of attention selection. Attention template refers to the features stored in working memory about the target (target template) or non-target (rejection template), which can guide the attention selection process from top to bottom, thus promoting the selection of target features or the suppression of disturbing features. Note that the selection process is also affected by feature similarity. Feature similarity refers to the color distance between the target color and the interference color. The closer the color distance is, the greater the interference effect of the interference color on the target color is. However, the interfering effect of interfering colors does not decrease linearly with increasing color distance, but rather decreases rapidly and then tapers off, and some researchers have suggested that the inflection point at which this interfering effect changes from large to small, i.e., the boundary of the attentional template. Our previous research confirms that inflection points are indeed related to attentional templates, and that inflection points only arise when attentional templates are established. But it is not clear whether the inflection point results from the attentional template enhancing the processing of the target, or inhibiting the processing of the interferer, or a combination of both? In this study, we used a working memory-visual search paradigm and manipulated the color distances between the target and the distractor (20°, 40°, 60°, 80°, 100°, and 180°), and examined whether the target-induced N2PC and distractor-induced PD would be linearly related to the color distances with significant inflection points using an event-related potential (ERP) technique. The results of Experiment 1 found that the target-evoked N2PC was not significantly affected by the color distance and did not have an inflection point; however, the interferent-evoked PD was linearly related to the color distance and had an inflection point, which appeared at a color distance of about 80°. Experiment 2 attempted to repeat the results of Experiment 1 after eliminating some visual distractors. The results were essentially the same as in Experiment 1, except that the inflection point of the interference-induced PD appeared at a color distance of about 100°. The results of the two experiments consistently show that the boundary of the attentional template depends on the inhibition of the distractor rather than on the enhancement of the target.

Keywords：　Selective attention, Attention template, N2pc, Pd

负性模板的时间进程：一项 ERP 研究

罗文宇[1]　张瑾[1]　王小桃[1]（通讯作者）

1 江西师范大学心理学院，南昌，330022，wangxt@jxnu.edu.cn

摘要　存储在记忆系统里的目标表征被称为注意控制定势或正性模板。正性模板能引导注意，只有与正性模板相匹配的信息才能被选择，并得到进一步的加工。最近有研究者提出表征在记忆系统里的干扰物特征（拒绝模板或负性模板）是否也能引导注意？关于这个问题现在还存在争论：一部分研究者认为记忆中被表征的干扰物特征能被预先主动抑制，因此建立负性模板能促进对目标的选择；另一部分研究者认为与负性模板相匹配的特征会先吸引注意然后再抑制。本研究使用 go/no-go 空间线索范式结合事件相关电位技术（ERP）来探讨该问题。在正性模板条件下，go 刺激只有一种颜色，而 no-go 刺激有 4 种颜色，以促进被试只记住 go 颜色；在负性模板条件下，目标有四种颜色，而干扰物只有一种颜色，以促进被试只记住 no-go 颜色。行为结果发现，在正性模板条件下，只有 go 颜色线索捕获了注意，中性和 no-go 线索都不捕获注意，说明被试只记住了 go 颜色建立了正性模板；而在负性模板条件下，只有 no-go 颜色线索没有捕获注意，中性和 go 线索都捕获了注意，说明了被试只记住了 no-go 颜色建立了负性模板。脑电结果发现，在正性模板条件下，只有 go 线索在 180ms-290ms 的时窗内诱发了 N2pc 成分，而中性线索和 no-go 线索均没有诱发 N2pc 成分；而在线索呈现后的 300ms-350ms 的时窗中，go 线索和 no-go 线索诱发了 Pd 成分。在负性模板条件下，三种线索都在线索呈现后的 180ms-290ms 的时窗内诱发了 N2pc 成分，而在线索呈现后的 300ms-400ms 的时间窗，只有 no-go 线索诱发了 Pd 成分。这些结果说明，与负性模板相匹配的刺激会先捕获注意，并没有被预先抑制。

关键词　选择性注意，负性模板，抑制，N2PC，PD

Time course of negative templates: an ERP study

Luo Wenyu[1]　Zhang Jin[1]　Wang Xiaotao[1]

School of Psychology, Jiangxi Normal University, Nanchang, 330022, wangxt@jxnu.edu.cn

Abstract: The representation of the target stored in the memory system is known as the attentional control setting (ACS) or positivity template. Positive templates guide attention, and only information that matches a positive template can be selected and further processed. Recently, some researchers have asked whether distractor features stored in the memory system (rejection templates or negative templates) can also guide attention? There is still a debate about this question: some researchers believe that the features of the represented distractor in the memory system can be actively suppressed in advance, thereby facilitating the selection of a target; others believe that features matching negative templates first attract attention and then are suppressed. The present study used the go/no-go spatial cueing paradigm in association with the event-related potential (ERP) technique to explore this issue. In the positive template condition, the go stimulus had only one color, whereas the no-go stimulus had four colors to promote subjects to remember only the go color; in the negative template condition, the target had four colors, whereas the distractor had only one color to promote subjects to remember only the no-go color. Behavioral results revealed that in the positive template condition, only the go color cue captured attention, and neither the neutral nor the no-go cue captured attention, suggesting that subjects remembered only the go color to establish a positive template; whereas, in the negative template condition, only the no-go color cue did not capture attention, and the neutral and go cues both captured attention, suggesting that subjects remembered only the no-go color to establish a negative template. The EEG results revealed that in the positive template condition, only the go cue evoked the N2pc component in the 180-ms-290-ms time window, whereas neither the neutral cue nor the no-go cue evoked the N2pc component; whereas the go cue and the no-go cue evoked the Pd component in the

300-ms-350-ms time window after cue presentation. In the negative template condition, all three cues evoked the N2pc component in the 180ms-290ms time window after cue presentation, whereas only the no-go cue evoked the Pd component in the 300ms-400ms time window after cue presentation. These results suggest that stimuli matching negative templates capture attention first and are not pre-suppressed.
Keywords: Contingent attention capture; Attentional control setting; Negative template; Suppression; N2pc; Pd

基于机器学习的创造性思维脑电信号分类

高慧[1]，刘春雷[1]（通讯作者）

[1]曲阜师范大学心理学院，曲阜 273165

通讯作者：刘春雷 liuchunlei@qfnu.edu.cn

摘要：随着人工智能技术的不断提升，机器学习技术在脑电信号领域中的应用快速增长。脑电图（electroencephalogram, EEG）作为一种低成本、高时间分辨率的神经成像技术，有助于研究者对创造性思维的深入了解。在脑电信号分析中，机器学习通过利用其能够自适应地对数据进行模式识别和分类的特点，实现对脑电信号的分类、识别和分析。大量研究证实，额叶皮层 alpha 功率与个体的创造性表现相关。因此，为考察机器学习技术在创造性思维领域对脑电信号进行分类的有效性。本研究对被试在进行替代用途任务（Alternative Uses Task, AUT）中的脑电信号进行机器学习分析。选取刺激出现后 1-22s 的时间窗口，使用功率谱密度(power spectral density, PSD)技术进行α频段的频域特征提取，分别采用支持向量机（support vector machine, SVM）、二次判别分析（Quadratic Discriminant Analysis, QDA）、逻辑回归（Logistic Regression, LogR）、决策树（Decision Tree）、梯度提升决策树（Xtreme Gradient Boosting, XGBoost）、轻量梯度提升机（Light Gradient Boosting Machine, LightGBM）的方法进行分类。结果发现对创造力高、低试次的分类准确率依次达到 76.50%、75.24%、74.37%、66.77%、72.34%、72.73%，对高创造力试次的分类准确性达到 83.40%、85.20%、86.54%、76.68%、80.71%、81.61%。这些结果表明，机器学习在创造力研究中不可忽视的潜力和巨大的发展空间。

关键词：创造性思维，机器学习，脑电图，功率谱密度

Classification of EEG signals related to creative thinking based on machine learning

Hui Gao[1], Chunlei Liu[1] (corresponding author)
[1] School of Psychology, Qufu Normal University, Qufu 273165, China
Correspondence: liuchunlei@qfnu.edu.cn

Abstract: With the continuous improvement of artificial intelligence technology, the application of machine learning technology in the field of EEG signal is growing rapidly. electroencephalogram (EEG) is a low-cost, high-time-resolution neuroimaging technique that helps researchers gain insight into creative thinking. In the analysis of EEG signals, machine learning realizes the classification, recognition and analysis of EEG signals by making use of its characteristics of pattern recognition and classification of data. A large number of studies have confirmed that frontal cortex alpha power is related to individual creative performance. Therefore, in order to investigate the effectiveness of machine learning technology in classifying EEG signals in the field of creative thinking. In this study, the EEG electrical signals were analyzed by machine learning when the subjects were performing Alternative Uses Task (AUT). The time window of 1-22s after the occurrence of the stimulus was selected, and the frequency domain features of the α band were extracted using power spectral density (PSD) technology. support vector machine (SVM), Quadratic Discriminant Analysis (QDA) and Logistic Regression were used respectively. LogR), Decision Tree, Xtreme Gradient Boosting (XGBoost), Light Gradient Boosting Machine, LightGBM) method for classification. The results showed that the classification accuracy of high creativity and low creativity was 76.50%, 75.24%, 74.37%, 66.77%, 72.34%, 72.73%, respectively. The classification accuracy of high creativity tests reached 83.40%, 85.20%, 86.54%, 76.68%, 80.71%, 81.61%. These results show that machine learning has great potential and great room for development in creativity research.

Key words: Creative Thinking, Machine Learning, EEG, Power Spectral Density

5.30 心理学与社会治理专业委员会

人亦有言，进退维谷：基层干部的公共服务动机与两难困境研究

贺晓玲　刘海丽　周莹

南昌大学公共政策与管理学院心理学系 江西南昌 330031

摘 要 公共服务动机是指个人在内外部因素的影响下逐渐形成、长期存在的一种以公共利益为导向的服务他人和社会的思想和行为。本研究旨在深入研究基层干部在公共服务过程中所面临的两难困境，特别关注公共服务动机与亲社会性违规行为之间的关系，并探究道德辩护、组织容错和权力距离的影响机制。通过向广大基层干部发放调查问卷，共收集 427 份有效问卷数据，结果显示：公共服务动机不仅直接正向影响亲社会性违规行为，道德辩护和组织容错在公共服务动机与亲社会性违规行为之间起部分中介作用；通过 Process 宏程序的调节效应检验和简单斜率检验结果显示，随着权力距离的增大，公共服务动机对亲社会性违规行为的预测作用减弱，说明权力距离在公共服务动机与亲社会性违规行为之间起负向调节作用。本研究深入理解了基层干部在公共服务领域的难题,通过明确影响因素和作用机制，政府和相关部门可以采取措施，优化基层干部的工作环境和条件，提高他们的公共服务动机和行为质量，从而更好地满足人民群众日益增长的美好生活需要。

关键词 基层干部；公共服务动机；亲社会性违规行为；道德辩护；组织容错；权力距离

People also have words, Dilemma: Research on Public service motivation and dilemma of grassroots cadres

He Xiaoling　Liu Haili　Zhou Ying

School of Public Policy and Administration, Nanchang University, Nanchang, 330031

Abstract：Public Service Motive refers to a kind of thought and behavior of serving others and society with the public interest as the orientation, which gradually forms and exists for a long time under the influence of internal and external factors. This study aims to deeply study the dilemmas faced by grassroots cadres in the process of public service, paying special attention to the relationship between public service motivation and pro-social violations, and exploring the influence mechanism of moral defense, organizational fault tolerance, and power distance. A total of 427 valid questionnaires were collected from grassroots cadres. The results showed that public service motivation not only directly and positively affected prosocial transgressions, but also moral justification and organizational fault tolerance played a partial mediating role between public service motivation and prosocial transgressions. The results of Process Macro's moderating effect test and simple slope test show that with the increase of power distance, the predictive effect of public service motivation on prosocial transgression weakens, indicating that power distance has a negative moderating effect between public service motivation and prosocial transgression. This study has an in-depth understanding of the difficulties of grass-roots cadres in the field of public service. By clarifying the influencing factors and mechanism, the government and relevant departments can take measures to optimize the working environment and conditions of grass-roots cadres, improve their motivation and quality of public service, and better meet the growing needs of the people for a better life.

Keyword: Grassroots cadres; Public service motivation; Pro social violations; Moral defense; Organizational fault tolerance; Power distance

中国女大学生童年环境类型与放纵性态度及生育意愿的关系：基于生命史理论与潜在剖面分析的探索研究

陈羽[1]　徐华春[1]（通讯作者）

1 四川师范大学心理学院，成都，610066，Seanxu1981@163.com

摘 要　进化心理学的生命史理论认为童年环境在个体成长早期提供了一个未来可能环境的参照，使得个体发展出与之相适应的生命史策略。童年不良生活环境容易使个体形成以性成熟更早、对子女投入更少

为特点的快生命史策略。为进一步挖掘中国文化背景下童年环境的内涵，并探究其对“交配-养育”这一生殖策略的具体影响；本研究以 913 名中国女大学生为样本，采用以“个体为中心”的研究策略，利用潜在剖面分析（Latent Profile Analysis, LPA）的方法，首次尝试对童年生活环境的整体状态进行描述和比较，探测个体在童年环境压力、留守经历、养育方式的维度上，是否存在复杂的组合关系，形成不同的童年环境亚型。以及不同亚型对女性成年后具体生殖策略的影响。结果发现：（1）以童年环境不可预测性、童年环境严峻性、留守时长、开始留守的年龄、父亲参与教养和童年父母自主支持 6 个维度，可将女大学生的童年环境分为四种潜在类型：“良好陪伴型”、“晚留守型”、“典型留守型”和“短留守时长型”；（2）“短留守时长型”女大学生放纵性态度显著高于“典型留守型”女大学生；（3）“晚留守型”女大学生生育意愿及理想孩子个数显著高于其他三组。本研究首次将女性童年环境进行分类，并发现不同类别童年环境对个体生殖策略的影响，结合进化心理学生命史策略与中国传统文化观念进行相关讨论,为当代中国青年女性复杂矛盾的生殖行为模式提供阐释。

关键词　女大学生，生命史策略，童年环境，放纵性态度，生育意愿

The relationship between childhood environment profiles and permissive sexual attitudes and fertility intentions among Chinese female college students: An exploratory study based on Life history theory and Latent Profile Analysis

CHEN Yu[1]　XU Hua-chun[1]

1. College of Psychology, Sichuan Normal University, Chengdu 610066, China

***Abstract*:** Life history theory based on evolutionary psychology suggests that individual differences in Reproductive Trade-offs are partially rooted in environmental conditions experienced early in life. Unfavorable childhood environments tend to predispose individuals to develop fast life history strategies characterized by more mating effort and less parenting effort. Based on a sample of 913 Chinese female university students, the present study adopted a “person-centered approach” by utilizing Latent Profile Analysis (LPA) to explore the different childhood environment subtypes of individuals in terms of the dimensions of childhood environmental stress, left-behind experiences, and parenting styles. We further explored the connotations of childhood environment in the Chinese cultural context, and explored its influence on the reproductive trade-off of "mating and parenting". Results: (1) According to the six dimensions of Childhood unpredictability, Childhood harshness, Time to start staying, Length of staying, father's involvement in parenting, and parental autonomy support in childhood, female college students can be categorized into four potential profiles: " Highly companionable childhood ", " Late start to stay ", " Typical left-behind type " and " Shorter length of stay ". (2) The permissive sexual attitudes of the " Shorter length of stay " female university students were significantly higher than those of the " Typical left-behind type ";(3) The fertility intentions and the Ideal number of children by the "late-staying-type" female university students are significantly higher than those of the other three profiles. This study is the first to categorize women's childhood environments and to find out the effects of different types of childhood environments on individual reproductive strategies. This study combines life-history theory with traditional Chinese cultural concepts to explain the complex and contradictory reproductive trade-offs among young women in contemporary China.

Keywords： Female college students, Life history theory, Childhood environments, Permissive sexual attitudes, Fertility Intention

情境线索对生育意愿的影响：共情情绪的作用

韦晓[1]（通讯作者） 王萍[1] 兰楠[1]

1 六盘水师范学院教育科学学院，六盘水市，553000，weixiao@snnu.edu.cn

摘 要 生育意愿通常被认为是一种深刻的、由生物学驱动的愿望，或者是基于权衡成本和收益的理性决定。基于这些概念，许多人认为生育意愿是稳定不变的。随着当今社会的发展，生育越来越成为个人决定，了解预测生育意愿的心理因素，以及这种意愿的可塑程度是当今社会的一个重要话题。鉴于有证据表明生育意愿可以预测随后的育儿结果，了解情境因素是否以及在多大程度上可能会改变生育意愿，将有助于揭示当前生育状况。为了确定情境线索（即观看积极或消极的亲子时刻）是否会唤起共情情绪和更大的生育意愿。本研究通过问卷+实验的方式测量了 488 名年轻人（18-40 岁）观看积极亲子时刻的描述（相对于成人独处的时刻）是否会通过增加共情情绪来增加他们的生育意愿。其次，研究还比较了积极亲子时刻和消极的亲子时刻的影响。结果发现，（1）生育意愿很容易被情境线索所改变，例如描绘父母和孩子的积极形象的句子、图片或视频；（2）积极的亲子形象会增强个体共情情绪，从而导致年轻人更渴望生孩子；（3）消极的亲子形象也会减少想要孩子的愿望。研究结果表明，父母和孩子的亲子形象可能会影响年轻人生孩子的愿望。当年轻人看到父母和可爱孩子的亲子时刻时，他们会更渴望拥有自己的孩子，部分原因是这些图像让他们产生共情、富有同情心和关怀。

关键词 生育意愿，共情情绪，情境线索

The Impact of Contextual Clues on Fertility Intention: The Role of Empathy

Wei Xiao[1] (corresponding author) Wang Ping[1] Lan Nan[1]

[1] School of Education Science, Liupanshui Normal University, 553000, weixiao@snnu.edu.cn

Abstract: Fertility intention is often considered a profound, biologically driven desire, or a rational decision based on weighing costs and benefits. Based on these concepts, many people believe that fertility intention is stable and unchanging. With the development of today's society, childbirth has increasingly become an individual decision. Understanding the psychological factors that predict fertility intentions and the degree of plasticity of such intentions is an important topic in today's society. Given the evidence that fertility intention can predict subsequent parenting outcomes, understanding whether and to what extent situational factors may alter fertility intention will help reveal the current fertility status. To determine whether situational cues (i.e., viewing positive or negative parent-child moments) will evoke empathy and greater willingness to conceive. This study measured

whether 488 young people (18-40 years old) who watched descriptions of positive parent-child moments (compared to when adults were alone) would increase their willingness to conceive by increasing empathy through a questionnaire and experiment. Secondly, the study also compared the impact of positive parent-child moments with negative parent-child moments. The results showed that (1) fertility intention is easily altered by contextual cues, such as sentences, pictures, or videos depicting positive images of parents and children; (2) A positive parent-child image can enhance individual empathy, leading to younger people being more eager to have children; (3) Negative parent-child images can also reduce the desire to have children. The research results indicate that the parent-child image of parents and children may affect the wishes of young children in life. When young people see the parent-child moments of their parents and lovely children, they are more eager to have their own children, partly because these images create empathy, empathy, and care.

Keywords：fertility intention, empathy, contextual cues

心理调节对社区多元化调解的影响：一个有调节的中介模型

丁宁[1] 李常旭[2] 刘雨桐[3]

1 吉林师范大学教育科学学院心理学系，吉林四平，136000

2 长春康林心理医院，吉林长春，130000

3 哈尔滨师范大学教育科学学院心理系，黑龙江哈尔滨，150000，liuyutong1214@163.com

摘要：社区多元化调解不仅是国家治理体系和治理能力现代化的重要内容，也是“平安中国”建设的重要方面。作为化解社区冲突和维护社会稳定的一种新型调解思路，多元化调解在国内许多社区的民众调解实践中已经产生了积极的成效。在众多社区多元化调解案例中，心理调节被尝试使用。为探索心理调节对社区多元化调解的影响机制，本研究选择 5 个社区的 43 件调节案例进行研究，其中采用心理调节的案件共有 18 件。采用问卷法，邀请居民对工作人员态度、调解方法的接纳程度、调解难度、调解结果满意度以及调解过程满意度进行打分；邀请社区工作人员对案件调节难度进行打分。采用 PROCESS 4.2 宏程序进行了有调节的中介模型检验（Model 12），结果如下：1.被调解者在有心理调节参与时对工作人员的态度、接纳调解方法的程度、对调解结果和调解过程的满意度都相对较高，同时调解次数和调解难度也都更高（$t= 8.52, p < .001$；$t= 1.69, p < .05$；$t = 2.93, p < .001$；$t= 2.67, p < .001$；$t= 2.12, p < .05$；$t= 2.09, p < .05$）。2.当引入心理调节参与和调解难度后，工作人员态度与心理调节参与的交互效应对调解方法接纳程度产生显著影响（$b = 1.31, p < .001$）。工作人员态度与调解难度的交互效应对被调解人整体满意度的影响显著（$b = 1.31, p < .001$）。3.在调解难度为中等水平时，心理调节参与显著调解了对调解方法接纳程度在工作人员态度与调解结果满意度之间的间接影响（Index= -1.92，95%CI=[-5.07, -.11]）。4.在有心理调节参与时，只有在难度适中时，工作人员态度才显著影响调解整体满意度（effect = 2.14, 95%CI = [.66, 3.63]）。本研究发现，心理调节能够有效提升中等调节难度的社区矛盾事件，但社区多元化调解过程更倾向于将难度较高或陈年旧案交由心理调节参与的社区多元化调解的案例中。心理调节能够有效提升工作人员的工作态度进而更好的为居民排忧解难，也能够提升居民对于调节方案的认可程度。本研究为有心理调节参与的社区多元化调解提供了一定的使用参考。为有效化解社区居民矛盾提供了一定的方法借鉴。

关键词：社区多元化调解，心理调节，调解满意度，调节模型，中介模型

The effect of psychological adjustment on community pluralistic mediation: a moderated mediation model

Ding Ning1 LiChangxu2
1 Jilin Normal University
2 Changchun Kanglin Mental Health Hospital
3 Harbin Normal University

Abstract：Community pluralistic mediation is not only an important part of the modernization of the national governance system and governance capacity, but also an important aspect of the construction of "Peaceful China". As a new mediation idea to resolve community conflicts and maintain social stability, pluralistic mediation has produced positive results in the practice of civil mediation in many communities. Psychological adjustment has been tried in many community pluralistic mediation cases. In order to explore the influence mechanism of psychological adjustment on community pluralistic mediation, this study selected 43 mediation cases from 5 communities to study, of which 18 cases used psychological adjustment. By using questionnaire, residents were invited to rate the attitude of the staff, the acceptance of the mediation method, the difficulty of mediation, the satisfaction of the mediation result and the satisfaction of the mediation process. Community staff were invited to rate the difficulty of case adjustment.The mediated Model test (Model 12) was conducted using PROCESS 4.2, and the results are as follows:1. The mediatee's attitude towards the staff, the degree of acceptance of the mediation method, the satisfaction with the mediation result and the mediation process are relatively high when they are involved in psychological adjustment, and the frequency and difficulty of mediation are also higher (t= 8.52, p < .001； t= 1.69, p < .05； t = 2.93, p < .001； t= 2.67, p < .001； t= 2.12, p < .05； t= 2.09, p < .05). 2. When psychological adjustment participation and mediation difficulty are introduced, the interaction effect of staff attitude and psychological adjustment participation has a significant impact on the acceptance degree of mediation methods (b = 1.31, p < .001). The interaction effect of staff attitude and mediation difficulty has significant influence on the overall satisfaction of the mediates (b = 1.31, p < .001). 3. When the mediation difficulty was moderate, psychological adjustment participation significantly mediated the indirect impact of acceptance of mediation methods on staff's attitude and satisfaction with mediation results (Index= -1.92，95%CI=[-5.07, -.11]). 4. When psychological adjustment was involved, staff attitude significantly affected the overall satisfaction of mediation only when the difficulty was moderate (effect = 2.14, 95%CI = [.66, 3.63]). This study found that psychological adjustment can effectively improve community conflict events with moderate adjustment difficulty, but the community pluralistic mediation process is more inclined to assign difficult or old cases to the community pluralistic mediation cases involving psychological adjustment. Psychological adjustment can effectively improve the working attitude of the staff to better solve the problems for the residents, and also improve the recognition of the residents for the adjustment plan. This study provides some reference for community pluralistic mediation involving psychological adjustment. It provides some methods for reference to effectively resolve the contradictions of community residents.

Key words: community pluralistic mediation, psychological adjustment, mediation satisfaction, mediation model, mediator model

认知接种对网络错误信息相信度的影响：

自信心、策略习得能力的作用

王碧涵[1] 陆辰[1] 张梦蕾[2] 王俭勤[1]（通讯作者）

1 复旦大学社会发展与公共政策学院，上海，200433，通讯作者 wjq@fudan.edu.cn

2 东北师范大学心理学院，长春，130000

摘 要 新媒体时代，人们日常会接触到大量错误信息，媒体上的大量虚假夸大、渲染情绪的错误信息往往拥有更高的曝光量，干扰了个人对真相和事实的判断，扰乱了社会秩序。错误信息难以更正很大程度上是因为无法对更正信息进行有效加工。因此，提升个人识别错误信息的能力，可以从源头最大可能地减少错误信息的扩散，降低错误信息带来的不良影响。认知接种(Inoculation)是近年来兴起的一种针对错误信息的广谱性认知干预手段，被试通过接触关于编造错误信息的常用策略，减少其对一般性错误信息的相信度，从而提高对错误信息的辨别能力。

本研究基于接种理论，在梳理和分析关于错误信息影响因素的基础上，开展了一项预实验和两个正式实验。预实验基于国外已有范式并结合中国社会中的主要谣言类型和谣言编造策略，设计开发了本土化的认知接种程序，并通过可用性测试提高了程序的易用性。实验一采用 2（认知接种：有，无）×2（测量时间：前测，后测）的混合实验探索认知接种抵抗错误信息的有效性。结果发现，基于本土化的认知接种程序能够有效降低大学生对错误信息的相信度。

实验二在实验一的基础上进一步考察认知接种降低错误信息相信度的机制。结果显示，接种可以降低被试对错误信息的相信度，且不会降低被试对正确信息的相信度；相比对照组，接种组的威胁感知更高。此外，被试对错误信息的判断信心、对错误信息编造策略的习得能力可以预测接种游戏抵御错误信息的效果。最后，结果发现控制组被试的判断信心低于实验组，可能表明他们在一定程度上意识到他们使用的信息是模棱两可的。

综上，本研究基于接种理论，开发了本土化的降低错误信息相信度的认知接种程序，并探究了自信心、策略习得能力在认知接种中的作用。该研究发现拓展了认知接种抵抗错误错误信息的解释范围，深化了对认知接种机制的认识，丰富了错误信息防治策略。

关键词 错误信息，网络谣言，认知接种，说服理论

Using Inoculation Technology against Online Misinformation:

The Role of Confidence and Learning Strategy

Bihan Wang，Chen Lu，Menglei Zhang，Jianqin Wang*

Department of Psychology，Fudan University, 220 Handan Road, 200433, Shanghai

Northeast Normal University school of psychology, 5268 Renmin Road, 130024, Changchun

Abstract：In our digital age, misinformation is pervasive and disruptive. Addressing this, our study, based on inoculation theory, explored cognitive strategies to mitigate the impact of misinformation. We conducted a pre-experiment and two main experiments. The pre-experiment developed a localized cognitive inoculation program, tailored to Chinese society's misinformation types and fabrication strategies.

Our first experiment revealed that this program significantly reduced university students' belief in misinformation. The second experiment further elucidated the mechanism behind this reduction. The results indicated that inoculation lessens belief in misinformation without affecting belief in accurate information. Subjects' confidence in judging misinformation and their strategy acquisition ability were key predictors of the inoculation's effectiveness.

Overall, this research deepened understanding of the mechanisms behind cognitive inoculation against misinformation and provided new insights for misinformation prevention strategies.

Keywords：misinformation, online fake news, inoculation, persuasion theory

为何要“德才兼备”？

--以说谎行为为例

潘雅洁[1,2]　夏丽帕·艾尔肯[1,2]　刘毅[1,2]（通讯作者）

1 新疆心智发展与学习科学重点实验室，乌鲁木齐，830017

2 新疆师范大学心理学院，乌鲁木齐，830017，nyliuyi@sina.com

摘　要　创造力是学校教育的重要目标，具备高创造力是个体和社会的普遍愿景。通常情况下，创造力与积极的形象和价值相联系，也有研究者关注到创造力的“阴暗面”，如创造力对说谎行为有正向预测作用，然而创造力对说谎行为的影响机制目前还并不清楚。本研究以高中生为研究对象，通过两个研究，尝试回答两个问题：（1）高创造力者为何有更多说谎行为？（2）高创造力者是否必然有更多说谎行为？

实验 1 共招募 114 名高中生被试，通过远距离联想测验以测量个体的创造力、帮助编造圆谎理由测量个体的说谎能力、说谎量表测量个体的说谎行为。结果显示，创造力对说谎行为具有显著的正向预测作用，说谎能力在创造力与说谎行为的关系中起显著的中介作用。实验 2 采用 2（创造力：高创造力组 / 低创造力组）× 2（道德推脱：高道德推脱组 / 低道德推脱组）被试间设计，共招募 124 名高中生参与实验，通过自我损耗任务操纵个体的创造力，通过道德推脱量表对个体的道德推脱动机进行分组，说谎行为通过经典数字矩阵任务进行测量。结果显示，对低道德推脱组，高、低创造力组的说谎行为无显著差异，而对高道德推脱组，高创造力组的说谎行为显著高于低创造力组。

本研究的结果表明，高创造力者有更强的说谎能力（如：编造更令人信服的理由）可能是其有更多说谎行为的重要原因，然而创造力对说谎行为的影响还受到道德推脱的调节，即创造力显著增加了高道德推脱组的说谎行为，但并不会提高低道德推脱组的说谎行为，验证了影响个体行为的“能力+动机”假设。另一方面，本研究的结果对在人才培养中必须重视“德才兼备”提供了理论和实证支持。

关键词　创造力，说谎行为，说谎能力，道德推脱

Why should we “have both moral integrity and talent”?

--Taking lying behavior as an example

Yajie Pan
The Key Laboratory of Mental Development and Learning Science of Xinjiang, Urumqi

Abstract： Creativity is an important goal of school education, and having high creativity is a universal vision for individuals and society. Usually, creativity is associated with positive images and values, and some researchers have focused on the "dark side" of creativity. For example, creativity has a positive predictive effect on lying behavior. However, the mechanism by which creativity affects lying behavior is currently unclear. This study focuses on high school students and attempts to answer two questions through two studies: (1) Why do highly creative individuals exhibit more lying behavior? (2) Are highly creative individuals bound to have more lying behaviors?

In Experiment 1, a total of 114 high school students were recruited to measure their creativity through Remote Association Tests(RAT), assist in fabricating false excuses to measure their lying ability, and measure their lying behavior using a Lie Scale. The results show that creativity has a significant positive predictive effect on lying behavior, and lying ability plays a significant mediating role in the relationship between creativity and lying behavior. Experiment 2 adopts 2 (creativity: high creativity group/low creativity group) × 2 (moral disengagement: high moral disengagement Group/low moral disengagement Group) between-subjects design, a total of 124 high school students were recruited to participate in the experiment. Individual creativity was manipulated through ego depletion tasks, and individual moral disengagement motivations were grouped using the Moral Disengagement Scale. Lying behavior was measured using classical number matrix tasks. The results showed that there was no significant difference in lying behavior between the low moral disengagement group and the high and low creativity groups, while for the high moral evasion group, the lying behavior of the high creativity group was significantly higher than that of the low creativity group.

The results of this study indicate that the stronger lying ability of highly creative individuals (such as fabricating more convincing reasons) may be an important reason for their more lying behavior. However, the impact of creativity on lying behavior is also moderated by moral disengagement, that is, creativity significantly increases the lying behavior of the high moral disengagement group, but does not increase the lying behavior of the low moral disengagement group, Verified the hypothesis of "ability and motivation" that affects individual behavior. On the other hand, the results of this study provide theoretical and empirical support for the importance of "possessing both moral integrity and talent" in talent cultivation.

童年与家养犬关系对生育意愿的影响:亲代养育倾向的中介作用与人际信任的调节作用

邱兰钧[1] 葛佳洋[1] 徐华春[1]（通讯作者）
1 四川师范大学心理学院，四川 成都，610068，Seanxu1981@163.com

摘 要 生育问题一直是社会关注的热点，其中生育意愿是人们对于生育活动的一种愿望表达形式，与生育结果有着紧密联系。生态环境理论认为，个体童年时期的成长环境及经历会对其生育意愿现状产生影响，并且这种影响是长期存在的。在个体童年时期的家庭中拥有家养犬的现象普遍，人犬关系为个体身心健康带来的积极影响众多，养育情感的提升是其带来的益处之一。而生育和养育是密切相关的，与家养犬的有效互动及对其的照料行为会促进个体亲代养育倾向的提升。进化心理学的理论观点认为，亲代养育倾向是人类为促进后代传递而出现的养育系统，对个体的生育意愿有积极作用。此外，人际信任是个体的一种心理品质或者是对他人的一种期待，在个体人际交往中所形成的人际信任水平高低会影响个体采取风险性行为水平的高低，进而会对其生育态度带来一定影响。因此，本研究基于个体童年时期饲养经历的视角，探讨个体童年时期与家养犬关系质量与其生育意愿现状之间的联系，以及人际信任在这当中产生的作用机制。采用莫纳什狗-主人关系问卷、生育意愿题项、广义人际信任问卷及亲代养育与柔情问卷，对童年时期有且仅饲养过犬类动物经历的大学生群体发放问卷 540 份，最后回收有效问卷 483 份。结果显示：（1）童年与家养犬关系和个体的生子欲望、理想子女数显著正相关，和个体理想生育年龄显著负相关；（2）亲代养育倾向在童年与家养犬关系和生子欲望、理想子女数及理想生育年龄间起部分中介作用；（3）人际信任调节童年与家养犬关系对理想子女数及理想生育年龄影响的后半段路径。具体而言，当人际信任水平相对较高时，亲代养育倾向对理想子女数与理想生育年龄的预测作用更强。可见，研究从童年与家养犬关系进一步验证对生育意愿的影响，揭示了亲代养育倾向的中介作用和人际信任的调节作用，对个体产生积极的生育态度带来启示。

关键词 生育意愿，童年与家养犬关系，人宠关系，亲代养育倾向，人际信任

The effect of childhood relationship with the domestic dog on fertility intentions: The mediating role of parental care motivation and the moderating role of interpersonal trust

Qiu Lanjun [1]Ge Jiayang[1] Xu Huachun[1](Corresponding author)
[1] College of Psychology, Sichuan Normal University, Chengdu, China

Abstract： Fertility has always been a major social concern, and fertility intentions are a form of expression of people's desire to have children and are closely linked to fertility outcomes. Ecological theory suggests that the environment and experiences of an individual's childhood have an impact on his or her current fertility intentions and that this impact is long-lasting. It is common for individuals to have a domestic dog in their childhood home and the relationship between dog and human has many positive effects on an individual's physical and mental health, with the enhancement of nurturing emotions being one of the benefits. As fertility and nurturing are closely linked, effective interactions with and care for domestic dogs promote an individual's propensity for parenting. Evolutionary psychology theory that parenting is a nurturing system that emerges in humans to facilitate the transmission of offspring, contributing to an individual's willingness to have children. In addition, interpersonal trust is a psychological quality or an expectation of others, and the level of interpersonal trust developed during an individual's interpersonal interactions affects the level of risky behaviors adopted by the individual, which in turn has an impact on the individual's attitude toward reproduction. This study therefore examined the relationship between the quality of one's childhood relationship with a domestic dog and one's current fertility intentions and the mechanisms by which interpersonal trust was involved, based on one's childhood ownership experiences. The

Monash Dog Owner Relationship Questionnaire, the Fertility Intentions Questionnaire, the Generalised Interpersonal Trust Questionnaire, and the Parenting and Tenderness Questionnaire were used for 540 questionnaires distributed to a group of college students who had and had only had the experience of owning canine animals during their childhood, and 483 valid questionnaires were collected at the end of the study. The results showed that: (1) Childhood relationships with domesticated dogs positively predicted individuals' desire to have children, the ideal number of children and negatively predicted ideal age of childbearing; (2) Intergenerational parenting tendencies partially mediated the relationship between childhood domestic dog relationships and desire to have children, ideal number of children and ideal age of childbearing; (3) Interpersonal trust moderates the second half of the pathway between childhood and domestic dog relationships on ideal number of children and ideal age at childbearing. Specifically, when the level of interpersonal trust was relatively high, parenting tendencies were stronger predictors of the ideal number of children and the ideal age of childbearing. As can be seen, the study further validated the effects on fertility intentions from childhood relationships with domestic dogs, revealing the mediating role of parental care motivation and the moderating role of interpersonal trust, which shed light on the development of positive fertility attitudes in individuals.

Keywords： Fertility Intentions, Childhood Relationship with Domestic Dog, Human-pet Relationship, Parental Care Motivation, Interpersonal Trust

5.31 文化心理学专业委员会

本体安全感威胁对文化混搭产品评价的影响：一个有调节的中介模型

王单[1]（通讯作者）

成都理工大学产业技术学院，宜宾，645151，1059162998@qq.com

摘要　各国经济的发展和全球化进程的加快，社会制度、物质环境发生一系列变化，打破了人们以往的生活节奏，恐慌的人们常常会陷入一种本体不安全的状态，感受到来自本体安全感的威胁。本研究以本体安全感理论和恐惧管理理论为基础，探讨本体安全感威胁、感知文化入侵、人格开放性与文化混搭产品评价之间的关联，揭示影响文化混搭产品评价的内在心理机制。

预实验 a，为检验文字启动材料的有效性，将 76 名被试分为本体安全感威胁实验组和对照组，完成一项相应的阅读任务。结果表明：实验组被试的本体安全感威胁得分显著高于对照组，这意味着文字材料启动有效。预实验 b，考察文化混搭产品图片材料的有效性。共招募了 70 名被试，分别对图片的神圣性、产品喜爱度、是否为文化混搭三个方面进行评分。最终，成功地筛选出了 2 张非神圣性的中性文化混搭产品图片，作为后续研究的材料。

研究一 a，使用本体安全感威胁量表、感知文化入侵量表和语义差异量表对 590 名被试进行问卷调查；结果表明：特质性本体安全感威胁可以负向预测文化混搭产品评价，感知文化入侵在两者间起部分中介作用。研究一 b：为增强研究结果的稳健性，采用单因素被试间实验设计，将 240 名被试随机分为本体安全感威胁的实验组和控制组，完成特定的阅读任务后，呈现 2 张文化混搭产品的图片，并对其进行打分；结果显示：状态性本体安全感威胁也可以负向预测文化混搭产品评价，感知文化入侵在两者间起部分中介作用。

研究二，为了探析本体安全感威胁与感知文化入侵、文化混搭产品评价间关系的边界条件，探讨了人格开放性在中介模型中的调节作用；选取 268 名被试，采用 2（本体安全感威胁：实验组 vs 控制组）x2（人格开放性：高 vs 低）的被试间实验设计；结果表明，高人格开放性缓冲了本体安全感威胁对感知文化入侵和文化混搭产品评价的负面影响。

结论：感知文化入侵在本体安全感威胁与文化混搭产品评价中起部分中介作用，并且人格开放性在中介模型前半段路径与直接路径中起调节作用。

关键词：本体安全感威胁，感知文化入侵，文化混搭，产品评价，人格开放性

同伴群体地位等级性对青少年孤独感的影响：文化的调节作用和同伴支持的中介作用

孙琰[1] 周同[1] 张可沁[2] 刘俊升[1](通讯作者) 桑标[1,3] 陈欣银[4]

1 华东师范大学心理认知科学学院，上海，200062

jsliu@psy.ecnu.edu.cn

2 Department of Human Development and Family Studies, Purdue University, West Lafayette, IN, US

3 上海市教育科学研究院，上海，200062

4 Graduate School of Education, University of Pennsylvania, Philadelphia, Pennsylvania, USA

摘 要 同伴群体地位等级性反映了同伴群体中个体权利和地位的分布，是同伴群体中的一种自然且普遍的现象。以往研究发现，地位等级性能够影响青少年的心理与行为适应，然而研究结果并不一致。一方面，从功能主义的视角来看，清晰的地位等级性可以提高群体内关系的稳定性，进而促进青少年之间的支持和帮助，提高个体的心理适应水平；另一方面，“权力平衡”视角提出，地位的不平等会导致群体内的冲突增加，欺负和受欺负现象频频发生。同伴群体作为一个微观系统嵌套在宏观系统文化中，其功能和作用机制很有可能存在文化差异。集体主义强调服从地位等级和维护集体利益，而个人主义重视地位平等和个人利益。基于此，本研究旨在同伴群体地位等级性对青少年孤独感的影响是否会受到文化背景的影响，以及青少年感知到的同伴支持是否会在同伴群体地位等级性和孤独感之间起中介作用。研究采用两个时间点的纵向研究设计，选取 787 名中国学生（M_{age} = 12.55 years, SD = 1.59）和 1033 名加拿大学生（M_{age} = 11.81 years, SD = 1.53）为研究对象，采用自我报告方式测量青少年感知到的同伴群体地位等级性、同伴支持以及孤独感。研究发现：（1）在控制了 T1 孤独感、青少年的性别和年龄后，T1 同伴群体地位等级性对 T2 孤独感的预测受到文化背景的调节；（2）文化的调节作用可以被青少年感知到的同伴支持所解释。具体来说，对于中国青少年，同伴群体中清晰的地位等级性能够增加群体内同伴支持，进而减少孤独感；对于加拿大青少年，同伴群体中地位等级性越清晰，反而会减少群体内同伴支持，进而影响其孤独感。本研究结果表明，在不同文化背景下地位等级性对青少年适应的影响是不同的，这提示我们在探讨儿童青少年同伴环境对其适应的影响时应关注社会和文化背景的重要性。

关键词 地位等级性，同伴支持，孤独感，文化

The impact of group status hierarchy on adolescents' loneliness: the moderation of culture and the mediation of peer support

Yan Sun[1], Tong Zhou[1], Keqin Zhang[2], Junsheng Liu[1] Biao Sang[1,3], Xinyin Chen[4],

1 School of Psychology and Cognitive Science, East China Normal University, Shanghai, China

2 Department of Human Development and Family Studies, Purdue University, West Lafayette, IN, US

3 Lab for Educational Big Data and Policymaking, Shanghai Academy of Educational Sciences, Shanghai, China

4 Graduate School of Education, University of Pennsylvania, Philadelphia, Pennsylvania, USA

Abstract: Peer group hierarchy represents the distribution of power and dominance in the adolescents' peer group. The emergence of status hierarchies within human peer groups is considered a natural and pervasive phenomenon, but its effect on individuals behavioral and psychological adjustment is controversial. On the one hand, from the functionalist perspective, studies have underlined the virtues of status hierarchies; they appear to promote intra-group support and decrease the psychological maladjustment by enhancing the predictability and stability of social relationships. On the other hand, a growing body of research supports the "balance-of-power" view by showing status inequality within peer group, is associated with victimization, bullying, and other violent behaviors. From the bio-ecological theory, adolescents are embedded within multi-layered ecological systems that encompasses both the immediate micro-level peer group environment (e.g., group status hierarchy) and the larger, macro-level societal and cultural contexts. In societies with vertical-collectivism, such as China, puts great emphasis on obedience to group norms and status hierarchy as well as sacrifices their own interests for the collective well-being, whereas in societies with egalitarian-individualism, such as Canada, focus on equality of status and self-benefits. Therefore, the present studies aimed to explore whether the direct effect of group status hierarchy on loneliness and the mediating process may be moderated by the culture by using longitudinal design. At wave 1, a total 1,820 children in Grades 4 to 8 from Shanghai, P.R. China (n = 787, 343 girls; M_{age} = 12.55 years, *SD* = 1.59) and Ontario, Canada (n = 1,033, 589 girls; M_{age} = 11.81 years, *SD* = 1.53) were recruited in 2009-2010. Adolescents reported on their perceived group status hierarchy, peer support and loneliness. The results indicated that: (1) After controlled T1 loneliness, gender and age, the culture moderated the effect of T1 group status hierarchy on T2 loneliness; (2) The moderator effects of culture partial through the mediating effect of peer support. Specifically, for Chinese adolescents, higher group status hierarchy can promote peer support, and further decreased their loneliness, whereas for Canadian adolescents, higher group status hierarchy can reduce peer support, which in turn fosters strong feelings of loneliness. These findings highlight the importance of considering social and cultural contexts when examining the implications of children's peer group structure.

Keywords: group status hierarchy, peer support, loneliness, culture

中华优秀传统文化融入现代心理治疗的理论与实践研究

王壮生

山东省滨州医学院大学生心理健康中心，烟台，264000，邮箱：514441609@qq.com

摘 要 在中华优秀传统文化和临床心理实践基础上，采用从具体现象中提炼出认识现象的概念，然后不断地在具体事物里去核实的方法，定性研究与定量研究相结合，借鉴西方人格特质理论的模式,中国本土人格五分法总结出三个人格维度,五种典型人格类型，（见图1）。



图1：中国本土人格五分法维度类型

五种人格类型与中华优秀传统文化有着密切的关系，一型人格个体利用儒家思想,“儒表法内”,二型人格个体践行儒家思想，三型人格类型个体没有真正理解不会灵活运用儒家思想，四型人格类型个体不肯遵守甚至践踏儒家思想，五型人格类型个体信奉无为的道家思想,（见图2）。

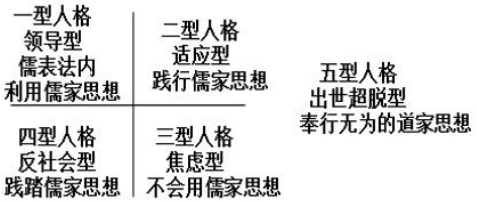


图2：五种人格类型与传统文化的关系

一型、二型人格行为既符合社会要求同时又满足主体需要，是健康人格。四型人格行为在满足主体需要的同时与社会规范背道而驰是反社会人格，三型人格行为符合社会规范与个体主观需要相违背，是焦虑型人格。中国本土人格五分法能够解释某些异常人格的发病机制，利用五分法的转化性特征运用一定技术可以将三型、四型人格分别向二型、一型人格转化，中国本土人格五分法可以为中华优秀传统文化融入现代心理治疗提供理论基础。

以中国本土人格五分法为理论依据，借鉴西方认知行为理论的技术创立的儒家认知行为疗法，三型人格个体压抑、敏感、完美、退缩、缺乏主见，情绪不稳定，是本疗法的主要适应症。儒家认知行为疗法运用访谈、观察、自编量表对来访者进行定性、定量评估，结合具体事情就事论事，发掘不良认知，给予实时分析辨别。通过行为技能训练和模仿训练引导三型人格个体合理拒绝，自主不臆断，不怕误会，以直报怨，正确对待失误，培养兴趣爱好等。在儒家优秀传统文化氛围下引导三型人格个体构建相对正确的认知行为方式，培养良好的行为，“不忧不惧，知天知命”，提高社会适应能力，促进心身健康。

关键词　传统文化,人格理论,理论建构,心理治疗

当代中国人君子人格：理论构成和心理学测量

郑尧[1]　侯玉波[2]（通讯作者）

1 北京大学 心理与认知科学学院，北京，100871

2 北京大学 心理与认知科学学院，北京，100871，通讯作者 E-mail（houyubo@pku.edu.cn）

摘 要　君子人格自古便是儒家思想中的理想人格典范，是中华优秀传统文化的一部分。然而，随着时代的变迁和历史文化的演进，当代中国人的君子人格在继承古代思想传统的基础上，同时受到来自现代西方人格理论和研究范式的影响，表现出明显的人格特质类型。因此，本研究试图从中国社会变迁的视角，运用扎根理论中的文本分析和深度访谈等质性研究方法，探索当代中国人君子人格的现实内涵和理论构成(研究 1; *N*=30); 并结合现代心理学实证科学的方法对当代君子人格的结构要素进行了探索性和验证性的因素分析，最终编制了信效度良好的当代君子人格测量工具(研究 2; *N*=1316)。研究发现数据分析与理论模型结果基本一致, 当代君子人格主要由精神、道德、行为、情绪和认知这五个维度构成，分别命名为“精神追求”、“道德修养”、“处世智慧”、“积极情绪”和“理性思维”；且各维度间不是完全独立而是相互依存的关系，即两两之间均存在显著的正相关关系。此外, 校标关联效度分析结果显示：当代君子人格中除认知维度外，其余各维度均与孔子思想中的君子人格及其维度(智仁勇、恭而有礼、喻意怀德、有所不为、持己无争)存在显著正相关；当代君子人格及其维度与西方大五人格中除神经质以外的其余各维度(外向性、宜人性、尽

责性和开放性)均存在中等程度的正相关；与主观幸福感指标(如生活满意度、积极和消极情感、自尊等)也存在相关关系。

关键词　君子人格内涵和结构，中国传统文化，本土心理学，人格测量

The Contemporary Chinese Junzi Personality: Theoretical Construct and Psychological Measurement

Yao Zheng[1]，Yubo Hou[2] (Corresponding Author)
School of Psychological and Cognitive Sciences and Beijing Key Laboratory of Behavior and Mental Health, Peking University, No.5 Yiheyuan Road, Haidian District, Beijing, 100871

Abstract: Junzi personality has been the ideal personality model of Confucianism since ancient times and is a part of the excellent Chinese traditional culture. However, with the change of eras and the evolution of history and culture, junzi personality for contemporary Chinese people shows obvious personality trait types on the basis of inheriting the ancient ideological tradition and being influenced by the modern Western personality theory and research paradigm. Therefore, this study attempts to explore the current connotation and composition of the contemporary Chinese junzi personality from the perspective of China's social changes, by using the qualitative methods of text analysis and in-depth interviews according to the Grounded Theory (Study 1; *N*=30); Combined with the empirical-based method of modern psychology, this study makes the exploratory and confirmatory factor analysis on the inner structure of the contemporary junzi personality, and finally develops a measurement tool of the contemporary junzi personality with good reliability and validity (Study 2; *N*=1316). The results from the data analysis are basically consistent with the theoretical model, and it is believed that the contemporary junzi personality is mainly composed of five dimensions, which are named the "Spiritual Pursuit" (spiritual dimension), "Moral Cultivation" (moral dimension), "Interpersonal Intelligence" (behavioral dimension), "Positive Emotion"(emotional dimension) and "Rational Cognition" (cognitive dimension) respectively; and each dimension is not purely independent but interdependent from one another, which means there is a significant positive correlation between every two factors of junzi personality. In addition, results from the criterion-related validity analysis demonstrate that dimensions of the contemporary junzi personality, except for the cognitive dimension, were significantly positively correlated with the dimensions of junzi personality from Confucius' thoughts ("wisdom, benevolence, and courage", "respectfulness and propriety", "conversancy with righteousness and cherishment of benign rule", "refraining from what should not be done", and "self-cultivation rather than contentions with others"). The contemporary junzi personality are also positively correlated with the Big-Five personality model and its dimensions (Extraversion, Agreeableness, Conscientiousness, and Openness) at a moderate level except for its negative link with Neuroticism. Last, junzi personality also has a correlation with the subjective well-being indicators (e.g., life satisfaction, positive and negative emotions, and self-esteem, etc.).

Keywords: the connotation and structure of junzi personality, Chinese traditional culture, indigenous psychology, personality measurement

道德概念中的水平空间隐喻效应探究：来自行为与 ERP 的证据

赵欣璐[2]　许苏薇[2]　刘拓[1,2,3]（通讯作者）

1 教育部人文社会科学重点研究基地天津师范大学心理与行为研究院，天津，300387
2 天津师范大学心理学部，天津，300387
3 学生心理发展与学习天津市高校社会科学实验室，天津，300387
通讯作者: liutuo@tjnu.edu.cn

摘 要 道德的空间隐喻是以空间位置概念为始源域向以抽象道德概念为代表的目标域映射的过程。以往研究已经分别从垂直和水平两个空间维度对道德概念空间隐喻进行了探究，并在垂直维度上得到了较为一致的结论。在水平维度，前人研究普遍认为道德概念与右侧空间，不道德概念与左侧空间存在隐喻联结，但从文化视角来看，虽然西方国家因宗教等原因普遍贬“左”崇“右”，但在中国文化中，“左”和“右”并无褒贬之分而是更多应用在中性语境中。因此，少数学者认为汉语中的左右空间与道德效价之间可能并不具有相应的联结。那么，在汉语语境下，道德概念中是否存在水平空间隐喻效应呢？为回答以上问题，本研究设置两个实验分别从行为和认知神经层面对道德概念的水平空间的隐喻效应进行探究。实验一采用空间 Stroop 范式，招募 31 名大学生，采用 2(词汇类型：道德词汇、不道德词汇)×2(水平位置：左、右)的两因素被试内设计，探讨道德概念与水平方位之间是否具有隐喻联结。结果发现：词汇类型与词汇呈现方位之间的交互作用不显著($p > 0.05$)，即被试对左侧或右侧呈现的道德词或不道德词的反应时没有显著差异，结果未验证水平隐喻现象的存在。实验二以 36 名在校学生为被试，同样采用空间 Stroop 范式，并进一步结合事件相关电位技术(Event Related Potential, ERP)考察被试在词汇加工过程中的大脑电位活动的变化。结果发现：一致条件（道德词出现在屏幕右侧或不道德词出现在左侧）和不一致条件（道德词出现在屏幕左侧或不道德词出现在右侧）下，P300，N200 和 N400 的激活程度均无显著差异($ps > 0.05$)，脑电结果未能验证水平隐喻效应的存在。综合两个实验结果表明，汉语道德概念词中不存在水平空间隐喻效应($BF_{01}s > 54.48$)，个体不会以左右位置为参照来表征道德概念。本研究首次将 ERP 技术应用于道德的水平空间隐喻研究，在一定程度上为已有的道德概念隐喻和具身道德认知研究提供了新的实证参考。

关键词 道德概念，水平空间，概念隐喻，ERP

Horizontal Spatial Metaphor Effects in Moral Concepts: Evidence from Behavior and ERPs

Xinlu Zhao[2] Suwei Xu[2] Tuo Liu [1,2,3] (Corresponding author)
1 Key Research Base of Humanities and Social Sciences of the Ministry of Education, Academy of Psychology and Behavior, Tianjin Normal University, Tianjin 300387, China
2 Faculty of Psychology, Tianjin Normal University, Tianjin 300387, China
3 Tianjin Social Science Laboratory of Students' Mental Development and Learning, Tianjin 300387, China
(Corresponding author: liutuo@tjnu.edu.cn)

***Abstract*:** The spatial metaphor of morality is a process of mapping the spatial location concept as the origin domain to the abstract moral concept as the target domain. Previous studies have explored the spatial metaphor of moral concepts from both vertical and horizontal dimensions, and have reached relatively consistent conclusions on the vertical dimension. In the horizontal dimension, it is generally concluded that moral concepts are metaphorically linked to the right space and immoral concepts to the left space, However, from a cultural perspective, although Western countries generally belittle "left" and favor "right" due to religious reasons, in Chinese culture, "left" and "right" are not either positive or negative, but are more commonly used in neutral

contexts. Therefore, a few scholars have suggested that there may not be a corresponding link between left-right space and moral valence in Chinese. Then, does the horizontal space metaphorical effect of moral concepts exist in the Chinese context? To answer the above questions, the present study conducted two experiments to explore the metaphorical effects of the horizontal space of moral concepts from the behavioral and cognitive neural levels. Experiment 1 utilized a spatial Stroop paradigm and recruited 31 college students to explore whether there is a metaphorical link between moral concepts and horizontal orientation using a two-factor within-subjects design of 2 (vocabulary type: moral vocabulary, immoral vocabulary) × 2 (horizontal location: left, right). It was found that the interaction between vocabulary type and vocabulary presentation orientation was not significant ($p > 0.05$), i.e., there was no significant difference when subjects responded to moral or immoral words presented on the left or the right, and the results did not validate the existence of the horizontal metaphor phenomenon. Experiment 2 used 36 school students as subjects, also using the spatial Stroop paradigm, and further combined with the Event Related Potential (ERP) technique to examine the changes in the subjects' brain potential activity during lexical processing. The results revealed that there was no significant difference ($ps > 0.05$) in the activation levels of P300, N200, and N400 between the congruent condition (moral words appeared on the right side of the screen or immoral words appeared on the left side) and the incongruent condition (moral words appeared on the left side of the screen or immoral words appeared on the right side of the screen), and the EEG results failed to validate the existence of the horizontal metaphor effect. The comprehensive results of two experiments indicate that there is no horizontal spatial metaphorical effect (BF_{01}s > 54.48) in Chinese moral concept words, and individuals do not use left and right positions as references to represent moral concepts. This study is the first to apply ERP technology to the study of moral horizontal spatial metaphors, providing new empirical references for existing research on moral conceptual metaphors and embodied moral cognition.

***Keywords*:** Moral Concepts, Horizontal Space, Conceptual Metaphors, Event-related potential

敬畏与智慧：多种时间取向的中介效应

王笑笑　王伊萌　汪凤炎（通讯作者）

南京师范大学心理学院，南京，210097，通讯作者 fywangjx8069@163.com

摘 要　敬畏是人类因自身生存基础的有限性而产生的对神圣性对象既敬且畏的复合型情感。当人们产生敬畏的情绪体验时，更有可能反思自己的过去，观察当下的直接经验及考虑当前行为的未来后果。因此，本研究旨在探讨敬畏对智慧的直接影响，并确定时间取向是否介导了这种影响。为探究这一机制，本文提出敬畏可通过未来时间取向和平衡时间取向对智慧产生正向效应，通过两个研究分别从特质和状态两个层面进行验证：研究 1 运用问卷横断自评，对个体的特质敬畏、时间取向以及智慧进行调查，发现敬畏、多种时间取向与智慧推理的正向关系，并初步验证敬畏可通过提升未来时间取向和平衡时间取向增进个体对冲突事件的智慧推理水平；研究 2 对敬畏进行启动，发现对敬畏的启动使个体更倾向于采用平衡时间取向与未来时间取向，也同时引发了智慧推理相关特征。中介分析进一步表明敬畏对智慧的影响可以通过平衡时间取向、未来时间取向来解释。这些发现表明，敬畏可能有助于个体积极反思过去、觉察当下与展望未来，增进个体对冲突事件的智慧推理水平，从而获得智慧发展。因此，个体可适当创造接触崇高事物的机会，培育其对自然、真理、良法和良知的敬畏感，同时积极反思过去、觉察当下与展望未来，促进智慧发展。

关键词　敬畏，时间取向，智慧推理

Awe and Wisdom: The Mediating Effect of Multiple Time Orientations

Xiaoxiao Wang, Yimeng Wang,Fengyan Wang
(1 School of Psychology, Nanjing Normal University, Nanjing 210097, China)

Abstract：Awe is a compound emotion of both respect and fear for sacred objects, which is generated by the limited existence of human beings. When people experience awe, they are more likely to reflect on their past, observe immediate experiences in the present, and consider the future consequences of their actions. Therefore, this study aimed to explore the direct effect of awe on wisdom and determine whether temporal orientation mediates this effect. In order to explore this mechanism, this paper proposes that awe can have a positive effect on wisdom through future time orientation and balanced time orientation, which are verified from the trait and state levels respectively through two studies: In study 1, a cross-cutting self-assessment questionnaire was used to investigate individuals' trait awe, time orientation and wisdom, and found the positive relationship between awe, multiple time orientation and intelligent reasoning, and preliminarily verified that awe can improve individuals' intelligent reasoning level for conflict events by improving future time orientation and balancing time orientation. Study 2 priming awe found that priming awe made individuals more inclined to adopt balanced time orientation and future time orientation, and also triggered the characteristics related to intelligent reasoning. Mediation analysis further suggests that the effect of awe on wisdom can be explained by balancing time orientation and future time orientation. These findings suggest that awe may help individuals actively reflect on the past, perceive the present and look forward to the future, and enhance their intellectual reasoning level for conflict events, thus achieving intellectual development. Thus, individuals can appropriately create opportunities to contact the sublime, cultivate their sense of reverence for nature, truth, good law and conscience, and actively reflect on the past, perceive the present and look forward to the future, promoting the development of wisdom.

Keywords：awe, time orientation, wise reasoning

5.32 经济心理学专业委员会

感知财务约束对从众消费的影响及其内在机制

郑智行[1]　崔力元[1]　钟建安[1]（通讯作者）
1 浙江大学心理与行为科学系，杭州，310058，jiananzhong@zju.edu.cn

摘 要　近年来，受疫情的影响，全球经济下行，裁员和降薪使得越来越多的人们处于财务约束的状态。感知财务约束作为一个主观心理变量，与客观财富之间只有中等大小的相关，它反映的是个体对自身财务状况限制了其预期消费水平的感知程度。感知财务约束可能会引发个体的不确定性和不安全感，进而导致个体风险规避倾向增加，并对个体的消费行为产生影响。而从众消费作为一种常见的降低决策风险的手段，很可能在风险规避中被采纳，以用于缓解感知财务约束所带来的不确定性和不安全感。本文基于资源稀缺的自我调节模型开展了 3 项研究，旨在探究感知财务约束对从众消费的影响及其内在的心理机制。结果显示：(1)感知财务约束会增加个体的从众消费倾向；(2)感知财务约束通过提高个体的风险规避倾向来增加个体的从众消费倾向；(3)消费者知识在感知财务约束和从众消费之间起调节作用，当消费者知识水平较高时，感知财务约束对个体从众消费的影响有所减弱；(4)决策者角色在感知财务约束和从众消费之间起调节作用，为他人决策时，感知财务约束对个体从众消费的影响有所减弱。研究结果初步揭示了风险规避倾向是感知财务约束增加从众消费的潜在机制，并为商家制定策略和消费者避免盲目从众提供了一定的思考和建议。

关键词　感知财务约束，从众消费，风险规避倾向，消费者知识，决策者角色

The Effect of Perceived Financial Constrains on Conformity Consumption and Its Internal Mechanism

Zheng Zhixing[1]　Cui Liyuan[1]　Zhong Jianan[1] (Corresponding author)
1 Department of Psychology and Behavioral Sciences, Zhejiang University; 866 Yuhangtang Rd., Hangzhou 310058, China, jiananzhong@zju.edu.cn

***Abstract*：** In recent years, the global economic downturn due to the COVID-19 pandemic, along with layoffs and salary reductions, has placed more and more people in a state of financial constraints. As a subjective psychological variable, perceived financial constraints which are only modestly correlated with objective wealth, reflect the extent to which people believe that their financial situation restricts desired consumption. It may trigger individual uncertainty and insecurity, leading to an increase of the tendency of risk aversion and affecting consumer behavior. As a common means of reducing decision-making risks, conformity consumption is likely to be adopted in risk aversion to alleviate the uncertainty and insecurity caused by perceived financial constraints. This research conducted three studies based on the self-regulation model of resource scarcity to explore the impact of perceived financial constraints on conformity consumption and the underlying psychological mechanisms. The results showed that: (1) Perceived financial constraints would increase the tendency of conformity consumption; (2) Perceived financial constraints increase the tendency of conformity consumption by increasing the tendency of risk aversion; (3) Consumer knowledge plays a moderating role between perceived financial constraints and conformity consumption. When the level of consumer knowledge is high, the effect of perceived financial constraints on individual conformity consumption is weakened. (4) The role of decision maker plays a moderating role between perceived financial constraints and conformity consumption. When making decisions for others, the effect of perceived financial constraints on individual conformity consumption is weakened. The results reveal that risk aversion tendency is a potential mechanism for perceived financial constraints to increase conformity consumption, and provide certain thoughts and suggestions for merchants to develop strategies and consumers to avoid blind conformity.

***Keywords*：** perceived financial constraints, conformity consumption, risk aversion tendency, consumer knowledge, role of decision maker

越贫困越冒险？经济贫困影响青少年冒险行为的 ERPs 研究

梁惟旋[1]　窦凯[1]（通讯作者）　冯雪珂[1]
1 广州大学教育学院青少年心理与行为研究中心，广州，510006，psydk@gzhu.edu.cn

摘 要 经济贫困是青少年冒险行为的风险因素，过往研究指出处于经济贫困的青少年更有可能参与冒险行为（如打架、吸烟和酗酒等），但目前鲜有研究探讨经济贫困影响青少年冒险行为的神经机制，其电生理证据更缺乏探索。基于此，采用 2（经济贫困类型：经济贫困、经济富裕）×2（反应类型：go、no-go）×2（反馈类型：收益、损失）的混合实验设计，招募 36 名大学生被试，随机分成经济贫困组 17 人(M_{age} = 20.35, SD = 1.84)与经济富裕组 19 人(M_{age} = 19.84, SD = 1.77)，并采用阶段任务(The Stage Game)来操纵经济贫困状态，借助事件相关电位技术记录被试完成 Go/no-go 任务、简单赌博任务时的电生理信号，进而检验经济

贫困影响青少年青少年冒险行为的神经机制。结果：（1）脑电结果显示，Go/no-go 任务中，经济富裕组的 N2 差异波比经济贫困组更大；（2）在简单赌博任务中，经济贫困组在收益以及损失反馈中都诱发比经济富裕组更负的 FRN。据此推测，经济贫困主要导致青少年对于金钱奖赏的敏感性增强，降低青少年的抑制控制能力来间接加剧青少年的冒险行为。上述发现有助于理解经济贫困影响青少年冲动冒险的深层原因，并为此提供了其电生理的证据，为降低和预防经济贫困个体的风险寻求和冲动决策提供理论参考。

关键词 经济贫困，冒险行为，青少年，事件相关电位

The poorer you are, the more adventurous you are? Economic poverty affects adolescents' risk-taking behaviors: Evidence from an ERP

Weixuan Liang [1] Kai Dou[1] Xueke Feng [1]

1 Research Center of Adolescent Psychology and Behavior, School of Education, Guangzhou University, Guangzhou, 510006

Abstract: Economic poverty is a risk factor for risk-taking behaviors in adolescents, and previous studies have pointed out that adolescents in economic poverty are more likely to engage in risk-taking behaviors (e.g., fighting, smoking, and drinking), but few studies have explored the neural mechanisms by which economic poverty affects adolescents' risk-taking behaviors, and the neural evidence for it is even more unexplored. Based on this, a mixed experimental design of 2 (economic poverty type: economic poverty, economic affluent) × 2 (response type: go, no-go) × 2 (feedback type: gain, loss) was used to recruit 36 university student subjects, who were randomly divided into 17 economic poverty group (M_{age} = 20.35, *SD* = 1.84) and 19 economic affluent group (M_{age} = 19.84, *SD* = 1.77), and were manipulated into economic poverty by using The Stage Game. The Stage Game was used to manipulate the state of economic poverty, and the neural signals of the Go/no-go task and the simple gambling task were recorded with the help of the event-related potentials technique to examine the neural mechanisms of economic poverty affecting the risk-taking behaviors of adolescents. Results: (1) EEG results showed that the N2 difference wave was larger in the economic affluent group than in the economic poverty group in the Go/no-go task; (2) the economic poverty group induced a more negative FRN than the economic affluent group in the gain and loss feedbacks in the simple gambling task. it was hypothesized that economic poverty mainly leads to an increased susceptibility of adolescents to monetary rewards, which reduces the self-control of adolescents and indirectly exacerbates their risk-taking behaviors. Indirectly exacerbate adolescents' risk-taking behaviors. The above findings contribute to the understanding of the underlying reasons why economic poverty affects impulsive risk-taking in adolescents and provide neural evidence for it, providing theoretical references for reducing and preventing risk-seeking and impulsive decision-making in individuals' economic poverty.

Keywords: economic poverty, risk-taking behaviors, adolescents, ERP

具象程度不同的食物名称对食物评价与消费意愿的影响

于钊 [1]　吉楠楠 [1]　曾好豪 [1]　李尚仪 [1]　张维 [1]（通讯作者）

华南师范大学心理学院，广州，510631，psycheungwai@163.com

摘 要　近年来，许多餐饮从业者开始使用模糊而抽象的名称对食物进行命名，这种命名方式比描述性名称和常规名称都更不具象和不典型。然而，不同具象程度的中式食物名称如何影响消费者对食物的评价以

及消费意愿尚不明确。基于此，本研究拟通过两个实验探究人们对不同具象程度的食物名称的感知及其对食物相关属性（美味、消费意愿等）评价。实验 1 采用主观猜测范式探究不同具象程度的名称被认为是一道食物或菜式的可能性，结果发现，与心理图像一致性假设的预期相一致，对比低具象程度名称，人们在面对容易构建心理图像的高具象程度的名称时，更倾向于将其判断为是一道食物或菜式。实验 2 进一步探究了具象程度不同的食物名称对消费者感知食物相关属性的影响。结果显示，具象程度高的食物名称在美味程度、消费意愿和高品质维度上均显著高于具象程度低的食物名称，而在健康维度上则显著低于具象程度低的食物名称，但两者在昂贵维度上没有显著差异。上述结果表明，具象程度高的名称更有可能被判断为一道食物或菜式，同时在食物的评价（美味、高品质）与消费意愿上也更有优势，但在健康评价上却被认为是更不健康的。研究结果与结论能为有关食物名称命名和食品相关属性的研究提供新的证据，也能为餐饮行业对食物与菜品的命名提供建议与策略。
关键词　食物名称，不同具象程度，食物评价，消费意愿

The influence of food names with different level of concreteness on food evaluation and consumption intention

Zhao Yu, Nannan Ji, Haohao Zeng, Shangyi Li, Wei Zhang

School of Psychology, South China Normal University, Guangzhou, 510631

Abstract： In recent years, many restaurateurs in the food and beverage industry have started using vague and abstract names to label their dishes. However, the influence of food names with different level of concreteness on consumers' evaluations of the food and their purchase intention remains unclear. Based on this, the present study aimed to investigate people's perceptions of food names with different levels of concreteness and their evaluation of food-related attributes (e.g., deliciousness and purchase intention) through two experiments. Experiment 1 investigated the likelihood of different levels of concreteness in names being perceived as food or dish through subjective guessing tasks. In line with the hypothesis of mental imagery consistency, the results revealed that individuals were more inclined to perceive high-concrete names as actual food or dishes than low-concrete names. Experiment 2 further examined the impact of food names with different levels of concreteness on consumers' perception of food-related attributes. The results showed that high-concrete food names were significantly higher than low-concrete food names in terms of perceived deliciousness, purchase intention, and high quality of food. However, the ratings of perceived healthiness of high-concrete food names were significantly lower than those of low-concrete food names. No significant differences were found between the two groups in the ratings of perceived expense. These results indicated that a high-concreteness name is more likely to be perceived as food or dish. Moreover, they also had advantages in terms of food evaluations in terms of deliciousness, high quality and purchase intention. The present findings provide new evidence for studies related to food naming and food-related attributes, and offer suggestions and strategies for the food and beverage industry in terms of naming their food and dishes.

Keywords： food names, different levels of concreteness, food evaluation, purchase intention

疼痛对延迟折扣的影响：内外向人格的调节作用

刘 阳[1]　孙玲超[1]　王大伟[1]（通讯作者）

1 山东师范大学心理学院，山东济南，250358，wdw112@163.com

摘 要　以往有关疼痛与延迟折扣关系的研究发现，高强度疼痛会增加个体延迟折扣，低强度疼痛对个体延迟折扣没有影响，究其原因可能是疼痛强度导致研究结果存在差异性。这表明，疼痛和延迟折扣的关系可能会随着疼痛强度的变化而改变，这促使研究者想要更加深入地探究两者的关系。相比于高、低强度疼痛，人类在日常生活中更多承受中等强度的疼痛。那么，中等强度的疼痛对延迟折扣的影响又当如何？因此，本研究基于疼痛重叠理论和决策双系统理论，开展两项平行实验，分别通过辣椒素刺激和自传体回忆任务诱发被试中等强度的生理疼痛或心理疼痛，使用延迟折扣任务作为实验材料，旨在检验中等强度的疼痛对内外向个体延迟折扣的影响。结果表明：(1) 无论是经历生理疼痛还是心理疼痛，决策者在中等强度的疼痛条件下比控制组更少地选择即时较小的选项，目光更为长远。(2) 内外向人格在心理疼痛对延迟折扣的影响中起调节作用，心理疼痛显著降低了外向型个体的延迟折扣。本研究不仅在实验室环境中检验了中等强度生理和心理疼痛对延迟折扣的影响，拓展了对于疼痛和延迟折扣的关系的认识，为疼痛重叠理论和决策双系统理论提供了进一步的证据支持。而且，为降低个体延迟折扣，使其目光更加长远提供了新的干预方式。

关键词　中等强度疼痛，延迟折扣，内外向人格，疼痛重叠理论，决策双系统理论

The influence of pain on delay discounting: the moderating role of extraversion

Yang Liu[1], Lingchao Sun[1], Dawei Wang[1]

1 School of psychology, Shandong Normal University, 250358, wdw112@163.com

Abstract：In recent years, the influence of pain on delay discounting has begun to attract researchers' attention. Some studies found that pain made people shortsighted, and others found that pain conditions had no effect on delay discounting. The difference in results may be attributed to the intensity of pain. This suggests that the relationship between pain and delay discounting may vary depending on the intensity of pain, prompting the researchers to further investigate this relationship. In daily life, individuals typically experience moderate intensity pain more frequently than high or low intensity pain. What about the influence of moderate intensity pain on delay discounting? Therefore, based on the pain overlap theory and the dual system theory, two parallel experiments were conducted to manipulate the influence of moderate intensity pain on delay discounting of introvert and extravert individuals, in which participants were induced with moderate intensity physical pain or psychological pain by capsaicin stimulation or an autobiographical recall task, respectively, as well as a delay discounting task was used as experimental material. The results showed that : (1) regardless of they experienced physical pain or psychological pain, decision-makers were less inclined to choose the small-sooner option than the control group and had a longer vision under moderate intensity pain condition; (2) extraversion moderated the relationship between psychological pain and delay discounting. For extraverts, the proportion of choosing the small-sooner option in the psychological pain group exhibited a significant reduction compared to that in the control group. The current study investigated the influence of moderate intensity physical or psychological pain on delay discounting in a laboratory, enhanced our comprehension of the relationship between pain and delay discounting, and provided further evidence to support both the pain overlap theory and dual system theory. Additionally, the results presents a novel intervention method for reducing individuals' delay discounting and promoting their long-term perspective.

Keywords：moderate intensity pain, delay discounting, extraversion, pain overlap theory, dual system theory

如何缓解低不确定性容忍度个体的冲动性？奖赏框架和积极预期想象的作用

王蝶[1]　宗天琦[1]　聂昕晓[1]　王大伟[1]（通讯作者）

1 山东师范大学心理学院，济南，250300，wdw112@163.com

摘 要　不确定性容忍度(UT) 在焦虑症的形成和发展中起核心作用，焦虑症患者普遍具有低不确定性容忍度，倾向于将不确定性感知为威胁且更容易产生负面情绪。因而，焦虑症患者会冲动的选择当前确定选项以回避令人痛苦的未来不确定性事件，这进一步加剧了焦虑症状。因此，有必要考察如何缓解低不确定性容忍度个体的冲动性，为今后焦虑症的干预提供理论基础。本研究基于不确定性容忍度整合模型的视角，从降低不确定性和提高容忍度两个方面，通过两个实验分别探究了奖赏框架和积极预期想象对不确定性容忍度与冲动性之间关系的调节作用。实验 1 采用 2(不确定性容忍度：高、低)×2 (奖赏框架：藏零、显零)×5 (延迟时间：7 天、15 天、30 天、60 天、120 天)的混合实验设计。实验 2 采用 2(不确定性容忍度：高、低)×2(条件：无线索、有线索)×5(延迟时间：7 天、15 天、30 天、60 天、120 天) 的混合实验设计。结果表明：(1)低不确定性容忍度个体比高不确定性容忍度个体更加偏好即时选项。(2)显零框架能够降低两类个体的跨期决策即时选项选择比例，在藏零框架下，低不确定性容忍度个体较高不确定性容忍度个体更加偏好即时选项，在显零框架下，两类个体的跨期决策偏好不存在显著差异。(3)积极预期想象能够降低两类个体的跨期决策即时选项选择比例，在无线索条件下，低不确定性容忍度个体较高不确定性容忍度个体更加偏好即时选项，在有线索条件下，两类个体的跨期决策偏好不存在显著差异。这些研究结果丰富了不确定性容忍度整合模型，并提供了展开积极情景想象和关注机会成本这两个降低焦虑症患者冲动性的干预新方向。

关键词　不确定性容忍度；不确定性容忍度整合模型；冲动性；奖赏框架；积极预期想象

How to alleviate the impulsivity of individuals with low uncertainty tolerance? The role of reward framing and positive episodic future thinking

Die Wang[1], Tianqi Zong[1], Xinxiao Nie[1], Dawei Wang[1*]

School of Psychology, Shandong Normal University, Jinan, 250300，wdw112@163.com

Abstract：　Uncertainty tolerance (UT) plays a central role in the formation and development of anxiety disorders. Patients with anxiety disorders generally have low uncertainty tolerance, tend to perceive uncertainty as threatening, and are more prone to negative emotions. Thus, people with anxiety disorders impulsively choose the current certainty option in order to avoid distressing future uncertain events, which further exacerbates anxiety symptoms. Therefore, it is necessary to investigate how to alleviate impulsivity in individuals with low uncertainty tolerance to provide a theoretical basis for future interventions for anxiety disorders. Based on the perspective of the integrative model of uncertainty tolerance, in terms of reducing uncertainty and increasing tolerance, respectively, the two current studies explored the moderating effects of reward framing and positive episodic future thinking on the relationship between uncertainty tolerance and impulsivity. In Experiment 1, a mixed experimental design of 2 (Group: high UT, low UT) × 2 (Reward framing: hidden-zero, explicit-zero) × 5 (Delay time: 7, 15, 30, 60, 120 days) was used. In Experiment 2, a mixed experimental design of 2 (Group: high UT, low UT) × 2 (Cue: cued, uncued) × 5 (Delay time: 7, 15, 30, 60, 120 days) was used. Results showed that: (1) Individuals with low uncertainty tolerance prefer immediate options more than those with high uncertainty tolerance. (2) Explicit zero framing can reduce the proportion of immediate choice of the two groups in

intertemporal decision making. Under the hidden zero framing, participants with low uncertainty tolerance preferred more immediate choices than participants with high uncertainty tolerance. While there was no significant difference in intertemporal decision preference between the two groups under the explicit zero framing. (3) Episodic future thinking can reduce the proportion of immediate choice of the two groups in intertemporal decision making. Under the uncued condition, participants with low uncertainty tolerance preferred more immediate choices than participants with high uncertainty tolerance. While there was no significant difference in intertemporal decision preference between the two groups under the cued condition. In conclusion, these findings extend the integrative model of uncertainty tolerance and provide two new directions for impulsive decision-making interventions for patients with anxiety disorders: thinking of future imagery and focusing on opportunity costs.

Keywords: uncertainty tolerance, integrative model of uncertainty tolerance, impulsivity, reward framing, episodic future thinking

5.33 积极心理学专业委员会

特质敬畏对中学生道德推脱的影响：一个有调节的中介模型

蔺哲子[1]　布雅静[1]　张潮[2]（通讯作者）

1 山西师范大学教育科学学院，太原，030031

2 山西师范大学教育科学学院，太原，030031，zhangchao951217@163.com

摘 要　道德推脱会降低个体的道德标准，使得个体做出不道德行为。道德推脱作为影响校园欺凌的重要因素之一，找到如何降低学生的道德推脱水平是解决校园欺凌现象的一个关键点。已有研究表明敬畏可以通过小我促进个体的道德扩张，增加个体对广泛目标的道德关注。而且学校道德氛围作为调控校园环境的人际关系、影响青少年学生道德发展的规范与价值观系统，能够影响中学生的道德推脱；特质共情作为一种能使个体会在不同环境下感受和体验他人情绪情感和心理状态的能力可以调节环境对行为的作用。由于敬畏和道德推脱之间的关系尚不明确，目前还未有实证研究探讨敬畏是否能通过学校道德氛围的中介预测中学生的道德推脱，以及验证共情的调节作用。为检验这一假设，本研究试图探讨特质敬畏和道德推脱之间的关系，以及学校道德氛围的中介作用与共情的调节作用。方法：采取整群抽样法抽取山西 537 名中学生填写特质积极情绪中的敬畏分量表(DPES)、青少年道德推脱问卷、学校道德氛围知觉问卷和基本共情量表(Basic Empathy Scale, BES)。预期结果：（1）特质敬畏负向预测道德推脱行为；（2）学校道德氛围感知在特质敬畏与道德推脱之间起部分中介作用；（3）共情对学校道德氛围感知与道德推脱之间的关系存在调节作用。相较于低共情水平的中学生，学校道德氛围感知对高共情水平中学生道德推脱行为的预测作用显著增强。

关键词　敬畏，道德推脱，学校道德氛围，共情

The influence of trait awe on middle school students' moral disengagement: a moderated mediation model

Lin Zhezi, Bu Yajing, Zhang Chao(Corresponding author)

School of Education Science , Shanxi Normal University , Taiyuan , 030031

Abstract: Moral disengagement will lower the moral standards of individuals and make individuals behave immorally. As one of the important factors affecting campus bullying, finding out how to reduce students' moral

disengagement level is a key point to solve the problem of campus bullying. Research has shown that awe can promote the moral expansiveness of the individual through the small-self and increase the moral concern of the individual for a broad range of targets. Moreover, school moral atmosphere, as a standard and value system that regulates the interpersonal relationship of campus environment and influences the moral development of young students, can affect the moral disengagement behavior of middle school students. Trait empathy, as the ability to feel and experience the emotions and mental states of others under different circumstances, can regulate the effect of environment on behavior. Because the relationship between awe and moral disengagement is not clear, there is no empirical study to investigate whether awe can predict middle school students' moral disengagement through the mediation of school moral atmosphere, and to verify the moderating effect of empathy. To test this hypothesis, this study attempts to explore the relationship between trait awe and moral disengagement, as well as the mediating role of school moral atmosphere and the moderating role of empathy. Methods: Cluster sampling method was used to select 537 middle school students from Shanxi Province to fill in the awe subscale of Dispositional Positive Emotion Scale(DPES), the Adolescent Moral Disengagement Questionnaire, the School Moral Atmosphere Questionnaire and the Basic Empathy Scale (BES). Expected results: (1) Trait awe negatively predicted moral disengagement behavior; (2) The perception of school moral atmosphere plays a partial mediating role between trait awe and moral disengagement; (3) Empathy has a moderating effect on the relationship between school moral atmosphere perception and moral disengagement. Compared with middle school students with low empathy level, school moral atmosphere perception has a significantly stronger predictive effect on high empathy middle school students' moral disengagement behavior.

Keywords：Awe, Moral disengagement, School moral atmosphere, Empathy

未来自我连续性与生命意义存在：自我概念清晰性的中介作用及领悟社会支持的调节作用

薛璐璐 范航 闫芸 张利平 姜艳娜 陈立鹏（通讯作者）

中国人民大学心理学系，北京，100872，chenlipeng2019@126.com

摘 要 人们感知到未来自己与当下自己关系的紧密程度是否会影响生命意义存在，我们还知之甚少。为了解决这个问题，我们在两项研究（$N = 788$）中探讨了未来自我连续性对生命意义存在的影响及其内在机制。研究 1 包括 2 个单因素被试间实验。研究 1a 的参与者（n = 167）被随机分配到“启动未来自我连续性组”和“未启动未来自我连续性组”。结果表明：相比于未启动未来自我连续性的参与者而言，启动未来自我连续性的参与者生命意义存在的水平更高（$p < 0.001$）。研究 1b 的参与者（n = 162）被随机分配到“启动高未来自我连续性组”和“启动低未来自我连续性组”，结果表明：相比于启动低未来自我连续性的参与者而言，启动高未来自我连续性的参与者生命意义存在的水平更高（$p < 0.001$）。研究 2 的参与者（n = 459）分别完成了未来自我连续性问卷、自我概念清晰性量表、生命意义分量表、领悟社会支持量表。在控制了性别后，结果表明：（1）未来自我连续性、自我概念清晰性、生命意义存在、领悟社会支持彼此间呈显著正相关（$rs = 0.24 - 0.38, p < 0.01$）；（2）未来自我连续性正向影响生命意义存在（$\beta = 0.25, p < 0.001$）；（3）自我概念清晰性在未来自我连续性与生命意义存在间起中介作用（$\beta = 0.20, p < 0.001$）；（4）领悟社会支持在“未来自我连续性→自我概念清晰性→生命意义存在”这一中介路径的前半段起调节作用（$\beta = -0.12, p < 0.001$）。具体而言，相比于领悟社会支持高的参与者而言，未来自我连续性对自我概念清晰性的影响在领悟社会支持低的时候更大。总的来说，本研究具有一定的理论和实践意义。一方面，本研究首次证实了未来自我连续性对生命意义存在的影响及其内在机制，丰富了生命意义存在的理论研究。另一方面，研究结

果表明，通过教育和培训增强人们的未来自我连续性是提升生命意义存在的有效手段。同时，呼吁人们重视自我概念清晰性的发展，并积极获取更多的社会支持，以便拥有更有意义的生活。
关键词 未来自我连续性，自我概念清晰性，生命意义存在，领悟社会支持

Future self-continuity and the Presence of meaning: The mediating role of Self-concept clarity and the moderating role of Perceived social support

XUE Lulu FAN Hang YAN Yun ZHANG Liping JIANG Yanna CHEN Lipeng
Department of Psychology, Renmin University of China, Beijing 100872

Abstract: There is little research on whether the closeness of people's perceived present selves to their future selves affects the presence of meaning. To address this question, we explored the effects of future self-continuity on the presence of meaning and its underlying mechanisms in two studies (N = 788). Study 1 consisted of two single-factor between-subjects experiments. Participants in study 1a (n = 167) were randomly assigned to an "initiated future self-continuity group" or a "non-initiated future self-continuity group." The results showed that participants who initiated future self-continuity had a higher level of presence of meaning than those who did not initiate future self-continuity (p < 0.001). Participants in study 1b (n = 162) were randomly assigned to the "high future self-continuity priming group" and the "low future self-continuity priming group", and the results showed that participants with high future self-continuity priming had a higher level of presence of meaning than participants with low future self-continuity priming group (p < 0.001). Participants in study 2 (n = 459) completed the Future self-continuity questionnaire (FSCQ), Self-concept clarity scale (SCCS), Meaning in Life subscale (MLQ-P), and Perceived social support scale (PSSS), respectively. After controlling for gender, the results indicated that (1) future self-continuity, self-concept clarity, presence of meaning, and perceived social support were significantly and positively correlated with each other (rs = 0.24 - 0.38, p < 0.01); (2) future self-continuity positively influenced presence of meaning (β = 0.25, p < 0.001); (3) self-concept clarity mediates the relationship between future self-continuity and presence of meaning (β = 0.20, p < 0.001); (4) perceived social support moderates the first half of the mediation pathway "future self-continuity → self-concept clarity → presence of meaning" (β = -0.12, p < 0.001). Specifically, the effect of future self-continuity on self-concept clarity was greater in participants with low perceived social support than in those with high perceived social support. In general, this study has certain theoretical and practical significance. On the one hand, this study confirms for the first time the impact of future self-continuity on the presence of meaning and its internal mechanism, which enriches the theoretical research on the presence of meaning. On the other hand, the findings suggest that enhancing people's future self-continuity through education and training is an effective way to enhance the presence of meaning. At the same time, it calls on people to pay attention to the development of self-concept clarity and actively obtain more social support to have a more meaningful life.
Keywords: Future self-continuity, Presence of meaning, Self-concept clarity, Perceived social support

抑郁症患者与普通人群人生目的类型差异

盖笑松[1,2]（通讯作者） 吕丹诺[1]

1 东北师范大学心理学院，长春，130024
2 吉林省普通高等学校人文社会科学重点研究基地东北师范大学心理健康教育研究中心，长春，130024，
通讯作者 E-mail：gaixs669@nenu.edu.cn

摘 要 抑郁的无望理论模型指出无望感是导致抑郁的充分条件，由无望感导致的低自尊是抑郁的核心症状之一。意义感危机则是导致抑郁症的助力条件，而人生目的驱使个体完成既对自我又对超越自我以外世界有意义的事，带给人们希望感并负向预测无望感与抑郁水平。尽管先前研究发现人生目的感可以负向预测抑郁症状，但关于人生目的追寻的具体内容与抑郁症状的联系尚缺乏进一步考察。为了比较抑郁症患者与普通人群对各人生目的类型重视程度的差异，以及各人生目的类型对抑郁核心症状之一——自尊的预测作用，本研究采用《人生目的类型自评量表》、《人生目的类型迫选量表》和《罗森伯格自尊量表》对 73 名抑郁症患者和 146 名与其人口统计学信息相匹配的普通人群进行了测查。结果发现：1）抑郁症患者与普通人群对各人生目的类型的排序相同：同样更重视家庭福祉和个人成长，较少重视个人福祉和社会促进；然而，抑郁症患者对各类型的人生目的重视程度均低于普通人群；2）在普通人群中，只有个人福祉目标重视程度与自尊水平存在显著的正向关联；然而在抑郁症患者中，所有四种人生目标重视程度均与自尊水平存在显著的正向关联，3）家庭福祉和社会促进在抑郁与否对自尊水平的预测作用中起调节作用，即对于超越自我的人生目标重视程度可以减缓抑郁症对自尊的不良影响。上述结果的启示是，可以通过帮助抑郁症患者建立人生目标追寻（尤其是超越自我的人生目标）来实现症状改善。

关键词 人生目的类型，人生目的，抑郁症，自尊

Differences in Purpose Orientations between Depressed Patients and the Healthy Population

Xiaosong Gai[1, 2] Dannuo Lyu[1]
1 School of Psychology, Northeast Normal University, Changchun, Jilin Province, China
2 Research Center of Mental Health Education in Northeast Normal University, Key Research Institute of Humanities and Social Science in Universities in Jilin Province, Changchun, Jilin Province, China

Abstract: The hopelessness theory model of depression suggests that hopelessness is a sufficient condition for depression, and that low self-esteem caused by hopelessness is one of the core symptoms of depression. Lack of meaning contributes to depression, and purpose in life drives individuals to achieve things that are meaningful both to the self and to the world beyond the self, resulting in a sense of hope and negatively predicting levels of hopelessness and depression. Although purpose may negatively predict depressive symptoms, the relationship between the specific content of purpose and depressive symptoms has not been further examined. To compare differences in purpose orientations between depressed patients and the healthy population and the predictive effect of purpose orientations on one of the core symptoms of depression, self-esteem, the Purpose Orientation Scale-Self Rating, the Purpose Orientation Scale-Forced Rating, and the Rosenberg Self-Esteem Scale were administered to 73 depressed patients and 146 healthy people matched on demographics to the depressed patients. The results showed that: 1) Both depressed patients and healthy people valued family well-being and personal growth more, and valued personal well-being and social promotion less; however, the level of depressed patients valued all purpose orientations less than the level of healthy population; 2) Healthy people's personal well-being was significantly and positively associated with self-esteem, while depressed patients' all four purpose orientations were significantly and positively associated with self-esteem; 3) Family well-being and social promotion moderated the predictive effect of depression on self-esteem, i.e., prosocial purpose orientations may moderate the

negative effects of depression on self-esteem. The implication of the above results is that intervention can be conducted by helping depressed patients to establish life goals (especially prosocial purpose orientations).

Keywords： Purpose Orientation, Purpose in Life, Depression, Self Esteem

“向死而生”电影疗法应用于生命教育的探索

——一个基于量性和质性的混合研究

闻佳[1] 谭潇[2] （张颖）

1 湖北第二师范学院，武汉，430000

2 湖北第二师范学院，武汉，430000,2503221083@qq.com

摘要：电影疗法又称为电影治疗，是一种以电影为治疗媒介的新型艺术心理疗法。近年来“生命”题材影视作品喷涌而出，为电影疗法在中国的发展提供了坚实的基础。与此同时，00 后大学生因疫情封闭在校进行常态化管理期间，犯罪、自杀等漠视生命现象频现，“躺平”“佛系”等极端态度成为他们生活的代名词。基于以上问题导向，本研究在借鉴国外电影疗法的基础上进行本土化改良，对 108 名大学生进行了为期两个个月的积极干预，并采用混合方法研究范式予以分析。首先通过预研究，随机选取 700 名大学生填写 Steger 等编制的《生命意义感量表（MLQ）中文修订版》量表，初步了解他们的生命意义感现状。在量性研究方面，通过独立样本 t 检验对比干预前后效果。在质性研究方面，运用扎根理论分析访谈内容。结果显示：以“生命”题材的电影疗法对大学生的生命意义感存在正面且较为显著的影响。基于此，我们从高校和影视两个方面提出提高大学生生命意义感的相关建议。本研究是对电影疗法的一次循证实践，把握疫情这一突发公共事件引发人们强烈的生命危机意识，以危机为契机，在后疫情时代促进高校“立德树人”工作的落实，积极探索电影疗法的本土化发展，助力国家“健康中国”战略的推进，进而带动我国心理健康事业乃至整个经济的健康持续发展。

关键词：电影疗法，积极干预，生命教育，混合研究

Exploring the Application of Movie Therapy in Life Education:

Being-towards-death

——A Mixed Study Based on Quantity and Quality

WenJia[1] TanXiao[2] （ZhangYin）

Hubei University Of Education,Hubei Wuhan

***Abstract*:** Movie therapy, also known as film therapy, is a new type of art psychotherapy using film as the therapeutic medium. In recent years, the gush of life themed movies has provided a solid foundation for the development of movie therapy in China. At the same time, the generation born in the 00s closed their campuses for normal management due to the epidemic, and ignored life phenomena such as crime and suicide occurred frequently, and extreme attitudes such as "couch potato" and "Buddhas" became synonymous with their lives. Based on the above problem orientation, this study made local improvement on the basis of learning from movie therapy, and carried out active intervention on 108 college students for three months, and analyzed it with mixed method research paradigm. Firstly, through a pre-experiment, 700 college students were randomly selected to fill in the "Meaning in Life Questionnaire(MLQ) Chinese Revised version" compiled by Steger et al., and a preliminary understanding of their sense of life meaning was conducted. In the quantitative study, independent-samples T test was used to compare the effects before and after intervention. In the aspect of qualitative study, grounded theory is used to analyze the interview content. The results show that movie therapy has a positive and significant impact on college students' sense of life meaning. Based on this, we put forward some suggestions to improve students' sense of life meaning from the aspects of universities and films. This study is an evidence-based practice of film therapy, which takes the epidemic as a public emergency to arouse people's strong awareness of life crisis, and promotes the implementation of comprehensive talent cultivation in universities in the post epidemic era, actively explore the localization development of movie therapy in China, and promote the development of mental health in China and even the world.

***Key words*:** Movie therapy，Active intervention，Life education，Mixed Methods

忆往昔，觅意义：怀旧对生命意义词汇判断的影响

王丹 丁凤琴（通讯作者） 章溢 张誉瀚

宁夏大学教师教育学院，银川，750021，dingfqin@nxu.edu.cn

摘 要 数字经济迅速发展，人们的精神却愈发贫瘠，有人患上“空心病”，开始“躺平”甚至“摆烂 ”，究其本质在于生命意义的缺乏。怀旧是为个体提供生命意义的心理资源之一，是指回忆往昔时产生的与自我相关的一种社会性情绪体验(Sedikides et al., 2015)。梳理过往文献发现，怀旧可以直接或间接提升个体的生命意义(Layous et al., 2021; Routledge et al., 2011)。但目前鲜有研究探讨怀旧对生命意义不同维度的影响及其神经机制的差异。鉴于此，本研究采用图片与认知加工相结合的方式诱发怀旧情绪，探究其对生命意义不同维度的影响及神经机制差异。行为结果表明：对于生命意义追寻维度，怀旧组对生命意义积极词的反应时显著短于生命意义消极词，控制组对生命意义积极词和消极词的反应时无显著差异；对于生命意义存在维度，无论是怀旧组还是控制组，对生命意义积极词的反应时都显著短于生命意义消极词。脑电结果表明：与控制组相比，怀旧组在额区及中央区诱发更大的 N400 波幅和更小的 P600 波幅。这表明怀旧组与控制组进行生命意义词汇判断时调用的认知资源存在差异，与控制组相比，怀旧组对生命意义词汇的加工所需的控制

性加工资源更少。研究结果不仅对理解怀旧对生命意义影响的内在机制具有理论意义，也对生命意义的教育与干预具有现实启示意义。

关键词 怀旧，生命意义，词汇判断，神经机制

Remembering the past, searching for meaning: the influence of nostalgia on lexical decision of the meaning of life

Wang Dan, Ding Fengqin, Zhang Yi, Zhang Yuhan

College of teacher education, Ningxia University, Yinchuan, 750021, dingfqin@nxu.edu.cn

Abstract: While the digital economy is developing rapidly, people's spirits are becoming more and more barren. Some people suffer from "hollow heart disease" and begin to "lie flat" or even "lay down". Nostalgia is one of the psychological resources that provide meaning to an individual's life, and it refers to a social emotional experience associated with the self when recalling the past(Sedikides et al., 2015). A review of the literature reveals that nostalgia can directly or indirectly enhance the meaning of life(Layous et al., 2021; Routledge et al., 2011), but few studies have examined the differences in the effects of nostalgia on different dimensions of the meaning of life and its neural mechanisms. In view of this, the present study used a combination of pictures and cognitive processing to induce nostalgia and to investigate it. Behavioural results showed that for the meaning-search dimension, the nostalgia group had a significantly shorter response time to positive words than to negative words, and there was no significant difference between the control group's response time to positive and negative words; for the meaning-presence presence dimension, both the nostalgia and control groups had a significantly shorter response time to positive words than to negative words. The EEG results showed that compared to the control group, the nostalgic group evoked greater N400 wave amplitude and smaller P600 wave amplitude in the frontal and central regions. This suggests a difference in the cognitive resources called upon to make lexical decision of the meaning of life between the nostalgic and control groups, with the nostalgic group requiring fewer controlled processing resources for the processing of meaning-of-life words compared to the control group. The findings have theoretical implications for understanding the mechanisms underlying the influence of nostalgia on meaning of life, and practical implications for education and interventions for meaning of life.

Keywords: nostalgia, meaning of life, lexical decision, neural mechanisms

亲职压力与农村留守幼儿亲社会行为的关系：远程亲子沟通与亲子关系的链式中介作用

赵晓琪[1] 李春怡[2] 汪双存[3] 刘文[4] 车翰博[1*]（通讯作者）

[1]辽宁师范大学教育学部，大连，116029，[*]通讯作者 E-mail:chbdhr@163.com

[2]大连盲聋学校学前部，大连，116021

[3]曲靖市沾益区第一幼儿园，曲靖，655331

[4]辽宁师范大学心理学院，大连，116029

摘 要 **目的：**亲职压力是父母在履行养育子女的职责时感受到的压力，农村留守幼儿父母亲职压力较高，更容易导致低频率和低质量的亲子沟通、不良的家庭关系等，进而影响幼儿亲社会行为的发展。因此

本研究将探讨亲职压力与农村留守幼儿亲社会行为的关系，以及远程亲子沟通与亲子关系在二者关系中的作用。**方法：**本研究采用分层整群抽样法选取 318 名农村留守幼儿父母进行问卷调查，使用亲职压力量表、自编远程亲子沟通问卷（χ^2/df=1.76，CFI = 0.911, TLI = 0.903, RMSEA = 0.053, SRMR = 0.056）、亲子关系量表和长处与困难问卷中的亲社会维度进行调查，并对数据进行分析。**结果：**亲职压力总分的得分为（95.61±33.40）分，各维度中亲职愁苦得分最高。本研究调查的农村留守父母中，以亲职压力总分得分 90 分为临界，高亲职压力有 171 人，发生率为 53.77%。各变量之间存在相关，基于此建立结构方程模型，远程亲子沟通问卷中的有效沟通维度（β=0.33,P＜0.001）在亲职压力与农村留守幼儿亲社会行为之间存在中介作用；亲子亲密（β=0.02,P＜0.001）在亲职压力与农村留守幼儿亲社会行为之间存在中介作用；远程亲子沟通问卷中的有效沟通维度与亲子亲密（β=0.03,P＜0.01）在亲职压力与农村留守幼儿亲社会行为之间存在链式中介作用。亲子冲突（β=-0.031,P＜0.001）在亲职压力与农村留守幼儿亲社会行为之间存在中介作用；远程亲子沟通问卷中的消极沟通维度与亲子冲突（β=-0.02,P＜0.001）在亲职压力与农村留守幼儿亲社会行为之间存在链式中介作用。**建议：**为提高农村留守幼儿亲社会行为，应增加社会支持，积极提供远程亲子沟通条件，提供远程亲子互动指导，减少亲职压力，增进亲子关系，让幼儿形成安全型依恋，促进幼儿的健康发展。

关键词　亲职压力，亲社会行为，农村留守幼儿，远程亲子沟通，亲子关系

Relationship between Parenting Stress and Pro-social Behavior of Left-behind Children in Rural Areas: The Mediating Role of Distance Parent-child Communication and Parent-child Relationship

Zhao Xiaoqi [1] Li Chunyi [2] Wang Shuangcun [3] Liu Wen [4] Che Hanbo [1*] (correspondent)

[1]Department of Education, Liaoning Normal University, Dalian, 116029

[*] Corresponding author E-mail: chbdhr@163.com

[2] Pre-school Department of Dalian School for the Blind and Deaf, Dalian, 116021

[3] No.1 Kindergarten in Zhanyi District, Qujing City, Qujing, 655331

[4]College of Psychology, Liaoning Normal University, Dalian, 116029

***Abstract*：** Objective: Parenting stress is the pressure that parents feel when they perform their duties of raising their children. Parents of left-behind children in rural areas have higher parental stress, which is more likely to lead to low-frequency and low-quality parent-child communication and bad family relations, thus affecting the development of children's prosocial behavior. Therefore, this study will explore the relationship between parental stress and prosocial behavior of left-behind children in rural areas, and the role of long-distance parent-child communication and parent-child relationship in the relationship between them. Methods: In this study, 318 parents of left-behind children in rural areas were selected by stratified cluster sampling method, and the parental stress scale, self-made long-distance parent-child communication questionnaire (χ^2/df=1.76, CFI = 0.911, TLI = 0.903, RMSEA = 0.053, SRMR = 0.056), parent-child relationship scale and prosocial dimension in the strengths and difficulties questionnaire were used to investigate. Results: The total score of parental stress was (95.61 33.40), and the score of parental distress was the highest in all dimensions. Among the left-behind parents in rural areas investigated in this study, the total score of parental stress is 90, which is critical, and there are 171 people with high parental stress, with an incidence rate of 53.77%. There is a correlation among the variables. Based on this, the structural equation model is established. The effective communication dimension (β=0.33,P<0.001) in the

long-distance parent-child communication questionnaire has an intermediary role between parental stress and prosocial behavior of left-behind children in rural areas. Parent-child intimacy (β=0.02,P<0.001) mediates the relationship between parental stress and prosocial behavior of left-behind children in rural areas. The effective communication dimension and parent-child intimacy in the long-distance parent-child communication questionnaire have a chain intermediary role between parental pressure and prosocial behavior of left-behind children in rural areas. Parent-child conflict (β=-0.031,P<0.001) mediates the relationship between parental stress and prosocial behavior of left-behind children in rural areas. The negative communication dimension and parent-child conflict in the long-distance parent-child communication questionnaire have a chain intermediary role between parental pressure and prosocial behavior of left-behind children in rural areas. Suggestions: In order to improve the prosocial behavior of left-behind children in rural areas, we should increase social support, actively provide long-distance parent-child communication conditions, provide long-distance parent-child interaction guidance, reduce parental pressure, enhance parent-child relationship, make children form safe attachment and promote their healthy development.

Keywords **：** Parenting pressure, Prosocial behavior, Left-behind children in rural areas, Long-distance parent-child communication, Parent-child relationship

积极心理干预提升高校网络思想政治教育实效性的实践探索

谢雯 [1],杨世莹 [2,*],唐子懿 [3],杜婷婷 [4],程嘉仪 [5],付蓉 [2],尹渭莉 [1]

[1] 西安欧亚学院学生发展处,陕西省西安市,710065

[2] 西安欧亚学院工商管理学院,陕西省西安市,710065，邮箱：2801158750@qq.com

[3] 西安欧亚学院金融与数据科学学院,陕西省西安市,710065

[4] 西安欧亚学院人文教育学院,陕西省西安市,710065

[5] 西安欧亚学院文化传媒学院,陕西省西安市,710065

摘要

根据《关于新时代加强和改进思想政治工作的意见》，教育部明确提出推动新时代思想政治工作创新发展和加强互联网思想政治工作建设是当今高校教育的重点，自此网络思政教育成为思想政治教育的热潮。加强高校网络思政教育，大力提升网络思想政治教育实效性是高校育人工作的重中之重，提高大学生思想政治素质，促进大学生全面发展迫在眉睫。

研究表明，大学生积极心理品质培育能够提升高校网络思想政治教育实效性，对学生积极参与高校网络思想政治教育的态度转变具有促进作用。多位学者提出，积极心理学“培育个体积极品质和营造社会积极氛围，进而提升个体幸福感”的教育理论，与网络思想政治教育“促进人自由而全面的发展”的教育宗旨内在契合。将积极心理学引入高校网络思想政治教育，进一步增强高校网络思政教育的感染力和吸引力，通过正确的引导与实践干预挖掘学生内在力量，让学生获得成长、快乐和成就感等积极情绪体验，促进积极学习网络思政教育内容的态度转变，从而实现网络思想政治教育实效性的提升。

在积极心理学视域下，当代高校学生普遍存在希望、乐观、自我效能、韧性水平不足等问题，使得高校网络思想政治教育存在学生学习主动性不高、实际参与度较低等现实困境。为探索解决高校网络思想政治教育现实困境的有效方案，本研究采用随机干预实验进行积极实践与验证，首先对西安某高校 4374 名学生的网络思想政治教育现状进行了调查，随后采用随机干预实验的方法对 480 名学生进行了积极心理干预。实验结果表明，通过积极心理干预，高校学生积极心理水平和思想政治水平均有提升。在此基础上，梳理了积极心理干预提升网络思想政治教育实效性的模型，为高校网络思政教育模式的改革和创新提供了新思路。

关键词：积极心理学，网络思想政治教育，实效性

Practical Exploration of Positive Psychological Intervention to Enhance the Effectiveness of Network Ideological and Political Education in Colleges and Universities

Xie Wen[1],Yang Shiying[2,*],Tang Ziyi[3],Du Tingting[4],Cheng Jiayi[5],Fu Rong[2],Yin Weili[1]
[1]Department of Student Development, Xi'an Eurasian College, Xi'an, Shaanxi, 710065, China
[2]School of Business Administration, Xi'an Eurasian College, Xi'an, Shaanxi Province, 710065, China Email: 2801158750@qq.com
[3]School of Finance and Data Science, Xi'an Eurasian College, Xi'an, Shaanxi Province, 710065, China
[4]College of Humanities and Education, Xi'an Eurasian College, Xi'an, 710065, Shaanxi Province, China
[5]School of Culture and Media, Xi'an Eurasian College, Xi'an, Shaanxi Province, 710065, China

Abstract

According to the Opinions on Strengthening and Improving Ideological and Political Work in the New Era, the Ministry of Education has clearly put forward the promotion of the innovative development of ideological and political work in the new era and the strengthening of the construction of ideological and political work on the Internet as a key point of education in colleges and universities nowadays, and since then, cyber ideological education has become a hot trend of ideological and political education. Strengthening network ideological and political education in colleges and universities, and vigorously improving the effectiveness of network ideological and political education is the most important task of college and university education, and it is urgent to improve the ideological and political quality of college students and promote the overall development of college students.

Research has shown that the cultivation of positive psychological qualities of college students can enhance the effectiveness of network ideological and political education in colleges and universities, and has a facilitating effect on the attitude change of students' active participation in network ideological and political education in colleges and universities. Many scholars have suggested that the educational theory of positive psychology, which "fosters individual positive qualities and creates a positive social atmosphere to enhance individual happiness", is inherently compatible with the educational purpose of cyber ideological and political education, which is "to promote the free and comprehensive development of human beings". Introducing positive psychology into network ideological and political education in colleges and universities further enhances the infectious force and attraction of network ideological and political education in colleges and universities, taps the inner strength of students through correct guidance and practical interventions, and allows students to gain positive emotional experiences such as growth, happiness, and a sense of achievement, and promotes a change in the attitude of actively learning the contents of network ideological and political education, thus realising the enhancement of the effectiveness of network ideological and political education.

Under the perspective of positive psychology, contemporary college students generally have the problems of hope, optimism, self-efficacy, and insufficient level of toughness, which makes the network ideological and political education in colleges and universities have the realistic dilemmas of low students' learning initiative and low actual participation. In order to explore effective solutions to the real dilemma of network ideological and political education in colleges and universities, this study adopts randomised intervention experiments for positive

practice and validation, firstly investigating the current situation of network ideological and political education of 4374 students in a college in Xi'an, followed by positive psychological interventions for 480 students using the method of randomised intervention experiments. The experimental results show that the positive psychological level and ideological and political level of the college students are improved through positive psychological intervention. On this basis, the model of positive psychological intervention to enhance the effectiveness of network ideological and political education is sorted out, which provides new ideas for the reform and innovation of the network ideological and political education model in colleges and universities.

Keywords: positive psychology, network ideological and political education, effectiveness

不同真诚度道歉对受害者和第三方决定性宽恕及情感性宽恕的影响

马茹雪[1]　梁三才[2]（通讯作者）

1 陕西师范大学心理学院，西安，710062

2 陕西师范大学心理学院，西安，710062，liangsancai@snnu.edu.cn

摘 要　宽恕是指个体受到冒犯后的一系列亲社会动机的转变过程，包括决定性宽恕和情感性宽恕。研究表明，冒犯者的道歉是促进宽恕的有效策略，但不是所有道歉都会促进受害者宽恕：冒犯者不同真诚度的道歉对受害者做出宽恕行为的意愿有不同影响。以往研究发现，第三方会比受害者(第一方)更不容易原谅冒犯者，即第三方宽恕效应。为了考察无关第三方和受害者在面对冒犯者不同真诚度道歉时对决定性宽恕和情感性宽恕产生的不同影响，本研究设计了以下两个实验：实验一以 114 名大学生为被试，运用改编的包含冒犯与道歉的情景测验范式，并采用 3（不同真诚度道歉：强迫道歉，自愿道歉，不道歉）×2（角色：受害者，无关第三方）被试间设计对这一问题加以探讨。结果发现，对于情感性宽恕而言，不同真诚度道歉和不同角色的交互作用显著，简单效应分析结果显示，在强迫道歉条件下，受害者相比无关第三方更容易产生情感性宽恕，这一效应在自愿道歉和不道歉条件下均未出现；对于决定性宽恕而言，不存在上述交互作用。实验二以 105 名大学生为被试，运用生态效度更好的冒犯与道歉的自传体回忆范式，并采用与实验一相同的实验设计对同一研究主题进一步加以探究。结果发现，对于决定性宽恕而言，不同真诚度道歉和不同角色的交互作用显著，简单效应分析结果显示，在强迫道歉条件下，受害者相比无关第三方更容易产生决定性宽恕，但这一效应在自愿道歉和不道歉条件下均未出现；对于情感性宽恕而言，不同真诚度道歉和不同角色的交互作用显著，简单效应分析结果显示此交互作用与在决定性宽恕结果中表现出不同模式：在强迫道歉和不道歉条件下，受害者相比无关第三方均更容易产生情感性宽恕，但这一效应在自愿道歉条件下未出现。这些研究结果表明，强迫道歉和自愿道歉对于受害者和无关第三方的决定性宽恕和情感性宽恕具有不同的影响模式。这些研究结果不但加深了对于道歉与宽恕关系的理解，而且丰富了有关第三方宽恕效应的研究。

关键词　强迫道歉，自愿道歉，决定性宽恕，情感性宽恕，无关第三方

The impact of apology with different sincerity on victims and third parties' decisional and emotional forgiveness

Ma ru xue [1], Liang san cai [2],
1.School of Psychology,Shanxi Normal University,Xian 710062,China

Abstract：Forgiveness refers to a series of prosocial motivation changes after an individual is offended, including decisional and emotional forgiveness. Studies have shown that the offender's apology is an effective strategy to promote forgiveness, but not all apologies promote victim forgiveness: different sincerity of the offender's apology have different effects on the victim's willingness to forgive. Previous studies have found that the third party is less likely to forgive the offender than the victim (the first party), that is, the third-party forgiveness effect. In order to investigate the different influences of unrelated third parties and victims on decisional and emotional forgiveness when faced with different sincerity of the offender's apology, the following two experiments were designed: In experiment 1, 114 college students were used as subjects, and the adapted situational test paradigm involving offense and apology was adopted,the 3 (apology with different sincerity: coerced apology, voluntary apology, non-apology) ×2 (role: victim, the third party) design was adopted to explore this issue. The results show that, for emotional forgiveness, the interaction between different sincerity of apology and different roles is significant. The simple effect analysis results show that under the condition of coerced apology, victims are more likely to generate emotional forgiveness than unrelated third parties, and this effect does not appear in the condition of voluntary apology and non-apology. For decisional forgiveness, none of these interactions exist. In experiment 2, 105 college students were taken as subjects, and the autobiographical recall paradigm of offense and apology with better ecological validity was used to further explore the same research topic with the same experimental design as experiment 1. The results show that, for decisional forgiveness, the interaction between different sincerity of apology and different roles is significant. The simple effect analysis results show that under the condition of coerced apology, victims are more likely to generate decisional forgiveness than unrelated third parties, but this effect does not appear in the condition of voluntary apology and non-apology. For emotional forgiveness, the interaction between different sincerity levels of apology and different roles is significant, and the simple effect analysis results show that this interaction is different from that in the decisional forgiveness: under the condition of coerced apology and non-apology, victims are more likely to have emotional forgiveness than unrelated third parties, but this effect does not appear under the condition of voluntary apology. These findings suggest that coerced and voluntary apologies have different patterns of influence on decisional and emotional forgiveness of victims and unrelated third parties. These findings not only deepen the understanding of the relationship between apology and forgiveness, but also enrich the research on the effects of third-party forgiveness.

Keywords：coerced apology,voluntary apology,decisional forgiveness,emotional forgiveness,the third party

正念训练对特质焦虑个体心流体验的影响

孙俊芳[①②] 包呼格吉乐图[③]（通讯作者）
①内蒙古师范大学心理学院，呼和浩特，011517 ②集宁师范学院教育科学学院，乌兰察布， 012000
③内蒙古师范大学体育学院，呼和浩特， 010022，通讯作者 E-mail:baohuge@imnu.edu.cn

摘要　目的：探讨正念训练对特质焦虑个体心流体验的影响。方法：采用 2×3 混合实验设计，把 67 名特质焦虑个体随机分为实验组和对照组，实验组接受 8 周正念训练，在同一时间段对照组阅读心理学书籍。训练结束后进行后测，三个月后进行追踪测试，比较两组被试的注意集中水平和心流体验的变化情况。结果：正念训练结束时，实验组后测的心流体验（学习心流和游戏心流）显著高于前测，追踪测试时心流体验仍显著高于前测，追踪测试与后测的心流体验差异不显著。对照组三次测试的心流体验彼此间均差异不

显著。前测时实验组和对照组的心流体验差异不显著，后测和追踪测试时实验组的心流体验均显著高于对照组。经过 8 周正念训练，实验组被试的注意集中水平也显著提升，对照组被试三次测试的注意集中水平不存在显著差异。后测和追踪测试时实验组的注意集中水平均显著高于对照组。结论：正念训练能显著提升特质焦虑个体的心流体验和注意集中水平，且干预效果持续。
关键词　心流体验，正念训练，特质焦虑，注意集中

Influence of mindfulness training on flow experience in trait anxiety individuals

SUN Junfang[①②], BAO Hugejiletu[③]
①School of Psychology, Inner Mongolia Normal University, Hohhot 011517; ②School of Educational Science, Jining Normal University, Ulanqab 012000; ③School of Physical Education, Inner Mongolia Normal University, Hohhot 010022

Abstract ： **Objective**: To explore the influence of mindfulness training on flow experience of trait anxiety individuals. **Methods**: Using a 2×3 mixed experimental design, 67 trait anxiety individuals were randomly divided into experimental group and control group. The experimental group received mindfulness training for 8 weeks, and the control group read psychological books at the same time. A post-test was conducted after the training, and a follow-up test was conducted three months later， to compare the changes in attention concentration and flow experience between the two groups. **Results**: The flow experience (learning flow and game flow) of the experimental group after mindfulness training was significantly higher than that of the pre-test, while the flow experience of the follow-up test was still significantly higher than that of the pre-test, and there was no significant difference of flow experience between the follow-up test and the post-test. There was no significant difference of flow experience between the three tests in the control group. There was no significant difference of flow experience between the experimental group and the control group in the pre-test, but the flow experience of the experimental group was significantly higher than that of the control group in post-test and follow-up test. After 8 weeks of mindfulness training, the attention concentration level of the experimental group participants also significantly improved, while there was no significant difference in the attention concentration level of the control group participants in the three tests. The concentration level of attention in the experimental group was significantly higher than that in the control group during post testing and follow-up testing.**Conclusion**: Mindfulness training can significantly improve the flow experience and concentration level of attention of trait anxiety individuals, and the intervention effect is sustained.

Keywords：Flow experience, Trait anxiety, Attention, Stability

亲社会视频游戏对运动员积极共情和亲社会行为的影响

甘友腾　王若航　范虹颖（通讯作者）
北京体育大学心理学院，北京，100084，通讯作者 E-mail：fanhy@bsu.edu.cn

摘　要　目的：运动员在日常生活和比赛训练中的共情能力和亲社会行为不仅能够帮助他们建立良好人际关系和促进积极体验，而且也会直接或间接影响其运动表现。亲社会视频游戏所营造的积极情境有利于提升玩家的积极认知和情感，从而引导亲社会行为产生。因此本研究皆在探讨亲社会视频游戏对运动员积

极共情和亲社会行为的影响，并纳入非运动员群体对干预效果进行对比。 方法：采用 2(运动员/非运动员) × 2(亲社会/中性视频游戏) ×2(前/后测)的混合实验设计，其中组间变量为不同群体和游戏干预方式，组内变量为测量时间。共有 118 名被试参与本研究(平均 20.55 ± 1.41 岁)，各组参与者在性别和年龄等人口学特征方面均无统计学差异，并需要进行每天 30 分钟、为期 14 天的游戏干预。根据研究计划，在游戏干预前后采用积极消极共情量表(PaNES)、亲社会倾向量表(PTM)和运动亲、反社会行为量表(PABSS)对参与者的共情、亲社会倾向和运动亲、反社会行为进行测量。 结果：（1）在前测阶段，运动员组的积极共情、消极共情和共情总分以及 PTM 量表中“匿名的”维度得分显著低于非运动员组；（2）经过视频游戏干预后，亲社会运动员组的积极共情水平提升，反社会行为(队友)水平降低；亲社会非运动员组的积极共情和共情总分提升，亲社会行为(队友和对手)水平提升；（3）中性视频游戏组参与者的各个量表得分在前后测阶段均无统计学差异。 结论：亲社会视频游戏对运动员的积极共情和在运动情境下的亲社会行为具有一定改善效果，这一结果也适用于非运动员群体。本研究提示，运动工作者在今后心理服务过程中可以通过采取适时、适当的视频游戏训练手段，以促进运动员的亲社会行为并帮助其构建良好人格品质。

关键词　亲社会行为，游戏训练，共情，运动员

Effects of prosocial video games on positive empathy and prosocial behavior in athletes

Youteng Gan, Ruohang Wang, Hongying Fan
School of Psychology, Beijing Sport University, Beijing, 100084

Abstract：Objective: The empathic ability and prosocial behavior of athletes in daily life and competition training can not only help them establish good interpersonal relationships and promote positive experiences, but also directly or indirectly affect their sports performance. The positive situations created by prosocial video games were conducive to enhancing players’ positive cognition and emotion, thus guiding the generation of prosocial behaviors. This study aimed to explore the effects of prosocial video games on positive empathy and prosocial behaviors of athletes, and to include non-athletes to compare the intervention effects. Methods: A mixed experimental design of 2(athlete/non-athlete) ×2(prosocial/neutral video game) ×2(pre-/posttest) was adopted, in which the inter-group variables were different groups and game intervention methods, and the intra-group variable was measurement time. A total of 118 participants (Mage = 20.55 years old, SD = 1.41) participated in this study, and there were no statistical differences in demographic characteristics such as sex and age among the groups, and they were required to perform a 30-minute daily play intervention for 14 days. Positive and Negative Empathy Scale (PaNES), Prosocial Tendencies Measure (PTM) and Prosaically and Antisocial Behavior in Sport Scale (PABSS) were used to measure the participants’ empathy, prosocial tendency, and sports prosocial and antisocial behavior before and after the game intervention Results: (1) In the pretest stage, the scores of positive empathy, negative empathy, total empathy and the "anonymous" dimension of PTM scale in the athletes group were significantly lower than those in the non-athletes group; (2) After the intervention of video games, the level of positive empathy of prosocial athletes group increased, the level of antisocial behavior (teammates) decreased, the total scores of positive empathy and empathy of prosocial non-athletes group increased, and the level of prosocial behavior (teammates and opponents) improved; (3) There was no significant difference in the scores of each scale between the pre-and post-test periods for the neutral video game groups. Conclusions: Prosocial video games have a certain improvement effect on positive empathy and prosocial behavior in sports situations, and this result also applies to non-athletes. This study suggests that sports workers in the future psychological service process can take

timely and appropriate video game training means to promote athletes' prosocial behavior and help them build good personality quality.

Keywords：Prosocial behavior, Game training, Empathy, Athlete

青少年心理时间之旅对其生命意义感的预测：自我连续性的中介作用

袁木子[1] 殷悦[1] 刘俊升[1] 桑标[1 2]（通讯作者）

[1]华东师范大学心理与认知科学学院，上海，200062

[2]上海市教育科学研究院，上海，200032，bsang@psy.ecnu.edu.cn

摘 要　青春期是心理健康问题的高发期，而生命意义感作为保护性因素，对于青少年的心理健康与社会适应有着积极的影响；生命意义感水平高的个体，往往也展现出更高水平的生活满意度、自尊以及更好的人际关系等等。已有研究指出，心理时间之旅，即个体主观地将自我定位到曾经历过的事件或未来的事件中的能力，能够促进其生命意义感。当个体回溯过去或者想象未来时，能够增强当下自我与过去以及未来自我的联系，提高个体所感知到的自我连续性和一致性，从而提高其生命意义感。然而，面向过去与未来的心理时间之旅是否都能够提高青少年的自我连续性和生命意义感，两种时间导向的影响是否有所不同，这些问题仍然有待探索。因此，本研究采用追踪设计，探究青少年心理时间之旅对其生命意义感的影响以及自我连续性的中介作用。研究被试为 1543 名初高中生（48%男生，M_{age}=15.02, SD_{age}=1.58），采用自我报告的形式，在 2022 年 10 月以及 2023 年 4 月分别进行了间隔约半年的两次问卷追踪。被试在 T1 时间点报告了怀旧、未来预期、生命意义感水平，并在 T2 时间点报告了自我连续性以及生命意义感水平。潜变量中介模型拟合良好，χ^2 = 1443.44, df = 308, p < .001, CFI = .96, TLI = .95, RMSEA = .05, SRMR = .06。具体来说：1）在控制了 T1 的生命意义感后，T1 的怀旧能够通过提高 T2 的自我连续性从而提高 T2 的生命意义感，同时 T1 的怀旧水平也可以直接负向预测 T2 的生命意义感；2）在控制了 T1 的生命意义感后，T1 的未来预期能够通过提高 T2 的自我连续性来提高 T2 的生命意义感，且自我连续性起到了完全中介的作用。结果说明，心理时间之旅能够通过提升青少年的自我连续性进而促进其生命意义感，但过去和未来的不同时间导向影响并不相同；尽管怀念过去或想象未来都可以让个体感受到自我的连续性和生命的意义感，但单纯的怀旧则可能对个体有着负面的影响。本研究对心理时间之旅促进青少年生命意义感的作用机制进行了探索，为提高青少年生命意义感提供了实证依据。

关键词　心理时间之旅，生命意义感，自我连续性，青少年

Adolescent Mental Time Travel Predicting Meaning in Life: The Mediating Role of Self-Continuity

Muzi YUAN[1], Yue YIN[1], Junsheng LIU[1], Biao SANG[1 2]

[1]School of Psychology and Cognitive Science, East China Normal University, Shanghai, 200062, China

[2]Shanghai Academy of Educational Science, Shanghai, China, 200032, bsang@psy.ecnu.edu.cn

Abstract: Adolescence is a critical developmental period with high risk of occurrence of mental health problems. As a protective factor, meaning in life has a positive impact on adolescent psychosocial adjustment. Individuals with a higher level of meaning of life tend to show a higher level of life satisfaction, self-esteem and could maintain more positive interpersonal relationships. Studies have shown that mental time travel, the ability of individuals to subjectively locate themselves to past or future events, contributes to their sense of meaning in life. When individuals look back to the past or imagine the future, the connection between the present self and the past

and future self is strengthened, which helps to improve the continuity and consistency of the individual's perceived self and subsequently enhance their meaning in life. However, it remains to be explored whether both past- and future-oriented mental time travel can improve adolescents' sense of self-continuity and meaning in life, and whether the effects of the two orientations differ from each other. Therefore, the current study utilized a longitudinal design to explore the influence of mental time travel on adolescents' meaning in life as well as the mediating role of self-continuity. A total of 1543 middle and high school students (48% male, M_{age}=15.02, SD_{age}=1.58) participated in the study. Two waves of data collection using self-report questionnaires were conducted in October 2022 and April 2023 with an interval of roughly half a year. Participants reported their levels of nostalgia, future prospection and meaning in life at T1, and self-continuity and meaning in life again at T2. The latent variable mediation model was constructed, and the results showed that the model fit data well, χ^2 = 1443.44, *df* = 308, p < .001, CFI = .96, TLI = .95, RMSEA = .05, SRMR = .06. Specifically, 1) After controlling meaning in life at T1, nostalgia at T1 could improve meaning in life at T2 by improving self-continuity at T2, and nostalgia at T1 could also directly and negatively predict meaning in life at T2; 2) After controlling meaning in life at T1, future prospection at T1 could improve meaning in life at T2 by improving self-continuity at T2, and self-continuity could fully mediate the relation between future prospection and meaning in life. The results indicate that mental time travel can promote adolescent meaning in life by enhancing their self-continuity, but the effects differ for past and future time orientations. While reminiscing about the past or imagining the future can give individuals a sense of continuity and meaning in their lives, mere nostalgia may have a negative impact on individuals. This study explores the mechanism of mental time travel in promoting adolescents' sense of meaning in life, and provides empirical evidence for improving adolescent meaning in life.

Keywords: Mental Time Travel, Meaning in Life, Self-Continuity, Adolescent

大学生特质宽恕、情感平衡与人际宽恕的关系:反刍的纵向调节作用

万 烬[1] 梁三才[2]（通讯作者）

1 陕西师范大学心理学院，西安，710062

2 陕西师范大学心理学院，西安，710062，liangsancai@snnu.cn

摘要 人际宽恕是化解人际冲突的有效途径之一，人际宽恕与幸福感和身心健康密切相关。特质宽恕作为促使个体社会适应的积极品质，对个体人际宽恕水平具有显著预测作用。同时，有研究显示个体的情感与人际宽恕密切相关，并考察了反刍思维在其中的调节作用，但较少有研究考察它们之间的纵向关系。本研究采用特质宽恕量表、积极情绪与消极情绪量表、人际侵犯动机量表和反刍思维问卷分别在 2022 年 9 月（T1）和 2022 年 12 月（T2）对 441 名大学生进行两次追踪调查，采用 Mplus8.3 软件构建纵向调节模型，旨在检验特质宽恕、情感平衡与人际宽恕的交叉滞后关系，并揭示反刍在其中的纵向调节作用。结果显示：（1）两次测试的特质宽恕、情感平衡、人际宽恕以及反刍的自回归路径均显著，显示这些变量具有跨时间稳定性。（2）T1 特质宽恕能够显著正向预测 T2 人际宽恕（β=0.145，p<0.01），T1 情感平衡能够显著负向预测 T2 人际宽恕（β=-0.113，p<0.05），T1 人际宽恕显著正向预测 T2 特质宽恕（β=0.270，p<0.001）。（3）控制性别、年龄和 T1 人际宽恕等变量后，反刍显著调节了 T1 特质宽恕到 T2 人际宽恕之间的交叉滞后路径（β=0.154，p<0.01）。简单斜率检验显示，高反刍条件下，T1 特质宽恕对 T2 人际宽恕的预测作用更大。这些结果说明，大学生特质宽恕、情感平衡与人际宽恕之间存在纵向关系，并且反刍缓冲了特质宽恕对人际宽恕的纵向影响。

关键词 人际宽恕，特质宽恕，情感平衡，反刍，纵向调节作用

Undergraduates' Trait Forgiveness, Affect Balance, and Interpersonal

Forgiveness: Longitudinal Moderating Role of Rumination

Wan Jin[1] Liang Sancai[2]

School of psychology, Shaanxi Normal University, Xi'an, 710062, China

***Abstract*:** Interpersonal forgiveness is one of the effective ways to resolve interpersonal conflicts, and interpersonal forgiveness is closely related to well-being and physical and mental health. Trait forgiveness, as a positive quality that contributes to an individual's social adaptation, is a significant predictor of an individual's level of interpersonal forgiveness. Meanwhile, some studies have shown that individuals' emotions are closely related to interpersonal forgiveness and examined the moderating role of rumination, but fewer studies have examined the longitudinal relationship between them. In this study, the Trait Forgiveness Scale, Positive and Negative Emotions Scale, Interpersonal Aggression Motivation Scale, and Rumination Thinking Questionnaire were used to conduct two follow-up surveys on 423 undergraduate students in September 2022 (T1) and December 2022 (T2), respectively, and the longitudinal moderation model was constructed by using the Mplus 8.3 software with the aim of examining cross-lagged relationships among trait forgiveness, affect balance, and interpersonal forgiveness. and to reveal the longitudinal moderate role of rumination in it. The results showed that (1) the autoregressive paths of trait forgiveness, affect balance, interpersonal forgiveness, and rumination were significant for both tests, indicating that these variables were stable across time. (2) T1 trait forgiveness significantly positively predicted T2 interpersonal forgiveness (β=0.164, $p<0.01$), T1 affect balance significantly negatively predicted T2 interpersonal forgiveness (β=-0.118, $p<0.05$), and T1 interpersonal forgiveness significantly positively predicted T2 trait forgiveness (β=0.492, $p<0.01$). (3) Controlling for variables such as gender, age, and T1 interpersonal forgiveness, rumination significantly moderated the cross-lagged path from T1 trait forgiveness to T2 interpersonal forgiveness (β=0.164, $p<0.01$). A simple slope test showed that T1 trait forgiveness was a greater predictor of T2 interpersonal forgiveness in the high rumination condition. These results suggest that there is a longitudinal relationship between trait forgiveness, affect balance, and interpersonal forgiveness among undergraduates and that rumination buffers the longitudinal effects of trait forgiveness on interpersonal forgiveness.

Keywords: Interpersonal forgiveness, trait forgiveness, affect balance, rumination, longitudinal moderating effects

生命意义内隐认知的情境依赖性—自我与他人视角

李宁[1,2] 丁凤琴[1]（通讯作者） 宋秀萍[1]

1 宁夏大学教师教育学院心理学系，银川，750000

2 宁夏精神卫生中心，宁安医院，银川，750000

通讯作者 dingfqin@nxu.edu.cn

摘 要 生命意义包括认知、动机和情感三个维度。以往研究大多采用外显的方法探究其认知与动机维度，缺乏对生命意义情感维度和内隐认知的研究。另外生命意义会随着情境和自我—他人视角的不同而发生动态改变和调整，但尚不知生命意义的内隐认知是否会因情境中自我—他人视角不同而产生不同结果。本研究利用 ERP 技术，通过 3 个递进实验，从生命意义的三个维度探讨生命意义的内隐认知效应。方法：实验 1 利用情感错误归因范式(AMP)，探讨生命意义的内隐认知及其神经机制；实验 2 在实验 1 的基础上，采用评价启动范式(EPT)，加入自我—他人视角差异的研究；实验 3 在实验 2 的基础上，采用句子启动范式(SPP)，探讨不同情境下个体的自我—他人生命意义的内隐认知。结果：(1)当生命意义词词性为积极词汇时，被试对追寻维度愉悦度的反应概率大于存在维度；当生命意义词词性为消极词汇时，被试对追寻维度愉悦度的反应概率与存在维度无显著差异。相比于存在维度，追寻维度在脑区诱发的 P100、N170、P300、

N400 成分的脑电波波幅更正；相比于消极词汇，积极词汇在脑区诱发的 P100、N170、P300、N400 成分的脑电波波幅更正；(2)启动自我词汇后，被试对生命意义追寻维度的积极词汇联结更快。自我启动条件下，生命意义追寻维度积极词汇产生的 P100 波幅显著正于消极词汇，他人启动条件下，生命意义追寻维度的积极与消极词汇产生的 P100 波幅无差异；(3)自我奉献情境启动条件下，个体对生命意义追寻维度的积极词汇联结更快；自我损害情境启动条件下，个体对生命意义追寻维度的消极词汇联结更快；而无论是他人奉献情境还是他人损害情境，个体对生命意义追寻维度的积极词汇以及消极词汇的判断均无显著差异。结论：生命意义的内隐认知效应存在，并且生命意义追寻维度的内隐认知随着不同主体(自我—他人)和不同情境(奉献—损害)的变化而变化。这为后续开展生命意义教育，提高个体生命意义认知提供了实践指导。

关键词：生命意义，内隐认知，自我—他人视角，情境依赖性

Situational Dependence of Implicit Cognition of the Meaning in Life -- Self and other Perspectives

Ning Li[1, 2], Fengqin Ding[1*], and Xiuping Song[1]

[1] Department of Psychology, Institute of Teacher Education, Ningxia University, Yinchuan, China

[2] Ningxia Provincial Mental Health Center, Ningan Hospital,Yinchuan, China

Abstract: Meaning in life encompasses cognitive, motivational, and emotional dimensions. Previous research has mostly focused on the explicit exploration of cognitive and motivational dimensions, lacking investigation into the emotional dimension and implicit cognition of meaning in life. Furthermore, meaning in life dynamically changes and adjusts with different contexts and self-other perspectives, but it remains unknown whether situational differences in self-other perspectives yield different results in implicit cognitive processes of meaning in life. In this study, utilizing ERP (event-related potentials) technology, we examined the implicit cognitive effects of meaning in life from its three dimensions through three progressive experiments. Method: Experiment 1 employed the Affective Misattribution Paradigm (AMP) to investigate the implicit cognition and neural mechanisms of meaning in life. Building upon Experiment 1, Experiment 2 employed the Evaluative Priming Paradigm (EPT) to study the self-other perspective differences. Experiment 3, based on Experiment 2, employed the Sentence Priming Paradigm (SPP) to explore the implicit cognitive processes of self-other meaning in life in different contexts. Results: (1) When the valence of the meaning in life words was positive, participants showed a higher probability of responding with pleasantness for the pursuit dimension compared to the existence dimension. When the valence of the meaning in life words was negative, there was no significant difference in the probability of responding with pleasantness between the pursuit and existence dimensions. Compared to the existence dimension, the amplitude of P100, N170, P300, and N400 components of brainwaves induced in the pursuit dimension was more positive. Compared to negative words, positive words induced more positive amplitudes of P100, N170, P300, and N400 components of brainwaves. (2) After self-priming, participants demonstrated faster associations between positive words and the pursuit dimension of meaning in life. Under self-priming conditions, the P100 amplitude of brainwaves induced by positive words in the pursuit dimension was significantly more positive than that of negative words. Under other-priming conditions, there was no significant difference in the P100 amplitude of brainwaves induced by positive and negative words in the pursuit dimension. (3) Under self-devotion context priming conditions, individuals formed faster associations between positive words and the pursuit dimension of meaning in life. Under self-harm context priming conditions, individuals formed faster associations between negative words and the pursuit dimension of meaning in life. However, whether it was under other-devotion or other-harm context priming conditions, there were no significant differences in the judgment of positive and

negative words regarding the pursuit dimension of meaning in life. Conclusion: Implicit cognitive effects of meaning in life exist, and the implicit cognition of the pursuit dimension of meaning in life varies with different subjects (self-other) and contexts (devotion-harm). This provides practical guidance for future meaning in life education and improving individual meaning in life cognition.

Keywords: Meaning in life, implicit cognition, self-other perspective, situational dependence

乐观偏差的影响因素与作用：基于 COVID-19 背景的研究

吕丹诺[1] 盖笑松[1, 2]（通讯作者）

1 东北师范大学心理学院，长春，130024

2 吉林省普通高等学校人文社会科学重点研究基地东北师范大学心理健康教育研究中心，长春，130024，

通讯作者 E-mail：gaixs669@nenu.edu.cn

摘 要 乐观偏差是指人们普遍相信自己会比其他人经历更多的积极事件、更少的消极事件。以往关于乐观偏差的研究多依赖于假设的事件或情景，这些事件与场景可能与研究的参与者没有任何直接联系。本研究拟以中国 COVID-19（Corona Virus Disease 2019）疫情发展的两个关键时间点为背景，考察乐观偏差的影响因素及结果。研究 1 于 2020 年 2 月疫情突发阶段对全国范围内 4313 名被试施测，使用直接比较法和间接比较法测量被试对 COVID-19 的乐观偏差，使用《生活取向量表》测量被试的气质性乐观，并收集了施测时间范围内媒体报道的全国每日新增确诊、疑似及死亡病例数量。结果表明人们对 COVID-19 存在普遍的乐观偏差，且气质性乐观的乐观维度正向预测乐观偏差。此外，媒体报道的每日新增确诊病例及疑似病例对乐观偏差有正向的预测作用。研究 2 于 2022 年 12 月感染普及化阶段对全国范围内 1767 名被试施测，使用直接比较法和间接比较法测量被试对 COVID-19 的乐观偏差，使用自编的《COVID-19 疫情时期行为改变量表》测量被试在疫情时期采取的防护行为水平、《COVID-19 感知严重性量表》测量被试对疫情感知到的主观严重性、《COVID-19 焦虑量表》测量疫情引发的焦虑感，并收集了被试社会关系成员中已感染的人数。结果发现在感染普及化阶段人们依然存在乐观偏差，但相较于疫情突发阶段乐观偏差的程度显著降低。被试社会关系中的感染人数负向预测被试的乐观偏差，而人们感知到的 COVID-19 严重性正向预测人们的乐观偏差。乐观偏差不仅在 COVID-19 感知严重性与 COVID-19 焦虑感之间发挥调节作用，降低了感知严重性对焦虑感的正向预测；乐观偏差还在 COVID-19 感知严重性与新冠疫情时期防护行为间发挥部分中介作用，感知严重性可以通过提高乐观偏差正向预测防护行为。该研究表明，在公共卫生事件中乐观偏差在生理和心理上具有保护作用。

关键词 乐观偏差，COVID-19，气质性乐观

Determinants and effects of optimism bias: A study in the context of COVID-19

Dannuo Lyu[1] Xiaosong Gai[1, 2]

1 School of Psychology, Northeast Normal University, Changchun, Jilin Province, China

2 Research Center of Mental Health Education in Northeast Normal University, Key Research Institute of Humanities and Social Science in Universities in Jilin Province, Changchun, Jilin Province, China

Abstract： Optimism bias is the general belief that people will experience more positive events and fewer negative events than other people. Previous studies of optimism bias have relied on hypothetical events or scenarios that may not be directly relevant to the participants in the study. This study aimed to investigate the determinants and outcomes of optimism bias at two critical points during the COVID-19 epidemic in China. The researchers conducted Study 1 (N=4313) during the initial outbreak in February 2020. The direct and indirect comparison methods were used to measure participants' optimism bias towards COVID-19. The Life Orientation Scale was used to measure participants' dispositional optimism during the outbreak. The number of daily confirmed cases, daily suspected cases and daily deaths in China were also collected during the first test period. The results showed that people had an optimism bias for COVID-19. The optimism dimension of dispositional optimism positively predicted the optimism bias. In addition, media reports of new confirmed and suspected cases positively predicted optimism bias. Study 2 (N=1767) was conducted during the Omicron outbreak in December 2022. The direct and indirect comparison methods were used to measure participants' optimism bias towards COVID-19. The self-designed Behaviour Change Scale during COVID-19 was used to measure participants' level of protective behaviour, the Perceived Severity Scale of COVID-19 was used to measure participants' perceived severity of the consequences of COVID-19, and the Anxiety Scale of COVID-19 was used to measure anxiety caused by COVID-19. The results showed that there was still an optimism bias compared to the initial outbreak, but to a lesser extent. The number of infections in participants' social relations negatively predicted optimism bias, while the perceived severity of COVID-19 consequences positively predicted optimism bias. Optimism bias may decrease the positive prediction of anxiety by perceived severity, and perceived severity may positively predict protective behaviour by increasing optimism bias. The study demonstrates that optimism bias is physically and psychologically protective during public health events.

Keywords： optimism bias, COVID-19, Dispositional optimism

5.34 康复心理学专业委员会

身心锻炼改善轻度认知功能障碍老年人的认知和脑功能

蒋长好[1]（通讯作者） 戴元富[2]

1 首都体育学院运动脑成像研究中心，北京，100191，jiangchanghao@cupes.edu.cn

2 首都体育学院运动科学与健康学院，北京，100191

摘 要 轻度认知功能障碍(Mild Cognitive Impairment, MCI)是介于正常老化和痴呆之间的一种临床状态。中国 60 岁及以上人群中，MCI 患病率估计为 15.5%，即中国有 3,877 万人患有轻度认知障碍。MCI 主要表现为认知功能下降，向老年痴呆转化的风险高且缺乏有效的药物治疗手段。通过早期干预治疗 MCI 可以恢复至正常认知状态，其恢复率可以到达 25～30%。

已有研究显示，身心锻炼有助于改善 MCI 老年人认知，而且身心锻炼对 MCI 老年人认知影响还有选择性，身心锻炼可显著改善注意、记忆以及执行功能。但对认知加工速度的影响不明显。身心锻炼改善 MCI 老年人认知功能还存在剂量效应关系，中等强度锻炼对 MCI 老年人的认知改善效果更好，至少 4 周、每周

3-4 次的中等频率干预比每周 1-2 次的低频率的干预效果更大。而且身心锻炼对认知的影响是动态变化的，锻炼认知效益依赖于干预时间。脑影像研究发现，身心锻炼有助于提高 MCI 老年人的脑功能激活、改善脑网络活动模式，提高认知功能，逆转老化的不良影响。身心锻炼还可改变大脑结构，提高额区容量和白质完整性，并能改变海马形态学特征。

总体而言，已有研究尚存在以下需要进一步解决的问题。一是样本量小、结果测量的异质性和缺少对 MCI 老年人认知功能的锻炼效益的系统分析等问题。因此，进一步的研究应扩大样本量并分离认知功能的主要成分，深入探讨身心锻炼对 MCI 老年人认知功能不同子成分的影响。二是当前关于干预强度、频率、干预周期及认知效应的延续效果的研究仍然偏少，一些研究采用横断研究，难以做出因果推断，因此需要更多的干预研究进一步揭示身心锻炼改善 MCI 老年人认知功能的量效关系。三是已有研究大多聚焦于身心锻炼影响 MCI 老年人认知功能的脑神经机制，而关于身心锻炼影响认知功能和脑可塑性的时间进程特征和累积效应的研究相对更少，一些研究结论也不尽一致，相关研究还需要进一步加强。

关键词　轻度认知功能障碍；身心锻炼；认知

Physical and mental exercise improves cognition and brain function in older adults with mild cognitive impairment

Changhao JIANG[1]　Yuanfu DAI[2]

1 The Center of Neuroscience and Sports, Capital University of Physical Education and Sports, Beijing

2 School of Kinesiology and Health, Capital University of Physical Education and Sports, Beijing

Abstract：Mild Cognitive Impairment (MCI) is a clinical state between normal aging and dementia. The prevalence of MCI is estimated to be 15.5% among people aged 60 years and above in China, which means that 38.77 million people in China suffer from mild cognitive impairment.MCI is mainly manifested by cognitive decline, with a high risk of transitioning to dementia and a lack of effective pharmacological treatments. Through early intervention, MCI can be restored to a normal cognitive state, with a recovery rate of 25-30%.

Many studies have shown that physical and mental exercise can help improve cognition in older adults with MCI, and the effects of physical and mental exercise on cognition in older adults with MCI are also selective, as physical and mental exercise can significantly improve attention, memory, and executive function. However, the effect on cognitive processing speed was not significant. There was also a dose-effect relationship between physical and mental exercise on improving cognitive function in older adults with MCI. Moderate-intensity exercise had a better effect on cognitive improvement in older adults with MCI, and moderate-frequency interventions of at least 4 weeks, 3-4 times per week, had a greater effect than interventions with a lower frequency of 1-2 times per week. Moreover, the effects of physical and mental exercise on cognition were dynamic, with exercise cognitive benefits dependent on the duration of the intervention. Brain imaging studies have found that physical and mental exercise helps to increase functional brain activation, improve brain network activity patterns, improve cognitive function, and reverse the adverse effects of aging in older adults with MCI. Physical and mental exercise also altered brain structure, improved frontal area volume and white matter integrity, and altered hippocampal morphological features.

Overall, the following issues exist in the existing studies that need to be further addressed. One is the small sample size, heterogeneity of outcome measures, and lack of systematic analyses of the benefits of exercise on cognitive function in older adults with MCI. Therefore, further studies should expand the sample size and isolate the major components of cognitive functioning to explore in depth the effects of physical and mental exercise on different

subcomponents of cognitive functioning in older adults with MCI. Secondly, current studies on the intensity, frequency, period of intervention and the continuation effect of cognitive effects are still scarce, and some studies have used cross-sectional studies, which makes it difficult to make causal inferences; therefore, more intervention studies are needed to further reveal the quantitative-effective relationship between physical and mental exercise to improve cognitive function in older adults with MCI. Thirdly, most of the existing studies focus on the brain-neural mechanism of physical and mental exercise affecting cognitive function in older adults with MCI, while there are relatively few studies on the time course characteristics and cumulative effects of physical and mental exercise affecting cognitive function and brain plasticity, and the conclusions of some studies are inconsistent, so the relevant studies need to be further strengthened.

Keywords：Mild cognitive impairment; physical and mental exercise; cognition

音乐治疗对戒毒人员心理健康的影响：cohen'd 和 Hedges' g 效应值分析

徐晓锋

(中央司法警官学院矫正教育系，河北省保定市，071051，1003778942@qq.com

摘 要：近年来，音乐治疗在我国戒毒工作中居于重要地位，国内文献关于音乐教育治疗对戒毒影响涉及音乐对心理健康、康复、症状缓解等心理效用的研究。研究音乐戒毒心理效果主要有三种研究路径：与常模对照；同组干预前后对照；实验组和干预组对照。音乐治疗心理效果评定量表主要包括 SCL-90,SAS,SDS 等，采用的统计技术主要为 t 分数显著性检验方法，现有研究均未涉及音乐治疗对戒毒人员心理影响的效应值评价。由于音乐治疗对戒毒心理影响的效应值评价目前存在缺失，研究者筛选出 16 篇关于音乐戒毒效果的实证研究，对效应值进行分析，研究发现：（1）6 篇涉及音乐治疗对戒毒人员焦虑影响的 SAS 研究中，cohen'd 的效应值 2 篇为高效应值，效应值分别为 0.88、0.899；2 篇为中效应值，效应值分别为 0.655、0.770；2 篇为低效应值。（2）7 篇涉及音乐治疗对戒毒人员抑郁影响的 SDS 研究中,cohen'd 的效应值 4 篇为中效应值，效应值分别为 0.797、0.69、0.645、0.588；三篇为低效应值。（3）2 篇音乐治疗对戒毒人员 SCL-90 影响中,样本大于 50 的 cohen'd 的效应值检验，音乐治疗只对抑郁分量表产生效应值为 0.5 的中等影响；在小样本研究中，采用 Hedges' g 效应值检验，发现音乐治疗只对敌对、恐怖、精神病性三个维度产生中等效应值的影响，值分别为 0.74,0.52,0.66。本研究揭示，音乐教育对戒毒人员心理健康影响，治疗焦虑的效果最优；治疗抑郁取得效果中等，心理评定量表 SCL-90 的治疗主要对抑郁、敌对、恐怖、精神病性产生作用。效应值研究与原作者的 t 检验方法表现出不同的结果，揭示效应值对深入研究音乐治疗效果的重要意义，未来需要作进一步整合 cohen'd 的研究。

关键词：音乐教育，戒毒人员，心理健康，效应值，分析

5.35 校园欺凌与暴力防治专业委员会

童年中期欺凌行为对同伴接纳、同伴拒绝的影响：班级地位等级性的作用

张洁　张梦园　潘斌　李腾飞　纪林芹　张文新（通讯作者）
山东师范大学心理学院，　济南，　250014，zhangwenxin@sdnu.edu.cn

摘 要　通常而言，欺凌行为与较低同伴接纳、较高同伴拒绝相关联。班级地位等级性反映了个体在班级中地位和权力的分布情况，并可能调节欺凌行为与同伴地位之间的关系。机能主义的观点认为，在高地位等级性的班级中，欺凌行为会破坏班级中的等级、秩序，不被同伴接纳且遭受更多同伴拒绝；权力均衡的观点则认为，在高地位等级性的班级中，欺凌行为是一种获取和维持地位的合理手段，会被同伴接纳且较少受到同伴拒绝。本研究旨在进一步检验关于班级地位等级性调节欺凌行为与同伴地位关系的两种竞争性假说。本研究以班级为单位抽取 4 所小学 29 个班级的 1174 名 3 年级（n = 615, 46.5%女生, 平均年龄 9.29 ± 0.40 岁）和 4 年级儿童（n = 559, 44.9%女生, 平均年龄 10.31 ± 0.40 岁）进行为期一年两时间点的追踪，考察欺凌行为与同伴接纳、同伴拒绝的纵向关系以及班级地位等级性的调节作用。结果发现：（1）欺凌行为会导致一年后同伴接纳的降低和同伴拒绝的增加；（2）班级地位等级性调节欺凌行为与随后同伴拒绝的关系，在地位等级性较低的班级中，欺凌行为会预测同伴拒绝的增加，在地位等级性较高的班级中，欺凌行为与同伴拒绝无显著关联。这一结果揭示了中国文化背景下欺凌行为与同伴接纳、同伴拒绝的关系，支持了权力均衡的假说，表明较高地位等级性会降低欺凌行为的代价。

关键词　欺凌行为，同伴接纳，同伴拒绝，班级地位等级性，童年中期

The Effect of Bullying Behavior on Peer acceptance and Peer Rejection: The Role of Classroom Status Hierarchy

Jie Zhang, Mengyuan Zhang, Bin Pan, Tengfei Li, Linqin Ji, Wenxin Zhang
School of Psychology, Shandong Normal University, Jinan, 250014

Abstract：Children who bully others are often less accepted and more rejected by peers. The power and status distribution in the classroom (i.e., classroom status hierarchy) might moderate the association between bullying and peer acceptance/rejection. From a functionalist perspective, in the hierarchical environment, bullying is recognized as a behavior that damage the social order, thereby leading to less acceptance and more rejection. On the contrary, the balance of power perspective argues that the hierarchical context may evoke competition for power and status. In such a context, bullying behavior could be seen as a legitimate means to maintain and reinforce one's status within the group, resulting in less rejection. To clarify these two contrasting views, the current study was to examine the moderating role of classroom status hierarchy in the longitudinal association between bullying and peer acceptance and rejection. The sample of this study was 1,174 children attending grade 3 (n = 615, 46.5% girls, M_{age} = 9.29 years, SD = 0.40) and grade 4 (n = 559, 44.9% girls, M_{age} = 10.31 years, SD = 0.40) from 29 classes in 4 primary schools. Two waves of data were collected in the spring semester of 2018 and 2019. The results revealed that (1) bullying behavior led to decreases in peer acceptance and increases in peer rejection over one year; and (2) classroom status hierarchy moderated the longitudinal association between bullying behavior and peer rejection — bullying behavior was associated with the increases in peer rejection only in the classrooms with a low level of the status hierarchy, but not in the classrooms with a high level of status hierarchy. The results in current study provide a support for the balance of power perspective, indicating that hierarchical structure within classrooms might reduce the costs of bullying.

Keywords：bullying behavior, peer acceptance, peer rejection, classroom status hierarchy, middle childhood

青少年受欺凌和抑郁的症状关联模式：基于交叉滞后网络分析

张李斌[1] 王晨旭[1] 杨洋[1] 梁文雨[1] 周雨锴[1] 杨亚楠[1] 张云运[2]（通讯作者）
1 北京师范大学中国基础教育质量监测协同创新中心，北京，100875
2 北京师范大学中国基础教育质量监测协同创新中心，北京，100875，yyzhangff@126.com

摘 要 中学阶段是青少年的关键过渡期，也是各种适应挑战的高发期。青少年受欺凌和抑郁症状因其发生率高而成为全世界现阶段青少年健康发展的主要威胁。青少年受欺凌指的是反复发生的故意伤害和无法保护自己的事件，与抑郁症状的相关性比许多其他社会心理适应问题更大。已有大量的研究发现青少年受欺凌和抑郁往往同时发生。尽管探究受欺凌和抑郁关系的研究很多，但尚未有研究从症状层面探究青少年受欺凌和抑郁之间的相互关系，去揭示受欺凌和抑郁的纵向症状关联模式。因此，本研究借助交叉滞后网络的分析方法，探讨青少年受欺凌类型与不同抑郁症状之间的因果关系。

本研究采用 Olweus 受欺凌量表和儿童抑郁指数量表对 1130 名中学生进行四次追踪调查，首先应用最小绝对收缩和选择算子(LASSO)构建 T1 到 T2，T2 到 T3，T3 到 T4 三个交叉滞后网络，然后进行中心性估计，计算网络的出度预期影响指数(out ExpectedInfluence, outEI)和入度预期影响指数(in ExpectedInfluence, inEI)，最后，采用 bootstrap 进行边线准确性估计以及采用构建子集(subsetting bootstrap)的方法对中心性进行检验，以评估网络的稳定性。研究结果显示：（1）在受欺凌和抑郁的交叉滞后网络中，在受欺凌症状簇内不同类型受欺凌间和抑郁症状簇内不同抑郁症状间在时间历程中存在相互预测、互为因果的关系；在受欺凌和抑郁症状簇间更多的体现为抑郁症状激发个体受欺凌，支持了症状驱动模型理论；（2）在三个交叉滞后网络中，快感缺失的出度预期影响最高，言语受欺凌和关系受欺凌的是受到其他节点影响最多，入度预期影响最高；（3）中心性指标的稳定性系数均大于 0.25，表明网络具有较好的稳定性。研究结果表明快感缺少对青少年受欺凌的独特作用，揭示了青少年受欺凌和抑郁之间的复杂与深层次关系，为未来实现“精准干预”提供可能。

关键词 青少年，受欺凌，抑郁，交叉滞后网络分析

A Cross-lagged Panel Network of the Peer Victimization and Depression in Adolescents

Zhang Libin, Wang Chenxu, Yang yang, Liang Wenyu, Zhou Yukai, Yang Yanan，Zhang Yunyun
Beijing Normal University
Collaborative Innovation Center of Assessment for Basic Education Quality, Beijing, 100875

Abstract：Secondary school is a critical transition period for adolescents and a time of high incidence of various adjustment challenges. Peer victimization and depressive symptoms are major threats to the healthy development of adolescents at this stage of life worldwide due to their high prevalence. Peer victimization, which refers to repeated incidents of intentional victimization and inability to protect oneself, is more associated with depressive symptoms than many other psychosocial adjustment problems. Numerous studies have been conducted to find that peer victimization and depression often co-occur in adolescents. Although there are many studies exploring the relationship between peer victimization and depression, no study has yet explored their longitudinal interrelationships at the symptom level. Therefore, the present study examined the causal relationship between peer victimization and different depressive symptoms in adolescents by using cross-lagged network analysis.

In this study, 1130 secondary school students were followed up four times using the Olweus Bullying Scale and the Childhood Depression Index Scale. Firstly, the least absolute shrinkage and selection operator (LASSO) was applied to construct three cross-lagged networks from T1 to T2, T2 to T3, and T3 to T4. Then centrality estimation was performed to compute the network's out-ExpectedInfluence (outEI), and in-ExpectedInfluence (inEI). Finally, a bootstrap is used for edge accuracy estimation as well as a centrality test using a subsetting bootstrap to assess the stability of the network. The results showed that: (1) In the cross-lagged network analysis of peer victimization and depression, a bidirectional predictive and causal relationship was observed among different subtypes of victimization within the bullying victimization cluster, as well as among various depressive symptoms within the depression clusters. Between the different clusters of peer victimization and depression, more depressive symptoms leads to individuals being bullied, which supports the symptom-driven model theory; (2) In the three cross-lagged networks, Anhedonia had the highest out-expected influence centrality, verbal victimization and relational victimization were the most affected by other nodes, and the in- expected influence centrality was the highest; (3) the stability coefficients of the centrality indexes were all greater than 0.25, which indicated that the networks had good stability. The research findings indicate that Anhedonia have a unique effect on bullying victimization among adolescents, revealing the complex and underlying relationship between peer victimization and depression, providing possibilities for targeted peer victimization intervention.

Keywords：Adolescents, Peer Victimization, Depression, Cross-lagged Panel Network

受欺凌中学生孤独感的发展轨迹：基于混合增长模型的分析

陈博[1] 王靖茜[1] 陈展洁[1] 甄瑞[1,2]（通讯作者）

1 杭州师范大学经亨颐教育学院，杭州，311121，E-mail: zhenrui1206@126.com

2 浙江省哲学社会科学培育实验室“杭州师范大学婴幼儿发展与托育实验室”

摘 要 校园欺凌作为一种创伤事件，会导致中学生出现诸多消极心理反应，如孤独感。孤独感是指当个体知觉到自己的社交关系并非自己所期待的，无法从社会交往中获得满足感，从而产生的不愉快的情绪体验，是导致个体出现手机依赖、网络成瘾等诸多消极后果的风险因素。因此，为探究受欺凌中学生孤独感的发展轨迹及其影响因素，提供针对性的干预措施，提升其心理健康水平，本研究采用追踪研究设计，分别在 2019 年 11 月，2020 年 11 月，2021 年 11 月三个时间点，采用中文版特拉华受欺负量表（学生版）、孤独感量表、中文版多伦多述情障碍量表、领悟社会支持量表和师生关系量表对 2173 名中学生进行调查，并根据问卷应答结果筛选出 725 名有受欺凌经历的中学生进行混合增长模型和多元 logistic 回归分析。结果发现，受欺凌中学生存在 4 种异质性的发展轨迹，分别是高水平组、高-缓慢下降组、中等-稳定组和低水平组。以中等-稳定组作为参照组进行分析，结果显示，女生、社会支持水平较高、师生关系水平较高的中学生更可能有低水平的孤独感发展轨迹；年龄越小的中学生属于低水平组的概率越小；述情障碍水平越高的中学生越有可能属于高水平组或高-缓慢下降组。这些结果说明，中学生受到欺凌后，孤独感存在异质性的发展轨迹，人口学变量、述情障碍、社会支持、师生关系是重要的影响因素。

关键词 受欺凌，中学生，孤独感，混合增长模型

Developmental Trajectory of Loneliness among Middle School Students Who Were Bullied: An Analysis Based on the Growth Mixture Model

Bo Chen[1], Jingxi Wang[1], Zhanjie Chen[1], Rui Zhen[1 2*] (Corresponding Author)
1 Jing Hengyi School of Education, Hangzhou Normal University, Hangzhou, 311121, China
2 Zhejiang Philosophy and Social Science Laboratory for Research in Early Development and Childcare, Hangzhou Normal University

Abstract: Middle school students who experienced school bullying, a traumatic event, were more likely to show psychological problems, such as loneliness. It refers to the perception of deficiency when one feels that interpersonal relationship networks are smaller or less satisfying than those that are desired. Previous studies have shown that loneliness was the risk factor for many problems like mobile phone dependence and internet addiction. In order to investigate the developmental trajectory of loneliness and its relevant factors among middle school students who were bullied, develop targeted interventions improving their well-being, the present study adopted a longitudinal design in November 2019, November 2020, and November 2021. A total of 2173 middle school students were administered five scales: the Delaware Bullying Victimization Scale, loneliness scale, Toronto Alexithymia Scale, Received Social Support Questionnaire, and Student-Teacher Relationship Scale. Then 725 middle school students who had been bullied were screen out through the questionnaire results to analysis, with growth mixture model and multiple logistic regression. We found four heterogeneous developmental trajectory of loneliness among middle school students who were bullied, including High, High-Decreasing slowly, Medium-Stable, and Low group. The Medium-Stable group was taken as the reference group. Students who were female, or had higher level of social support and student-teacher relationship were more likely to have low level of developmental trajectory of loneliness. Students who were younger were less likely to belong in the Low group. Students with high level of alexithymia were more likely to belong in the High and High-Decreasing slowly group. These findings indicated that the developmental trajectory of loneliness among students who were bullied were heterogeneous, demographic factors, alexithymia, social support, and student-teacher relationship were important factors.

Keywords: bullying victimization, middle school students, loneliness, growth mixture model

班级友谊网络中社会距离与个体受欺凌的关系：基于社会网络分析的研究

刘海东[1]　张其文[1]　张云运[1]（通讯作者）
1 北京师范大学中国基础教育质量监测协同创新中心，北京，100875，yyzhangff@126.com

摘 要　欺凌不仅是单纯的攻击行为，而且是具有社会意义的权力地位竞争行为，与其所在的同伴生态密切关联。根据社会网络的强弱联结理论，对青少年同伴生态的考察不仅要考虑强联结（如：朋友），也应该关注弱联结（如：与网络中其他人的联系），两种关系都可能会对青少年的行为产生重要影响。但已有研究主要聚焦于朋友关系（强联结）对个体受欺凌的保护作用，忽略了对弱联结保护作用的探讨。关注友谊网络中弱联结对受欺凌的影响，能找到班级中保护受欺凌者的社会因素，更加有效地防止个体受欺凌，改变欺凌发生的生态土壤。社会网络分析能够同时关注到个体特征和其所处的网络结构位置，能够更好地探究青少年友谊网络的弱联结对受欺凌的影响。本研究采用社会网络视角，基于对 1362 名七年级学生为期两年四个时间点的班级友谊网络进行追踪，考察班级友谊网络中个体与同班三种最高社会地位的同伴之间的社会距离，与其自身受欺凌的关系。结果发现：（1）个体与中介中心度最高的同伴的社会距离与个体受欺凌相互正向预测，表现为七年级下学期的社会距离正向预测八年级上学期的个体受欺凌，八年级上

学期的个体受欺凌正向预测八年级下学期的社会距离；（2）个体与接近中心度最高的同伴的社会距离与个体受欺凌相互正向预测，表现为七年级上学期的社会距离正向预测七年级下学期的个体受欺凌，七年级下学期的社会距离正向预测八年级上学期的个体受欺凌；（3）个体与度中心度最高的同伴的社会距离，对个体受欺凌没有影响。以上结果表明，与不同高社会地位同伴的社会距离对个体受欺凌的作用不同，个体与中介中心度最高、接近中心度最高的同伴在友谊网络中的社会距离越短，越不容易受欺凌；但与度中心度最高的同伴的社会距离对个体受欺凌没有影响。该研究发现了友谊网络中弱联结对于个体受欺凌的重要作用，揭示了与不同高社会地位同伴的社会距离对个体受欺凌的保护作用存在差异，为青少年同伴群体中的欺凌预防提供了启示。

关键词　受欺凌，青少年，班级友谊网络，社会距离

The relationship between social distance and individual bullying in the classroom friendship networks: A social network-based study

Haidong Liu, Qiwen Zhang, Yunyun Zhang
China basic education quality monitoring Collaborative Innovation Center, Beijing Normal University

***Abstract*：** Bullying is a social process based on peer relationships that occurs not as a mere act of aggression, but as a socially significant struggle for a position of power. The examination of bullying should be placed in the context of the entire peer ecology. The strong and weak tie theory of social networks suggests that not only strong ties (e.g., friends) but also weak ties (e.g., connections to others in the network) should be considered in the examination of adolescents' network relationships, and that both types of relationships may have a significant impact on adolescents' behavior. However, existing studies have mainly focused on the protective effects of friendships (strong tie) on individuals being bullied, neglecting to explore the protective effects of weak ties. Focusing on the effects of weak tie in friendship networks on bullying can identify social factors that protect bullied individuals in the classroom, more effectively prevent individuals from being bullied, and change the ecology in which bullying occurs. Social network analysis, which can focus on both the attribute characteristics of individuals and the network structure in which they are embedded, is better able to explore the impact of weak ties in adolescents' friendship networks on bullying. Using social network analysis, we used a sample of 1362 seventh-grade students who were followed over two years at four time points to examine the association between the social distance and bullying. The findings as follow: (1) the social distance between individuals and peer of the highest betweenness-centrality degree and individual bullying were positively predicted by each other, as evidenced by social distance in the second semester of seventh grade positively predicting individual bullying in the first semester of eighth grade, and individual bullying in the first semester of eighth grade positively predicting social distance in the second semester of eighth grade; (2) the social distance between individuals and peer of the highest closeness-centrality degree and individual bullying were positively predicted by each other, as evidenced by social distance in the first semester of seventh grade positively predicting individual bullying in the second semester of seventh grade, and social distance in the second semester of seventh grade positively predicting individual bullying in the first semester of eighth grade; (3) the social distance between the individual and the peer with the highest degree centrality has no effect on the individual being bullied. This This study identified the important role of weak tie in classroom friendship networks for individual bullying, revealed differences in the protective effect of distance from peers of different high social status on individual bullying, and provided insights into bullying prevention in adolescent peer groups.

Keywords：Bullying, Adolescent, Classroom friendship networks, Social distance

儿童青少年的攻击与同伴侵害：共同发展及对内化问题、执行功能的影响

翟欣　马建平　袁媛　纪林芹（通讯作者）

山东师范大学心理学院，济南，250014，sdjlq@126.com

摘 要 本研究采用平行过程的潜类别增长分析，探究攻击与同伴侵害的联合发展轨迹，及其对内化问题和执行功能发展的影响，以及潜在的中介效应。通过对 646 名 5 年级儿童（平均年龄 10.53 ± 0.59 岁，男生占比 57.1%）历时 2 年的 4 次追踪测量，结果发现：（1）攻击与同伴侵害的联合发展轨迹包括攻击-受侵害上升组、攻击-受侵害组、攻击组、受侵害组和未参与组 5 类；（2）对于内化问题，攻击-受侵害上升组的初始水平显著高于未参与组，但低于攻击-受侵害组、攻击组和受侵害组，增长速率均显著高于其他各组；攻击-受侵害组的初始水平显著高于未参与组、攻击组和受侵害组；攻击组的初始水平显著高于未参与组和受侵害组，且与未参与组相比下降速率显著；受侵害组的初始水平显著高于未参与组；（3）对于抑制控制，攻击-受侵害上升组的初始水平显著低于未参与组；攻击-受侵害组的初始水平显著低于未参与组、攻击-受侵害上升组、攻击组和受侵害组；攻击组的初始水平显著低于未参与组；（4）内化问题对随后的抑制控制具有显著的预测作用，T2 内化问题显著负向预测 T3 的抑制控制，T3 内化问题显著负向预测 T4 的抑制控制；以未参与组为参照组，T3 内化问题在攻击-受侵害上升组和 T4 抑制控制间起中介作用，T3 内化问题在攻击-受侵害组和 T4 抑制控制间起中介作用。本研究结果表明存在持续经历攻击行为和同伴侵害的“攻击-受侵害”亚群体，其伴随着最严重的内化问题和抑制控制缺陷，同时发展结果间的作用机制也为攻击事件的防治提供了潜在思路。

关键词 攻击，同伴侵害，内化问题，抑制控制，联合发展轨迹

Joint Developmental Trajectories of Aggression and Victimization from Late Childhood to Early Adolescence and Associations with Internalizing Problems and Executive Functions

ZHAI Xin, MA Jianping, YUAN Yuan, JI Linqin

School of Psychology, Shandong Normal University, Jinan 250014, China

Abstract: Aggressive behavior among children and adolescents is a prevalent and pervasive public health concern across the globe. Whether as aggressor or victim, involvement in aggression is associated with negative consequences for youths' psychosocial adjustment. However, only a smaller body of work has demonstrated that relations between aggression perpetration and victimization are far more heterogenous. Some youths are both perpetrators and victims of peer aggression, which are conceptualized as aggressive victims. Compared to "pure" victims and aggressors, aggressive victims have the highest risk of health problems. Therefore, the present study

aimed to identify and characterize the joint developmental trajectories of aggression and victimization, and examine the adjustment outcomes for different subgroups. Additionally, the potential mechanism of group membership on adjustment outcomes was also considered.

The joint development of trajectories of aggression and peer victimization from Grade 5 to Grade 6 and predictive associations with child- and parent-reported adjustment outcomes (internalizing problems and inhibitory control as key component of executive functions) were examined in a large sample (N = 646) of Chinese children. Using parallel-process latent class growth analysis for longitudinal data, five distinct joint developmental trajectories of aggression and peer victimization were found: an increasing aggressive-victim group (n = 62, 9.60%), an aggressive-victim group with high chronic aggression and victimization (n = 20, 3.10%), an aggressor-only group (n = 86, 13.31%), a victim-only group (n = 42, 6.50%) and an uninvolved group (n = 436, 67.49%).

As for internalizing problems, the increasing aggressive-victim group showed higher initial levels than the uninvolved group, but lower initial levels than the aggressive-victim, aggressor-only and victim-only groups. This group also showed a significant increase compared with all the other groups. The aggressive-victim group showed higher initial levels than the uninvolved group, aggressor-only and victim-only groups. The aggressor-only group showed higher initial levels than the uninvolved and the victim-only groups, and a significant decrease than the uninvolved group. The victim-only group showed higher initial levels than the uninvolved group.

As for inhibitory control, the increasing aggressive-victim group showed lower initial levels than the uninvolved group. The aggressive-victim group showed lower initial levels than the uninvolved group, the increasing aggressive-victim group, aggressor-only and victim-only groups. The aggressor-only group showed lower initial levels than the uninvolved group.

Cross-lagged analysis showed that internalizing problems predicted lower subsequent inhibitory control significantly. Specifically, the internalizing problems at Time 2 predicted decrease in inhibitory control at Time 3. The internalizing problems at Time 3 also predicted decrease in inhibitory control at Time 4.

The mediating role of internalizing problems was identified between group membership and inhibitory control. Compared with the uninvolved group, the increasing aggressive-victim group membership promoted higher levels of internalizing problems at Time 3, which in turn was associated with lower inhibitory control at Time 4. Similarly, the mediating role of internalizing problems at Time 3 was also distinguished between the aggressive-victim group and inhibitory control at Time 4 compared with the uninvolved group.

These results evidenced the continuous existence of aggressive-victim subgroup and depicted the developmental characteristics. The worst adjustment outcomes of these subgroups suggested the specific measurements. Furthermore, the identification of potential mediating mechanism may help to clarify the processes by which group membership eventuate inhibitory control.

***Keywords*:** aggression, victimization, internalizing problems, inhibitory control, joint trajectories

校园欺凌中旁观行为的内群体偏爱机制

陈光辉（通讯作者）　丁雯　刘春艳　张文新

山东师范大学心理学院，济南，250014，chengh2100@126.com

摘 要　内群体偏爱是指个体在群际互动中表现出的更偏向内群体的态度和行为。研究表明，相比于外群体成员，个体对内群体成员表现出更多的亲社会行为，也会更加偏袒或包庇内群体成员的不当行为。然而，目前尚未有研究考察校园欺凌情景中的内群体偏爱效应在不同旁观行为上的体现以及背后的机制。

因此，本研究设计了三个子研究，以 884 名初一、初二学生作为研究对象，采用虚拟故事范式，探究校园欺凌不同旁观行为上是否存在内群体偏爱效应(子研究一)及其影响因素(子研究二和三)。

子研究一使用实验任务区分内、外群体，采用 2(情景: 实施欺凌、遭受欺凌) × 2 (群体身份: 内群体成员、外群体成员) 被试内实验设计，确证了校园欺凌中的旁观行为存在内群体偏爱效应，即比起外群体成员遭受欺凌，当内群体成员遭受欺凌时旁观者会做出更多的反欺凌行为、更少的亲欺凌行为和置身事外行为。子研究二立足群体层面，采用 2 (情景: 实施欺凌、遭受欺凌) × 2(群体身份: 内群体成员、外群体成员) × 2 (内群体认同: 高、低)混合实验设计，发现内群体认同水平高低不会对旁观行为内群体偏爱效应产生显著影响。子研究三则从个体层面入手，通过 3 个混合实验设计分别检验内群体成员的社会认知信息（道德、能力、社交）特征对校园欺凌中旁观行为内群体偏爱效应的影响作用。结果发现，只有当内群体成员具备高道德水平时才会获得偏爱，具体体现为旁观者会对内群体欺凌者做出更少的反欺凌行为、对内群体受欺凌者实施更多的反欺凌行为和更少的亲欺凌行为；只有当受欺凌者具备高社交水平时，其内群体成员才会愿意做出保护行为，即实施更少的亲欺凌行为和置身事外行为；而内群体成员的能力信息不会对校园欺凌旁观行为的内群体偏爱效应产生影响。研究结果有助于揭示校园欺凌中不同旁观行为产生的社会心理机制，也为校园欺凌的科学防治提供了新视角。

关键词　校园欺凌，旁观行为，内群体偏爱，内群体认同，社会认知信息特征

The In-group Favoritism Mechanism of Bystander Behavior in School Bullying

CHEN Guanghui (corresponding author), DING Wen, LIU Chunyan, ZHANG Wenxin
School of Psychology, Shandong Normal University, Jinan, 250014, chengh2100@126.com

***Abstract*：** In-group favoritism refers to attitudes and behaviors that individuals exhibit in intergroup interactions that are more biased toward the in-group. Researches have shown that individuals show more pro-social behaviors toward in-group members than out-group members, and also show more favoritism or shielding of in-group members' misbehavior. However, no research has examined the in-group favoritism effect in school bullying scenarios in terms of different bystander behaviors and the mechanisms behind them. Therefore, this study designed three sub-studies with 884 first grade and second grade of junior high school students as particpants, using the hypothetical vignette paradigm to investigate whether the in-group favoritism effect exists on different bystander behaviors in school bullying (Sub-study 1) and its influencing factors (Sub-studies 2 and 3).

Sub-study 1 used the color discrimination task to differentiate between in-groups and out-groups, and a 2 (scenario: bullying situation, victimization situation) × 2 (group identity: in-group member, out-group member) within-subjects experimental design to confirm the existence of an in-group favoritism effect on bystander behaviors in school bullying, results showed that bystanders engage in more anti-bullying behaviors, less pro-bullying behaviors, and less outsider behaviors when in-group members were bullied than when out-group members were bullied. Sub-study 2 was based on the group level and used a mixed experimental design of 2 (scenario: bullying situation, victimization situation) × 2 (group identity: in-group member, out-group member) × 2 (in-group identity: high, low), and found that high or low levels of in-group identity did not have a significant effect on the in-group favoritism effect of bystander behaviors. Sub-study 3, on the other hand, started from the individual level and tested the role of in-group memberss social cognitive information (morality, competence, and sociability) traits on the in-group favoritism effect of bystander behavior in school bullying through three mixed experimental designs, respectively. The results revealed that information about morality and sociability can provide important references for bystanders to choose different bystander behaviors, but competence does not

affect in-group favoritism. Only when the bully has a high moral level, his/her in-group members are more willing to favor and cover up his/her bullying behavior, that is, to do less anti-bullying behavior; Only when the victim has a high moral level, the in-group members are willing to take protective behaviors, that is, to carry out more anti-bullying behaviors and less pro-bullying behaviors. Only when the victim has a high level of social interaction do in-group members become willing to engage in protective behavior, i.e. less pro-bullying behavior and less outsider behavior. The results of this study help to reveal the psychosocial mechanisms underlying different bystander behaviors in school bullying and provide new perspectives for the scientific prevention and treatment of school bullying.

Keywords ： bullying, bystander behaviors, in-group favoritism, in-group identity, social cognitive information traits

相似或受欢迎的儿童是有吸引力的朋友吗？

欺凌、保护和受欢迎的动态友谊关系

刘晓薇　张梦园　张文新（通讯作者）

山东师范大学儿童青少年发展研究院, 山东师范大学心理学院, 济南 250014

通信作者: 张文新, E-mail: zhangwenxin@sdnu.edu.cn

摘 要　欺凌和保护是欺凌事件中两种常见的行为，与基本的社会动机中的受欢迎和情感动机相关。许多研究使用自我报告的方式询问个体的行为动机，这有其局限性。自动化的认知加工过程可能会阻碍个体正确认识自身行为动机。并且，个体可能在实施特定行为时具有多重动机，这进一步增加了识别个体行为的主要目标的复杂性。考察欺凌和保护行为动机的另一种方法是关注与该动机相关的其他行为，例如友谊选择。受欢迎目标和情感目标会影响欺凌或保护水平较高的儿童的友谊偏好。个体可能出于受欢迎动机，通过欺凌或保护他人获得地位；个体也可能出于情感动机，通过保护他人获得亲密关系。根据目标框架理论，个人会对有助于目标实现的信息特别敏感。对于拥有受欢迎目标的欺凌或保护水平较高的儿童，受欢迎的同龄人可能更有吸引力。如果欺凌或保护水平高的人认识到结交高人气的朋友可以实现受欢迎目标，他们会追求与受欢迎的同龄人交朋友。此外，拥有高知名度朋友的人，个体能够欺凌或保护他人而不必担心受到公开挑衅或报复。与性格相似的人结交有利于实现情感目标，因此通过保护他人来追求情感目标人也可能会偏好相似的同伴。保护水平有差异的朋友可能会因为行为和价值观不合而产生冲突；而水平相似的朋友更了解彼此，往往拥有更稳定的友谊。本研究利用社交网络分析，旨在澄清欺凌和保护行为背后的主要目标，调查欺凌或保护水平高的人更喜欢行为水平相似的朋友还是更受欢迎的朋友。研究被试为中国三四年级学生（T1: $N = 453$, 54.79%男生; T2: $N = 454$, 54.35%男生; T3: $N = 453$, 54.05%男生）。结果显示，欺凌水平较高的儿童更有可能选择受欢迎的同龄人作为朋友，而保护水平高的孩子则倾向于选择保护水平相似的朋友。这表明欺凌行为主要由受欢迎目标驱动，而保护则由情感目标驱动。这项研究首次提供了中国文化中欺凌、保护和受欢迎的动态友谊关系的证据，并强调了欺凌事件中动机的重要性。

关键词　欺凌，保护，受欢迎，友谊，儿童晚期

Are similar or popular children coveted friends?

Friendship dynamics of bullying, defending and popularity

LIU Xiaowei, ZHANG Mengyuan, ZHANG Wenxin

Research Institute of Child and Adolescent Development, School of Psychology,

Shandong Normal University, Jinan 250014, China

Abstract： Bullying and defending are two common behaviors in the bullying process, associated with the fundamental social motives of popularity and affection. The self-report method used in many studies may pose limitations in comprehending the underlying motivation of such behavior. The automatic cognitive processing in human behaviors may hinder the accurate reporting of corresponding goals, and multiple behavioral goals further complicate the identification of predominant goals that influence individuals' behavior. An alternative approach to discerning motivations of bullying and defending involves examining related behaviors for the same motivations, such as friendship selection. In the case of children engaging in bullying or defending behaviors, it is conceivable that status and affection goals affect their friendship preferences. For the sake of popularity goal, individuals may bully or defend others and then gain popularity; for affection goals, individuals may defend others then catch intimate relationships. According to goal-framing theory, individuals are particularly sensitive to information that is useful for goal realization. Popular peers may emerge as desired friends, particularly for individuals who possess status goal, such as children with high levels of bullying or defending behaviors. If people with high level of bullying or defending recognize that making friends with high level of popular can realize popularity goals, they will catch this opportunity and try to befriend popular peers. Another advantage is that people with friends with high level of popularity might be better able to bully others without the fear of public challenge or revenge. Establishing friendships with people sharing similar characters proves advantageous in fulfilling affection goals, thus people who defend others for the sake of pursuing affective goals may tend to select similar peers as friends.. Defending behaviors are widely driven by affective empathy and morally obligation. And they benefit those who do so by gaining peer acceptance. Therefore, people with high levels of defending may also have affection goals and prefer friends who are similar to themselves. Friends with different levels of defending may encounter a lot of conflicts due to their mismatched behaviors and values, while friends shared similar level of defending tend to have more stable friendships because they have a better understanding of each other. Using social network analysis, this study aimed to clarify the major goal underlying bullying and defending behaviors and investigate whether people with bullying or defending behaviors preferred friends with similar level of behaviors or those who have high level of popularity. Participants were third- and fourth grades students in China (N = 453, 54.79% boys at wave1; N = 454, 54.35% boys at wave2; N = 453, 54.05% boys at wave3). Results revealed that children with a tendency towards bullying were more likely to choose popular peers as friends, while those with high level of defending tended to select friends shared similar level of defending. The findings indicated that bullying is primarily driven by status goals, while defending is motivated by affection goals. This study provided first evidence on the friendship dynamics of bullying, defending and popularity in Chinese culture, and highlighted motivations in intervening in school bullying.

Keywords：bully, defend, popularity, friendship, late childhood

青少年欺凌保护行为的类别特征与转变模式：适应功能及影响因素

金国敏[1], 魏鲁昊[2], 王梓璇[1], 刘俊升[1] (通讯作者)

1 华东师范大学心理与认知科学学院, 上海, 200062, 通讯作者 E-mail: jsliu@psy.ecnu.edu.cn

2 Department of Human Development and Family Studies, Purdue University, West Lafayette, IN, US

摘 要 保护者是校园欺凌参与角色中唯一的积极角色, 对制止校园欺负、缓解受欺凌者适应问题具有重要的作用。越来越多的研究表明, 青少年会采取多种策略保护受欺凌同伴, 包括直接果断型保护、攻击型保护、安慰受欺凌者、报告权威以及计谋型保护。以往研究大多采用以变量为中心的视角探究不同保护策略

的前因后果，忽略了个体可能会同时采取多种策略抑或仅仅依赖某一策略保护受欺凌同伴的可能性。基于此，本研究采用潜在剖面分析和潜在转变分析考察青少年保护行为的亚组分类与转变情况及其对青少年心理社会适应的影响，以及攻击行为的道德判断在保护行为亚组分类与转变中的作用。对 1282 名 4-6 年级学生(平均年龄 10.90 岁，女生占比 42.6%)进行为期 1 年的 3 个时间点的追踪调查，结果发现: (1)在 3 个时间点上，青少年均可被区分为四个不同类型的亚组: a)高保护行为参与组(在 5 种保护策略上得分均较高), b)中等保护行为参与组(在 5 种保护策略上得分均处于平均水平), c)低保护行为参与组(在 5 种保护策略上得分均较低), d)非攻击型保护行为组(在攻击型保护上得分较低，但在其他 4 种保护策略上得分较高); (2)随时间的推移，非攻击型保护行为组和中等保护行为参与组的青少年表现出较高的稳定性，高保护行为参与组和低保护行为参与组的青少年向上述两组转变的概率较高; (3)保护行为的亚组分类及转变模式与青少年心理社会适应状况有关。其中，处于或转变到非攻击型保护行为组的青少年表现出最佳的适应状况，包括更低的受欺负和抑郁水平以及更高的同伴接纳水平。处于或转变到高保护行为参与组则与心理社会适应不良有关; (4)青少年对攻击行为的道德判断水平对保护行为亚组归属有显著的预测作用。具体表现为高道德判断者更可能处于非攻击型保护行为组。此外，研究并未发现道德判断水平的变化对亚组转换概率的预测作用。研究结果有助于深化对青少年欺凌保护行为发展模式多样性的理解，为基于保护者角度的欺凌干预项目的开展提供重要参考。

关键词　保护行为，攻击行为的道德判断，心理社会适应，潜在剖面分析，潜在转变分析

Different ways to defending victims of bullying: Understanding the antecedents and implications of defending profiles and their transitions in Chinese adolescents

Guomin Jin[1], Luhao Wei[2], Zixuan Wang[1], Junsheng Liu[1]

1 School of Psychology and Cognitive Science, East China Normal University, Shanghai, China
2 Department of Human Development and Family Studies, Purdue University, West Lafayette, IN, US

***Abstract*:** Adolescents might use various strategies to help their victimized peers during bullying episodes. The current study adopted person-centered approaches to gain a better understanding of how the five types of defending strategies (i.e., assertive defending, aggressive defending, comforting victims, reporting to authority, and tactical defending) combine within adolescents to form different defending profiles. Additionally, we investigated changes of these profiles over time and examined how profile membership and transition patterns related to theoretically relevant predictors (moral reasoning about aggression, MRA) and outcomes (peer victimization, depressive symptoms, and peer preference). Data were gathered at three time points, 6 months apart, from a sample of 1282 Chinese early adolescents in Grades 4 to 6 (initial M_{age} = 10.90, *SD* = 0.96, 42.6% females). Latent profile analysis revealed four distinct defending profiles, which were similar across measurement points. The profiles were labelled *active defenders* (high engagement in all five types of defending strategies), *occasional defenders* (moderate engagement in all strategies), *infrequent defenders* (low engagement in all strategies), and *nonaggressive defenders* (low engagement in aggressive defending but high in other strategies). Latent transition analysis showed the *nonaggressive defenders* and the *occasional defenders* profiles was relatively stable and that

the *active defenders* and the *infrequent defenders* profiles related to more transitions across time. Importantly, profile membership and their change patterns were differentially associated with adolescents' psychosocial adjustment. The stable membership in or transition into the *nonaggressive defenders* profile was associated with optimal adjustment (e.g., lower peer victimization and depressive symptoms, and higher peer preference), whereas membership in or shift to the *active defenders* profile was associated with some negative outcomes. With regard to the antecedents, our results demonstrated that adolescents with well-developed MRA were more likely to belong to the *nonaggressive defenders* profile compared to other profiles. However, change in MRA did not predict the likelihood of transitioning across profiles. Overall, our findings provide new knowledge on how adolescents change their strategies to defend victimized peers and the antecedents and implications of this, which may have implication for anti-bullying programs that encourage adolescents to defend.

***Keywords*:** defending, moral reasoning about aggression, psychosocial adjustment, latent profile analysis, latent transition analysis

校园欺凌旁观者助人意愿与助人规范的共存模式

陈展洁[1]　王靖茜[1]　郁嘉铭[1]　甄瑞[1,2]（通讯作者）

1. 杭州师范大学经亨颐教育学院，杭州，311121，zhenrui1206@126.com

2. 浙江省哲学社会科学培育实验室"杭州师范大学婴幼儿发展与托育实验室"

摘要　高发于中小学阶段的校园欺凌现象是一个全球性的问题，它往往给受欺凌者带来严重的身心伤害。在校园欺凌事件发生时，除了欺凌者和受欺凌者，还可能存在大量旁观者。旁观者的表现影响着欺凌事件发生的时间、频率，甚至可以影响欺凌事件结果的严重程度，因此激发旁观者主动、安全助人是防治校园欺凌的一个重要方向。周围的人如何反应（描述性规范），教师和父母等重要成人要求如何（命令性规范）等社会规范都可能会影响校园欺凌旁观者的助人意愿，但以往研究均以变量为中心来考察某个被试群体平均化了的社会规范的影响，并未将个体差异性考虑在内。为进一步了解助人意愿与助人规范的相互关联，本研究将以个体为中心法来探究旁观者助人意愿与助人的社会规范（同伴规范、教师规范和父母规范）的共存模式。采用自评的校园欺凌助人意愿和助人规范问卷，对浙江省某中学的 1384 名初中生开展调查，并使用潜在剖面分析法考察初中生助人意愿与助人规范的共存模式。结果显示初中生在目睹有人受欺凌时其助人意愿和助人规范有 5 种共存模式：无助人-无规范组（4.8%；被试无助人意愿，同学无助人行为，老师和父母不要求助人）、无助人-父母规范组（3.6%；被试无助人意愿，同学无助人行为，老师无助人要求，父母有高助人要求）、低助人-低规范组（24.3%；被试有较低助人意愿，同学有较低助人水平，教师和父母有较低助人要求）、中等助人-师生规范组（40.6%；被试有中等助人意愿，同学有中等助人水平，老师有中等助人要求，父母不要求助人）、高助人-师生规范组（26.7%；被试有高助人意愿，同学有高助人水平，老师有高助人要求，父母不要求助人）。结果表明，当周围的同学不去或很少去帮助受欺凌同学、教师和父母都要求不要去或少去帮助受欺凌同学时，被试的确会出现不助人或少助人的倾向。在所有 5 种模式中，被试的助人意愿与周围同学的助人行为倾向呈现高度一致性，与老师的要求也呈现较高一致性，即初中生的助人意愿最可能受到同学助人行为的影响，其次会受到教师要求的影响。值得关注的是，在 4 种模式中，初中生的助人意愿均与父母的助人要求相悖。这说明对于初中生来说，师生规范对其助人意愿有很大影响，但父母规范却难以发挥作用，这些结果对未来校园欺凌防治工作提供了重要启示。

关键词　助人意愿，助人规范，校园欺凌旁观者，共存模式

Co-existence patterns of bystanders' helping willingness and helping norms in school bullying

Zhanjie Chen[1] Jingxi Wang [1] JiaMing Yu[1] Rui Zhen[1, 2]
1 Jing Hengyi School of Education, Hangzhou Normal University, Hangzhou, 311121, China
2 Zhejiang Philosophy and Social Science Laboratory for Research in Early Development and Childcare, Hangzhou Normal University

Abstract: School bullying occurs frequently in primary and secondary schools, which is a global problem and it often brings serious physical and mental harm to the victims of bullying. When school bullying occurs, there may be a large number of bystanders in addition to the bullies and victims. The performance of bystanders may affect the time and frequency of bullying events, and even the severity of the results of bullying events. Therefore, inspiring bystanders to help others actively and safely is an important direction to prevent school bullying. Social norms such as how people around us react (descriptive norms), and how important adults such as teachers and parents demand (injunctive norms) may affect the helping willingness of bystanders in school bullying events. However, previous studies have adopted a variable-centered approach to examine the impact of homogenized social norms of a certain group of participants, without taking individual differences into account. To further analyse the correlation between helping willingness and helping norms, this study will adopt person-centered approach to explore the co-existence patterns of bystanders' helping willingness and helping norms (peer norms, teacher norms, and parents norms). This study investigated 1384 students from a secondary school in Zhejiang Province by using the self-assessed questionnaire of helping willingness and helping norms in school bullying. And we used latent profile analysis to investigate the co-existence patterns of secondary school students' helping willingness and helping norms. The results showed that there were five co-existence patterns of helping willingness and helping norms among secondary school students when witnessing someone being bullied: no helpfulness - without norms group (4.8%; participants without helping willingness, classmates without helping behaviors, teachers and parents without demanding helpfulness), no helpfulness - parent norms group (3.6%; participants without helping willingness, classmates without helping behaviors, teachers without demanding helpfulness, parents with high demanding helpfulness), low helping willingness - low norms group (24.3%; participants with low helping willingness, classmates with low level of helping willingness, teachers and parents with low demanding helpfulness), medium helping willingness - teacher-student norms group (40.6%; participants with medium helping willingness, classmates with medium level of helping willingness, teachers with medium demanding helpfulness, parents without demanding helpfulness), high helping willingness - teacher-student norms group (26.7%; participants with high helping willingness, classmates with high level of helping willingness, teachers with high demanding helpfulness, parents without demanding helpfulness). The results indicated that when classmates around them did not help or rarely helped bullied classmates, teachers and parents demanded not to help or less to help bullied classmates, it showed a tendency that participants chose not to help or to help less. In all five patterns, the helping willingness of the participants showed high consistency with the tendency of their classmates to help others, and also showed high consistency with the demand of teachers. That is, the helping willingness of secondary school students was most likely influenced by the behavior of their classmates, followed by the demand of teachers. It was worth noting that in the four patterns, the helping willingness of secondary school students contradicted the demand of their parents. This showed that for secondary school students, teacher-student norms may have a great impact on their helping willingness, but parents norms may be difficult to play a role. These results provided important enlightenment for the prevention and control of school bullying in the

future.

Keywords：helping willingness, helping norms, bystanders in school bullying, patterns of co-existence

同伴排斥对青少年学习投入的影响：未来取向和教育价值观的作用

戚心洁[1, 2] 肖茜丹[1] 连榕[1]

1 福建师范大学心理学院，福州，350117

2 福建船政交通职业学院，福州，350007，lianrong1122@126.com

摘 要 为探究同伴排斥对青少年学习投入的影响机制及其边界条件。方法：研究 1 以 132 名中学生为研究对象，通过回忆范式操纵同伴排斥，采用延迟折扣任务和情景投射范式分别对未来取向和学习投入意愿进行测量，以考察同伴排斥、未来取向和学习投入三者间的关系；研究 2 以 138 名中学生为被试，采用 Cyberball 范式操纵同伴排斥，以未来取向作品分析法对未来取向进行测量，学习投入意愿的测量与研究 1 相同，并通过问卷形式测量教育价值观。进一步探究教育价值观在同伴排斥和学习投入之间的调节作用和未来取向的中介作用。研究结果表明：同伴排斥能显著负向预测青少年学习投入水平；当教育价值观没有纳入考察时，未来取向的中介作用显著；但当纳入教育价值观考察时，未来取向的中介作用不显著，教育价值观调节作用显著。具体表现为在任何程度的同伴排斥情境下，持有积极教育价值观的青少年的学习投入均无显著差别，但持有消极教育价值观的青少年在高水平同伴排斥情境下的学习投入水平显著低于低水平同伴排斥情景。研究结论揭示了同伴排斥对青少年学习投入产生负面影响的内部机制；以及体现了教育价值观在消极情景下对青少年学习行为的保护作用。这提示教育者应重视对青少年教育价值观的培养和提高，这有利于其更好地应对生活中的压力事件。

关键词 青少年，同伴排斥，学习投入，未来取向，教育价值观

The Impact of Peer Exclusion on Adolescent Learning Engagement: The Role of Future Orientation and Educational Values

Qi Xinjie[1,2] Xiao Xidan[1] Lian Rong[1]

1. School of Psychology, Fujian Normal University , Fuzhou, 350117

2.Fujian Chuanzheng Communications College, Fuzhou, 350007, lianrong1122@126.com

Abstract :To explore the mechanism and boundary conditions of peer exclusion on adolescents' learning engagement, two studies were conducted. In Study 1, 132 middle school students participated in a recall paradigm to manipulate peer rejection. The relationships among peer rejection, future orientation, and learning engagement were investigated using a delay discounting task to measure future orientation and a scenario projection paradigm to measure learning engagement.Study 2 involved 138 middle school students and used the Cyberball paradigm to manipulate peer exclusion. Future orientation was measured using future-oriented work analysis, while willingness

to learn was measured as in Study 1. Additionally, educational values were assessed through a questionnaire. The study aimed to further explore the moderating effect of educational values on peer exclusion and learning engagement, as well as the mediating effect of future orientation.The results indicate that peer exclusion significantly negatively predicts adolescents' level of learning engagement. When educational values are not considered, future orientation mediates this relationship significantly. However, when educational values are included, the mediating effect of future orientation becomes non-significant while the moderating effect of educational values remains significant.Specifically, regardless of the level of peer rejection experienced, adolescents with positive educational values exhibit similar levels of learning engagement. On the other hand, adolescents with negative educational values show significantly lower levels of learning engagement in high-level peer rejection situations compared to low-level peer rejection situations.This study sheds light on the internal mechanism behind the negative impact of peer exclusion on adolescents' learning engagement. It also highlights the protective role of educational values in influencing adolescents' learning behavior under adverse circumstances. This suggests that education plays an important role in buffering the negative effects caused by peer exclusion on adolescents' academic involvement.
Keywords: teenagers, peer exclusion, learning engagement, future orientation, Educational values

对受欺凌者的共情与青少年反欺凌行为的关系：班级特征的调节作用

王丰玲　汪雨　邓会成　陈光辉（通讯作者）
山东师范大学心理学院，济南，250014，chengh2100@126.com

摘 要　校园欺凌产生于同伴互动之中，是影响青少年身心健康发展的重要危险因素。旁观者的反欺凌行为能够有效阻止校园欺凌事件的发生和发展。旁观者在面对欺凌事件时是否选择做出反欺凌行为，不仅受旁观者自身相关的个人特征或认知情感等因素的影响，还可能受到同伴群体或班级特征层面的影响，如班级反欺凌态度。本研究采用整群抽样方式，抽取山东省济南市 3 所中学 44 个班级 1783 名七八年级学生（51.8%男生，平均年龄 12.94 ± 0.72 岁）为被试，自我报告法测量对受欺凌者的共情、反欺凌行为、班级反欺凌态度，同伴提名法测量班级人际联结紧密程度和班级受欢迎规范。多层线性模型分析显示：（1）对受欺凌者的共情正向预测青少年反欺凌行为，对受欺凌者的共情越高，青少年做出的反欺凌行为越多；（2）班级反欺凌态度和班级人际联结紧密程度均在对受欺凌者的共情与青少年反欺凌行为的关系中发挥调节作用，但二者调节方向不同，高水平的班级反欺凌态度和人际联结紧密程度分别在对受欺凌者的共情与青少年反欺凌行为的关系中发挥抑制和强化作用；（3）班级受欢迎规范正向预测青少年反欺凌行为，但在对受欺凌者的共情与青少年反欺凌行为关系间的调节作用不显著。本研究从生态系统理论与目标框架理论的角度针对个体和班级特征对校园欺凌干预实践的影响进行了讨论。

关键词　反欺凌行为，共情，班级反欺凌态度，班级人际联结紧密程度，班级受欢迎规范

The Relationship Between Empathy Toward Victims and Adolescents' Anti-Bullying Behavior: The Moderating Role of Classroom Characteristics

Fengling Wang, Yu Wang, Huicheng Deng, Guanghui Chen*
School of Psychology, Shandong Normal University, Jinan 250014

Abstract：School bullying, arising from peer interactions, poses a significant risk to the healthy physical and mental development of young people. Bystanders' anti-bullying behaviors can effectively prevent the occurrence and development of school bullying. The decision of bystanders to engage in anti-bullying behaviors is not only affected by their personal characteristics or cognitive emotions, but also by peer group or classroom characteristics, such as classroom anti-bullying attitudes. In this study, 1,783 seventh and eighth grade students (51.8% boys, M_{age}= 12.94 ± 0.72 years) from 44 classes in three middle schools in Jinan City, Shandong Province, were recruited as participants by cluster sampling. Self-reporting was used to measure empathy toward victims, anti-bullying behaviors, and classroom anti-bullying attitudes, while peer nomination was used to measure classroom interpersonal density and popularity norms. Multilevel linear model analysis showed that: (1) Empathy toward victims positively predicted adolescents' anti-bullying behaviors. As empathy levels toward victims increased, adolescents exhibited more anti-bullying actions. (2) Both classroom anti-bullying attitudes and classroom interpersonal density played a moderating role in the relationship between empathy toward victims and adolescents' anti-bullying behaviors, but the moderating direction was different. A higher level of classroom anti-bullying attitudes inhibited the relationship, while greater classroom interpersonal density strengthened it. (3) Classroom popularity norms positively predicted adolescents' anti-bullying behaviors, but had no significant moderating effect on the relationship between empathy toward victims and adolescents' anti-bullying behaviors. This study discusses the impact of individual and classroom characteristics on school bullying intervention practices from the perspective of ecological systems theory and goal framing theory.

Keywords：anti-bullying behavior, empathy, classroom anti-bullying attitudes, classroom interpersonal density, classroom popularity norms

5.36 行为与健康心理学专业委员会

大学生网络休闲效应的测量及其影响因素研究

徐荣华[1,2]　　席居哲[1]（通讯作者）

[1]华东师范大学心理与认知科学学院，华东师范大学附属精神卫生中心，上海市心理健康与危机干预重点实验室，上海, 200062 ; [2]深圳市第七高级中学，深圳, 518100　通讯作者 Email: jzxi@psy.ecnu.edu.cn

基金项目：上海高校思想政治工作专项建设; 上海市家庭文明建设立项课题(2023 年)

摘 要　积极心理学视角下休闲是个体追求积极体验、 提升幸福感的重要途径。随着技术发展，休闲的方式变得多种多样，尤其是网络休闲成为人们的新趋势。信息时代中，大学生是网络休闲的主要群体之一。而网络休闲给人们带来放松愉悦的体验时， 逐渐出现了异化问题。 因此本文拟通过两个研究， 首先考察网络休闲效应的评估， 然后探索大学生网络休闲效应的影响因素及机制。

研究一基于休闲和主观幸福感的核心要素模型(DRAMMA)， 编制网络休闲效应问卷。 模型包括解离-恢复、自主、掌握、意义和联结 5 个维度，并依据维度释义编写初测问卷的条目。 问卷初次施测时， 178 名参与者的作答数据有效。随后通过项目分析和因素分析， 对条目进行删减和修正， 22 个条目保留下来。因网络休闲存在负面影响，依据开放式问题作答文本的词频分析，额外编制了消极效应维度的 6 个条目。

问卷第二次施测时， 586 名参与者填写的作答数据有效。 通过问卷的信度和效度分析， 形成了正式版网络休闲效应问卷。问卷包含 6 个维度 27 个条目，且整体和各维度的内在一致性信度、效标关联效度和结构效度在接受范围内。

研究二采用横断调查的问卷法， 探索网络休闲情况对网络休闲效应的影响，以及时间碎片化和感知信息过载在其中的作用。在自编网络休闲效应问卷的施测基础上， 还测量了大学生的网络休闲情况、 时间碎片化和感知信息过载程度等。586 名大学生参与者的作答数据有效。随后对数据分析得出的主要结果如下： 大学生的网络休闲参与显著正向预测休闲积极效应； 而时间碎片化在其中起调节作用。 同时其网络休闲时长显著正向预测休闲消极效应， 感知信息过载在其中起部分中介作用。因此高水平的休闲时间碎片化会削弱网络休闲参与带来的积极效应；过长的网络休闲时间会增加感知信息过载水平，从而增加网络休闲消极效应。

关键词　网络休闲， DRAMMA 模型， 时间碎片化， 感知信息过载

The measurement and influencing factors of internet leisure effect in college students

Ronghua Xu[1,2], Juzhe Xi[1] (Corresponding author)

1 Shanghai Key Laboratory of Mental Health and Psychological Crisis Intervention, Affiliated Mental Health Center (ECNU), School of Psychology and Cognitive Science, East China Normal University, Shanghai, 200062, China; [2] Shenzhen NO.7 Senior High School, Shenzhen, 518100, China　Correspondence: jzxi@psy.ecnu.edu.cn

***Abstract*:** From the perspective of positive psychology, leisure is an important way for individuals to pursue positive experience and well-being. With the development of technology, various ways of leisure have emerged. Especially internet leisure has become a new trend. In the information age, college students are one of the main groups of internet leisure. While internet leisure brings people a relaxing and pleasant experience, some problems gradually appear. Therefore, this paper intends to conduct two studies, firstly to develop the measurement tool of internet leisure effect, and to explore the influencing factors and mechanisms of the effect of college students' internet leisure.

In study 1, a questionnaire about internet leisure effect was developed based on the core element model of leisure and subjective well-being (DRAMMA). The model includes five dimensions: detachment-recovery, autonomy, mastery, meaning and affiliation. And the items of the preliminary questionnaire were written according to the definitions of these dimensions. In the first survey, the data of 178 participants were valid. Through item analysis and factor analysis, there were 22 items left after deletion and modification. Because of the negative effect of internet leisure, six additional items of negative effect dimension were compiled according to the word frequency analysis about the answers of open-ended question. In the second survey, the valid data of 586participants were collected. Then through the reliability and validity analysis, there vised questionnaire was

formed. The questionnaire contained 27 items from 6dimensions. And the overall and each dimension have good internal consistency reliability, criterion-related validity and construct validity.

In study 2, a cross-sectional questionnaire was used to explore the influence of internet leisure situations on internet leisure effect, and the role of time fragmentation, and perceptual information overload. Based on the self-designed questionnaire of internet leisure effect, the internet leisure situations, time fragmentation and perceived information overload of college students were also measured. Data from 586participants were valid. Through analysis, the main results are as follows: College students' participation in internet leisure significantly positively predicts the positive effect of leisure and time fragmentation plays a moderating role. At the same time, college students' internet leisure time significantly positively predicts the negative effects of leisure, and perceived information overload plays a partial mediating role. Therefore, the conclusions are as follows: high level of leisure time fragmentation will weaken the positive effect of internet leisure participation. Too long leisure time will increase the level of perceived information overload, thus increasing the leisure negative effect.

Keywords：internet leisure, DRAMMA model, time fragmentation, perceived information overload

预期想象和消极重复性思维对延迟折扣的影响及干预

武晓[1]　刘霈瑶[1]　胡艺馨[1]（通讯作者）

1 山东师范大学心理学院，济南，250358，huyixin2005@163.com

摘 要　延迟折扣是指对发生在不同时间点上事件或者结果的价值进行权衡，并做出最终选择的过程。较高的延迟折扣率指更多的即时奖励偏好，反映着个体更强的冲动性，且在临床上与多种不良行为问题高度相关。因此，帮助个体提高抵制眼前诱惑而发展长远目光的能力，有助于个体在现实生活中做出更多的适应性决策，减少潜在不良行为的发生风险。基于情绪连锁反应理论，消极重复性思维(repetitive negative thinking, RNT) 会导致负面情绪的加剧，进而产生个体行为失调的连锁反应。与此相对，作为一种基于具体形象和细节的情景思维，预期想象(episodic future thinking, EFT) 则是降低延迟折扣率的有效策略。利用具体生动的预期想象可以避免个体陷入非适应性的思维，降低消极重复性思维对冲动性决策带来的负面影响。因此，本研究从不同效价的预期想象可激活相应情绪环路的角度出发，设计了两项研究。研究 1 以 44 名大学生为被试，探索了消极重复性思维和预期想象对延迟折扣的影响。结果发现：(1) 消极重复性思维对个体的延迟折扣具有重要影响，相较于低消极重复性思维个体，高消极重复性思维个体更倾向于选择小而即时的选项；(2) 积极预期想象可有效调控高消极重复性思维个体的冲动性决策偏好，在积极的预期想象条件下，高、低消极重复性思维个体的延迟折扣表现无明显差异。基于此，研究 2 提出了预期想象干预(Episodic Future Thinking Intervention, EFTI) 训练，在为期八周的干预后，结果发现，相较于对照干预组与等待组，EFTI 组被试报告了更多的消极重复性思维的减少和心理幸福感的增加，在延迟折扣任务中选择即时选项的比例也显著降低。由此证明了积极预期想象对改善高消极重复性思维个体延迟折扣偏好的有效性。

关键词　消极重复性思维, 预期想象, 延迟折扣, 干预

The effect of episodic future thinking and negative repetitive thinking on delay discounting and its intervention

Xiao Wu[1], Peiyao Liu[1], Yixin Hu[1]

School of Psychology, Shandong Normal University, Jinan, China

***Abstract*:** Delay discounting is the process of weighing up the value of events or outcomes that occur at different points in time and making a final choice. Several studies have shown that an excessive preference for sooner and smaller (SS) options than later and larger options (LL) exhibited in delay discounting reflect higher impulsivity, and the preferences that enjoy the present and ignore delayed gratification have a high clinical correlation with a variety of maladaptive behaviors. Therefore, improving the ability of resisting immediate temptations and developing a long-term perspective can help individuals make more adaptive decisions in real life and reduce the risk of potentially undesirable behaviors. According to the emotional cascades model, repetitive negative thinking (RNT) exacerbates negative emotions, and could lead to a chain reaction of behavioral dysregulation. In contrast, episodic future thinking (EFT), as a form of situational thinking based on concrete images and details, is an effective strategy to improve delay discounting. Utilizing concrete and vivid EFT could prevent individuals from falling into non-adaptive thinking and reduces the negative impact of RNT on impulsive decision making. Therefore, this study further explores the issue through two studies. Study 1 explored the effects of RNT and EFT on delay discounting using 44 college students, and the results showed that: (1) RNT has an important influence on delay discounting, and individuals with high RNT prefer more small and immediate options compared with individuals with low RNT; (2) positive EFT can effectively regulate the impulsive decision-making preferences of individuals with high RNT, and there is no significant difference in the performance of individuals with high and low RNT in delay discounting under the condition of positive EFT. Based on this, study 2 proposed the Episodic Future Thinking Intervention (EFTI) training. After the eight-week intervention, it was found that compared with the control intervention group and waitlist, participants in the EFTI group reported more reductions in RNT and increases in psychological well-being, as well as significantly lower proportions choosing the SS options in the delay discounting task. The results demonstrated that the EFTI project successfully reduced RNT, enhanced emotion management skills, and improved decision-making preferences in individuals with high RNT.

Keywords: Repetitive negative thinking, episodic future thinking, delay discounting, intervention

个体内和人际情绪调节大学生有价值生活的共同影响

段耀琨[1]　朱蕾[1]（通讯作者）

1 陕西师范大学心理学院，西安，710062，lei.zhu@snnu.edu.cn

摘 要　引言：情绪调节指的是利用各种策略调节自己或他人情绪的过程，对大学生心理健康有重要影响。当前研究大多集中在个体内情绪调节，对人际情绪调节关注较少，且尚未有研究探讨个体内和人际情绪调节对大学生心理健康状态的共同影响。因此，本研究针对大学生群体，探讨大学生个体内和人际情绪调节对心理健康（以有价值生活为指标）的影响。方法：采用横断面研究设计，通过人际情绪调节问卷（包含增强积极情绪、观点采择、寻求安抚、社交建模）、情绪调节问卷（包含认知重评与表达抑制）、有价值生活量表对 433 名大学生进行问卷调查。首先应用潜在剖面分析(Latent Profile Analysis)探索大学生在个体和人际两个层面的不同情绪调节模式，其次采用回归混合模型(Regression Mixture Model)考察不同的情绪调节模式对有价值生活的影响作用。结果：（1）根据个体内情绪调节策略与人际情绪调节策略，可以将大学生划分为五个类别，分别是，剖面 1“个体内和人际情绪调节双低组”组、剖面 2“个体内和人际情绪调节中等组”、剖面 3“高表达抑制和低人际情绪调节组”、剖面 4“高表达抑制和高人际情绪调节组”、剖面 5“低表达抑制和高人际情绪调节组”；（2）与其他四组相比，剖面 1 具有较低的价值进程水平；剖面 2、3 分别

与剖面 4 和 5 相比，具有较低的价值进程水平；剖面 1 与剖面 2 和 4 相比，具有较低的价值阻碍水平；剖面 5 与剖面 2、3 和 4 相比，具有显著更低的价值阻碍水平。结论：中国大学生个体中存在五种不同的情绪调节模式，情绪调节的不同模式对有价值生活有显著预测作用。本研究能够帮助我们从更个人化的角度理解处于社会关系中的个体心理健康。

关键词　情绪调节，有价值生活，表达抑制，认知重评

The Joint Influence of Intrapersonal and Interpersonal Emotional Regulation on Valued Living of College Students

Duan Yaokun[1], Zhu Lei[1](Corresponding author)
1 School of Psychology, Shaanxi Normal University, Xi'an, 710062, lei.zhu@snnu.edu.cn

Abstract：Objective: Emotion regulation refers to the process of using various strategies to regulate one's own or others' emotions, which has a significant impact on the mental health of college students. Current research has predominantly focused on intrapersonal process, with limited attention given to interpersonal emotion regulation. Furthermore, there is a lack of studies investigating the combined effects of intrapersonal and interpersonal emotion regulation on the mental health of college students. Therefore, this study aims to examine the influence of intrapersonal and interpersonal emotion regulation on mental health (measured by valued living) among college students. Method: A cross-sectional study design was employed, and a total of 433 college students were assessed with the Interpersonal Emotion Regulation Questionnaire (including enhancing positive emotions, perspective taking, soothing, and social modeling), the Emotion Regulation Questionnaire (including cognitive reappraisal and express suppression), and the Valued Living Questionnaire. Latent profile analysis was initially utilized to explore distinct emotion regulation profiles at the intrapersonal and interpersonal levels among college students. Subsequently, regression mixture modeling was employed to examine the effect of different emotion regulation profiles on valued living. Result: (1) Based on intrapersonal and interpersonal emotion regulation strategies, college students were classified into five profiles: Profile 1 "Low intrapersonal and interpersonal emotion regulation", Profile 2 "Average intrapersonal and interpersonal emotion regulation", Profile 3 "High express suppression and low interpersonal emotion regulation", Profile 4 "High express suppression and high interpersonal emotion regulation", and Profile 5 "Low express suppression and high interpersonal emotion regulation". (2) Profile 1 reported lower levels of value process compared to the other four profiles. Profiles 2 and 3 respectively had lower levels of value process compared to Profiles 4 and 5. Profile 1 showed lower levels of value obstacle compared to Profiles 2 and 4. Profile 5 indicated significantly lower levels of value obstacle compared to Profiles 2, 3, and 4. Conclusion: There are five distinct emotion regulation profiles among Chinese college students, significantly predicting valued living. The study contributes to a more personalized understanding of individuals' mental health within social relationships.

Keywords：emotion regulation, valued living, express suppression, cognitive reappraisal

Self-Control Belief and Gaming Disorder: A Reciprocal Model and Gender Differences

Shimin ZHU, Ph.D.[a,b*] & Di QI, Ph.D.[a]

Authors' affiliations:
[a] Department of Applied Social Sciences, The Hong Kong Polytechnic University, Hong Kong SAR, China
[b] Mental Health Research Centre, The Hong Kong Polytechnic University, Hong Kong SAR, China

Abstract： Gaming is a popular leisure activity worldwide, but excessive gaming can lead to gaming disorder, especially among children and adolescents. There is an urgent need to identify the associated factors to prevent gaming disorder among youths. We employed cross-lagged panel models to examine the directional links between self-control mindset and the severity of gaming disorder symptoms with a one-year, two-wave, school-based longitudinal study. A total of 3,264 students (338 in Grades 4-5 and 2,926 in Grades 7-10) from 15 schools in Hong Kong participated in the classroom surveys. A bidirectional relationship was found between self-control mindset and gaming disorder symptom severity. Subgroup analyses of male and female respondents revealed that growth mindsets regarding self-control predicted less severe gaming disorder symptoms in girls but not in boys, while the prediction path of gaming disorder symptoms to self-control mindsets was significant in both boys and girls. Our findings implied that promoting growth mindset regarding self-control is a promising preventive strategy for gaming disorder prevention and early intervention.

Keywords: growth mindset regarding self-control, gaming disorder, cross-lagged panel model, children and adolescents

中国学校心理健康研究现状概述

陈凌隽[1]（通讯作者） 宫瑞[1] 施乐[1]
1 上海交通大学教育学院，上海，200240，通讯作者邮箱：lingjunchen@sjtu.edu.cn

摘 要 背景：心理健康对学生的成长至关重要，我国在改善学生心理健康方面一直在努力。这一趋势在国内学术界的反映如何，研究与实践是否一致都值得探讨。因此，本研究将概括 6 本高水平 C 刊上发表的与学校心理健康相关的最新研究，以揭示当前国内学者的研究重点和兴趣，并将类似主题的论文与英文学术期刊上的文章进行比较。方法：搜索 6 本高水平中文期刊（《心理学报》、《心理科学进展》、《心理科学》、《中国临床心理学杂志》、《心理发展与教育》和《中国心理卫生杂志》）在 2021 年上的发文，找出有关师生幸福感或心理健康的文章，提炼关键词和信息并进行汇总。同时，对 4 本英文高水平心理学期刊和 3 本学校心理学期刊行审阅，以确定外刊研究中的重要主题和热点话题。结果：共在 6 本杂志中找到 351 篇中文文章。样本上，纯关注教师的只有 12 篇文章，其余大部分关注学生。23 篇文章关注社会弱势群体。引起学者关注的心理问题具有典型性，包括抑郁（53 篇）、焦虑（38 篇）、外化问题（21 篇）、孤独（11 篇）、自闭症（9 篇）。约有 1/4 的文章研究了与现代技术相关的心理问题，包括网络成瘾、手机成瘾、网络欺凌以及作为风险因素的社交媒体。同时，也有一些文章以中立的态度研究了在线行为或在线心理干预。此外，还有很多文章研究了与学生心理健康相关的人际关系，其中家庭因素最受关注，有 68 个关键词涉及教养方式或家庭因素，但关于同伴或同学和教师的关键词分别仅有 32 和 14 个。在研究方法上，62%的文章采用横断设计并仅收集问卷数据。最后，通过查阅英文期刊中的摘要，发现中外研究

的大主题类同，如成瘾行为、校园安全和社会公正问题等。然而，由于社会现状差异，同一大类主题的文章在不同国家会有不同的分主题。结论：我国学者在更好地理解学生心理健康问题和提出解决方案上所做的努力与现代科技发展和促进类实践较为一致。此外，本研究还就样本和视角的涵盖性以及方法的多样性提出了未来的发展方向。

关键词　热点话题，跨国比较，高水平中文期刊，学校心理健康，现代技术

An Overview of Current Research Focus in School Mental Health in China

Lingjun Chen[1], Rui Gong[1], Le Shi[1]
1 School of Education, Shanghai Jiao Tong University, Shanghai 200240, China

***Abstract*：** **Background:** School mental health is vital to the growth of students and there have been continuous efforts made in improving student mental health in China. How this trend reflects in Chinese academia and what might be potential gaps between research and practice is worth exploring. Therefore, this study aims to review the latest research relevant to school mental health published in six high-level Chinese academic journals to reveal the current research focus and interests among Chinese scholars, and also to compare papers under similar topics with academic journals in English. **Methods:** Six high-level Chinese journals whose publication scope is partially or entirely on student well-being and school mental health are selected, that is, *Acta Psycho-logical Sinica (Xinli Xuebao), Advances in Psychological Science (Xinli Kexue Jinzhan), Psychological Science (Xinli Kexue), Chinese Journal of Clinical Psy-chology (Zhongguo Linchuang Xinlixue Zazhi), Psychological Development and Education (Xinli Fazhan yu Jiaoyu), and Chinese Mental Health Journal (Zhongguo Xinli Weisheng Zazhi)*. Articles on the well-being or mental health of students, teachers, school-age children, and adolescents are identified from these six journals in 2021, followed by keywords and key information subtraction from the abstracts. Finally, all the articles on school mental health published in four high-level psychology journals and three important school psychology journals are reviewed to identify central themes and hot topics in the world, especially Western countries. **Results:** A total of 351 Chinese articles were identified. Regarding the samples in these articles, 12 articles focus solely on teachers, whereas the remaining majority focus on students (44 on elementary school students, 154 on secondary school students, 139 articles on college students, and six articles on postgraduate students). 23 articles focus on socially disadvantaged populations. Some typical psychological problems have attracted the research attention, including depression or depressive symptoms (53 articles), anxiety (38), aggression and externalizing problems (21), loneliness (11), autisms (9). There are about a quarter of articles that study psychological problems related to modern technology, including internet addiction, mobile phone addiction, cyberbullying, and media exposure as a risk factor. Simultaneously, the internet plays a key role in people's daily life, not necessarily a negative factor. There are more than 10 articles studying social media use, online interactions, online reading, and online gaming in a neutral manner, as well as articles conducting online psychological interventions to improve student mental health. Additionally, there are many articles study key interpersonal relationships that are related to students' well-being and mental health, and family factors received the most attention. Reflected from keywords, there are 68 keywords either on parenting or on family factors. Comparatively, only 32 keywords focus on peers and classmates, and 14 keywords on teachers. Regarding the method of reviewed studies, 62% of articles only use cross-sectional designs and collect data coming from questionnaire. Lastly, after reviewing article abstract in journals in English, it is evident that the research shares similar major themes, such as addictive behaviors, campus safety, and social justice issues. However, articles on

the same theme usually cover different topics across countries due to societal conditions. **Conclusions:** Chinese scholars' efforts in better understanding student mental health issues and solutions are in line with both the modern technology development and the mental health promotion practices. Future directions regarding the sample and perspective inclusiveness and method variety are also suggested.

Keywords： hot topics, comparisons across countries, high-level Chinese journals, school mental health, modern technology

身心互益：正念-有氧运动联合干预改善高校学生网络成瘾症状的效果及其机制探索

魏小淇[1, 2] 赵越[1, 2] 何韵涵[1, 2] 迟新丽[1, 2]（通讯作者）

1 深圳大学心理学院，深圳，518060

2 深圳大学心理健康中心，深圳，518060，xinlichi@126.com

摘 要 网络成瘾症状近年来已经被视为一个公共健康问题,并且在高校学生群体中十分高发。由于网络成瘾症状复杂的生理与心理机制，关于如何有效干预高校学生的网络成瘾症状仍在探索中。根据具身认知理论，结合正念与有氧运动的团体联合干预对降低高校学生网瘾症状风险能起到身心兼具的作用。然而，当前少有研究考察该联合干预方式的效果与机制。为此，本研究旨在通过一项试验性的正念-有氧运动联合干预方案，检验该方案对高校学生网瘾症状的改善效果并探索潜在作用机制。研究采用随机对照试验，72 名参与者被随机分配到干预组（*N*=36）和对照组（*N*=36）。干预组被试将接受为期 8 周，每周一次的正念-有氧运动联合训练，对照组则不接受任何干预。网络成瘾测验用于评估参与者的网络成瘾症状。重复测量方差分析和网络干预分析分别用于检验干预效果和机制。最终共有 29 名干预组被试和 29 名对照组被试有效填写了前后测问卷。重复测量方差结果显示，时间*组别的交互作用显著（F=19.5，p<0.001，偏η^2=0.27），干预组网络成瘾症状水平在接受干预后显著降低（干预前 vs 干预后：54.4 vs 41.4），而对照组网络成瘾症状无显著变化（干预前 vs 干预后：51.1 vs 54.8）。网络干预分析结果表明，协同训练对网络成瘾症状“渴望下一次上网”、“因别人打搅上网而发脾气”和“无法控制上网时间”有直接作用。本研究结果初步证明了正念协同有氧运动的身心联合干预方式对改善高校学生网络成瘾症状的有效性，并拓展了具身认知理论在促进身心健康领域研究的应用。

关键词 协同干预，正念，有氧运动运动，网络成瘾症状，随机对照试验，高校学生

Mutual benefit for Physical-and-Mental Health: the Effect and Mechanism of Mindfulness and Aerobic Exercise Combined Intervention on Internet Addiction Symptoms among college students

Xiaoqi Wei[1,2], Yue Zhao[1,2], Yunhan He[1,2], Xinli Chi[1,2,*]

1 School of Psychology, Shenzhen University, 518060

2 Center for Mental Health, Shenzhen University, Shenzhen, 518060

Abstract：Internet addiction (IA) symptoms have been recognized as a public health concern in recent years and have been highly prevalent among college students. Due to IA symptoms' complex physical and mental mechanisms, interventions on how to protect college students from such deleterious outcomes are still under exploration. According to embodied cognition theory, group-based combining aerobic exercise and mindfulness training may confer benefits in reducing the risk of IA symptoms. However, little is known about the effect of the combined intervention among college students. To address this issue, this pilot study aimed to examine the feasibility and effectiveness of the combined intervention on IA symptoms and to investigate the underlying mechanisms. A two-arm pilot study of a randomized controlled trial was taken. Seventy-two participants were randomly allocated to the intervention group (N = 36) or the control group (N = 36). Participants in the intervention group received 8 weeks of weekly mindfulness plus aerobic exercise training, while the control group received no intervention. The Internet Addiction Test (IAT) was used to assess IA symptoms. The effectiveness and mechanism of the intervention were tested using the repeated measurement ANOVA and the network intervention analysis (NIA). The findings included 29 participants in the intervention group and 29 participants in the control group, all of whom completed pre-test and post-test questionnaires. The results of the repeated measurement ANOVA showed that the time*group interaction effect was significant (F=19.5, p<0.001, partial η^2=0.27). Compared to the control group (51.1 vs. 54.8), there was a significant decrease in the level of IA symptoms in the intervention group (54.4 vs. 41.4). NIA results indicated that the combined intervention had direct impacts on IA symptoms "anticipation for future online activities", "annoyed if bothered while being online", and "failure to cut down the time spent online". The findings in this study empirically suggested the effectiveness of the mindfulness and aerobic exercise combined intervention on IA symptoms and expanded the application of embodied cognition theory in promoting physical and mental health among Chinese college students.

Keywords： Combined intervention, Mindfulness, Aerobic exercise, Internet addiction symptoms, Random controlled trail, College students

一起吃会更不健康？共食对高热量食物选择的影响

王楚珺　宛小昂（通讯作者）

清华大学心理学系，北京，100084，通讯作者 E-mail（wanxa@mail.tsinghua.edu.cn）

摘 要　人们在生活中会经常与他人一同用餐，这种行为被称为共食。共食已被证实会提升人们的进食量，但是共食对于=食物选择的影响仍需进一步的探究。本研究探究了个体为不同进食情境做出的食物选择间的差异，并从奖赏性加工的角度验证了该效应的稳健性，在此基础上提出了社会性因素可能存在的影响。我们在实验 1 中要求被试想象自己单独进食或与他人共食，接着在一个高热量食物和一个低热量食物间进行选择。结果表明，相比单独进食，共食会让个体更偏好高热量食物。实验 2 则通过操纵食物的易得性来探究当个体对于高热量食物的奖赏性感知被改变时，这种选择上的差异是否还存在。该实验的结果表明，当高热量食物的奖赏性感知较低时，个体依然会为共食（相比单独进食）选择更多的高热量食物。但是当个体对高热量食物的奖赏性感知被提升，这种效应就不会发生。实验 3 通过操纵食物推荐度来进一步探讨了该问题，并将共食分为了分餐和合餐。实验 3 的结果表明，当个体对高热量食物的奖赏性感知被提升时，分餐对于高热量食物的选择效应会受到限制，但合餐依然会比单独进食选择更多的高热量食物。此外，考虑到共食是一种社会性进食，对高热量食物的选择也可能受社会性因素驱动。实验 4 将共食的互动分为讨论个人或工作相关的情境，结果表明，当讨论个人相关的内容时，两种共食与单独进食在对高热量

食物的选择上不存在差异。但是当互动内容与工作相关时，相比单独进食以及分餐，被试在合餐时会选择更多的高热量食物，这可能是因为此时双方的亲密度较低，人们会为了和谐与面子而选择美味的高热量食物。总的来说，本研究通过 4 个实验验证了共食相比于单独进食会使个体选择更多的高热量食物，并且揭示了这其中可能的机制以及边界条件。本研究的结论为社会性进食情境影响个体的食物消费研究提供了更进一步的实证依据，丰富与拓展了人们对社会性情境影响食物消费的作用机制的理解，也能够为人们的健康饮食行为提供重要的思路与建议。

关键词　单独进食，分餐，合餐，食物选择，奖赏性加工

Eating together makes you less healthy? The influence of commensality on high-calorie food choices

Chujun Wang & Xiaoang Wan*
Department of Psychology, Tsinghua University, Beijing, China

Abstract：People often eat with others, a behavior known as commensality. It has been shown that eating with others can influence individuals' food intake, prompting the question of how commensality affects food choice? Here we report four experiments designed to investigate the differences in food choices for high-calorie foods between commensality and solitary eating. Additionally, we examined the robustness of this effect from the perspective of reward processing, and proposed potential influences of social factors. In Experiment 1, we asked participants to imagine themselves eating alone or eating with others, and then choose between a high-calorie food and a low-calorie food. The results revealed that people chose more high-calorie foods when eating with others than when eating alone. We manipulated food availability in Experiment 2 to examine whether the observed difference in food choice between commensality and solitary eating persists when individuals' perception of the rewarding value of high-calorie foods is altered. The results of this experiment showed that even when the perceived rewarding value of high-calorie foods was low, individuals still exhibited a preference for choosing more high-calorie foods during commensality compared to solitary eating. However, when the perceived rewarding value of high-calorie foods increased, this effect was no longer observed. In Experiment 3, we further investigated this issue by manipulating food recommendation, and categorized commensality into separate commensality and shared commensality. The results revealed that the effect of commensality on food choice was constrained when individuals' perceptions of the rewarding value of high-calorie foods increased. However, this constraint was only observed in the separate commensality condition. In the shared commensality condition, individuals chose more high-calorie foods compared to solitary eating, provided that the level of food recommendation was not low. Moreover, considering that commensality is a form of social eating, the choice of high-calorie foods may also be driven by social factors. In Experiment 4, we asked participants to imagine engaging in interactions during commensality, focusing either on personal-related content or work-related content. The results revealed that when discussing personal-related content, there were no differences in the choice of high-calorie foods between the two types of commensality and solitary eating. However, when discussing work-related content, participants tended to choose more high-calorie foods when imagining engaging in shared commensality compared to engaging in solitary eating or separate commensality. This could be attributed to a lower level of intimacy between diners and a greater motivation to choose tasty high-calorie foods in order to maintain harmony and preserve social face. In summary, this study contributes further empirical evidence regarding the influence of social eating on individuals' food consumption, enhancing our understanding of the underlying mechanisms involved. Furthermore, it offers important insights for promoting healthy eating behaviors

among individuals.

Keywords：solitary eating, separate commensality, shared commensality, food choice, reward processing

活动与饮食行为的行为网络：一项日记法研究

张春青[1] 黄嘉笙[1]（通讯作者）

1 中山大学心理学系，广州，510006

通讯作者 E-mail：huangjsh39@mail.sysu.edu.cn

摘 要 背景：活动与饮食包含了多种健康行为（如锻炼行为、久坐行为、零食摄入等），这些行为之间具有紧密的相互联系，并共同影响着人们的健康状况；许多疾病的预防与管理都需要人们同时坚持进行多种健康的活动与饮食行为。因此，探讨活动与饮食行为之间的相互联系模式将有助于助推多行为改变、促进整体的健康生活方式建立。本研究试图通过一项日记法研究建立日常活动与饮食行为的行为网络，揭示此健康行为群组内的相互联系模式。**方法：**本研究招募了 146 名大学生在下午三点及晚上十点完成问卷，持续 28 天，共 101 名被试填写率达到 70%被纳入分析。问卷测量了被试在对应时间段内的活动行为（久坐时间和锻炼行为）与饮食行为（过度进食行为、含糖饮料摄入和零食摄入行为）。研究使用多层向量自回归模型(mlVAR)估计日常活动与饮食行为的时序网络（个体内的交叉滞后预测性网络关系）、同时网络（个体在同一时间点内所展现的变量网络关系）和个体间网络(整个测量时间段的变量均值在个体间的网络相关关系)；并分别计算不同水平网络中行为节点的期望影响力(Expected Influence, EI)、识别网络内最具影响力的中心行为。**结果：**活动与饮食行为在不同水平上的行为网络具有明显差异。在时序网络中，仅零食摄入行为显著预测更短的久坐时间。在同时网络中，饮食行为之间存在正向联系，锻炼与久坐行为之间存在负向联系，饮食行为中的含糖饮料摄入与过度进食行为均与活动行为存在联系。个体间网络中活动与饮食行为的相互联系更为密集，多数健康行为间都存在显著联结。不同水平的行为网络内的中心行为也有一定差异，其中同时网络中锻炼行为和久坐行为的预期影响力最高，个体间网络中的久坐行为与含糖饮料摄入行为的预期影响力最高。**结论：**活动与饮食行为的相互联结模式在个体内的交叉滞后关系、个体内的共时相关关系和个体间相关关系这三个不同水平上具有明显差异，提示着多行为干预需要更精细地考虑活动与饮食行为在不同时间尺度上的相互影响关系。在不同水平上，对于行为扩散和整体生活方式转变最有影响力的中心行为也有所不同，但整体而言活动行为（久坐与锻炼行为）具有更高影响力；这提示着针对活动与饮食的生活方式干预可考虑以活动行为作为干预靶点，从而更高效地促进整体生活方式的改善。

关键词 健康行为，活动行为，饮食行为，网络分析，日记法

Examining the Network Dynamics of Daily Movement and Dietary Behaviors: A Diary Study

Chunqing Zhang[1] Jiasheng Huang[1]

1 Department of Psychology, Sun Yat-Sen University, Guangzhou, China

Abstract： **Background:** Movement behaviors and dietary behaviors are lifestyle clusters that consist of multiple health behaviors (e.g., exercise behaviors, sedentary behaviors, snack intake, etc.). These behaviors have inherent connections with each other and jointly influenced health outcomes. Therefore, it is important to investigate how to effectively promote multiple behavior change within the lifestyle cluster of physical activity and eating. This diary study aimed to investigate the behavior network of daily movement and dietary behaviors and

reveal the pattern of interconnections within this lifestyle cluster. **Method:** A total of 146 college students to take part in the daily survey, which required them to complete behavior questionnaires at 3 pm and 10 pm for 28 consecutive days. Out of these, 101 participants who completed more than 70% of the daily surveys were included in the analyses. The behaviors assessed in this study were sedentary behavior, exercise behavior, overeating behavior, sugar-sweetened beverage intake, and snack intake. The multi-level vector autoregressive model (mlVAR) was used to estimate the temporal network (i.e., depicting the cross-lagged predictive effects between variables) the contemporaneous network (i.e., depicting the associations between variables within the same measurement occasion), and the between-subject network (i.e., depicting the associations between person-means of the variables during the whole measurement period) of these behaviors. The expected influences (EIs) of each behavior node in different networks were also calculated to identify the central behavior within each network. **Results:** The analyses revealed distinct network dynamics of movement and dietary behaviors at different levels. In the temporal network, only snack intake significantly predicted shorter sedentary time. In the contemporaneous network, positive interconnections between dietary behaviors and a negative connection between exercise and sedentary behaviors were observed. The between-person network was denser, with most behaviors being significantly connected. Central behaviors also varied between different levels of networks, with the role of movement behaviors being particularly highlighted. **Conclusions:** The interconnections between movement and dietary behaviors demonstrated different patterns at the within- (including temporal and contemporaneous) and between-person levels. This suggests that multi-behavior interventions should take into account the varying interactions between movement and dietary behaviors at different time scales. Moreover, movement behaviors (including sedentary and exercise behaviors) appear to be more influential in behavior spread, indiacting that lifestyle interventions can target in movement behaviors in order to effectively facilitate comprehensive lifestyle transformation.

Keywords：health behavior, movement behavior, dietary behavior, network analysis, diary study

伴侣发出的社会阻抑对员工安全行为的影响：认知和情感的双路径模型

毛文勖[1]　王大伟[1]（通讯作者）

1 山东师范大学心理学院,山东济南,250358,wdw112@163.com

摘 要　员工安全行为是组织安全事故和伤害发生的重要影响因素。以往研究对安全行为前因的探索多关注工作场所相关变量(如领导风格、团队氛围和文化等)，而忽视了家庭领域中具体经历的影响。社会阻抑行为是一种负性、非支持性的人际互动，当这种行为由本应该提供社会支持的伴侣发出时，其破坏性影响会更凸显。本研究基于工作家庭机制、资源保存理论和认知—情感系统理论，考察伴侣发出的社会阻抑行为对员工安全行为的影响及其内在机制。

本文包括三个研究，研究一对状态反刍问卷进行修订，采用整群随机抽样从某国有企业中共计选取 664 名企业员工，经过翻译-回译程序形成量表中文版，并对其进行探索性因素分析、验证性因素分析、信度分析、相容效度分析、效标关联效度检验等分析步骤，最终得到了信效度良好、适用于中国样本的状态反刍问卷。研究二从某国有石油公司通过整群随机抽样后筛选出 145 名有伴侣的有效被试，通过基于线索回忆的单因素被试间实验探究伴侣发出的社会阻抑对员工安全行为的影响，以及状态性反刍思维和消极工作情绪的中介作用。研究三为两阶段(间隔两周)的问卷调查研究，采用整群随机抽样从两家大型石油行业和水泥制造业公司中选取 361 名员工为被试，以社会阻抑量表、反刍思维量表、消极情绪量表、安全行为量表为测量工具，在组织的真实情境下再次检验伴侣发出的社会阻抑和员工安全行为的关系及机制，并将研究二的结果从状态性反刍拓展到了稳定的反刍思维中，提升结论的敏健性和推广性。使用 SPSS 25.0 及 Process

3.5 宏程序以及 Mplus 7.0 软件对数据进行管理与分析。结果发现：(1)修订后的状态反刍量表信效度达到测量学要求；(2)问卷研究表明，伴侣发出的社会阻抑负向预测员工安全遵守和安全参与；(3)实验研究和问卷研究共同表明，消极工作情绪在伴侣发出的社会阻抑和员工安全遵守、安全参与间起中介作用；(4)问卷研究表明，反刍思维和消极工作情绪在伴侣发出的社会阻抑和员工安全遵守、安全参与间起着链式中介作用。

关键词　安全行为，社会阻抑，反刍思维，消极工作情绪，工作家庭机制

The effect of partner-instigated social undermining on employees' safety behavior:

a dual path model of cognition and emotion

Wenxu Mao[1], Dawei Wang[1]

1 School of psychology, Shandong Normal University, 250358, wdw112@163.com

***Abstract*：** Employee's safety behavior is an important factor affecting the occurrence of organizational safety accidents and injuries. Previous studies on the antecedents of safety behaviors mainly focused on factors in the work domain (such as leaderships, team climate and culture, and relationships between leaders and members, etc.), ignoring the impact of specific experiences purely in the family domain. Social undermining is a negative, unsupportive interpersonal interaction behavior, and its damaging effect on employees' job performance will be accentuated when it is perpetrated by a partner who is supposed to provide social support. Therefore, based on the work-family mechanism, conservation of resource theory and cognitive-affective processing system (CAPS) theory, this study examines the influence of partner-instigated social undermining on employees' safety behavior and its internal mechanism.

This study includes three studies. The state rumination questionnaire was revised in study 1, and 664 employees were selected from two state-owned enterprises by cluster random sampling. The Chinese version of the scale was formed after a complete translation-back translation procedure, and exploratory factor analysis, confirmatory factor analysis, reliability analysis, compatible validity analysis, criterion-related validity analysis were carried out to obtain the status rumination questionnaire with good reliability and validity, which is suitable for Chinese samples. In study 2, 145 effective participants who have partners were selected from a state-owned oil company by cluster random sampling, to examine a causal relationship between partner-instigated social undermining and employees' safety behavior and the mediating effect of state rumination and negative work emotion, using the between-subjects design to perform a cued recall experiment. Study 3 was a two-stage (two weeks apart) questionnaire study, using cluster random sampling, 361 enterprise employees from two large oil and cement manufacturing companies were selected as participants, and the social undermining scale, ruminative responses scale, negative emotion scale and safety behavior scale were used as measuring tools. Hence, in the real situation of the organization, the relationship and mechanisms between social undermining issued by partners and employees' safety behavior were again examined, so as to improve the sensitivity and generalization of the conclusion. SPSS 25.0 and Process 3.5 macro as well as Mplus 7.0 software were used to manage and analyze the data. The main findings are as follows: (1) the reliability and validity of the revised state rumination scale meets the measurement requirements; (2) the questionnaire study show that partner-instigated social undermining negatively predicts employees' safety compliance and safety participation behaviors; (3) both the experimental study and the questionnaire study show that negative work emotion mediates the relationship between partner-instigated social undermining and the safety compliance and safety participation of employees; (4) the

questionnaire study show that rumination and negative work emotion play a serial mediating role between partner-instigated social undermining and employee's safety behavior.

Keywords：safety behavior, social undermining, rumination, negative work emotion, work-family mechanism

无意识健康目标启动对自我损耗下食物选择决策的影响

罗雨晨[1] 赵国军[1]（通讯作者）

1 西北师范大学心理学院，兰州，730070，zhaogj@nwnu.edu.cn

摘 要 2020 年世界卫生组织表明：超重和肥胖已达到了流行范围。面对这一问题，食物选择决策成为了一个重要的研究领域。资源有限理论认为，食物选择决策往往涉及到有意识的抑制对高热量美味食物的渴望，这个过程会损耗自我控制的能量，从而降低自我控制水平。自我损耗已经被证明与暴食、饮食节制等饮食失调行为有关。越来越多的研究者也开始着手探索能够有效改善人们饮食失调行为的干预方法。以往研究通过图片启动个体的健康目标，结果发现个体选择高热量食物的比例显著降低。然而研究并没有进一步探讨在自我损耗下启动个体的健康目标是否仍然可以促进个体更加合理健康的进行食物选择行为。出于以上考虑，本研究从以下两个实验出发，考察无意识健康目标启动对自我损耗下食物选择决策的影响。其中实验一采用色彩 Stroop 任务和食物选择任务，检验自我损耗对食物选择决策的影响，结果显示，相比于非损耗组，损耗组在高热量食物选择比例上更高，表现出自我损耗条件下个体会更多的选择高热量食物。实验二先后采用色彩 Stroop 任务、句子整理任务和食物选择任务及相，探讨了在自我损耗条件下无意识健康目标启动是否可以改善个体食物选择决策，结果显示，目标启动组的被试选择高热量食物会更少，但目标启动的效果只在非损耗条件下有显著作用，此外，无论是在目标启动组还是在目标控制组，损耗条件都会造成个体更多选择高热量食物。研究结果提示自我损耗会造成个体更多选择高热量食物，无意识健康目标启动可以降低个体的高热量食物选择比例，但无意识健康目标启动不能弥补自我损耗对食物决策的消极影响，因此，未来研究需要进一步关注健康目标对自我控制和食物选择关系的影响，探讨能够预防自我损耗对食物选择决策消极影响的有效途径。

关键词 自我损耗；自我控制；无意识健康目标；食物选择

Unconscious self-control goal initiation improves of inhibitory control in mobile phone dependents

Zhao Guojun[1] Lu Yuchen[1]

1 school of Psychology, Northwest Normal University,Lanzhou, 730070,

zhaogj@nwnu.edu.cn

Abstract: In 2020, the World Health Organization showed that overweight and obesity have reached epidemic range. Faced with this problem, food choice decision-making has become an important area of research. The finite resource theory suggests that food choice decisions often involve consciously suppressing cravings for high-calorie, delicious foods, a process that depletes energy for self-control and thus reduces the level of self-control. Self-depletion has been shown to be associated with eating disorders such as binge eating and dietary abstinence. More and more researchers are also beginning to explore interventions that can effectively improve people's eating disorder behavior. Previous studies that used pictures to initiate individual health goals found that the proportion of individuals choosing high-calorie foods was significantly reduced. However, the study did not further explore whether initiating an individual's health goals under self-depletion can still promote a more rational and healthy food choice behavior in the individual. Based on the above considerations, this study starts from the following two experiments to investigate the influence of unconscious health goal activation on food choice decisions under self-depletion. Among them, the first experiment used the color Stroop task and the food selection task to test the influence of self-loss on food choice decision-making, and the results showed that compared with the non-loss group, the loss group had a higher proportion of high-calorie food selection, indicating that individuals would choose more high-calorie foods under self-depletion conditions. The results showed that the participants in the target initiation group would choose fewer high-calorie foods, but the effect of target initiation only had a significant effect under non-loss conditions, in addition, whether in the target initiation group or in the target control group, the loss conditions would cause individuals to choose more high-calorie foods. The results suggest that self-depletion will cause individuals to choose more high-calorie foods, and unconscious health goal activation can reduce the proportion of high-calorie food choices in individuals, but unconscious health goal activation can not compensate for the negative impact of self-depletion on food decision-making, so future research needs to pay more attention to the impact of health goals on the relationship between self-control and food choice, and explore effective ways to prevent the negative impact of self-depletion on food choice decisions.

Keywords: Self-depletion; Self-control; Unconscious health goals; Food selection

背景颜色和健康目标启动对食物偏好的影响：基于健康目标启动范式

邓芝彤[1]　闻涛[1]　罗晶晶[1]　田汶冉[1]　冯果[1,2]（通讯作者）

1 西南交通大学心理研究与咨询中心，成都，611756

2 西南交通大学应用心理学研究院，成都，611756，fengguo@swjtu.edu.cn

摘 要　**背景：**健康是一切生命活动的基石。探讨食物偏好的影响因素和干预办法，有利于不良饮食者和减重需求者采取有效的策略减轻或改善这些不良饮食行为，对促进健康饮食具有重要的现实意义。食物偏好受到许多因素的影响，包括个体因素和环境因素。其中，情境线索这一环境因素在食物偏好中起着至关重要的作用。研究发现，只要注意到与饮食健康相关的线索，个体对体重的意识就会被激活，进而倾向于选择健康的食物。健康目标启动是一种很受关注的情境因素。因此，本研究通过操纵被试的健康目标启动，探究其在不同背景颜色下对高低热量食物的食欲评分是否存在差异，来明确背景颜色和健康目标启动对食物偏好的影响，并进一步验证视觉和味觉的跨通道整合效应。**方法：**通过健康目标启动范式，采用2(背景颜色：红色、绿色)×2(热量：高、低)×2(健康目标启动：健康目标启动组、控制组)的混合设计，招募60名大学生被试，随机分为健康目标启动组和控制组（每组30人），要求被试对不同背景颜色下的高低热量食物图片进行0—100的食欲评分。**结果：**(1)背景颜色与健康目标启动有显著的交互作用($F(1,60)=33.819$，$p<.001$)，启动健康目标显著增加了被试对绿色背景下食物的喜好程度。(2）背景颜色与食物热量也有显著的交互作用（$F(1, 60)=19.716$，$p<.001$），与红色背景相比，绿色背景会显著降低被试对高热量食物的

喜好程度。**结论：**健康目标启动和背景颜色可以共同影响个体的食物偏好，这可为未来视味觉联合通道、健康饮食干预以及食品包装的研究提供新的思路。

关键词　背景颜色，健康目标启动，食物偏好，健康饮食干预

The Impact of Background Color and Health Goal Priming on Food Preference: Based on the Health Goal Priming Paradigm

Zhitong Deng[1]，Tao Wen[1]，Jingjing Luo[1]，Wenran Tian[1]，Guo Feng[1,2]

1 Psychological Research and Counseling Center, Southwest Jiaotong University, Chengdu 611756, China

2 Institute of Applied Psychology, Southwest Jiaotong University, Chengdu 611756, China

***Abstract*：** **Background:** Health is the cornerstone of life activities. To explore the influencing factors and intervention methods of food preference, it is of great practical significance for people with bad diet habits and those who need to lose weight to adopt effective strategies to reduce or improve these bad eating behaviors. Food preference are influenced by many factors, both individual and environmental. Among them, situational cues, an environmental factor, plays a crucial role in food preference. Previous studies have found that simply by paying attention to cues related to diet health, an individual's awareness of body weight is activated, and in turn tends to choose health foods. Health goal priming is one of the highly concerned situational factor. Therefore, by manipulating the health goal priming of participants, this study explored whether there were differences in their appetite scores for high and low calorie foods under different background colors, so as to clarify the influence of background color and health goal priming on food preference, and further verify the cross-modal integration effect of vision and taste. **Methods:** Through the health goal priming paradigm, we designed a 2 (background colors: red and green) ×2 (calorie type: high and low) ×2 (health goal priming: priming group and control group) mixed-subject experiment. We recruited 60 college students and divided them into health priming and control groups randomly. The participants completed the task of rating appetite on a scale of 0 to 100 for high and low-calorie food images with different color backgrounds. **Results:**（1）There was a significant interaction between background color and the health goal priming（$F(1, 60)=33.819$，$p<.001$）, which increase participants' preference for food under a green background. (2) There is also a significant interaction between background color and food calories（$F(1, 60)=19.716$，$p<.001$）. Compared to a red background, a green background significantly reduces participants' preference for high calories foods. **Conclusion:** The priming of health goals and background color can jointly affect food preferences of individuals, providing new ideas for the cross-modal integration of vision and taste，healthy dietary interventions and food packaging research.

Keywords: background color, health goal priming, food preference, healthy dietary intervention

父母控制的亲子感知差异与儿童焦虑的纵向关系：亲子亲密的调节作用

翟梦晓[1]　张思羽[1]　董悦[1]　徐夫真[1]（通讯作者）

1 山东师范大学心理学院，济南，250014，通讯作者 E-mail: xufuzhen@sdnu.edu.cn

摘要 父母和儿童在感知父母教养行为方面往往存在稳定的、有现实意义的感知差异。与父母相比，儿童在父母积极教养行为上感知水平更低，而在消极教养行为上感知水平更高，这种感知差异能够稳定地预测儿童的发展结果。父母控制是典型的教养行为之一，其中心理控制被认为是消极的教养行为，可能会导致儿童产生焦虑情绪；行为控制在某些情况下具有积极作用，能够减少儿童焦虑情绪。同时，与父母的亲密关系是儿童重要的情感资源，能够调节父母教养行为与儿童焦虑的关系，是减少儿童焦虑的保护性因素。然而，以往研究较少关注到父母控制的亲子感知差异对儿童焦虑的影响，以及亲子亲密在其中的作用。此外，以往研究多使用差异分数法来评估感知差异，在某种程度上过度简化了预测变量与结果变量的关系，而多项式回归与响应面分析法通过使用三维曲面同时呈现感知一致性与差异性对儿童发展的线性和曲线性影响，目前被认为是评估感知差异更好的方法。因此，本研究采用间隔一年的纵向研究设计，以 1168 名儿童及其父母为研究对象，采用儿童焦虑量表、父母控制量表和亲子亲密度量表，通过多项式回归与响应面分析法探讨亲子在心理/行为控制上的感知差异及其对儿童焦虑的影响，以及亲子亲密在其中的调节作用。结果发现，（1）与父母相比，儿童感知到的父母心理控制水平更高、行为控制水平更低；（2）当亲子在心理/行为控制上感知一致时，双方对心理控制感知水平越高、行为控制感知水平越低，儿童一年后的焦虑水平越高；（3）当亲子在心理/行为控制上感知不一致时，双方感知差异越大（儿童对心理控制感知越高、行为控制感知越低），儿童一年后的焦虑水平越高；（4）母子亲密在母子心理/行为控制感知差异性与儿童焦虑之间起调节作用。这一研究强调多主体评估及评估差异的重要性和必要性，同时也提示父母在教养过程中要考虑儿童的真实感受，并与儿童建立良好的亲子关系。

关键词 儿童焦虑，心理控制，行为控制，感知差异，响应面分析

The longitudinal relations of parent-child perceived discrepancies of parental control and children's anxiety: Moderating effect of parent-child closeness

Mengxiao Zhai[1], Siyu Zhang, Yue Dong, Fuzhen Xu[1] (Corresponding Author)
1 School of Psychology, Shandong Normal University, Jinan, 250014

Abstract: There are stable and meaningful perception discrepancies between parents and children regarding their perceptions of parenting behaviors. Specifically, compared with parents, children have lower perceptions of positive parenting behaviors and higher perceptions of negative parenting behaviors, and these discrepancies in perception can reliably predict children's developmental outcomes. Parental control is a typical parenting behavior, in which psychological control is considered a negative parenting behavior, which may lead to children's anxiety, and behavioral control plays a positive role in reducing children's anxiety in some cases. At the same time, the closeness between children and their parents is an important emotional resource for children, which can modulate the relationship between parenting behavior and children's anxiety, and is a protective factor to reduce children's anxiety. However, previous studies have paid less attention to the impact of parent-child perception discrepancies regarding parental control on children's anxiety, and the role of parent-child closeness in it. In addition, there are some limitations in the previous methods of studying perceptual discrepancies. For

example, the difference score method oversimplifies the relationship between predictive variables and outcome variables, while polynomial regression and response surface analysis use three-dimensional surfaces to present the linear and curvilinear effects of perceptual congruence and incongruence on children's development, which is a relatively new method in the field of psychology. Therefore, this study used a longitudinal study design with an interval of one year, taking 1168 children and their parents as the research object, using the Spence Children's Anxiety Scale, the Parental Control Scale and the Parent-Child Closeness Scale, through polynomial regression and response surface analysis to explore the impact of parent-child perception discrepancies in psychological/behavioral control on children's anxiety, and the moderating role of parent-child closeness. The main results were as follows: (1)Children perceived higher levels of psychological control and lower levels of behavioral control compared to their parents; (2)When there was perception consistency between parents and children regarding psychological/behavioral control, higher levels of perceived psychological control and lower levels of perceived behavioral control were associated with higher levels of child anxiety one year later; (3)When there was perception inconsistency between parents and children regarding psychological/behavioral control, greater differences in perception (with children perceiving higher psychological control and lower behavioral control) were associated with higher levels of child anxiety one year later; (4)Mother-child closeness moderated the negative impact of maternal-child perception inconsistency on children's anxiety. The above results highlight the significance of considering parent-child discrepancies when examining the role of parental control in children's anxiety. This also suggests that parents need to consider the true feelings of children in the process of parenting and establish a good parent-child relationship with children.

Keywords: children's anxiety, psychological control, behavioral control, discrepancies, response surface analysis

自我同情对癌症患者心理治疗感知障碍的预测作用：一项纵向研究

孙莎莎[1]　朱蕾[1](通讯作者)

1 陕西师范大学心理学院，西安，710062，lei.zhu@snnu.edu.cn

摘　要　心理治疗感知障碍是指阻碍癌症患者接受心理治疗的情境因素和信念。以往研究发现癌症患者普遍存在心理治疗感知障碍，并且心理困扰严重的患者寻求心理治疗帮助的意愿也较低。然而较少有研究探讨心理治疗感知障碍的保护性心理因素。因此，本研究聚焦于自我同情，拟探讨自我同情对于癌症患者心理治疗感知障碍的保护性作用。本研究采用纵向设计，考察了患者在初次癌症诊断时期的自我同情对患者在接受治疗过程中心理治疗感知障碍的预测作用。本研究在陕西省肿瘤医院招募了 153 名患者，并在确诊后一周内（T1），开始治疗一周内（T2）和治疗结束一周内（T3）对其进行问卷调查。采用层次线性回归分析进行数据分析。横向回归分析显示，自我同情总分和消极自我同情与羞耻感显著相关。纵向回归分析显示，患者在 T1 的自我同情总分和消极自我同情可以显著预测患者在 T2 和 T3 的对心理治疗的负面评价。此外，患者在 T1 的自我同情总分可以显著预测患者在 T3 的羞耻感，治疗与需求的不匹配和参与限制。患者在 T1 的消极自我同情可以显著预测患者在 T3 的参与限制。研究结果表明自我同情是心理治疗感知障碍的一个保护性心理因素。未来干预研究应聚焦于提高癌症患者的自我同情，从而降低患者的心理治疗感知障碍。

关键词　心理治疗感知障碍，自我同情，层次回归分析，纵向研究

The predictive role of self-compassion in perceived barriers to psychological treatment in cancer patients: A longitudinal study

Sun Shasha, Zhu Lei
School of Psychology, Shaanxi Normal University, Xi'an 710062, China

***Abstract*:** Perceived barriers to psychological treatment refer to situational factors and beliefs that may prevent people from accessing treatment. Previous studies have found that perceived barriers to psychological treatment were common among cancer patients, and people with serious psychological distress are less likely to seek psychological treatment. However, little is known about the protective psychological factors for perceived barriers of psychological treatment. Therefore, this study focuses on self-compassion and intends to investigate the predictive role of self-compassion in perceived barriers to psychological treatment in cancer patients. This current study adopts a longitudinal study design and examines the predictive role of patients' self-compassion at the first diagnosis in their perceived barriers to psychological treatment during the course of treatment. A total of 153 heterogeneous cancer patients were recruited from Shaanxi Provincial Tumor Hospital in Xi'an, China. Participants were assessed after the first diagnosis (T1), at the beginning (T2), and the end (T3) of medical treatment. Hierarchical linear regression analyses were used to examine the research questions. Cross-sectional regression analysis showed that at T1 a self-compassion total score and negative self-compassion were significantly related to stigma. The longitudinal regression analysis showed that self-compassion total score and negative self-compassion at T1 could significantly predict patients' negative evaluation of therapy at T2 and T3. Moreover, self-compassion total score at T1 was significantly related to patients' stigma, misfit of therapy to need, and participation restriction at T3. Negative self-compassion at T1 was significantly related to time constraints at T2, and participation restriction at T3. The results suggest the predictive effect of self-compassion on perceived barriers to psychological treatment. Future studies should focus on improving cancer patients' self-compassion to reduce these barriers.

***Keyword*:** Perceived barriers to psychological treatment, Self-compassion, Hierarchical linear regression analyses, Longitudinal study

睡眠障碍作为预防药物复吸的干预锚点

李振华，许寿生
北京体育大学，北京，100084

目的：在戒毒干预和治疗中，预防复吸已成为一项重中之重的任务。尽管中国法律规定强制隔离是戒毒和预防复吸的主要手段，但目前的强制隔离中心在减轻对药物的渴望或防止复吸方面尚未取得显著进展。因此，本研究旨在探讨毒品依赖者的睡眠障碍与复吸倾向之间的关系，以及相关的作用机制和干预措施。方法：首先对 400 名男性吸毒者进行一项横向调查，使用相应的问卷评估他们的睡眠障碍、生活质量和复吸倾向。随后从中筛选出 60 名患有睡眠障碍的参与者（睡眠质量得分大于 7 分），并随机将其分配到干预组和对照组。干预组接受了为期 12 周的旨在治疗睡眠障碍的健身气功，而对照组从事常规的生产工作。在设计本研究的健身气功处方时，我们充分考虑了中医的理念。从中医的角度来看，睡眠模式的正常与否是由阴阳平衡决定的，睡眠障碍通常与阳盛阴虚有关。而肾是阴的源头，直接或间接地与身体的所有功能相关联，因此睡眠障碍可能源于肾阴不足。为了滋阴补肾，我们设计了一套有针对性的健身气功动作。结果：睡眠障碍对复吸倾向有正向的预测作用，生活质量在其中起到中介作用。为期 12 周的针对睡眠障碍的健身气功不仅改善了毒品依赖者的睡眠质量，而且提高了他们的整体生活质量，从而减少了复吸倾向。结论：

本研究不仅探索了影响毒品复吸的高危因素，还制定了具有针对性的干预策略，这为未来开展更多针对睡眠障碍的干预研究提供了基础，并为提升戒毒治疗的成功率提供了有益的参考。
关键词：睡眠障碍；生活质量；复吸倾向；健身气功；毒品依赖者

Sleep disorders as a prospective intervention target to prevent drug relapse

Abstract: Preventing relapse has become a crucial task in drug intervention and treatment. Although compulsory isolation is the primary approach for drug detoxification and relapse prevention according to Chinese law, the existing compulsory isolation centers have not made significant progress in reducing drug cravings or preventing relapse. Therefore, this study aims to explore the relationship between sleep disorders in drug dependents and relapse tendencies, as well as the associated mechanisms and intervention measures. Methods: A cross-sectional survey was conducted on 400 male drug users, assessing their sleep disorders, quality of life, and relapse tendencies using relevant questionnaires. Subsequently, 60 participants with sleep disorders (sleep quality score greater than 7) were selected and randomly assigned to an intervention group and a control group. The intervention group underwent a 12-week fitness qigong program aimed at treating sleep disorders, while the control group engaged in regular occupational work. Traditional Chinese medicine concepts were taken into consideration when designing the fitness qigong prescription for this study. From a Traditional Chinese Medicine perspective, the normality of sleep patterns is determined by the balance of yin and yang, and sleep disorders are often related to excessive yang and deficient yin. The kidneys are the source of yin and are directly or indirectly associated with all bodily functions; therefore, sleep disorders may originate from insufficient kidney yin. To nourish yin and tonify the kidneys, a targeted set of fitness qigong exercises was designed. Results: Sleep disorders had a positive predictive effect on relapse tendencies, with quality of life playing a mediating role. The 12-week fitness qigong program targeting sleep disorders not only improved the sleep quality of drug dependents but also enhanced their overall quality of life, thereby reducing relapse tendencies. Conclusion: This study not only explores high-risk factors influencing drug relapse but also formulates targeted intervention strategies, providing a foundation for future research on interventions for sleep disorders. It also offers valuable insights for improving the success rate of drug detoxification treatment.
Keywords: sleep disorders, quality of life, relapse inclination, Health Qigong, substance users

基于 Optuna-Stacking 可解释机器学习模型揭示执行功能在精神分裂症辅助诊断与预后中的价值

张统一[12]　赵鑫[12]（通讯作者）

1 甘肃省行为与心理健康重点实验室,甘肃 兰州，730070

2 西北师范大学心理学院，甘肃 兰州 730070，psyzhaoxin@nwnu.edu.cn

摘 要　执行功能已被广泛视为解码精神分裂症病理机制的关键途径，在精神分裂症的发病机制和病程中起重要作用。然而，由于受传统统计方法的限制，目前对执行功能与精神分裂症之间复杂关系的理解仍十分有限。传统统计方法并不能充分捕捉到执行功能特征与精神分裂症之间的隐含联系与内在规律。本研究首次尝试使用可解释性机器学习算法，以揭示执行功能在精神分裂症诊断和预后中的潜在价值。

实验一基于 195 名精神分裂症患者和 169 名健康对照组的执行功能行为数据和社会人口学资料，使用 Stacking 方法融合三种基学习器 (SVM、Adboost 以及 ANN 模型)建模，并采用 Optuna 算法参数调优，之后利用 SHAP 值进行模型解释。实验二构建纳入与不纳入执行功能行为数据的两组模型 (两组模型均整合临床易获取的数据，如临床量表、病历、血常规等)，比较模型在预测 86 名患者住院治疗 4 至 6 周后临床症状缓解效果的性能。结果显示，OP-Stacking (Optuna-Stacking)模型在分类诊断任务中表现最佳 (准确率=0.8783；精确度=0.8710；召回率=0.8896；F1 值=0.8774；AUC=0.9359)。流体智力、失业、独生子女以及执行功能被确认为模型最重要的预测因素。在基于执行功能特征预测个体是否为精神分裂症患者时，模型表现出一定的差异性。在预后分类任务中，纳入执行功能行为数据的模型在预测精神分裂症治疗效果方面的性能更优。

结果发现，执行功能可作为一种可靠的生物标志物，用于精神分裂症的辅助诊断和预后评估。基于执行功能行为数据和易获取的社会人口学信息所构建的分类模型具有较好分类性能，能有效识别出精神分裂症患者。尽管执行功能损伤是精神分裂症群体的典型表现，但可能并非所有亚型的患者都在同等程度上受到影响。临床诊断时应关注那些执行功能损伤的独生子女以及大龄失业青年。执行功能在预测精神分裂症临床干预效果方面也起到了关键作用。未来研究应进一步探索执行功能在诊断和预后评估共病或类似精神疾病患者中的作用，尤其是关注执行功能三个子成分 (转换、抑制与刷新)同一性和独特性的潜在价值。

关键词　执行功能，同一性与独特性，可解释性机器学习，精神分裂症，计算精神病学

Developing an Optuna-Stacking Interpretative Machine Learning Model Leveraging Executive Functions for Auxiliary Diagnosis and Prognosis of Schizophrenia

ZHANG TongYi[12]　ZHAO Xin[12]

1Key Laboratory of Behavioral and Mental Health of Gansu province, Lanzhou Gansu, 730070

2 School of Psychology, Northwest Normal University, Lanzhou Gansu, 730070

***Abstract*：** Executive functions have been widely recognized as pivotal pathways for decoding the pathological mechanism of schizophrenia, playing an important role in the disease's onset and progression. However, due to the constraints of traditional statistical methods, our current understanding of the intricate relationship between executive functions and schizophrenia remains limited. Traditional statistical methods fail to fully capture the implicit connections and intrinsic patterns between the characteristics of executive functions and schizophrenia. This study is the first to attempt to leverage interpretable machine learning algorithms to reveal the potential of executive functions in diagnosing and predicting schizophrenia.

In Experiment 1, we utilized behavioral data related to executive functions and sociodemographic information from 195 schizophrenia patients and 169 healthy controls. We used a Stacking methodology to combine three base learners (Support Vector Machine, Adaboost, and Artificial Neural Network), and the Optuna algorithm was employed for parameter tuning. Subsequently, we used SHAP values for model interpretation. In Experiment 2, we constructed two groups of models, one incorporating executive function behavioral data and the other excluding it (both sets of models integrated readily obtainable clinical data, such as clinical scales, medical records, and routine blood tests), and compared their performance in predicting the remission of clinical symptoms in 86 patients after 4 to 6 weeks of hospital treatment. The results revealed that the Optuna-Stacking (OP-Stacking) model performed best in the diagnostic classification task (accuracy = 0.8783; precision = 0.8710; recall = 0.8896; F1 score = 0.8774; AUC = 0.9359). Fluid intelligence, unemployment, being an only child, and executive functions were confirmed as

the model's most important prediction factors. The model showed some variability when predicting whether an individual is a schizophrenia patient based on the characteristics of executive functions. In prognosis classification tasks, the model that incorporated executive function behavioral data demonstrated superior performance in predicting the treatment outcomes of schizophrenia.

These results indicate that executive functions can serve as reliable biomarkers for assisting in the diagnosis and prognostic assessment of schizophrenia. The classification model, built on the basis of executive function behavioral data and easily obtainable sociodemographic information, demonstrated great classification performance and could effectively identify schizophrenia patients. Although impairment in executive functions is a typical manifestation in the schizophrenia population, it may not affect all subtypes of patients to the same extent. Clinical diagnoses should pay attention to single children and older unemployed individuals with impairments in executive functions. Executive functions also played a crucial role in predicting the effectiveness of clinical interventions for schizophrenia. Future research should further explore the role of executive functions in the diagnosis and prognostic evaluation of patients with comorbidity or similar mental disorders, especially focusing on the potential of the unity and diversity of the three subcomponents of executive functions (shifting, inhibition, and updating).

***Keywords*：** Executive Functions, Unity and Diversity, Explainable Machine Learning, Schizophrenia, Computational Psychiatry

家庭功能如何影响青少年的积极或消极应对方式？

核心自我评价和优势知识的作用

温岚　黄伟伟　张姝玥（通讯作者）

广西师范大学教育学部，桂林，541100,627610275@qq.com

摘 要　**设计** 本研究主要探讨核心自我评价（CSE）和优势知识在家庭功能与积极应对方式（PCS）之间的连锁中介作用，以及优势知识在家庭功能与消极应对方式（NCS）之间的调节作用。**方法** 共有 2746 名（560 名男生，2186 名女生）中国青少年参与了本研究。这些参与者填写了家庭功能评估量表、CSE 量表、优势知识量表和简单应对量表。在 SPSS 25 中使用过程模型 1 和模型 6 研究调节和中介作用。**结果** 根据研究结果，在积极维度上，CSE 与优势知识形成了链式中介，家庭功能对积极应对方式形成正向预测作用，CSE 和优势知识是部分中介。在消极维度上，家庭功能对消极应对方式的直接效应不显著，是通过 CSE 和优势知识的链式中介产生间接影响的，所以 CSE 和优势知识是完全中介。而且优势知识在家庭功能和消极应对方式的关系中存在调节作用，随着优势知识水平的提高，家庭功能有效地减少了青少年对 NCS 的使用。另外，排除家庭功能变量，构建一个新的模型，发现优势知识在 CSE 和消极应对方式的中介作用中呈现了“遮掩效应”。**结论** 家庭功能和 CSE 以及优势知识是青少年应对方式的保护因素。家庭是青少年重要的支持来源。家庭成员，尤其是父母，必须成为孩子合适的力量教练。基于内在愿望，良好的依恋关系可以促进个人的 CSE 和优势知识。但注意“物极必反”的现象，优势知识并非越高越好，在较高的核心自我评价上，过高的优势知识反而增加了消极应对方式的应用。因此，通过家庭成员优化家庭的生态系统和功能，青少年可以优化他们的应对方式。

关键词　家庭功能，积极应对方式，消极应对方式，核心自我评价，优势知识，青少年

How does family functioning contribute to adolescents' positive or negative coping styles?

The roles of core self-evaluations and strengths knowledge

Lan Wen, Weiwei Huang, Shuyue Zhang
Faculty of Education, Guangxi Normal University, Guilin, China

***Abstract*：** **Design** The current study focuses on the chain mediating roles of core self-evaluations (CSE) and strengths knowledge in the relationship between family functioning and positive coping styles (PCS) and the moderating role of strengths knowledge in the relationship between family functioning and negative coping styles (NCS). **Methods** A total of 2746 (560 boys, 2186 girls) Chinese adolescents participated in this research. These participants completed the Family Functioning Assessment Scale, CSE scale, Strengths knowledge Scale and Simple Coping Scale. Models 1 and 6 of Process were used in SPSS 25 to investigate moderation and mediation roles. **Results** According to the results of the study, on the positive dimension, family functioning positively predicted PCS, with CSE and strengths knowledge formed a chain mediation. CSE and strengths knowledge were partial mediators. On the negative dimension, the direct effect of family functioning on NCS was not significant, but it was indirectly influenced through chain mediation of CSE and strengths knowledge. So CSE and strengths knowledge were full mediators. Moreover, there was a moderating role of strengths knowledge between family functioning and NCS. Simply put: family functioning effectively reduced application of NCS as increase of strengths knowledge. In addition, a new model was constructed, excluding family functioning, and it was found that strengths knowledge had a "masking effect" in mediating between CSE and NCS. **Conclusions** Family functioning and CSE as well as strengths knowledge are protective factors for adolescents' coping styles. Family is an important source of support for adolescents. Family members, especially parents, must be suitable strength coaches for children. Based on intrinsic aspirations, a good attachment relationship can promote individuals' CSE and strengths knowledge. But we should pay attention to "Things will develop in the opposite direction when they become extreme." Strengths knowledge is not the higher the better, too much strengths knowledge can lead to too much NCS. By family members optimizing the ecological system and functioning of family, adolescents can optimize their coping styles.

***Keywords*：** Family functioning, Positive coping styles, Negative coping styles, Core self-evaluations, Strengths knowledge, Adolescents

AR 卡通面孔加工在调节孤独症儿童目光接触障碍中的作用

赵恬[1]　刘睿东[1]　李雨玲[1]　丁妮[2]（通讯作者）
1 北京师范大学，北京，100875
2 北京师范大学，北京，100875，dingni@bnu.edu.cn

摘 要　增强现实（Augmented Reality，AR）是一种将虚拟信息与真实世界相结合的技术，它可以在真实环境中实时叠加虚拟的三维图像、视频、音频等多媒体信息，从而增强用户对真实环境的感知和理解。近年来，随着 AR 技术的推广，更多的创新性研究聚焦于如何运用 AR 技术对孤独症儿童典型障碍进行有效干预和症状改善。由于 AR 技术能够有效提升现实情境的清晰直观性和感知冲击力，使得情景式的学习

方式更具亲和性、动态性和自然性，在一定程度上能弥补孤独症儿童对现实世界信息和刺激接收迟缓的弱势，以及社交沟通上动机明显不足的劣势。

据最新的流行病学调查数据结果显示，全世界孤独症谱系障碍的患病率已达到 0.6%，并呈现逐年递增的趋势，我国 0-18 岁孤独症儿童数量已高达 300 万。目光接触障碍作为孤独症儿童最显著症状之一，是孤独症儿童社会交往能力中一个不可忽视的因素。已有研究表明，孤独症儿童对卡通面孔的注意觉察和维持更优，且可能采用整体加工的方式加工卡通面孔，这使其卡通面孔的情绪识别正确率更高，反应时更短。孤独症人群在真人和卡通的脸部处理差异可能反映了与某些类型的眼睛接触的动机的差异。在区分真人表情时，未患有孤独症的儿童的表现要比孤独症儿童更好，而他们在区分卡通表情时，并无显著的差异。干预研究也表明，在对孤独症患者的情绪识别进行干预时，使用卡通面孔比使用真人面孔效果更好。但是现有应用研究中很少有结合这一加工特性对孤独症儿童目光接触障碍改善进行实践和应用。

基于以上分析，本研究基于孤独症儿童在卡通形象的加工优势，设计出素描写实风、三维动画风、二次元卡通风等三种典型卡通风格的面孔特效，采用交互式 AR 技术与现实场景真人面孔进行结合，在不同训练阶段对虚拟卡通面孔特效进行调整，使得孤独症儿童从卡通面孔交互到真实面孔交互的逐步过渡和适应，达到改善孤独症儿童目光接触障碍的目的。实证研究进一步对比分析了三种 AR 卡通面孔在调节孤独症儿童目光接触障碍中的效果。

关键词　增强现实，孤独症，卡通面孔，目光接触障碍

The Role of AR Cartoon Face Processing in Regulating Eye Contact Disorder in Autistic Children

Tian Zhao[1]　Ruidong Liu[1]　Yuling Li[1]　Ni Ding[2]（Corresponding author）
Beijing Normal University, 100875

***Abstract*:** Augmented Reality (AR) is a technology that combines virtual information with the real world. It can superimpose virtual three-dimensional images, video, audio and other multimedia information in the real environment in real time, so as to enhance users' perception and understanding of the real environment. In recent years, with the promotion of AR technology, more innovative research has focused on how to use AR technology to effectively intervene and improve symptoms of typical disorders in autistic children. Since AR technology can effectively enhance the clear intuitiveness and perceptual impact of the real situation, it makes the situational learning style more friendly, dynamic and natural. To a certain extent, it can make up for the weakness of autistic children who are slow to receive information and stimulation in the real world, as well as the obvious lack of motivation in social communication.

According to the latest epidemiological survey data, the prevalence of autism spectrum disorders in the world has reached 0.6%, and the trend is increasing year by year, and the number of children aged 0-18 with autism in China has reached 3 million. Eye contact disorder, as one of the most significant symptoms of autistic children, is a factor that cannot be ignored in their social communication ability. Previous studies have shown that children with autism have better attention awareness and maintenance of cartoon faces, and may process cartoon faces in a holistic way, which makes their emotional recognition accuracy of cartoon faces higher and reaction time shorter. The differences in face processing between real and cartoon people with autism may reflect differences in motivation for certain types of eye contact. The non-autistic children were better than the autistic children at distinguishing real expressions, while there was no significant difference in their ability to distinguish cartoon expressions. Intervention studies have also shown that the use of cartoon faces is better than the use of real faces when it comes to emotion recognition in autistic people. However, few of the existing applied studies have

combined this processing property to improve the eye contact disorder in children with autism.

Based on the above analysis, based on the processing advantages of autistic children in cartoon images, this study designed three typical cartoon style face effects, namely sketch realism style, three-dimensional animation style and two-dimensional cartoon style. Interactive AR technology was used to combine with real faces in real scenes, and the virtual cartoon face effects were adjusted in different training stages. It makes the children with autism gradually transition and adapt from cartoon face interaction to real face interaction, and achieves the purpose of improving the eye contact disorder of autistic children. The empirical study further compared and analyzed the effect of three kinds of AR cartoon faces in adjusting the eye contact disorder of autistic children.

Keywords：Augmented reality, autism, cartoon faces, eye contact disorder

5.37 时间心理学专业委员会

费希纳定律的基础：工作记忆表征更新解码对数量值的意识知觉

陈有国[1]（通讯作者）

1 西南大学心理学部，重庆，400715

摘 要　韦伯-费希纳定律是心理物理学中最具影响力的定律之一。韦伯定律的神经基础可以用调谐曲线得到很好的解释，而费希纳定律的神经基础还不清楚。为了探明费希纳定律的神经基础，我们将 Kappa 效应任务与脑电技术进行结合。以前的研究已经提出三阶段贝叶斯模型对 Kappa 效应任务进行了很好地描述。在该任务中，相继呈现两个实心圆，操纵小圆之间的时间间隔与空间距离，要求参与者复制两个圆圈之间的时间间隔，而忽略它们之间的空间距离。采用线性与对数的贝叶斯模型对数据进行拟合，发现对数模型对复制时间的拟合度优于线性模型。脑电数据分析发现，时间间隔的结束诱发了的明显的 P2 和 P3b 成分，其波幅随时空信息的对数转化值的增加而线性增加。结果提示，工作记忆的表征更新在意识知觉水平上解码了对数量值信息。

关键词　费希纳定律，工作记忆，表征更新，对数量值，意识知觉

The foundation of Fechner’s law: representation updating in working memory decodes the conscious perception of logarithmic magnitudes

Youguo Chen

Faculty of Psychology, Southwest University, Chongqing 400715, China

Abstract：Weber-Fechner law is one of the most influential laws in psychophysics. Neural basis of Weber’s law was well explained by tuning curves, however that of the Fechner’s law is still unclear. To identify the neural basis of Fechner’s law, we used a Kappa effect task that was well characterized by three-stage Bayesian models. In the task, two solid circles were presented successively, and the time interval and spatial distance between the

circles were manipulated. Participants were required to reproduce time intervals between two circles and ignore their space distances with synchronous electroencephalogram recordings. Linear and logarithmic Bayesian models were used to fit the data, the Bayesian model on the logarithmic scale was superior to the linear model in predicting production times. EEG data analysis showed that P2 and P3b components were elicited by offset of the time intervals, and their amplitudes increased linearly with logarithmic spatiotemporal information. The results suggest that representation updating in working memory decodes the conscious perception of logarithmic magnitudes.

Keywords： Fechner's law, working memory, representation updating, logarithmic magnitude, conscious perception

时间领导的研究综述

刘翠银

河南大学教育学部，河南 开封，475004

时间领导（Temporal Leadership）作为领导力和时间视角结合的新兴概念，自提出以来就备受关注。首先，研究者对时间领导的概念界定涉及组织、团队和个体三体层面，其中具有代表性的是团队层面：为帮助组织、协调和管理团队任务完成速度的一系列领导行为。其次，关于时间领导结构与测量主要有三种观点。第一是单一任务维度，并有相应 7 个项目团队时间领导量表，该量表目前应用最为广泛；第二是在任务维度的基础上发展关系维度，开发了 10 项目的时间领导量表；第三是时间领导包含自我参照时间领导和变换参照时间领导，其中变换参照时间维度又分为 5 个维度，即时间自主性、时间规划、时间提醒、时间压力以及时间复杂性意识，并开发了个体层面的时间领导量表。再次，目前关于时间领导的影响结果和作用机制研究发现，时间领导能力强的领导者可以帮助减少团队时间冲突、提高团队工作效率和团队绩效以及增加员工的助人行为和幸福感，时间领导对创造力、工作繁荣、员工助人行为、主观幸福感、团队学习的积极影响，时间领导与团队创造力存在倒 U 型关系，以及时间领导还具有显著的调节效应。最后，时间领导研究有待进一步加强，即概念定义有待明确；结构和测量工具有待开发和验证；需要完善理论框架以开展实证研究，尤其是时间领导在不同情境下的调节作用以及不同的情境对时间领导机制的影响；时间领导的跨文化差异有待探索。

关键词：领导力，时间领导，时间视角

A Review of Temporal Leadership Research

Cuiyin Liu

Faculty of Education, Henan University, Henan Province, Kaifeng 475004, China

Temporal leadership, as an emerging concept that combines leadership and a temporal perspective, has received extensive attention since its inception. Firstly, researchers have defined temporal leadership at the organizational, team, and individual levels, with a representative example being at the team level, which involves a series of leadership behaviors to help organizations coordinate and manage team task completion speed. Secondly, there are three main perspectives on the structure and measurement of temporal leadership. The first is a single-task dimension, and a widely used scale is the seven-item Team Temporal Leadership Scale. The second

perspective adds a relationship dimension based on the task dimension, and a 10-item scale has been developed. The third perspective includes ego referenced temporal leadership and alter referenced temporal leadership, with the latter consisting of five dimensions: time autonomy, time planning, time reminders, time pressure, and time complexity awareness. An individual level scale of temporal leadership has been developed using this perspective. Thirdly, research findings on the effects and mechanisms of temporal leadership show that leaders with strong temporal leadership abilities can help reduce team time conflicts, improve team work efficiency and performance, and increase employees' prosocial behavior and happiness. Temporal leadership has a positive impact on creativity, work prosperity, employee prosocial behavior, subjective well-being, team learning, and has a inverted-U relationship with team creativity. Temporal leadership also has a significant moderating effect. Finally, future research on temporal leadership needs to clarify the concept definition, develop and validate the structure and measurement tools, improve the theoretical framework to conduct empirical research, especially the moderating effect of temporal leadership in different contexts and the impact of different contexts on temporal leadership mechanisms, and the cross-cultural differences of temporal leadership need to be explored.

Keywords: leadership, temporal leadership, temporal perspective

事件边界和一体化水平影响时间顺序记忆的实证研究

刘凯歌[1]　叶群[1]（通讯作者）
1 浙江师范大学心理学院，金华，321004，qun.ye@zjnu.edu.cn

摘　要:时间顺序记忆是指对已经经历的事件时间发生顺序的记忆。本研究旨在探究事件边界和一体化水平对时间顺序记忆的影响，并研究一体化水平是否能够调节事件边界对时序记忆的影响。在学习阶段，被试需要依次编码多组图片，每组图片包括一张背景图片和一张物体图片。被试需要将物体想象到背景中，通过操纵物体和背景之间的语义合理程度使得物体与背景之间形成高、中、低三种一体化水平。此外，我们通过改变背景图片来形成事件边界。在测试阶段，被试需要依据学习顺序对两张物体图片进行时序判断。一组被试在进行时序判断时同时呈现物体与背景图片（呈现背景组），另一组仅仅呈现物体图片（不呈现背景组）。对于不呈现背景组，被试在时序判断后还需要进行来源记忆测试，即判断此物体在学习阶段与哪一背景图片进行关联。

实验结果发现，1）一体化水平对来源记忆具有显著影响。随着一体化水平的提高，来源记忆正确率也显著提高，表明一体化水平操纵的有效性；2）事件边界与是否呈现背景存在显著的交互作用。在不呈现背景的条件下，边界内的时序记忆正确率显著高于跨边界的时序记忆，但在呈现背景的条件下两者之间没有差异；3）未发现一体化水平对事件边界影响时序记忆的调节作用，只有一体化水平的主效应。具体而言，相比于一体化水平处于高和低条件下，中等水平条件下被试时序记忆正确率显著更高。综上所述，我们的研究结果揭示了事件边界、一体化水平和背景呈现对时间顺序记忆的影响。这些发现对于理解时间顺序记忆的认知机制具有重要意义，并为进一步研究时序记忆的调节机制提供了启示。
关键词：事件边界，一体化水平，时间顺序记忆

Effects of Event Boundary and Unitization on Temporal Order Memory: An Empirical Study

Kaige Liu[1] Qun Ye[1]

(School of Psychology, Zhejiang Normal University, Jinhua, 321004, Email: qun.ye@zjnu.edu.cn)
Abstract：Temporal order memory refers to the memory of the sequential occurrence of events that have already been experienced. This study aims to explore the impact of event boundaries and unitization levels on temporal order memory, as well as investigate whether unitization levels can modulate the effects of event boundaries on temporal order memory. During the learning phase, participants are required to sequentially encode multiple sets of pictures, each set consisting of a context image and an object image. Participants were required to mentally integrate the object within the context and manipulate the semantic coherence between the object and the context to create high, medium, and low levels of unitization. Additionally, we created event boundaries by altering the context images. In the testing phase, participants are asked to make temporal order judgments on two object images based on the learning sequence. One group of participants was presented with both the object and context images during temporal order judgments (context-present group), while the other group was only shown the object images (context-absent group). For the context-absent group, participants also underwent a source memory test after the temporal order judgments, where they had to determine which context image was associated with the object during the learning phase.

The experimental results revealed the following: 1) The unitization level significantly influences source memory. As the levels of unitization increase, the accuracy of source memory also significantly improves, indicating the effectiveness of manipulating the level of unitization 2) There is a significant interaction between event boundaries and context. The interaction was driven by the fact that the context-absent group showed better temporal order memory for within-event pairs compared to cross-boundary pairs, whereas the context-present group did not show any significant difference in performance between within-event and cross-boundary pairs. 3) No moderating effect of unitization levels on the influence of event boundaries on temporal memory was found, only a main effect of unitization levels. Specifically, compared to the high and low unitization level conditions, participants in the medium unitization level condition showed significantly higher temporal order memory accuracy. In summary, our research findings reveal the influence of event boundaries, unitization levels, and context on temporal order memory. These findings carry important implications for understanding the cognitive mechanisms of temporal order memory and provide valuable insights for further exploring the modulating mechanisms of temporal order memory.
Keywords：event boundary, unitization level, temporal order memory

时距加法运算的顺序效应

王小静[1] 李宝林[2]（通讯作者）

1 陕西师范大学心理学院，西安，710062

2 陕西师范大学心理学院，西安，710062，lblpsy@snnu.edu.cn

摘 要 时距知觉是指对两个连续事件之间的间隔，或一个事件的持续时间的知觉，是时间知觉的一部分。现有研究表明，感知的持续时间会被许多因素扭曲，如注意力、情绪、大小和感知历史。通常，我们倾向于在心理求和中高估时距长度，且心理运算可能受到操作数顺序的影响，从而导致顺序效应。有关时距加法运算的顺序效应是如何产生的知之甚少。为了回答这个问题，本研究考察了三元素时距加法运算中的顺序效应及其产生的原因。

本研究设计了两个实验。实验 1 检验了声音刺激呈现顺序和声音刺激持续总时间对加法运算效应量的影响；实验 2 进一步检验了刺激呈现的规律性和最后位置刺激时长对加法运算效应量的影响。在正式任务中，参与者被要求通过按下和释放按钮来再现第一、第二和第三个听觉刺激持续时间的总和。

结果表明，三元素时距加法存在显著的运算动量效应。即三个持续时间的总和在所有情况下都被高估

了。并且，在三元素时距加法运算中加法元素的顺序对加法运算有显著影响。相比运算序列中元素的位置随机呈现，递增条件下个体时距加法运算的总时长较长，而递减条件下则较短。此外，特定位置量值而非总体趋势决定了顺序效应，即时距加法运算的顺序效应取决于运算序列中最后一个位置的量值大小，最后一个位置量值越大，个体加法运算的高估效应量越大。

综上，研究揭示了时距加法运算中的顺序效应及其产生的内在机制。证实了三元素时距加法运算的高估效应，并系统地验证了时距加法运算中的顺序效应，且发现加法运算的顺序效应并不依赖于运算元素变化的总体趋势，而是依赖于最后一个运算元素的量值大小。这表明这种效应的产生更多源于记忆的近因效应。

关键词　时距知觉，加法运算，顺序效应，运算动量效应，三元素

The Order Effect of Mental Summation of Temporal Duration

Xiaojing Wang[1]，Baolin Li[2] (corresponding author)
1 School of Psychology, Shaanxi Normal University,710062
2 School of Psychology, Shaanxi Normal University, 710062,lblpsy@snnu.edu.cn

Abstract　Time perception refers to the perception of the interval between two consecutive events, or the duration of an event, and is a part of time perception. Existing research shows that the duration of perception will be distorted by many factors, such as attention, emotion, size and perception history. Usually, we tend to overestimate the length of time interval in psychological summation, and psychological operation may be affected by the order of operands, thus leading to the order effect. Little is known about how the sequential effect of time-interval addition is produced. In order to answer this question, this study investigates the sequence effect in the three-element time-interval addition operation and its causes.

Two experiments were designed in this study. In experiment 1, the effects of the presentation order of sound stimuli and the total duration of sound stimuli on the effect of addition operation were examined. Experiment 2 further examined the influence of the regularity of stimulus presentation and the last position stimulus duration on the effect of addition operation. In a formal task, participants are required to reproduce the sum of the first, second and third auditory stimulus durations by pressing and releasing buttons.

The results show that the three-element time-interval addition has significant operational momentum effect. That is, the sum of the three durations is overestimated in all cases. Moreover, in the three-element time-interval addition operation, the order of addition elements has a significant influence on the addition operation. Compared with the random presentation of the positions of elements in the operation sequence, the total duration of the individual time interval addition operation is longer under the increasing condition, but shorter under the decreasing condition. In addition, the order effect is determined by the magnitude of specific position rather than the overall trend. The order effect of instant distance addition operation depends on the magnitude of the last position in the operation sequence. The greater the magnitude of the last position, the greater the overestimation

effect of individual addition operation.

To sum up, the study reveals the order effect in time-interval addition and its internal mechanism. The overestimation effect of three-element time-interval addition operation is confirmed, and the order effect in time-interval addition operation is systematically verified. It is found that the order effect of addition operation does not depend on the overall trend of the change of operational elements, but on the magnitude of the last operational element. This shows that this effect is more due to the recency effect of memory.

Key words duration perception, mental summation, order effect, operational momentum effect, recency effect

5.38 婚姻家庭心理与咨询专业委员会

亲子亲密度与儿童焦虑的动态关系：

基于交叉滞后模型和随机截距交叉滞后模型的分析

菅景康[1] 陈晓旭[1] 封亚飞[1] 李宏敏[1] 徐夫真[1]（通讯作者）

1 山东师范大学心理学院，济南，250014，xufuzhen@sdnu.edu.cn

摘要 焦虑是儿童群体中最常见和最持久的心理健康问题之一，其发生发展多与家庭情境有关。其中，亲子关系是影响儿童发展的重要家庭因素之一，亲子亲密度反映了亲子关系的亲密程度，是衡量亲子关系质量的重要指标。根据动态相互作用模型的观点，个体发展是自身与其所处情境之间持续的、动态的、相互作用的结果。已有研究发现亲子亲密度和儿童焦虑之间存在负向关系，但针对此问题的追踪研究较少且往往基于交叉滞后模型（CLPM）等传统分析方法，该方法不能区分个体间和个体内关系。需要指出的是，虽然二者均属“纵向关系”，但前者无动态性、后者有动态性，对个体内关系的分析更有利于变量之间因果关系的构建。对此，随机截距交叉滞后模型（RI-CLPM）在 CLPM 的基础上进一步发展，通过引入随机截距，能够分别考察个体间和个体内关系，更加真实地反映变量间的因果关联。鉴于此，本研究采用亲子亲密度量表和 Spence 儿童焦虑量表对山东省 7 所小学 548 名三、四年级的学生（$M = 9.59 \pm 0.61$ 岁, 43.61% 为女生）进行了为期两年（共 3 个时间点）的追踪测查，除了通过 CLPM 分析与先前的研究结果进行比较外，还通过 RI-CLPM 分析更加全面地考察了亲子亲密度与儿童焦虑在个体间水平和个体内水平的关联。结果：CLPM 的结果发现，T1-T3 时间段内，亲子亲密度与儿童焦虑存在相互的负向预测作用。RI-CLPM 的结果发现，在个体间水平上，亲子亲密度与儿童焦虑呈显著负相关；在个体内水平上，亲子亲密度的变化对儿童焦虑变化的纵向预测不显著，但儿童焦虑的增加能够显著预测后一时间点亲子亲密度的下降。多群组分析未发现亲子亲密度与儿童焦虑的动态关系中存在性别差异。结论：综合 CLPM 和 RI-CLPM 的结果发现，亲子亲密度对儿童焦虑的预测作用更多源于稳定的个体间差异，而儿童焦虑对亲子亲密度的预测作用则源于个体内的动态变化。本研究结果强调了区分个体间差异和个体内动态变化的重要性，也揭示了要高度关注亲子亲密度较低的家庭以及通过降低儿童焦虑水平来改善亲子亲密度的必要性和重要性。

关键词 亲子亲密度，儿童焦虑，交叉滞后模型，随机截距交叉滞后模型

The Dynamic Associations between Parent-child Closeness and

Children's Anxiety: Based on the Cross-Lagged Panel Model and the Random Intercept Cross-Lagged Panel Model Analysis

Jingkang Jian[1], Xiaoxu Chen[1], Yafei Feng[1], Hongmin Li[1], Fuzhen Xu[1] (Corresponding Author)
1 School of Psychology, Shandong Normal University, Jinan, 250014, xufuzhen@sdnu.edu.cn

***Abstract*:** Anxiety is one of the most common and persistent mental health problems that affect children, and its development is mostly related to family context. Among them, parent-child relationship, as an important part of children's social relationship, is one of the important family factors affecting children's development, and parent-child closeness reflects the closeness of parent-child relationship, which is an important indicator of the quality of parent-child relationship. According to the dynamic interaction model, individual development is the result of continuous, dynamic and interactive interaction between oneself and the situation in which they live. Despite existing evidence on negative associations between parent-child relationship and children's anxiety, research focusing on the potential bidirectional associations between the two is limited and also is largely based on traditional analyses such as cross-lagged panel model (CLPM), which does not distinguish between- and within-person associations. It should be noted that although both between- and within-person associations are "longitudinal", the former is not dynamic and the latter is dynamic, and the analysis of within-person associations is more conducive to the construction of causal associations between variables. In this regard, the random intercept cross-lagged panel model (RI-CLPM) is improved on the basis of the CLPM, and by including random intercept factors that enable the model to examine between-and within-person effects separately, and results from RI-CLPM could better reflect the nature of the temporal dynamics of the parent-child relationship and children's anxiety. In view of this, the present study used the Parent-Child Closeness Scale and the Spence Children Anxiety Scale to track 548 third- and fourth-grade students (M_{age} = 9.59 ± 0.61, 43.61% girls) in seven primary schools in Shandong province over a period of two years (total of three time points). In addition to comparing the CLPM analysis with the previous research results, the RI-CLPM analysis was also used to more comprehensively examined the associations between parent-child closeness and children's anxiety at the between-person level and the within-person level. Results were as follows: The results of the CLPM revealed that parent-child closeness and children's anxiety were negatively predictive of each other during the T1-T3 time period. The RI-CLPM analyses indicated at the between-person level, parent-child closeness was negatively associated with children's anxiety. At within-person level, changes in parent-child closeness had no effect on changes in children's anxiety, but increases in children's anxiety predicted subsequent decreases in parent-child closeness. To sum up, combining the results of CLPM and RI-CLPM, the predictive effect of parent-child closeness and children's anxiety stems more from stable between-person differences, whereas the predictive effect of children's anxiety on parent-child closeness stems from within-person dynamics. These results shed light on the importance of distinguishing between- and within-person associations and the necessity and importance of focusing on families with lower parent-child closeness and improving parent-child closeness by reducing children's anxiety.

***Keywords*:** parent-child closeness, children's anxiety, cross-lagged panel model, random intercept cross-lagged panel model

基于脑科学的线上线下融合模式家庭教育指导课程开发

王天爱[1]　周甜[1]　骆宏[2]

1 杭州师范大学，杭州，311000
2 杭州师范大学临床医学院，杭州，311000，luohong@hznu.edu.cn

摘 要 家庭作为儿童和青少年发展过程中最重要的环境之一，其教育对于儿童的全面发展起着至关重要的作用。开发和实施更加符合家长需求的家庭教育指导课程也成为当下家庭教育指导服务工作的重要内容。近年来，随着脑科学的不断发展，大量神经科学研究证据为家庭教育实践提供了重要启示，从脑科学相关内容出发的家庭教育课程能更好地满足家长对于家庭教育指导的需求。随着以互联网、人工智能和大数据等为代表的信息技术的日趋成熟，其广泛的教育应用为线上线下融合(Online Merge Offline，OMO) 教学的形成与发展提供了坚实的技术基础，该模式近年来在不同领域中得到广泛应用。因此，本研究旨在基于脑科学的知识和理论，在建构主义教育理论框架内，采用线上线下融合教学模式开发和实施家庭教育课程，采用问卷和访谈方法对其进行初步评价。杭州某试点依托高校和医疗系统心理专家团队的技术督导，借助相关部门专业资源，为家长提供该家庭教育系列课程，通过问卷和访谈调查，取得如下结果。第一，加强了家长对于家庭教育的意识和观念。第二，结果显示课程前后参与家长的心理资本存在显著差异。第三，家长形成了共同成长的互助团体，并在线上持续获得家庭教育指导内容。最后，密切了学校、医疗、家庭和社会各方面的合作，给儿童提供了系统性心理健康支持。作为初步实践，本文所开发的家庭教育课程，迎合了当前家庭教育指导课程的巨大社会需求，规范了当前家庭教育课程开发的路径，并结合线上线下融合的数字化教学技术，为促进数字化家庭教育和保护青少年心理健康提供了良好试点和探索。

关键词 家庭教育，脑科学，线上线下融合模式，课程开发

Online Merge Offline Family education guidance course development based on brain science

Wang Tianai[1] Zhou Tian[1] Luo Hong[2]
1 Hangzhou Normal University, Hangzhou, 311000
2 The Clinical Medical College of Hangzhou Normal University, Hangzhou, 311000，
luohong@hznu.edu.cn

Abstract： As one of the most important environments in the development of children and adolescents, family education plays a vital role in the comprehensive development of children. Development and implementation of family education guidance courses that meet the needs of parents have also become an important part of the current family education guidance service. In recent years, with the continuous development of brain science, a large number of neurological research evidence has provided an important inspiration for family education practice. Family education courses starting from brain science related content can better meet parents' needs. With the increasingly mature information technology represented by the Internet, artificial intelligence, and big data, its extensive educational application provides a solid technical foundation for the formation and development of the teaching of Online Merge Offline integration. The model has been widely used in different fields in recent years. Therefore, this study aims to use the knowledge and theory of brain science, in the framework of constructivism theory of education, use online and offline integration teaching models to develop and implement family education courses, and use questionnaires and interview methods to get preliminary evaluations. A pilot in Hangzhou relies on the technical supervision of a team of psychological experts in colleges and medical systems. With the help of professional resources of relevant departments, it provides parents with a series of courses for the family education. The following results are obtained through questionnaires and interviews. First, we strengthened parents' consciousness and concepts of family education. Second, the results

showed that there were significant differences in the psychological capital of parents before and after the course. Third, parents have formed a common -growth mutual aid group, and continue to obtain family education guidance content online. Finally, the cooperation of schools, medical care, family and society closely supported children's systematic psychological health. As a preliminary practice, the family education course developed in this article caters to the huge social needs of the current family education guidance courses, standardizes the current path of the development of family education courses, and combines digital teaching technologies with online and offline integration to promote digital family education. It also protects children's psychological health and provides good pilots and explorations.

Keywords：family education, brain science, Online Merge Offline, curriculum development

好评与差评：择偶复制中榜样影响的性别差异

黄旖雯[1]　王宇中[2]（通讯作者）

1 广东培正学院应用心理学系，广州，510830

2 广东培正学院应用心理研究中心，广州，510830，931974838@qq.com

摘 要　择偶复制(mate choice copying)是指在择偶过程中个体受到其他同性别个体（榜样）对目标对象评价的影响，从而做出相似的择偶决策的一种择偶策略。本研究以 60 名大学生为被试，通过系列实验探讨吸引力匹配、榜样评价类型、榜样人数、择偶策略对择偶复制的影响，并分析其中的性别差异。实验一：采用择偶复制的经典范式，探讨吸引力匹配与对短期交往意愿和长期交往意愿的影响。实验二：在多人评价情境中，将评价分为积极评价和消极评价两组，探讨评价类型对择偶复制的影响。实验三：在单人评价情境中，探讨评价类型对择偶复制的影响。结果发现：（1）男性对异性吸引力评价更低，男性的吸引力影响女性短期择偶意愿。（2）对男性的积极评价能够显著提高女性的短期交往意愿和长期交往意愿，对女性的消极评价能显著降低男性的短期交往意愿和长期交往意愿。（3）对男性的积极评价人数越多，女性的短期交往意愿和长期交往意愿越高；对女性的积极评价人数越多，男性的长期交往意愿越高。据此得出结论，择偶过程中，男性对女性的外貌要求更高，择偶时更关注对女性的负面评价；相反女性择偶时更关注对男性的正面评价，且评价的人越多越会强化积极的择偶复制。这可能反映出，男性在选择伴侣，尤其是选择长期伴侣时，会通过强调女性的缺点来提高自己的标准，进而提高择偶的准确性和对未来长期关系的满意度。与此相反，女性在选择伴侣时更强调男性的优势，从而导致在长期关系中的负面体验。未来的研究可以进一步探讨择偶复制与婚姻满意度和主观幸福感之间的关系，为年轻人树立正确的婚姻观和择偶观提供理论和现实依据。

关键词　择偶复制，榜样评价，性别差异，吸引力匹配，择偶策略

基金项目:国家社科基金项目“基于两种实验范式的择偶匹配影响因素动态互依模型研究”（编号：21BSH043）阶段性成果。

Positive vs. Negative Evaluations: Gender Differences Under the Influence of Role Models in Mate Choice Copying

Yiwen Huang[1]，Yuzhong Wang[2]

[1]Department of Applied Psychology，Guangdong Peizheng College，Guangzhou

[2]Applied Psychology Research Center，Guangdong Peizheng College，Guangzhou

Abstract: Mate choice copying (MCC) is a mate choice strategy in which individuals are influenced by the evaluations of other individuals of the same sex (role models) on the target object during the mate choice process, so as to make similar mate choice decisions. In this study, 60 college students were used as subjects, and a series of experiments were conducted to explore the effects of attractiveness matching, the type of role model evaluation, the number of role models, and the choice copying strategy on choice copying, and to analyze the gender differences. Experiment 1: The classical paradigm of mate choice replication was used to explore the effects of attractiveness matching and on short-term willingness to interact and long-term willingness to interact. Experiment 2: In a multi-person evaluation situation, evaluations were categorized into two groups, positive and negative, to explore the effect of evaluation type on mate choice replication. Experiment 3: The effect of evaluation type on mate choice replication was explored in a single-person evaluation situation. The results found that (1) males rated heterosexual attractiveness lower, and male attractiveness influenced females' short-term mate choice intentions. (2) Positive evaluations of men significantly increased women's short-term and long-term relationship intentions, and negative evaluations of women significantly decreased men's short-term and long-term relationship intentions. (3) The greater the number of positive evaluations of men, the greater the willingness of women to engage in short-term and long-term relationships; the greater the number of positive evaluations of women, the greater the willingness of men to engage in long-term relationships. Accordingly, it is concluded that in the process of choosing a mate, men are more demanding of women's appearance and pay more attention to negative evaluations of women when choosing a mate; on the contrary, women pay more attention to positive evaluations of men when choosing a mate, and the more people evaluating them reinforces the positive mate-choice replication. This may reflect that men, when choosing a partner, especially a long-term partner, raise their standards by emphasizing women's shortcomings, which in turn increases the accuracy of their mate choice and their satisfaction with their future long-term relationship. In contrast, women emphasize men's strengths more when choosing a partner, leading to negative experiences in long-term relationships. Future research can further explore the relationship between mate choice replication and marital satisfaction and subjective well-being, providing a theoretical and practical basis for young people to establish a correct view of marriage and mate choice.

Keywords: mate choice copying, role model evaluation, gender differences, attractiveness matching, mate choice strategy

5.39 正念心理学专业委员会

青少年正念与孤独感的关系：一项交叉滞后研究

张桥（通讯作者） 梁三才

陕西师范大学心理学院，西安，710062，bridgy0907@163.com

摘 要 孤独感是个体的社会关系在数量或质量无法满足个人需求时产生的消极情感体验。青少年时期是发展同伴关系的关键期，此阶段的青少年缺乏应对孤独感的经验。因此，对青少年孤独感进行干预显得尤为重要。研究发现，基于正念的干预可以有效降低孤独感水平，因而基于正念的干预在教育和临床领域得到了广泛应用。正念是个体有意识且不加评判地对当前经验保持觉察和接纳的状态。然而，鲜有研究探讨正念与孤独感的相互预测关系。一方面，根据自我决定理论，当自主、胜任和关系三种基本心理需求未得到满足时，个体会产生孤独感等痛苦的心理体验。研究发现，正念有利于提升个体的自我决定水平，

从而降低个体的孤独感。另一方面，孤独感的进化理论认为，孤独感会激活个体的“自我保护”模式，具体表现为冗思、过度警觉、对拒绝信息高度敏感等，这些都不利于正念功能的发挥。在前人研究的基础上，本研究旨在探讨青少年正念与孤独感之间的相互预测关系。本研究采用了儿童青少年正念量表和 ULS-6 孤独感量表对 633 名初中生（299 名男生）进行三次的纵向追踪调查。研究结果发现：（1）青少年正念与孤独感均具有相对稳定性，也存在一定的差异：正念的觉察与不评判维度呈现先下降后维持稳定的趋势；孤独感水平呈现先下降后上升的趋势。（2）正念的觉察与不评判和接纳维度与孤独感呈显著负相关。（3）正念与青少年孤独感呈现交叉滞后关系，即前测的正念能显著预测后测的孤独感，且前测的孤独感能显著预测后测的正念。本研究表明青少年正念与孤独感之间存在一定程度的发展变化，且存在相互预测关系。这启示我们，应该采用基于正念干预方式来减少孤独感的危害，阻断“正念降低—孤独感提升—正念降低”这一恶性循环，进而提升个体心理健康水平。

关键词　正念，孤独感，交叉滞后分析，青少年

Mindfulness and Adolescents' Loneliness: A Three-wave Cross-Lagged Analysis

Zhang Qiao*　Liang Sancai
College of Psychology, Shaanxi Normal University, Xi'an, 710062, China

***Abstract*：** Loneliness is a negative emotional experience that arises when an individual' s social relationships are insufficient in quantity or quality to meet their needs. Adolescence is a critical period for developing peer relationships, during which adolescents lack experience in coping with feelings of loneliness. Therefore, intervening in adolescent loneliness is particularly important. Research has found that mindfulness-based interventions can effectively alleviate loneliness, making them widely applied in the fields of education and clinical practice. Mindfulness is a state in which individuals consciously and non-judgmentally maintain awareness and acceptance of their present experiences. However, there is limited research exploring the mutual relationship between mindfulness and loneliness. On the one hand, according to Self-determination Theory, individuals experience psychological distress such as loneliness when their basic psychological needs for autonomy, competence, and relatedness are not met. Research has found that mindfulness can enhance individuals' levels of self-determination and thereby alleviate loneliness. On the other hand, the Evolutionary Theory of loneliness holds that loneliness activates a "self-protection" mode, expressed through rumination, hypervigilance, and rejection sensitivity, which are not conducive to the functioning of mindfulness. The present study used a cross-lagged analysis to explore the relationship between teenagers' mindfulness and loneliness. The scale used in the present study was the Child and Adolescent Mindfulness Measure (CAMM) and the 6-item form of the University of California Los Angeles Loneliness Scale (ULS-6). The participants came from a junior high school in Shaanxi province. After measuring three times, 633 valid participants were obtained after removing the extreme and invalid values. The results indicate that: (1) The level of awareness and non-judgment decreased and then remained stable; the level of loneliness increased and then decreased significantly at three-time points. (2) Mindfulness and loneliness are negatively correlated. (3) There is a cross-lagged relationship between mindfulness and loneliness, in which mindfulness in the first test can significantly predict loneliness in the second test, and loneliness in the first test can significantly predict mindfulness in the second test. This study indicates that there is a certain degree of developmental change between adolescent mindfulness and loneliness, and there is a mutual predictive relationship. This suggests that we should adopt mindfulness-based interventions to alleviate loneliness, block the vicious cycle of "low mindfulness - high loneliness - low mindfulness," and improve individuals'

psychological health.

Keywords：mindfulness, loneliness, cross-analysis analysis, adolescent

父母正念教养对青少年抑郁的影响：父母抑郁的中介作用

何然[1,2] 陈福美[2]（通讯作者）李昭仪[2] 罗芮[3] 杨政乾[3] 罗玉晗[4]

1 成都市金建小学校，成都，610081

2 北京师范大学中国基础教育质量监测协同创新中心，北京，100875

3 北京师范大学认知神经科学与学习国家重点实验室，北京，100875

4 中央民族大学教育学院，北京，100081

通讯作者 E-mail：chenfumei@bnu.edu.cn

摘 要 青春期是抑郁高发期，父母积极教养是重要保护因素 (Thapar et al., 2012; Walter et al., 2023)。但是，青少年自主意识地觉醒、对自主权地争夺和频繁的亲子冲突都很容易让父母在教养上感到力不从心(Coleman, 2011)。随着正念在改善个体心理健康上的有效性得到广泛认可，研究者将正念和教养结合，提出了正念教养的概念，旨在通过这种亲子互动中的正念帮助父母更好地教养青少年(Duncan et al., 2009; Kabat-Zinn & Kabat-Zinn, 1997)。相较与一般教养，正念教养的独特性体现在父母对自身情绪的调节，而父母情绪健康是正念教养对青少年影响的重要中介变量(Duncan et al., 2009)。相关研究也发现正念教养与父母和青少年抑郁均存在密切相关(例如，Burgdorf & Szabó, 2021)。本研究在中国文化背景下，探讨父母正念教养对青少年抑郁影响的作用机制。

研究招募了我国东部地区两所学校的七年级和高一年级学生及其家长，进行了三波纵向追踪(每次间隔 7 个月，T1~T3)，以来自父母婚姻完整、父母与孩子共同居住的 1371 个家庭（包括青少年、父亲、母亲）为研究对象，青少年平均年龄 M=13.20±1.31，父亲平均年龄 M=41.72±5.37，母亲平均年龄 M=42.34±5.57。采用自我报告的方式，使用 Pan 等人(2019)修订的父母正念教养量表(IM-P)测量 T1 时父母各自的正念教养状况，PHQ-9 量表(Kroenke & Spitzer, 2002)测量 T2 时父母的抑郁和 T3 时青少年抑郁。在控制了家庭社会经济地位、青少年独生与否、学段以及性别后，采用主客体互倚模型(Actor Partner Interdependence Model, APIM)在父母关系对中进行正念教养对青少年抑郁影响的作用机制分析，随后分青少年性别检验。结果发现：

（1） T1 时父亲和母亲的正念教养对 T3 时青少年抑郁的直接预测作用均不显著。

（2） 父亲正念教养对青少年抑郁间接影响的客体效应显著。具体表现为 T1 父亲正念教养能够通过影响 T2 母亲抑郁间接影响 T3 青少年抑郁，

（3） 母亲正念教养对青少年抑郁间接影响的主体效应显著。具体表现为 T1 母亲正念教养能够通过影响 T2 母亲抑郁间接影响 T3 青少年抑郁。

（4） 父母正念教养通过影响父母抑郁对青少年抑郁的影响不存在青少年性别差异。

关键词 父亲正念教养，母亲正念教养，青少年抑郁，父母抑郁

The Impact of Maternal and Paternal Mindful Parenting on Adolescent Depression: The Mediating Role of Maternal and Paternal Depression

HE Ran[1,2], CHEN Fumei[2] (Corresponding author), LI Zhaoyi[2], LUO Rui[3], YANG

Zhengqian[3], LUO Yuhan[4]
(1 Chengdu Jinjian Primary School, Chengdu, 610081)
(2 Collaborative Innovation Center of Assessment for Basic Education Quality, Beijing Normal University, Beijing, 100875)
(3 State Key Laboratory of Cognitive Neuroscience and Learning, Beijing Normal University, Beijing, 100875)
(4 Minzu University of China, Department of Education, Beijing, 100081)
Corresponding author E-mail：chenfumei@bnu.edu.cn

Abstract：Adolescence represents a susceptible phase for experiencing depression, and positive parenting serves as a crucial protective factor against adolescent depression (Thapar et al., 2012; Walter et al., 2023). However, the maturation of adolescents' sense of autonomy, competition for autonomy, and frequent parent-child conflicts can engender a sense of powerlessness in parents regarding their parenting role (Coleman, 2011). With the widely recognized effectiveness of mindfulness in improving individual mental health, researchers have increasingly focused on the concept of mindful parenting, which integrates mindfulness principles into parent-child interactions to enhance parental effectiveness in guiding adolescencts (Duncan et al., 2009; Kabat-Zinn & Kabat-Zinn, 1997). Compared to conventional parenting, the uniqueness of mindful parenting lies in parents' regulation of their own emotions, with parental emotional well-being serving as a crucial mediating variable in the impact of mindful parenting on adolescents (Duncan et al., 2009). Relevant studies have also found a close association between mindful parenting and both parental and adolescent depression (e.g., Burgdorf & Szabó, 2021). This study aims to explore the mechanisms through which mindful parenting by parents influences adolescent depression within the cultural context of China.

To achieve this, seventh-grade and senior-first-grade students, along with their parents, were recruited from two schools in the eastern region of the country. Three waves of longitudinal follow-up assessments were conducted at seven-month intervals (T1-T3), involving a total of 1371 families (including adolescents, fathers, and mothers). The average ages were as follows: adolescents (M=13.20±1.31), fathers (M=41.72±5.37), and mothers (M=42.34±5.57). Self-report measures were used, including the revised Mindful Parenting Inventory (IM-P) by Pan et al. (2019) to assess parents' mindful parenting at T1, the PHQ-9 scale (Kroenke & Spitzer, 2002) to measure parental depression at T2, and adolescent depression at T3. After controlling for family socioeconomic status, whether the adolescent was an only child, school level, and gender, the Actor Partner Interdependence Model (APIM) was used to analyze the mediating effects of mindful parenting on adolescent depression within the context of parental relationships, followed by a test of adolescent gender differences. The results showed:

(1) The mindful parenting of both fathers and mothers at T1 did not exhibit a significant direct effect on adolescent depression at T3.
(2) The indirect effect of partner effect of fathers' mindful parenting on adolescent depression was significant, specifically, fathers' mindful parenting at T1 could indirectly influence adolescent depression at T3 through its impact on mothers' depression at T2.
(3) The indirect effect of actor effect of mothers' mindful parenting on adolescent depression was significant, specifically, mothers' mindful parenting at T1 could indirectly influence adolescent depression at T3 through its impact on mothers' depression at T2.
(4) There were no gender differences in the impact of parental mindful parenting on adolescent depression through parental depression.

Keywords：Paternal Mindful parenting, Maternal Mindful parenting, Adolescent Depression, Parental Depression

融合中国诗词的线上正念干预对参与者依从性的影响

王彪[1]　王珍珍[1]　刘兴华[2]（通讯作者）
1 北京大学心理与认知科学学院，北京，100091
2 北京大学心理与认知科学学院临床与健康心理学系，北京，100091，xinghua_liu@pku.edu.cn

摘 要　近些年，随着互联网的快速发展，在线正念干预也在蓬勃发展，但其参与者的依从性较低是目前面临一个普遍问题。另外，诗歌经常被用来作为其他心理治疗形式的补充，特别是基于正念的方法，而且在已有研究中诗歌已经成为了正念认知疗法和正念减压疗法的一部分。但目前国内将中国诗词和正念干预进行结合的研究还比较少，非常值得进一步探索。针对以上问题，开展了本次研究。

研究一将中国诗词引入正念干预，以北京大学刘兴华研究员主持开发的线上自助情绪困扰的正念干预（Internet self-help Mindfulness Intervention for Emotional Distress, iMIED）为基础，设计了一种融合中国诗词的网络自助正念干预模式。该课程主要基于微信小程序展开，为期 49 天。网络招募参与者 55 名，要求完成前后测，以及干预可行性的问卷。通过 SPSS 27.0 采用配对样本 *t* 检验进行干预前后分析。从项目可接受性、需求性、可执行性、实用性、以及有效性检验等五个维度进行评估，结果显示，本研究设计开发的融合中国诗词的网络自助正念干预模式是可行的。研究二为随机对照实验。网络招募 118 名参与者，随机分为两组，实验组参与融合中国诗词的网络自助正念课程，对照组参与没有诗词的课程。采用卡方检验对干预后数据进行分析。实验结果显示，相比对照组，实验组在保证干预效果相同的前提下能够显著提高了参与者的依从性（χ^2=4.37,p=0.04）。

本研究将中国诗词和正念干预进行融合，开发了一种极富中国特色的正念干预模式，在帮助人们缓解精神健康问题的同时，也起到了推广和传播中国传统文化的作用。本研究采用的是纯网络自助模式，为正念干预的大规模应用推广提供了更多可能性，同时研究结果也显示，诗词元素的加入显著提高了参与者的依从性。未来随着在线正念干预的快速发展，这都具有一定的实践意义和社会价值。

关键词　正念，诗歌，中国诗词，在线正念干预，依从性

The impact of online mindfulness intervention integrating Chinese classical poetry on participants' adherence

Biao Wang, Zhenzhen Wang, Xinghua Liu
School of Psychology and Cognitive Science, Peking University (No.5 Yiheyuan Road)

Abstract **：** In recent years, with the rapid development of the Internet, online mindfulness-based interventions (MBIs) is booming, but the low participants' adherence is currently a common problem. In addition, poetry is often used as a supplement to other forms of psychotherapy, especially mindfulness intervention, and has become a part of mindfulness-based cognitive therapy (MBCT) and mindfulness-based stress reduction therapy (MBSR). However, there is currently relatively little research in China that combines Chinese classical poetry with mindfulness intervention, and it is worth further exploration. This study was conducted to address the above issues.

In study1, Chinese classical poetry was introduced into mindfulness intervention. Based on Internet self-help mindfulness intervention for emotional distress (iMIED) hosted by Xinghua Liu from the Mindfulness Lab of Peking University, an online self-help mindfulness intervention model integrating Chinese classical poetry was designed. This project is mainly based on the WeChat mini program and lasts for 49 days. A total of 55

participants were recruited online and asked to complete a pre and post-test, as well as a questionnaire on the feasibility of intervention. SPSS 27.0 was used for pre-intervention and post-intervention analysis by paired sample *t*-test. The evaluation was conducted from five dimensions: Acceptability, Demand, Implementation, Practicality and Limited-efficacy testing. The results show that the online self-help mindfulness intervention model integrating Chinese classical poetry is feasible. The study 2 was a randomized controlled trial. 118 participants were recruited online and randomly divided into two groups: the experimental group participated in an online self-help mindfulness course integrating Chinese classical poetry, and the control group participated in a mindfulness course without Chinese classical poetry. SPSS 27.0 was used to analyze the post intervention data by χ^2 test. The experimental results showed that compared with the control group, the experimental group could significantly improve the participants' adherence (χ^2=4.37, p=0.04).

This study integrates Chinese classical poetry and mindfulness, and develops a mindfulness intervention model with Chinese characteristics, which not only helps people to alleviate mental health problems, but also plays a role in promoting and disseminating Chinese traditional culture. This study adopts a pure online self-help model, which provides more possibilities for the large-scale application and promotion of mindfulness intervention. At the same time, the research results also show that the addition of Chinese classical poetry significantly improves participants' adherence. With the rapid development of online MBIs in the future, it has certain practical significance and social value.

Keywords：Mindfulness, Poetry, Chinese classical poetry, Online mindfulness intervention，Adherence

每日正念与睡眠拖延之间的关系：自我调节的中介作用

吴沚玲 [1#]　吴朝毅 [2#]　周晖 [1,3] (通讯作者)

1 中山大学心理学系，广州，510006

2 上海交通大学医学院附属精神卫生中心，上海，200030

3 中山大学心理健康教育中心，广州，510275，Email：edszh@mail.sysu.edu.cn

摘 要　随着生活节奏的加快，当代人出现了一种特殊的问题性拖延行为——睡眠拖延。睡眠拖延指的是“在没有外部因素干扰的情况下仍人为地拖延睡眠时间”，会导致睡眠质量、工作学习效率的下降，对身心健康均有负面的影响。自我调节理论认为，睡眠拖延是自我调节失败的一种体现。正念与自我调节能力息息相关，指的是个体在当前情境下能够保持专注、接纳、觉知的状态。本研究从自我调节理论的角度出发，使用日志法探究正念与睡眠拖延之间的关系，以及自我调节在行为层面的表现——自我控制在这一关系中的中介作用。研究招募 113 名被试完成了连续 14 天、每天 2 次的问卷收集。结果表明：(1)在个体间水平，正念负向预测睡眠拖延情况。(2)在个体内、个体间水平，自我控制均显著中介了正念与睡眠拖延之间的关系。(3)每日的自我控制水平能显著负向预测当晚的睡眠拖延情况，而当晚的睡眠拖延也负向预测第二日的自我控制，二者存在一个双向时间滞后效应。总结而言，本研究的结果表明：正念会减少睡眠拖延行为，而这一过程是由行为上的自我调节中介的。此外，自我控制和睡眠拖延存在时间上的双向交叉滞后效应。本研究揭示了正念对睡眠拖延的保护作用，且这种保护作用可能是通过影响行为上的自我调节产生的。本研究的结果为睡眠拖延的干预研究提供了潜在的、具有高生态效度的干预靶点。

关键词　睡眠拖延，正念，自我控制，自我调节，日志法

The Effect of Daily Mindfulness on Bedtime Procrastination: the Mediating Role of Self-regulation

WU Zhiling [1#] WU Chaoyi [2#] ZHOU Hui [1,3]

1 Department of Psychology, Sun-Yat-Sen University, Guangzhou, 510006, China

2 Shanghai Mental Health Center, Shanghai Jiao Tong University School of Medicine, Shanghai, 200030, China

3 Centre for Mental Health Education, Sun-Yat-Sen University, Guangzhou, 510275, China

Abstract： As life speeds up, people nowadays are facing a specific issue called "bedtime procrastination." Bedtime procrastination refers to the deliberate delay of sleep time despite the absence of external interference. This problematic behavior can lead to a decrease in sleep quality, as well as a decline in work and study efficiency, ultimately resulting in negative impacts on both physical and mental well-being. According to the self-regulation theory, bedtime procrastination is regarded as a manifestation of self-regulatory failure. Mindfulness and self-regulation are closely related. Mindfulness refers to an individual's ability to stay focused, accepting, and aware in the present moment. From the perspective of self-regulation theory, the present study uses diary study to explore the effect of mindfulness on bedtime procrastination and the mediatorial role of self-control, which represent the behavioral part of self-regulation ability. A total of 113 participants were recruited for the study and were asked to complete a series of questionnaires twice daily over a consecutive period of 14 days. Results were as follows: (1) At the individual level, mindfulness negatively predicted the occurrence of bedtime procrastination. (2) At both the within-individual and between-individual levels, self-control significantly mediated the relationship between mindfulness and bedtime procrastination. (3) Daily levels of self-control significantly negatively predicted the occurrence of bedtime procrastination on the same evening. Additionally, bedtime procrastination negatively predicted self-control the following day, indicating a reciprocal time-lagged effect between the two variables. In conclusion, this study found that mindfulness decreases bedtime procrastination, which mediated by behavioral self-control. Meanwhile, self-control and bedtime procrastination have a reciprocal time-lagged effect. This study reveals the protective role of mindfulness against bedtime procrastination, highlighting the possibility that such process may be mediated by its influence on behavioral self-regulation. Additionally, it provides a potential intervention target with high ecological validity for research on addressing bedtime procrastination.

Keywords： Bedtime Procrastination, Mindfulness, Self-Control, Self-Regulation, Diary Study

正念联合身体活动干预对抑郁与焦虑症状的影响：随机对照实验的系统综述与元分析

黄菊 [1,2] 魏小淇 [1,2] 姚立晴 [3] 迟新丽 [1,2]（通讯作者）

1 深圳大学心理学院，深圳，518060

2 深圳大学心理健康中心，深圳，518060，xinlichi@126.com

3 澳门科技大学医学部医学院，澳门，999078

摘 要 本研究运用系统综述与元分析技术，以抑郁为主要结果变量、焦虑为第二结果变量，考察了正念联合身体活动训练的干预效果及其影响因素，以期为更高效的改善抑郁症状提供参考。本篇系统综述

与元分析共纳入 18 项随机对照研究，运用 Stata 软件进行数据分析。结果发现：1）在抑郁方面，正念联合身体活动干预组（联合干预组）与普通对照组相比改善效果更好[SMD: -0.94, 95%CI(-1.48, -0.40), $p<0.01$]；联合干预组与单一身体活动组相比改善效果更好[SMD: -0.52, 95%CI(-1.03, -0.02), $p<0.05$]，但联合干预组与单一正念组之间的干预效果无显著差异[SMD: 0.11, 95%CI(-0.17, 0.38), $p>0.05$]；2）在焦虑方面，联合干预组与普通对照组相比改善效果更好[SMD: -1.64, 95%CI(-2.56, 0.71), $p<0.01$]，联合干预组与单一身体活动组相比改善效果更好[SMD: -0.65, 95%CI(-1.29, -0.01), $p<0.05$]，但联合干预组与单一正念组之间的干预效果无显著差异[SMD: 0.01, 95%CI(-0.29, 0.31), $p>0.05$]。亚组分析结果表明：正念联合身体活动的干预效果受到被试年龄、被试类型(病人、健康人群)、国别、干预的持续时间等多个变量的影响。总之，联合干预组相比普通对照组和单一身体活动组，对抑郁与焦虑症状的改善作用更大。未来的研究应该进一步弥补联合干预与单一正念干预效果比较的实证研究不足，关注联合干预在积极的心理健康指标(如幸福感、生活质量等)上的干预效果，并结合中国文化与人群特征，制定针对不同干预对象的个性化干预方案，以提升干预效益。

关键词　正念，身体活动，抑郁，焦虑，元分析

The effect of mindfulness and physical activity combined intervention on depression and anxiety symptoms: a systematic review and meta-analysis of randomized controlled trials

Ju Huang[1,2]　Xiaoqi Wei[1,2]　Liqing Yao[3]　Xinli Chi[1,2] (Correspondence)

1 School of Psychology, Shenzhen University, Shenzhen, China

2 Center for Mental Health, Shenzhen University, Shenzhen, China

3 Faculty of Medicine, Medical Sciences Division, Macau University of Science and Technology, Macau, China

Abstract: With depression as the primary outcome and anxiety as the secondary outcome, the present study used systematic review and meta-analysis to investigate the intervention effects and influencing factors of mindfulness and physical activity intervention, in order to provide reference for more efficient improvement of depression and anxiety symptoms. The systematic review and meta-analysis included a total of 18 randomized controlled studies. The results showed that: (1) as for depression, the combined intervention group improved better than the control group [SMD: -0.94, 95%CI(-1.48, -0.40), $p<0.01$] and compared with the physical activity group alone [SMD: -0.52, 95%CI(-1.03, -0.02), $p<0.05$], but with a single mindfulness group [SMD: 0.11, 95%CI(-0.17, 0.38), $p>0.05$] no significant differences. (2) As for anxiety, the combined intervention group improved more than the control group [SMD: -1.64, 95%CI(-2.56, 0.71), $p<0.01$] and the physical activity group alone [SMD: -0.65, 95%CI(-1.29, -0.01), $p<0.05$], but with a single mindfulness group [SMD: 0.01, 95%CI(-0.29, 0.31), $p>0.05$] no significant differences. The results of subgroup analysis showed that the effect of mindfulness and physical activity combined intervention was affected by several variables, such as age, subject type (patients, healthy people), country and duration of intervention. In conclusion, the combined intervention group improved symptoms of depression and anxiety more than the control group and the physical activity group alone. In the future, it is necessary to further make up for the lack of comparative studies of combined intervention with mindfulness intervention alone, pay attention to the intervention effect of combined intervention on positive mental health indicators (such as happiness, quality of life, etc.), and develop personalized intervention programs for different intervention objects in combination with Chinese culture and population characteristics to improve the effectiveness of intervention.

Keywords：mindfulness, physical activity, depression, anxiety, meta-analysis

正念、孤独感与友谊网络：基于心理测量法和社会测量法

张桥（通讯作者）　梁三才

陕西师范大学心理学院，西安，710062，bridgy0907@163.com

摘 要　孤独感的泛滥对个体和社会产生了巨大危害。研究发现正念干预可以有效降低孤独感并发展社会网络，但正念降低孤独感、发展社会网络的作用机制仍有待探索。因此，本研究采用心理测量法结合社会测量法，探讨正念、孤独感、友谊网络之间的复杂关系。

研究一采用心理测量法，以正念觉知量表、ULS-8 孤独感量表和 Lubben 社会网络量表对陕西省 449 名被试进行问卷调查。结果发现，正念和友谊网络可以显著负向预测孤独感，且友谊网络调节了正念和孤独感之间的关系。当个体有高水平的友谊网络时，正念不能预测孤独感；当个体的友谊网络处于低水平时，正念显著降低了个体孤独感。这为研究二进一步探究三者的动态关系奠定了基础。

研究二采用纵向社会网络分析方法，基于同伴提名法生成友谊网络，结合简版正念觉知量表、ULS-6 孤独感量表，收集了某学院的全体 115 名大学一年级新生的两时间点纵向数据。本研究采用随机指数图模型（Exponential random graph models, ERGM）分别描述正念和孤独感对友谊网络一致性和准确性的影响；采用随机行动者导向模型（Stochastic actor-based models, SABM）探讨正念和孤独感在友谊网络中的跨行为影响。ERGM 结果发现，正念提升了友谊网络之间的一致性；孤独感降低了友谊网络之间的一致性且提升了友谊网络之间的准确性。更进一步，SABM 结果发现，朋友的正念会降低个体的孤独感，即朋友正念的水平越高，该个体的孤独感水平有降低的趋势。

综上，研究一发现了正念可以降低孤独感，研究二发现朋友的正念可以降低个体的孤独感。这些结果表明了正念在促进人际关系发展和降低负性情绪过程中的积极作用，支持并发展了自我决定理论和二元互动过程理论。未来研究应进一步探讨正念、孤独感与友谊网络之间的复杂关系，进而为降低大学生孤独感、拓展他们的友谊网络提供实证依据。

关键词　正念，孤独感，友谊网络

Mindfulness, Loneliness, and Friendship Networks: Combining Psychometric and Sociometric Approaches

Zhang Qiao*　Liang Sancai

College of Psychology, Shaanxi Normal University, Xi'an, 710062, China

Abstract：Developing friendships is one of the main tasks of individual socialization. Studies have investigated that mindfulness intervention can effectively alleviate loneliness and develop friendship networks. It is noted that the mechanism of mindfulness in developing friendships and alleviating loneliness still needs to be explored.

We investigated the complex relationship among mindfulness, loneliness, and friendship through psychometrics and sociometry. The first study aimed to investigate the moderating effect of friend networks on the relationship between mindfulness and loneliness. A sample of 449 participants was recruited. They completed a battery of online questionnaires including measures of mindfulness, loneliness, and friend network. The additive

multiple moderation analysis revealed that friend network moderated the relation between mindfulness and loneliness, with the negative relation between mindfulness and loneliness being stronger when the family network or friend network was at a low level, whereas no significant association between mindfulness and loneliness was found when friend network was at the high level. These findings suggest that mindfulness-based intervention on loneliness is more efficacious for those with low levels of friend networks.

The second study aimed to explore the relationship among mindfulness, loneliness, and friendship networks by longitudinal social network analysis. The subjects were all 115 freshmen from the entire college. Subjects completed a battery of paper-pencil questionnaires including measures of mindfulness, loneliness, and friendship networks at two times points: at the beginning of their first month in college and one semester later. Exponential Random Graph Models (ERGMs) were used to identify the effects of mindfulness and loneliness on structural patterns of friendship networks. The main contribution of ERGMs was to test how mindfulness and loneliness influence the congruence and accuracy of friendship respectfully, shedding light on how personal attributes related to cognitive perceptions of the social environment. Stochastic actor-based models (SABMs) were used to investigate the indirect influences of friends' mindfulness on an individual's loneliness, aiming to shed light on the mechanism of mindfulness of loneliness in friendship. The ERGM test shows that there is a negative entrainment effect of mindfulness, that is, the higher the level of mindfulness of an individual, the higher the level of inconsistency. The ERGM test also showed that there is a positive entrainment effect and a negative exchange effect of loneliness, indicating that the higher level of loneliness, the lower the accuracy of the friendship network, which indicated that loneliness will impair social perception. Furthermore, the SABMs test revealed that friends' mindfulness can alleviate an individual's loneliness.

In summary, the first study revealed that mindfulness can alleviate loneliness; the second study indicated that mindfulness of friends can alleviate an individual's loneliness. These results support the positive role of mindfulness in promoting interpersonal development and reducing negative social emotions, which further support and develop the Self-determination Theory and the Binary Interactive Processes Theory. Future research should further explore the complex interplay between mindfulness, loneliness, and friendship network.

Keywords：mindfulness, loneliness, friendship network

5.40 学习心理专业委员会

短视频使用对农村留守儿童注意稳定性及学业成绩的影响研究

王青春[1]（通讯作者） 王苏慧[1] 孔梦欣[1] 宋凌瑶[1] 吴伟[2]

1 河南师范大学教育学部心理学院，新乡，453007,111101@htu.edu.cn

2 新乡医学院第三附属医院，新乡，453003

摘 要 《中国未成年人互联网运用报告》(2022)显示，未成年人上网普及率已近饱和，看视频已经超越了打游戏和听音乐，成为了未成年人最主要的网络使用行为。而关于农村留守儿童的最新调研显示，近七成孩子用手机看短视频，过度沉迷于短视频严重影响其学业及身心健康发展。基于此，本研究拟考察短视频使用对农村留守儿童注意稳定性及学业成绩的影响，并探究注意稳定性（狭义注意稳定性与学习注意稳定性）在短视频使用与不同学科学业成绩之间的中介作用机制。方法：2023 年 3 月采用短视频使用量表、学习注意稳定性量表、注意稳定性测验对河南省四所农村小学三到六年级中有浏览短视

频经历的 396 名留守儿童进行测查，选择 2022-2023 学年第一学期的期末成绩（语文及数学）为学业成绩指标，并对其进行标准化处理。结果：（1）男生的短视频使用程度显著高于女生，男生的语文成绩、学习注意稳定性及狭义注意稳定性均显著低于女生；四年级小学生的狭义注意稳定性显著低于五年级、六年级，四年级小学生的语文成绩显著高于三年级、六年级。（2）短视频使用与注意稳定性、语文成绩、数学成绩均呈显著负相关，注意稳定性与语文成绩、数学成绩均呈显著正相关。（3）短视频使用主要是通过狭义注意稳定性和学习注意稳定性间接负向预测留守儿童的语文成绩。（4）短视频使用既可以直接负向预测数学成绩，也可以通过狭义注意稳定性来间接负向预测数学成绩。结论：（1）短视频使用可以负向预测农村留守儿童的注意稳定性及学业成绩。（2）狭义注意稳定性和学习注意稳定性在短视频使用与语文成绩的关系中起完全并行中介作用，狭义注意稳定性在短视频使用与数学成绩的关系中起部分中介作用。研究结果可为农村留守儿童科学合理使用短视频，提升其学业及身心健康水平提供理论依据。

关键词　短视频使用，注意稳定性，学业成绩，农村留守儿童

A study on the influence of short video use on rural left-behind children's attention stability and academic performance

Qingchun Wang [1] (Corresponding Author), Suhui Wang[1], Mengxin Kong[1], Lingyao Song[1], Wei Wu[2]

1 School of Psychology, Faculty of Education, Henan Normal University, Xinxiang 453007, 111101@htu.edu.cn

2 The Third Affiliated Hospital of Xinxiang Medical College, Xinxiang 453003, China

Abstract：According to the Report on Internet Use of Chinese Minors in 2022, the Internet penetration rate of minors has reached saturation. Watching videos has become the most important behavior of minors using the Internet, which has surpassed playing games and listening to music. The latest research on rural left-behind children shows that nearly 70% of children watch short videos on mobile phones, and their addiction to short videos seriously affects their academic, physical and mental health development. Based on this, this study intends to investigate the effects of short video use on attention stability and academic performance of rural left-behind children, and explore the mediating mechanism of attention stability (narrow attention stability and learning attention stability) between short video use and academic performance of different disciplines. Methods: In March 2023, 396 left-behind children from grades three to six in four rural primary schools in Henan Province who had experience of viewing short videos were investigated by using the Short Video Usage Scale, the Learning Attention Stability Scale and the Attention Stability Test. At the same time, the final scores of Chinese and mathematics in the first semester of the 2022-2023 academic year are selected as the indicators of academic performance, and the scores were standardized. Results: (1) The degree of short video use of male students was significantly higher than that of female students, and Chinese scores, learning attention stability and narrow attention stability of male students were significantly lower than those of female students; The narrow attention stability of fourth grade students is significantly lower than that of fifth grade and sixth grade, and the Chinese scores of fourth grade students is significantly higher than that of third grade and sixth grade. (2) Short video use was significantly negatively correlated with the attention stability, Chinese and math scores, while the attention stability was significantly positively correlated with Chinese and math scores. (3) Short video use mainly indirectly and negatively predicts left-behind children's Chinese scores through narrow attention stability and learning attention stability. (4) Short video use can not only directly predict math scores negatively, but also

indirectly predict math scores negatively through narrow attention stability. Conclusion: (1) Short video use can negatively predict the attention stability and academic performance of rural left-behind children. (2) Narrow attention stability and learning attention stability play a completely parallel mediating role in the relationship between short video use and Chinese scores, while narrow attention stability plays a partial mediating role in the relationship between short video use and math scores. The research results can provide theoretical basis for the scientific and rational use of short videos for rural left-behind children to improve their academic, physical and mental health.

Keywords：short video use, attention stability, academic performance, rural left-behind children

提取难度对困难材料提取练习效应的促进作用：来自行为和 fNIRS 的证据

张俐娟　江妍雪　张锦坤(通讯作者)
福建师范大学心理学院，福州，350117
jinkunzhang@126.com

摘 要　提取练习效应(Retrieval Practice Effect, RPE)是指在相同时间内，对学习材料进行提取比重复学习能更有效地提高学习和记忆水平。除了提取练习本身促进记忆保持(直接效应)以外，提取练习还能提高元认知监测的准确性，从而促进随后学习并提升学习效果(间接效应)。研究表明，编码难度和提取难度是影响 RPE 的重要因素。本研究旨在通过操纵材料难度和提取支持探究编码和提取难度对提取练习的直接和间接效应的影响。实验 1 为行为实验，采用 2(词对难度：简单，困难)×2(提取支持：无，有)的两因素混合实验设计，考察延迟测试(2 天后最终测试)下提取练习的直接效应。实验 2 结合行为和 fNIRS 脑成像技术，进一步区分词对难度与提取支持对提取练习的直接和间接效应的影响，采用 2(提取支持：无，有)×2(词对难度：简单，困难)×2(提取后重学：无，有)的三因素混合实验设计。结果发现，在直接效应上，实验 1 和实验 2 的行为结果一致：简单词对的记忆成绩显著高于困难词对；提取支持能够提高初始提取记忆成绩，但延迟测试下，无提取支持组的记忆成绩显著高于有提取支持组。fNIRS 脑成像结果发现，学习者在无提取支持条件下的颞上回区域(与提取难度关联)激活水平显著高于有提取支持条件；与提取简单词对相比，学习者提取困难词对时背外侧前额叶显示更广泛的激活(与认知负荷关联)。在间接效应上，实验 2 行为结果发现，简单词对的记忆成绩显著高于困难词对；无提取支持最大程度地促进了困难词对(初始提取成绩较低)提取后的重学效果(延迟测试记忆成绩显著提高)。fNIRS 脑成像结果发现，与初始学习相比，提取后重学简单词对时引起的前额皮层相关脑区(与加工深度关联)激活减弱；但在重学困难词对时，无提取支持组表现出明显的激活增强。研究结果表明，困难材料的提取练习效应弱于简单材料；降低提取支持最大程度地增加了困难材料的提取难度和再编码时的加工深度，从而有效促进困难材料提取练习的直接和间接效应。

关键词　提取练习效应，提取支持，词对难度，fNIRS

The Facilitating Effect of Retrieval Difficulty on the Retrieval Practice Effect for Difficult Materials: Evidence from Behavior and fNIRS.

Zhang Lijuan　Jiang Yanxue　Zhang Jinkun*
School of Psychology, Fujian Normal University, 350117
jinkunzhang@126.com

***Abstract*:** The Retrieval Practice Effect (RPE) refers to the phenomenon in which retrieving learning materials is more effective than repeated learning in improving learning and memory at the same time. In addition to the retrieval practice itself facilitating memory retention (direct effect), retrieval practice also improves the accuracy of metacognitive monitoring, thus facilitating subsequent learning and enhancing the learning effect (indirect effect). This study aims to investigate the effects of encoding and retrieval difficulty on the direct and indirect effects of retrieval practice by manipulating material difficulty and retrieval support. Experiment 1 was a behavioral experiment. A two-factor mixed experimental design of 2 (word pair difficulty: easy, difficult) × 2 (retrieval support: none, yes) was adopted to investigate the direct retrieval practice effects under a delayed test (final test after 2 days). Experiment 2 combined behavioral and fNIRS brain imaging techniques to further differentiate the direct and indirect effects of retrieval practice. Experiment 2 adopted a three-factor mixed experimental design of 2 (extraction support: none, yes) × 2 (word pair difficulty: easy, difficult) × 2 (relearning after extraction: none, yes). The results showed that in terms of direct effect, the behavioral results of experiments 1 and 2 were consistent: memory performance for easy word pairs was significantly higher than for difficult word pairs, and retrieval support enhanced initial retrieval performance. However, during delayed testing, the memory performance of the no-retrieval support group was significantly higher than that of the retrieval support group. The fNIRS brain imaging results showed that the activation level of the superior temporal gyrus region (associated with retrieval difficulty) was significantly higher in the no-retrieval support condition than in the retrieval support condition. Additionally, learners showed more extensive activation in the dorsolateral prefrontal cortex (associated with cognitive load) when retrieving difficult word pairs compared to retrieving easy word pairs. Regarding the indirect effect, the behavioral results of experiment 2 found that the memory performance for easy word pairs was significantly higher than for difficult word pairs. The absence of retrieval support maximally facilitated the relearning effect for difficult word pairs (with initially lower retrieval performance), leading to significantly improved memory performance during delayed testing. The fNIRS brain imaging results showed that the activation of prefrontal cortex-related brain areas (associated with processing depth) was weakened when easy word pairs were relearned after retrieval compared to initial learning. However, during the relearning of difficult word pairs, the no-retrieval support group exhibited significant activation enhancement. The findings of this study show that the retrieval practice effect is weaker for difficult materials than for easy materials. Reducing retrieval support maximizes the difficulty of retrieving difficult materials and the processing depth during re-encoding, thus effectively facilitating both the direct and indirect effects of retrieval practice on difficult learning materials.

***Keywords*:** retrieval practice effect, retrieval support, word pair difficulty, fNIRS

学业压力影响高中生学业成绩的纵向研究：内化问题和共同冗思的作用

王稳　王云强（通讯作者）

南京师范大学心理学院，南京，210097

通讯作者 E-mail：　wangyunqiang@njnu.edu.cn

摘 要　学业压力对高中生学业成绩具有重要影响，但其影响机制和条件需要进一步探明。内化问题是指向个体内部心理的，主要表现为焦虑、抑郁、恐惧、敏感和社交回避等表现的一种问题心理，对青少年的发展起着不良作用。青少年与母亲共同冗思是指双方对自身或者对方的问题进行过度的讨论，具体表现是频繁讨论问题、重复讨论相同问题、揣摩推测问题因果、彼此强化讨论行为以及过多关注负性情绪。本研究采用问卷法，以 330 名高中生为被试，进行两次数据收集，考察内化问题、青少年与母亲共同冗思在学业压力影响高中生学业成绩中的作用。结果发现：（1）学业压力与高中生学业成绩呈显著负相关，学

业压力与内化问题呈显著正相关，内化问题与学业成绩呈显著负相关，青少年与母亲共同冗思和学业成绩呈显著负相关。（2）内化问题在学业压力和学业成绩之间起到部分中介作用，学业压力通过直接和间接两条路径影响高中生学业成绩。（3）青少年与母亲共同冗思在学业压力-内化问题-高中生学业成绩之间的中介模型中，调节了模型的后半路径，即青少年与母亲共同冗思能调节内化问题对高中生学业成绩的影响。进一步分析发现，高青少年与母亲共同冗思会增强内化问题对学业成绩的负面影响，低青少年与母亲共同冗思会减弱内化问题对学业成绩的负面影响。由此可见，高中生学业压力影响其学业成绩，能够以内化问题为中介，并受到青少年与母亲间共同冗思的影响。

关键词　学业压力，内化问题，学业成绩，青少年与母亲共同冗思

A Longitudinal study on the Impact of Academic Stress on High School Students' Academic Achievements: The Role of Internalization and Mother-adolescent Co-rumination

Wang Wen　Wang Yunqiang
School of Psychology, Nanjing Normal University, Nanjing, 210097

Abstract：Academic stress has a significant impact on the academic achievement of high school students, but its mechanism and conditions need to be further explored. Internalization problems refer to the internal psychology of individuals, mainly manifested as anxiety, depression, fear, sensitivity, and social avoidance, which play a negative role in the development of adolescents. Mother-adolescent co-rumination refers to excessive discussions about their own or each other's problems, which can manifest as frequent discussions, repeated discussions of the same problem, speculation about the cause and effect of the problem, reinforcement of discussion behavior, and excessive attention to negative emotions. This study used 330 high school students as subjects and conducted two longitudinal questionnaire measurements to investigate the role of internalization and mother-adolescent co-rumination in the impact of academic stress on high school students' academic achievement. The results showed that: (1) there was a significant negative correlation between academic stress and high school students' academic achievement, a significant positive correlation between academic stress and internalization, a significant negative correlation between internalization and academic achievement, and a significant negative correlation between mother-adolescent co-rumination and academic achievement. (2) Internalization play a partial mediating role between academic stress and academic achievement, and academic stress affects high school students' academic achievement through both direct and indirect pathways. (3) In the mediating model between academic stress, internalization and high school students' academic achievements, the mother-adolescent co-rumination can adjust the latter half of the model, that is, the mother-adolescent co-rumination can adjust the impact of internalization on high school students' academic achievements. Further analysis found that high mother-adolescent co-rumination can enhance the negative impact of internalization on academic achievement, while low mother-adolescent co-rumination can weaken the negative impact of internalization on academic achievement. From this, it can be seen that high school students' academic stress affects their academic achievements, which can be mediated by internalization and influenced by the mother-adolescent co-rumination.

Keywords：academic stress, internalization, academic achievement, mother-adolescent co-rumination

听众面孔对学习者自我生成教学的影响：一项眼动研究

成美霞　王福兴（通讯作者）
华中师范大学心理学院，武汉，430079，通讯作者 E-mail：fxwang@ccnu.edu.cn

摘 要 学习者自我生成教学（Learning by non-interactive teaching）是一种生成性学习策略，指学习者在知识学习过程中转换角色，将自己所学知识以知识传授者角色讲解给其他人听，即学习者借助非互动性教学进行学习。研究发现，学习者以线上的方式向远程的听众教学比以录像的方式向假想的听众教学学习表现更差。然而，其中原因尚需要进一步探讨，学习者进行线上教学时可以通过网络摄像头看到听众，听众面孔的呈现是否分散了学习者自我生成教学时有限的注意力资源，进而损害了生成性学习呢？在本研究中，大学生($N = 108$)观看人类免疫系统的多媒体课程，随后，他们被要求分别以录像的方式向脑海中假想的听众(无面孔录像组)、以线上的方式向屏幕上关闭摄像头的远程听众(无面孔在线组)或以线上的方式向屏幕上打开摄像头的远程听众(有面孔在线组)讲解学习材料。结果发现，无面孔录像组($d = 0.63$)和无面孔在线组($d = 0.60$)在迁移测验上显著优于有面孔在线组，而且，无面孔录像组($d_{临场感} = –1.66$, $d_{认知负荷} = –0.75$)和无面孔在线组($d_{临场感} = –1.61$, $d_{认知负荷} = –0.60$)教学时感知到的社会临场感和认知负荷均显著低于有面孔在线组。此外，有面孔在线组比无面孔在线组的学习者在教学时对屏幕上听众的关注更多，具体而言，有面孔在线组比无面孔在线组对电脑屏幕上的听众区注视次数更多($d = 1.48$)、注视时长更长($d = 1.48$)。结论认为，遮挡听众面孔可以减少学习者自我生成教学时的注意分散，使他们有限的认知资源更多地专注于对核心材料的理解和阐述上，有利于提高自我生成教学的有效性。

关键词 自我生成教学, 生成性学习, 听众面孔, 注意分配, 多媒体学习

The Effect of Audience Face on Learning by Non-Interactive Teaching: An Eye Movement Study

Meixia Cheng, Fuxing Wang
School of Psychology, Central China Normal University, Wuhan 430079, Hubei, China.
Corresponding author e-mail: fxwang@ccnu.edu.cn

Abstract: Learning by non-interactive teaching is a generative learning strategy in which students are asked to teach what they are learning to others. Previous studies have found that learners exhibited lower levels of learning when learning by non-interactive teaching involved lecturing to a remote person they could see via a webcam than lecturing to a camera for a fictitious person they could not see. However, it is unclear whether the underlying process is due to the faces of the audience distracting the limited attentional resources of the learners and thus detrimental to learning. In this study, college students watched a multimedia lesson on the human immune system with instructions that afterwards they would explain the materials by making a lecture video (no audience face video group), explain to an online student who turned off the webcam (no audience face online group), or explain to an online student who turned on the webcam (see audience face online group). The no audience face video group ($d = 0.63$) and the no audience face online group ($d = 0.60$) significantly outperformed the see audience face online group on transfer test; the two groups with no audience face also reported significantly lower social presence ($d_{video} = 1.66$, $d_{online} = 1.61$) and cognitive load ($d_{video} = 0.75$, $d_{online} = 0.60$) during teaching than the see audience face online group. Moreover, learners in the no audience face online group paid less attention to the on-screen audience area (i.e., gazing at the audience less often ($d = 1.48$) and for less time ($d = 1.48$)) than learners in the see audience face online group. Masking the faces of the audience may reduce distractions of the learners during teaching and somewhat mitigate the negative effects of learning by non-interactive teaching at a distance online.

Key words: learning by non-interactive teaching, generative learning, audience face, distraction, multimedia learning

数学焦虑≠一般焦虑：基于网络分析与潜剖面分析的证据

雒瑞帆[1]　禚新峰[1]　刘畅[1]　司继伟[1]（通讯作者）
1 山东师范大学心理学院，济南，250358，sijiwei1974@126.com

摘 要　数学焦虑是指在面对数学问题时产生的恐惧、紧张和担忧等负面情绪。根据精神障碍诊断与统计手册和国际疾病分类标准，数学焦虑并非一个单独的诊断类别，而通常被认为是属于广泛性焦虑症或社交焦虑症的范畴。但数学焦虑究竟是一种特殊的焦虑类型，还是一般焦虑的表现方式之一，学界对此尚无定论。根据情绪和焦虑障碍的情绪失调模型，情绪失调可能是导致焦虑症持续存在的核心因素。本研究采用网络分析和潜在剖面分析的方法，在 2073 名三、四年级学生（50.1%男性，M_{age}=9.83±0.67 岁）中初步探讨了数学焦虑、一般焦虑和情绪调节之间的关系。主要发现如下：（1）网络分析结果显示，数学焦虑、一般焦虑和情绪调节是不同的概念，并可以划分为四个社区，分别对应数学焦虑，一般焦虑以及情绪调节的两个维度（认知重评、表达抑制）。在这些社区中，数学焦虑与认知重评的联系较为密切，而一般焦虑与表达抑制的联系较为密切；（2）桥梁预期影响最大的节点是一般焦虑量表项目：“我每天花大部分时间担心各种各样的事”，它起到了连接不同社区的主要作用；（3）潜剖面分析揭示小学生中存在着三种类别：健康组（59%；情绪调节水平高，数学焦虑、一般焦虑低）、平均组（28%；情绪调节水平、数学焦虑、一般焦虑中等）和焦虑组（13%；情绪调节水平低，数学焦虑、一般焦虑高）。本研究揭示了数学焦虑与一般焦虑的结构特征，深化了对数学焦虑和一般焦虑的差异与联系的科学理解，为进一步关注和及时防范小学阶段的数学焦虑情绪提供了初步证据支持。

关键词　数学焦虑，一般焦虑，情绪调节，网络分析，潜剖面分析。

Math Anxiety ≠ General Anxiety: Evidence from Network Analysis and Latent Profile Analysis

Ruifan Luo[1], Xinfeng Zhuo[1], Chang Liu[1], Jiwei Si[1](Corresponding author)
1 School of Psychology, Shandong Normal University, Jinan, 250358

Abstract：Math anxiety refers to the negative emotion of fear, nervousness, and worry that emerges when confronted with mathematical problems. According to the Diagnostic and Statistical Manual of Mental Disorders and the International Classification of Diseases, math anxiety is not a separate diagnostic category, but is usually regarded as a subtype of generalized anxiety disorder or social anxiety disorder. However, the academic community has not reached a consensus on whether math anxiety is a specific form of anxiety or one of the manifestations of general anxiety. Based on the emotional dysregulation model of emotional and anxiety disorders, emotional dysregulation may be the core factor that leads to the persistence of anxiety disorders. This study employed network analysis and latent profile analysis methods to investigate the relationship between math anxiety, general anxiety, and emotion regulation among 2073 third- and fourth-grade students (50.1% male, M_{age}=9.83±0.67 years old). The main results are as follows: (1) The network analysis results indicated that math anxiety, general anxiety, and emotion regulation were distinct concepts and were partitioned into four communities, corresponding to math anxiety, general anxiety, and two dimensions of emotion regulation (cognitive reappraisal,

expressive suppression). Among these communities, math anxiety was more strongly associated with cognitive reappraisal, while general anxiety was more strongly associated with expressive suppression; (2) The node with the largest bridge expected influence was the general anxiety scale item: “I spend most of my time worrying about all kinds of things every day”, which played a vital role in connecting different communities; (3) Latent profile analysis revealed that there are three categories among elementary school students: healthy group (59%; high level of emotion regulation, low math anxiety, low general anxiety), average group (28%; moderate level of emotion regulation, math anxiety, general anxiety), and anxious group (13%; low level of emotion regulation, high math anxiety, high general anxiety). This study demonstrates the structural features of math anxiety and general anxiety, enhances the scientific knowledge of the differences and connections between math anxiety and general anxiety, and provides preliminary evidence support for further attention and effective prevention of math anxiety emotions in elementary school stage.

Keywords：math anxiety, general anxiety, emotion regulation, network analysis, latent profile analysis

非符号近似数量表征中的连结点效应：试次间的序数性分析

刘晓宇[1] 刘畅[1] 朱红祥[1] 禚新峰[1] 司继伟[1]（通讯作者）

1 山东师范大学心理学院，济南 250358，sijiwei1974@126.com

摘 要 非符号近似数量表征能力允许个体直接从非符号表征中提取粗略的数量。主流观点支持近似数量系统(Approximate number system, 简称 ANS)的存在，即数值被作为独立维度认知，个体能够从直觉上感知总数值，不受物理线索的干扰。然而，近年来不少学者认为数值维度之外的像素感觉(诸如面积、凸包等)才是影响数值估计的主要因素。因此，有必要辨明个体究竟是通过数值维度还是更局部的感官元素产生数量信息。连结点效应(dumbbell effect/ connectedness effect)是指当用直线连接两个点时，个体对点的数量出现明显低估的现象。稳定的连结点效应为 ANS 的观点提供了支持，在一定程度上有助于解决上述争议。本研究在验证连结点效应的基础上，纳入了试次间的序数性分析，即考察 ANS 中感知的近似数量与符号化数字表征顺序是否保持同向。采用点阵数量（2：多、少）×连线（3：无连结、连结、断线）被试内实验设计，通过控制点阵的半径和凸包等感官线索，以数量估计值为因变量，考察 41 名大学生（20.6±1.2 岁）非符号数量估计的连结点效应。对原始估值进行的重复测量方差分析结果表明：点阵数量少时，连结、断线条件下的数量估计显著低于无连结条件；点阵数量多时，连结条件下的数量估计显著低于无连结条件。进一步以相邻两个试次间的数量估计差为因变量，进行连线变化（3：无线→连线、连线情况不变、连线→无线）×点阵数量（2：多、少）的完全随机设计方差分析。结果发现当两试次之间客观数值相同时，在“无线→连线”条件下观察到显著的数值低估现象，这表明在序数性上同样存在连结点效应。这意味着无论是在显性行为还是在更加接近无意识的认知方式中，个体更可能是在数值维度上感知数量，而非从较低层次的物理特征中提取数量信息。上述发现有助于丰富人们对连结点效应的认识，深化了对近似数量加工机制的理解。

关键词 非符号近似数量表征，连结点效应，试次间分析，序数性

Connectedness Effects in Non-symbolic Approximate Quantitative Representation: Ordinal Analysis between Trials

Xiaoyu Liu, Chang Liu, Hongxiang Zhu, Xinfeng Zhou, Jiwei Si

School of Psychology, Shandong Normal University, Jinan 250358

***Abstract*:** Plenty of evidence shows that the ability of non-symbolic approximate quantity representation are able to extract an approximate number of items from non-symbolic representations. The mainstream view supports the existence of Approximate number systems (ANS), in which enables individuals to perceive numerosity intuitively, and number is recognized as an independent dimension out of all kinds of other visual cues. However, in recent years, many researchers believe that the visual cues (such as area, convex hull, etc.) outside the numerical dimension is the primary factor affecting the numerical estimation. Therefore, it is necessary to distinguish whether the individual perceives quantity through discrete individual intuitions or visual elements. Connectedness effect refers to the phenomenon of significantly underestimating the number of points when two points are connected by a straight line. The existence of a stable connectedness effect can support the existence of the individuation in numerical processing and the ANS view. Based on the repeated verification of the connectedness effect, the current study includes the ordinal analysis between trials, that is, to investigate whether the approximate number perceived in ANS and the order of symbolic number representation maintain the same direction. In this experiment, the original estimation was taken as dependent variables, the number of dot array (more or less) and the case of connection (isolate, connective, disconnective) were taken as independent variables. We tested the connectedness effect of 41 subjects by non-symbolic quantity estimation and found: When the number of dot array is small, estimation in the connective and disconnective conditions were significantly lower than those in the isolate condition. When the number of dot array is more, estimation in the connective condition was significantly lower than those in the isolate condition. In addition, the variance analysis of a completely random design with case of connection changes (3: isolate→ connective, unchanged, connective → isolate) × number of dots (2: more, less) is further performed with the change of inter-trial estimation as the dependent variable. The results show that when the objective values are the same between the two trials, a significant underestimation is occurred from isolate to connective, which indicates that there is also a connectedness effect on ordinality.. This study uses inter-trial analysis to confirm the existence of the connectedness effect from an ordinal point of view, which means that individuals are more likely to perceive quantities intuitively rather than extract quantitative information from

lower-level physical features, both in explicit behavior and in cognitively closer to the unconscious. These findings serve to enrich the understandings of the connectedness effect and approximate quantity.

Keywords: Non-symbolic approximate quantitative representation, Connectedness effect, Inter-trial analysis, Ordinality

5.41 神经心理学专业委员会

孤独症谱系障碍大脑连接组动力学的性别差异：来自动态功能连接的证据

马雪儿[1,2] 赵跃野[1,2] 赵晶晶[1,2](通讯作者)

1 陕西师范大学心理学院，西安，710062

2 陕西省儿童青少年心理与行为健康研究中心，西安，710062，jingjing.zhao@snnu.edu.cn

摘 要 孤独症谱系障碍（autism spectrum disorder, ASD）群体的大脑存在性别差异已被广泛认可。目前主要有两种理论解释 ASD 大脑的性别差异：极端男性脑理论和性别不一致模型。极端男性脑理论强调 ASD 群体的大脑普遍具有男性化趋势，但 ASD 群体内的性别差异模式与典型发育（typically developing, TD）群体较为一致；性别不一致模型则认为 ASD 群体内部的性别差异弱于 TD 群体，甚至与 TD 群体相反。遗憾的是，鲜有脑影像研究探讨 ASD 的性别差异，并为上述模型提供直接的证据支持。本研究借助孤独症脑影像数据交换平台，从节点、连边、大脑状态三个层面，系统探究了 ASD 大脑连接组动力学的性别差异。经过严格的数据筛选以及对性别、年龄、智商总分进行匹配，研究最终纳入 ASD 女性（$M_{年龄（岁）}$ = 13.46）、ASD 男性（$M_{年龄（岁）}$ = 13.27）、TD 女性（$M_{年龄（岁）}$ = 12.90）、TD 男性（$M_{年龄（岁）}$ = 13.55）各 49 人。借助滑动时间窗技术构建大脑连接组的动态功能连接，分别考察了 ASD 大脑的模块变异性、连边变异性以及状态变异性的性别差异。结果发现：1）ASD 男性和女性在左侧额中回均表现出较低的模块变异性，这可能与 ASD 的社交情感缺陷有关；2）ASD 男性和女性在右侧嗅皮质和右侧中央旁小叶的功能连接上均表现出较低的连边变异性，而在左侧杏仁核和右侧前扣带和旁扣带回功能连接的连边变异性上表现出与 TD 组相反的性别差异模式；3）ASD 男性和女性在大脑低功能连接状态（State 4）向高功能连接状态（State 3）的转移上均表现出较低的状态变异性，而在大脑高功能连接状态（State 3）的维持上表现出与 TD 不一致的性别差异模式（大脑状态见图 1）。上述结果表明，ASD 非典型的模块变异性为极端男性脑理论提供了大脑连接组动力学的证据，而 ASD 非典型的连边变异性和状态变异性均分别为极端男性脑理论和性别不一致模型提供了大脑连接组动力学的证据。这些结果也为 ASD 男性和女性的临床诊断和干预，提供了来自大脑连接组动力学视角的新见解。

关键词 孤独症谱系障碍，大脑连接组，动态功能连接，性别差异

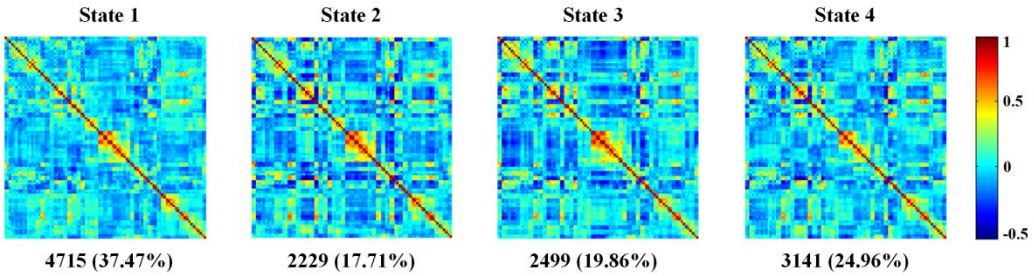


图 1. 聚类算法估计出的 4 种大脑状态

Sex Differences in Brain Connectome Dynamics in Autism Spectrum Disorders: Evidence from Dynamic Functional Connectivity

Xue'er Ma[1, 2] Yueye Zhao[1, 2] Jingjing Zhao[1, 2] (corresponding author)
1 School of Psychology, Shaanxi Normal University,710062
2 Shaanxi Provincial Key Research Center of Child Mental and Behavioral Health, Xi'an, China, 710062, jingjing.zhao@snnu.edu.cn

***Abstract*:** It is widely recognized that there are sex differences in the brain of the individuals with autism spectrum disorder (ASD). The extreme male brain theory and the gender incoherence model are the main theories to explain sex differences in autistic brain. The former emphasizes that the autistic brains present more male-typical features, yet the sex difference modes within the individuals with ASD are still consistent with the typically developing (TD) individuals. However, the latter suggests that the sex differences in ASD are weaker than TD, and even opposite to TD. Nevertheless, few brain imaging studies have investigated sex differences in ASD and provided direct evidence to support the two theories. The current study systematically investigated sex differences in autistic brain connectome dynamics from three levels: node, edge, and brain state. The data were selected from the Autism Brain Imaging Data Exchange (ABIDE) dataset. Forty-nine subjects in each group (age of ASD (years): M_{female} = 13.46, M_{male} = 13.27; age of TD (years): M_{female} = 12.90, M_{male} = 13.55) were included through strict inclusion criteria and matching strategy (i.e., sex, age, and full IQ were matched among the four groups). Using sliding window approach to build the dynamic functional connectivity, the current study respectively explored the sex differences in modular variability (node level), edge variability (edge level), and state variability (brain state level) in autistic brain connectome. The results showed that (i) both autistic males and females presented lower modular variability than TD peers in the left middle frontal gyrus, this atypical pattern in modular variability may be related to autistic social affective deficits; (ii) both autistic males and females showed lower edge variability in the functional connectivity between the right olfactory cortex and the right paracentral lobule than that in TD; however, for the functional connectivity between the left amygdala and the right anterior cingulate and paracingulate gyri, the contrary sex pattern was observed in ASD compared with TD; (iii) both autistic males and females presented lower state variability in the transition from low (State 4) to high (State 3) brain functional connectivity state; in comparison, ASD showed an incoherent sex difference in the maintenance of high brain functional connectivity state (State 3) compared with TD. These results indicated that the extreme male brain theory was supported by autistic atypical modular variability, edge variability, and brain state variability; the gender incoherence model was supported by edge and brain state variability. The current study also provided new insights for clinical diagnosis and intervention in autistic males and females from the perspective of brain connectome dynamics.

***Keywords*:** autism spectrum disorders, brain connectome, dynamic functional connectivity, sex difference

基于静息态脑功能网络连接的 A 型人格神经基础研究

郑安琦[1, 2] 陈曦梅[1, 2] 李为[1, 2] 陈红[1, 2, 3]（通讯作者）
1 西南大学认知与人格教育部重点实验室，重庆，400715
2 西南大学心理学部，重庆，400715，chenhg@swu.edu.cn
3 西南大学心理学心理与社会发展研究中心，重庆，400715

摘 要　A 型人格(Type A Personality, TAP)的主要特征包括强烈的竞争驱力，长期的时间紧迫感和无端敌意。TAP 被证明是健康的风险因素，与较高的工作压力，更多的吸烟，危险驾驶和吸毒行为有关。从对单个、独立脑区的关注转向对整体、全局脑网络的考察将致力于深入理解 TAP 如何与脑功能关联。然而，TAP 的神经影像学研究仍然鲜少，目前仅有的几项研究仅关注了 TAP 与局部脑区结构或功能特征的关系，如与运动有关的辅助运动区和中央前回，与抑制控制有关的额中回以及与情绪调节有关的膝下前扣带回。因此，探究 TAP 与大尺度脑网络特征的关系具有重要的科学价值。为了进一步推进对 TAP 神经基础的认识，本研究使用静息态功能磁共振成像方法，基于预先定义的脑网络模板，对 1614 名被试(平均年龄 18.83 岁，女性占 67.47%)进行功能网络连接(FNC)分析。在控制年龄，性别和头动后，进行回归分析考察 TAP 与脑网络功能连接的关系。随后，使用平衡十折交叉验证的机器学习方法，以检验 FNC 结果的稳定性。结果显示，TAP 得分较高个体的高级认知加工网络(即默认网络[DMN]和额顶网络[FPN])和初级感觉信息加工网络(即感觉运动网络[SMN]和视觉网络[VN])之间具有更强的连通性。十折交叉验证分析结果显示，DMN-SMN, DMN-VN, FPN-SMN 和 FPN-VN 连接能够稳定地预测 TAP。我们进一步检验了组间差异，比较 TAP 高分组(A 型人格得分大于 M+1*SD*, n = 244)和低分组(A 型人格得分小于 M-1*SD*, n = 278)在 FNC 分析得到的四个网络连接上的差异。结果显示，这 4 个网络之间的连接模式依然存在(即 DMN-SMN, DMN-VN, FPN-SMN 和 FPN-VN 连接)。另外， TAP 高分组在 VN 之内，VN 和 SMN 之间的功能连接显著弱于低分组。本研究表明，静息态功能网络连接能够稳定地解释 TAP 的个体差异, 这为 TAP 的神经基础研究提供了新见解；DMN, FPN, SMN 和 VN 之间的相互作用模式可能是 TAP 关键的神经标记物，这些发现有助于识别对个体的身心健康有保护作用或潜在威胁的人格特征。

关键词　A 型人格，静息态功能磁共振成像，脑功能网络连接，机器学习

Resting-state functional network connectivity underlying Type A Personality

Anqi Zheng[1, 2], Ximei Chen[1, 2], Wei Li[1, 2], Hong Chen[1, 2, 3]

1 Key Laboratory of Cognition and Personality (SWU), Ministry of Education, Chongqing, 400715

2 Faculty of Psychology, Southwest University, Chongqing, 400715，chenhg@swu.edu.cn

3 Research Center of Psychology and Social Development, Chongqing, 400715

Abstract： Type A Personality (TAP) is characterized by excessive competitive drive, chronic sense of time emergency, and free-floating hostility. TAP has been linked with an increased risk of poor health, such as more work stress, smoking, risky driving behaviors, and drug consumption. Prior research has suggested that the network-level perspective is likely critical in understanding the neural bases of a complex psychological factor like TAP. However, the neuroimaging studies to date have largely focused on regional brain features related to TAP, such as areas involved in motor (e.g., the supplementary motor area and precentral gyrus), inhibition control (e.g., the middle frontal gyrus), and emotion regulation (e.g., the subgenual anterior cingulate cortex). Thus, there is a need to explore large-scale brain networks underlying TAP to obtain a fuller characterization of TAP-brain. To address this limitation, resting-state functional magnetic resonance imaging was applied to uncover the association between TAP and functional network connectivity (FNC) states based on predefined networks in a large general population sample (N = 1614, M_{age} = 18.83, 67.47% female). Regression analysis was conducted to investigate TAP-connectivity associations, controlling for differences in age, sex, and head motion. To validate the robustness of the FNC results, prediction analyses based on machine learning using ten-fold balanced cross-validation were performed. We observed significant positive correlations between TAP and inter-network functional synchrony.

That is, individuals with higher TAP scores showed increased connectivity between higher-order cognitive processing networks (e.g., the default mode network [DMN] and fronto-parietal task control network [FPN]) and primary sensory processing networks (e.g., the sensory/somatomotor network [SMN] and visual network [VN]). Prediction analysis suggested that the DMN-SMN, DMN-VN, FPN-SMN, and FPN-VN connectivity reliably predicted TAP scores. These connectivity patterns identified in FNC analysis (i.e., DMN-SMN, DMN-VN, FPN-SMN, and FPN-VN connectivity) remained significant when further comparing the high-score group (scored higher than M+1*SD* on TAP scale, n = 244) to the low-score group (scored lower than M-1*SD* on TAP scale, n = 278) on intra- and inter-network connectivity of the 4 identified network. Additionally, the high-score group demonstrated weaker intra-network functional synchrony in the VN and inter-network functional synchrony between the VN and SMN. Our findings confirm that resting-state FNC of young adults robustly accounts for individual differences in TAP in a large sample, providing new insights into TAP. The interplay patterns between the DMN, FPN, SMN, and VN may be crucial neural markers that underlie TAP, which may contribute to identifying personality profiles that play a role in protection against or risk for physical and mental health problems.

Keywords：Type A Personality, Resting-state fMRI, Functional network connectivity, Machine-learning

不同频率重复经颅磁刺激治疗失眠疗效与情绪改善的对比研究

罗嘉莉[1,2]　王玉凯[1]　商盼[1]　黄淑云[1]　刘雅静[1]　谢海群[1*]　陈琦[2*]

1 佛山市第一人民医院，佛山，528000

2 华南师范大学心理学院，广州，510631，chen.qi@m.scnu.edu.cn

摘 要

目的 重复经颅磁刺激（rTMS）是近年来被广泛应用于神经康复领域的一种无创、无痛、无依赖性新技术。低频 rTMS 在失眠患者中的疗效得到多项研究肯定，但目前鲜有研究探讨高频 rTMS 对失眠患者睡眠及情绪的治疗效果。本研究旨在比较低频与高频 rTMS 治疗失眠症的疗效及对患者情绪改善的差异，为失眠患者探索更佳的治疗方案。

方法 选取 2021 年 1 月～2022 年 4 月佛山市第一人民医院神经内科收治的 60 例失眠症患者，根据其近红外脑功能成像(fNIRS)前额叶激活程度分为低频 rTMS 组（携氧血红蛋白浓度均值>0.10(mmol/L)*mm）与高频 rTMS 组（携氧血红蛋白浓度均值<0.10(mmol/L)*mm）各 30 例。低频 rTMS 组以 1 Hz 刺激右侧前额叶背外侧（R-DLPFC），高频 rTMS 组以 10Hz 刺激左侧前额叶背外侧（L-DLPFC），每周 5 次，共治疗 2 周。治疗前后评估匹兹堡睡眠质量指数（PSQI）、Zung 氏抑郁自评量表（SDS）、Zung 氏焦虑自评量表（SAS），比较两组疗效。

结果 低频 rTMS 组及高频 rTMS 组治疗前后 PSQI、 SDS、 SAS 评分均明显下降，差异有统计学意义（P<0.001）；低频 rTMS 组 PSQI 减分率略高于高频 rTMS 组，高频 rTMS 组 SDS 和 SAS 减分率略高于低频 rTMS 组，但差异均无统计学意义（P>0.05）。

结论 低频 rTMS 刺激右侧前额叶背外侧和高频 rTMS 刺激左侧前额叶背外侧均能明显改善患者的失眠症状与伴随的焦虑和/或抑郁症状。低频 rTMS 可能更适合大脑皮层过度兴奋导致的失眠患者，而高频 rTMS 可能更适用于大脑功能下降伴随抑郁症状的失眠患者。

关键词　失眠症，重复经颅磁刺激，近红外脑功能成像，前额叶背外侧，情绪

A comparative study on the efficacy and emotion improvement of

different frequency repetitive transcranial magnetic stimulation in insomnia

Jiali Luo[1,2], Yukai Wang[1], Pan Shang[1], Shuyun Huang[1], Yajing Liu[1], Haiqun Xie[1*], Qi Chen[2*]

[1] Department of Neurology, Foshan Hospital Affiliated to Sun Yat-sen University, 528000, Foshan, China, [2] School of Psychology, South China Normal University, 510631,Guangzhou, China

***Abstract*:**

Objective: Repetitive transcranial magnetic stimulation (rTMS) is a new non-invasive, painless and independent technique that has been widely used in the field of neurological rehabilitation in recent years. The efficacy of low-frequency rTMS in patients with insomnia has been confirmed by many studies, but few studies have investigated the effect of high-frequency rTMS on sleep and emotion in patients with insomnia. The purpose of this study is to compare the efficacy of low frequency rTMS and high frequency rTMS in the treatment of insomnia and the difference of emotion improvement in patients, so as to explore a better treatment plan for insomnia patients.

Methods: A total of 60 patients with insomnia admitted to the Department of Neurology of Foshan Hospital Affiliated to Sun Yat-sen University from January 2021 to April 2022 were selected. According to the activation degree of prefrontal cortex in functional near-infrared spectroscopy (fNIRS), the subjects were divided into low frequency rTMS group (oxygenated hemoglobin concentration mean>0.10(mmol/L)*mm) and high frequency rTMS group (oxygenated hemoglobin concentration mean<0.10(mmol/L)*mm), with 30 cases in each group. Patients in the low-frequency rTMS group received 1 Hz stimulation of the right dorsolateral prefrontal cortex (R-DLPFC), and the high-frequency rTMS group received 10Hz stimulation of the left dorsolateral prefrontal cortex (L-DLPFC), 5 times a week for 2 weeks. The Pittsburgh Sleep Quality Index (PSQI), Zung Self-rating Depression Scale (SDS) and Zung self-rating Anxiety Scale (SAS) were evaluated at baseline and after treatment, the curative effect was compared between the two groups.

Results: The PSQI, SDS and SAS scores of the low frequency rTMS group and the high frequency rTMS group decreased significantly after treatment (P<0.001). The reduction rate of PSQI in the low frequency rTMS group was slightly higher than that in the high frequency rTMS group, and the reduction rate of SDS and SAS in the high frequency rTMS group was slightly higher than that in the low frequency rTMS group, but the differences were not statistically significant (P>0.05).

Conclusion: Both low frequency rTMS stimulation of the right dorsolateral prefrontal cortex and high frequency rTMS stimulation of the left dorsolateral prefrontal cortex can significantly improve the symptoms of insomnia and accompanying anxiety and/or depression. Low frequency rTMS may be more suitable for insomnia patients caused by excessive cortical excitation, while high frequency rTMS may be more suitable for insomnia patients with decreased brain function and depressive symptoms.

***Keywords*:** insomnia, repetitive transcranial magnetic stimulation, functional near-infrared spectroscopy, dorsolateral prefrontal cortex, emotion

6 分组展贴报告

6.1“硕士生学术论坛”分组展贴报告

完美主义与青少年手机成瘾的关系：反刍思维和无聊感的链式中介作用

郑婷[1] 毕爱红[1,2]（通讯作者） 叶莹莹[3]（通讯作者）
（1.石河子大学师范学院，新疆 石河子，832000 2.石河子大学心理应用研究中心，新疆 石河子，832000 biaihong@shzu.edu.cn 3.浙江大学心理与行为系 浙江 杭州 310058 yeyingying@zju.edu.cn ）

摘 要 **目的：**探讨完美主义与青少年手机成瘾、反刍思维、无聊感之间的关系。**方法：**使用Frost多维完美主义量表、反刍思维量表、多维状态无聊量表和手机成瘾指数量表，对新疆维吾尔自治区某 3 所中学的 1250 名青少年进行调查。**结果：**(1)完美主义能够直接正向预测手机成瘾；(2)完美主义通过反刍思维和无聊感的中介作用正向预测手机成瘾；(3)完美主义能够通过反刍思维经无聊感的链式中介正向预测手机成瘾。**结论：**完美主义能够显著正向预测青少年手机成瘾，反刍思维和无聊感在完美主义和手机成瘾之间起链式中介作用。

关键词 完美主义，手机成瘾，反刍思维，无聊感，青少年

The relationship between perfectionism and mobile phone addiction in adolescents: The chain mediating role of rumination and boredom

ZHENG Ting[1] BI Ai-hong[1,2,△] YE Yingying[3]，△
（1. Normal College, Shihezi University, Shihezi, 832000, Xinjiang, China 2. Research Center of Psychological Application, Shihezi University, Shihezi 832000, Xingjiang, China biaihong@shzu.edu.cn 3. Department of Psychology and Behavior, Zhejiang University, Hangzhou 310058 yeyingying@zju.edu.cn)

***Abstract*：Objective:** To explore the relationship between perfectionism and mobile phone addiction, rumination and boredom in adolescents. **Methods:** 1250 adolescents from 3 middle schools in Xinjiang Uygur Autonomous Region were investigated by Frost Multidimensional Perfectionism Scale, Rumination Thinking Scale, Multidimensional State Boredom Scale and mobile phone Addiction Index scale. **Results:** (1) Perfectionism was a positive predictor of mobile phone addiction; (2) Perfectionism positively predicted mobile phone addiction through the mediating effect of rumination and boredom; (3) Perfectionism can positively predict mobile phone addiction through rumination mediated by boredom. **Conclusion:** Perfectionism can positively predict mobile phone addiction in adolescents, rumination and boredom play a chain mediating role between perfectionism and mobile phone addiction.

***Key words*：** Perfectionism, Mobile phone addiction, Rumination, Boredom, teenagers

目睹家庭暴力与非自杀性自伤的关系：一个多重序列中介模型

王泓懿 张珊珊（通讯作者） 崔爱琳
沈阳师范大学教育科学学院，沈阳，110034，E-mail:zhangxiaobai2@163.com

摘 要 非自杀性自伤是指在无自杀意图下，个体故意地、重复地对自己身体实施直接伤害的行为，且不

被社会接纳与认可的行为。目前，非自杀性自伤已成为威胁青少年身心健康的重要公共卫生问题，引发了社会各界的广泛关注。家庭是青少年成长的重要环境，父母关系质量可以直接影响青少年身心发展，相比于直接作用于青少年发展的家庭因素，间接作用在青少年成长中的家庭变量对其伤害性可能更大。从累积风险角度看，目睹家庭暴力可能会加大个体罹患抑郁的风险，个体对目睹家庭暴力的认知评价对其发展具有重要影响。因此，本研究拟探究目睹家庭暴力对青少年非自杀性自伤的影响，同时引入累赘感知、归属受挫和抑郁三个重要的心理变量，进一步探讨目睹家庭暴力对非自杀性自伤的作用机制，以期为青少年非自杀性自伤的防范与干预工作提供实践性指导。为考察归属受挫、累赘感知和抑郁在目睹家庭暴力与非自杀性自伤关系间的多重序列中介效应。采用儿童暴露家庭暴力量表、青少年自我伤害问卷、人际需求问卷、流调中心抑郁量表对 583 名高中生进行调查。结果显示：（1）高中生非自杀性自伤行为检出率为 32.4%；（2）目睹家庭暴力分别与归属受挫、累赘感知、抑郁和非自杀性自伤呈显著正相关；（3）目睹家庭暴力显著正向预测非自杀性自伤；（4）归属受挫、累赘感知和抑郁在目睹家庭暴力对非自杀性自伤的作用中起多重序列中介效应，即目睹家庭暴力分别通过累赘感知、抑郁、累赘感知→抑郁和归属受挫→抑郁对非自杀性自伤起到显著间接作用（中介效应值分别为 0.045，0.018，0.018，0.015；*Ps*<0.001）。因此，归属受挫、累赘感知和抑郁在目睹家庭暴力与非自杀性自伤关系间起多重序列中介作用。
关键词　目睹家庭暴力，非自杀性自伤，归属受挫，累赘感知，抑郁

The relationship between witnessing domestic violence and non-suicidal self-injury: A multiple serial mediation model

Hongyi Wang, Shanshan Zhang, Ailin Cui
College of Education Science, Shenyang Normal University, Shenyang

Abstract：Non-suicidal self-injury refers to the behavior that an individual intentionally and repeatedly inflicts direct harm on his own body without suicidal intention, which is not accepted and approved by the society. At present, non-suicidal self-injury has become an important public health problem threatening the physical and mental health of adolescents, which has aroused widespread concern in the community. Family is an important environment for the growth of adolescents, and the quality of parent relationship can directly affect the physical and mental development of adolescents, as compared with the family factors that directly affect the development of adolescents, the indirect effect of family variables on the growth of adolescents may be more harmful. From the perspective of cumulative risk, witnessing domestic violence may increase an individual's risk of depression, and an individual's cognitive evaluation of witnessing domestic violence has an important impact on their development. Therefore, this study aims to explore the impact of witnessing domestic violence on adolescents'; non-suicidal self-injury, and to introduce three important psychological variables: perceived redundancy, attribution frustration and depression, to further explore the mechanism of witnessing domestic violence on non-suicidal self-injury, in order to provide practical guidance for the prevention and intervention of non-suicidal self-injury in adolescents. To examine the multiple serial mediating effects of thwarted belongingness, perceived burdensomeness, and depression between witnessing domestic violence and non-suicidal self-injury. A total of 583 senior high school students completed four questionnaire surveys. The results showed: (1) The rate of occurrence in non-suicidal self-injury was 32.4% among senior high school students. (2) Witnessing domestic violence was positively associated with thwarted belongingness, perceived burdensomeness, depression and non-suicidal self-injury respectively. (3) Witnessing domestic violence positively predicted non-suicidal self-injury (β=0.17, P<0.001). (4) Thwarted belongingness, perceived burdensomeness and depression played multiple serial mediating effects in the influence of witnessing domestic violence on non-suicidal self-injury. For instance, witnessing domestic violence

played indirect effects on non-suicidal self-injury through the paths of perceived burdensomeness, depression, perceived burdensomeness→depression, and thwarted belongingness→depression, respectively (mediation effect value=0.045, 0.018, 0.018, 0.015; *Ps*<0.001). Therefore, thwartedbelongingness, perceived burdensomeness and depression play multiple sequential mediatingroles in the relationship between witnessing domestic violence and non-suicidal self-injury.

Keywords ： witnessing domestic violence, non-suicidal self-injury, thwarted belongingness, perceived burdensomeness, depression

孤独症谱系障碍与正常发展个体的反语理解差异：一项三水平元分析

庞志强　郑婉瑜　肖泽宇　马伟娜（通讯作者）

杭州师范大学经亨颐教育学院心理学系，杭州，311121，通讯作者 E-mail：mwn505@hznu.edu.cn

摘 要　反语是社会交际中普遍存在的一部分，在这种语言表达中，讲话者的言辞表达与其潜在意图相反。尽管有大量研究报告了孤独症谱系障碍(Autism Spectrum Disorder, ASD)个体在理解反语方面存在严重困难，但也有研究者表示 ASD 个体与正常发展(Typically Developing, TD)个体在理解反语的准确性方面没有显著差异。本研究首次采用三水平元分析技术整合相关实证研究，检验 ASD 与 TD 个体的反语理解能力差异以及影响研究间结果的潜在调节变量。通过文献检索和筛选，纳入 29 篇文献，57 个效应量，共计 845 名 ASD 参与者与 876 名 TD 参与者。主效应检验发现，ASD 个体对反语的理解能力落后于 TD 个体(Hedge's g = -0.55)。元回归分析表明，文化背景和匹配策略的调节效应显著，而年龄、语言类型、任务属性(例如，呈现形式、反语线索、问题类型、回答形式)等变量的调节效应不显著。本研究使用三水平元分析方法提升了纳入文献信息的完整性，从而就 ASD 与 TD 个体的反语理解能力差异及调节变量的作用得出更为全面可靠的结论。然而，由于纳入研究数量的限制，调节变量各亚组的效应量数量不平衡，也无法对一些重要的认知因素(如心理理论、执行功能)进行分析。这提示需要更多的实证研究深入探讨跨文化差异、匹配策略、任务属性以及认知因素对于 ASD 个体反语理解的影响。

关键词　孤独症谱系障碍，反语，比喻性语言，三水平元分析

Differences in Irony Comprehension between Individuals with Autism Spectrum Disorder and Typically Developing Individuals: A Three-Level Meta-Analysis

PANG Zhiqiang, ZHENG Wanyu, XIAO Zeyu, MA Weina

Department of Psychology, Jing Hengyi School of Education, Hangzhou Normal University, Hangzhou 311121, China

Abstract：Irony is a common component of social interaction, where the speaker's verbal expression in this form of language contradicts their underlying intent. Despite numerous studies reporting significant difficulties in understanding irony in individuals with autism spectrum disorder (ASD), some researchers have suggested that individuals with ASD do not show significant differences in accuracy in understanding irony compared to typically developing (TD) individuals. This study, for the first time, employs a three-level meta-analysis method to integrate relevant empirical research, examining differences in irony comprehension between individuals with ASD and TD

individuals, as well as potential moderating variables influencing the results across studies. Through literature search and screening, 29 articles with a total of 57 effect sizes were included, comprising 845 participants with ASD and 876 TD participants. The main effect analysis revealed that individuals with ASD lag behind TD individuals in their ability to comprehend irony (Hedge's g = -0.55). Meta-regression analysis indicated significant moderating effects of cultural background and matching strategy, while the moderating effects of variables such as age, language type, and task properties (e.g., presentation format, irony cues, question type, response format) were not significant. This study enhances the comprehensiveness of the included literature by employing a three-level meta-analysis approach, leading to more reliable conclusions regarding the differences in irony comprehension between individuals with ASD and TD individuals, as well as the role of moderating variables. However, due to the limitation in the number of included studies, there is an imbalance in the number of effect sizes across subgroups of moderating variables. Additionally, it was not possible to analyze important cognitive factors such as theory of mind and executive functions. These findings highlight the need for further empirical research to delve into the impact of cross-cultural differences, matching strategies, task properties, and cognitive factors on irony comprehension in individuals with ASD.

Keywords：autism spectrum disorder, irony, figurative language, three-level meta-analysis

目标定向对大学生学习投入的影响：学业倦怠的中介作用

刘议文 孙文梅（通讯作者）

河南师范大学教育学部心理学院，河南新乡，453007，通信作者 E-mail:sunwenmei328@163.com

摘 要 学生学习投入是促进学业成就的重要影响指标，高投入水平的学生通常会表现出种种有利于学习的特征，并取得更好的学业成绩。成就动机是影响学习投入的重要近端因素，能直接预测学生学习投入水平。动机与投入之轮(Motivation and Engagement Wheel) 是学习投入运用最广泛的理论模型之一。基于该理论和 Dweck 成就目标定向理论，本研究探究学业倦怠在不同目标定向和学习投入之间的作用，以明确不同学成就目标定向对学习投入的影响。采用成就目标定向量表、学业倦怠量表、学习投入量表，随机抽取 401 名在校大学生进行施测，使用 Mplus 8.0 进行数据分析。结果显示：①大学生学习投入、学业倦怠、目标定向均不存在性别、年级的显著差异（ps<0.01）。②表现目标、掌握目标均可显著正向预测学习投入（β=0.111、0.313，ps<0.05），显著负向预测学业倦怠（β=-0.162、-0.382，ps<0.01），学业倦怠显著负向预测学习投入（β=-0.637、-0.607，ps<0.001）。③加入学业倦怠这一中介变量后，表现目标对学习投入的直接正向预测作用不显著（β=0.008，p>0.05），中介效应为 0.103，Bootstrap95%置信区间为[0.040,0.172]，不包括 0，中介效应占比为(0.103/0.111)*100%=92.90%；掌握目标对学习投入直接正向预测作用不显著（β=0.081，p>0.05），中介效应为 0.232，Bootstrap95%置信区间为 [0.170,0.303]，不包括 0，中介效应占比为（0.232/0.313）*100%=74.10%。说明学业倦怠在表现目标、掌握目标与学习投入的关系中均发挥中介作用。基于结果可知，相比于掌握目标与学习投入，学业倦怠在表现目标与学习投入之间发挥的中介作用更强。说明持表现目标学习动机的大学生的学习投入更容易受到学业倦怠的影响。本研究引入学业倦怠这一中介变量，揭示了其在不同目标定向和学习投入之间的不同影响效果，一方面启提示教育者不仅要重视大学生掌握目标的培养，同时也不应忽视表现目标对学习投入的促进作用。另一方面也从掌握目标培养的角度，为减弱学业倦怠对大学生学习投入的影响提供了新的思路和方法。

关键词 表现目标，掌握目标，学业倦怠，学习投入

The Effect of Goal Orientation on College Students' Academic Engagement: the Mediating Role of Academic Burnout

Liu Yiwen Sun Wenmei (Corresponding author)
School of Psychology, Department of Education, Henan Normal University, Xinxiang, Henan, 453007, China E-mail:sunwenmei328@163.com

Abstract: Student engagement in learning is an important influential indicator for academic achievement, and students with high levels of engagement typically exhibit a variety of characteristics that are conducive to learning and achieve better academic performance. Motivation for achievement is an important proximal factor influencing engagement in learning and is a direct predictor of student engagement levels. The Motivation and Engagement Wheel is one of the most widely used theoretical models of learning engagement. Based on this theory and Dweck's achievement goal orientation theory, this study investigated the role of academic burnout in the relationship between different goal orientations and learning engagement to clarify the effects of different student achievement goal orientations on learning engagement. The Achievement Goal Orientation Scale, Academic Burnout Scale, and Learning Engagement Scale were administered to a random sample of 401 college students, and data were analyzed using Mplus 8.0. The results showed that (1) there were no significant differences between gender and grade (ps<0.01) in academic engagement, academic burnout, and goal orientation among college students. (ii) Performance goals and mastery goals were significant positive predictors of academic engagement (β=0.111, 0.313, ps<0.05), significant negative predictors of academic burnout (β=-0.162, -0.382, ps<0.01), and academic burnout was a significant negative predictor of academic engagement (β=-0.637, -0.607, ps<0.001). (iii) After adding academic burnout as a mediating variable, the direct positive predictive effect of performance goal on learning engagement was not significant (β=0.008, p>0.05), the mediating effect was 0.103, Bootstrap 95% confidence interval was [0.040,0.172], excluding 0, and the mediating effect accounted for (0.103/0.111)*100%= 92.90%; the direct positive predictive effect of mastery goal on learning engagement was not significant (β=0.081, p>0.05), the mediating effect was 0.232, Bootstrap 95% confidence interval was [0.170,0.303], excluding 0, and the mediating effect share was (0.232/0.313)*100%=74.10%. This indicates that academic burnout plays a mediating role in the relationship between performance goals, mastery goals, and learning engagement. Based on the results, it is clear that academic burnout plays a stronger mediating role between performance goals and learning engagement than mastery goals and learning engagement. This indicates that the learning engagement of college students who are motivated by performance goals is more likely to be influenced by academic burnout. On the one hand, this study introduces the mediating variable of academic burnout to reveal its different effects between different goal orientations and learning engagement, and on the other hand, it suggests that educators should not only pay attention to the cultivation of mastery goals, but also should not neglect the role of performance goals in promoting learning engagement. On the other hand, it also provides new ideas and methods to reduce the influence of academic burnout on college students' learning engagement from the perspective of mastery goal cultivation.

Keywords: performance goals, mastery goals, academic burnout, learning engagement

3-6 岁农村幼儿动作发展与情绪识别的关系：工作记忆的中介作用

李玲源，姚雪，王明辉

摘 要　习近平总书记在二十大报告中提出，增进民生福祉，提高人民生活品质。要推进健康中国建设，把保障人民健康放在优先发展的战略位置，完善人民健康促进政策。随着乡村振兴战略的实施，在建设健康中国的过程中，尤其是农村幼儿的健康是不可忽视的，他们的健康成长是健康中国的重要部分。目的：探讨 3-6 岁农村幼儿动作发展与情绪识别的关系，以及工作记忆的中介作用。方法：采用方便取样，选取

河南省某乡村幼儿园 3～6 岁幼儿 187 名（男 109 名，女 78 名），采用大肌肉动作发展测试第二版（TGMD-2）、Beads 任务、情绪识别测验（TER）来测试动作发展、工作记忆和情绪识别。结果：幼儿各变量发展在年龄上均存在显著差异，年龄越大，各方面发展越好(P 均 < 0.001)；动作发展与工作记忆和情绪识别两两之间均呈显著正相关（r =0.35～0.42，均 $P < 0.01$）；动作发展显著正向预测工作记忆(β=0.42，$P < 0.001$)，工作记忆显著正向预测情绪识别（β=0.29，$P < 0.001$）。动作发展对情绪识别直接正向预测作用依然显著（β=0.22，$P < 0.01$）。直接效应（0.22）和中介效应（0.12）分别占总效应（0.34）的比例为 64.71%和 35.29%。结论：农村幼儿动作发展不仅能够直接促进情绪识别，也能够通过工作记忆的中介作用间接促进情绪识别。
关键词　动作发展，情绪识别，工作记忆，农村幼儿

The relationship between motor development and emotion recognition of 3-6 year rural children: the mediating role of working memory

Abstract: President Xi Jinping put forward in the Report to the 20th CPC National Congress that improving people's livelihood and improving people's quality of life. It is necessary to promote the construction of a healthy China, give priority to the protection of people's health, and improve people's health promotion policies. With the implementation of rural revitalization strategy, in the process of building a healthy China, especially the health of rural children can not be ignored, and their healthy growth is an important part of a healthy China. Objective: To explore the relationship between motor development and emotion recognition of rural children aged 3-6, and the mediating role of working memory. Methods: Adopt convenient sampling, 187 children (109 boys and 78 girls) aged 3-6 years in a rural kindergarten in Henan Province were selected, and the motor development, working memory and emotion recognition were tested by the second version of the big muscle motor development test (TGMD-2), Beads task and emotion recognition test (TER). Results: There were significant differences in the development of children's variables in age, and the older they were, the better they developed in all aspects ($P < 0.001$). There was a significant positive correlation between motor development and working memory and emotion recognition (r =0.35～0.42, all $P < 0.01$). Motor development significantly positively predicted working memory (β=0.42, $P < 0.001$), and working memory significantly positively predicted emotion recognition (β=0.29, $P < 0.001$). The direct and positive predictive effect of motor development on emotion recognition is still significant (β=0.22, $P < 0.01$). The direct effect (0.22) and the mediating effect (0.12) account for 64.71% and 35.29% of the total effect (0.34) respectively. Conclusion: Rural children's motor development can not only directly promote emotional recognition, but also indirectly promote emotional recognition through the mediating role of working memory.
Keywords: motor development, emotion recognition, working memory, rural children

Neural synchronicity with the child differs between mothers and fathers as revealed by fNIRS-based hyperscanning

Qi Liu [a], Siyu Zhu [a], Xinqi Zhou [b], Benjamin Becker [c,a], Keith M. Kendrick [d], Weihua Zhao [a,d,1]

[a] The Center of Psychosomatic Medicine, Sichuan Provincial Center for Mental Health, Sichuan Provincial People's Hospital, University of Electronic Science and Technology of China, Chengdu 611731, China.
[b] Institute of Brain and Psychological Sciences, Sichuan Normal University, Chengdu 610066, China.
[c] The State Key Laboratory of Brain and Cognitive Sciences, The University of Hong Kong, Hong Kong 999077, China.
[d] The Clinical Hospital of Chengdu Brain Science Institute, MOE Key Laboratory for NeuroInformation, School of Life Science and Technology, University of Electronic Science and Technology of China, Chengdu 611731, China.
[1] Corresponding author. Email: zarazhao@uestc.edu.cn (Weihua Zhao)

***Abstract*:** Parental care including offspring feeding and care is essential for survival and mental and physical development. Direct paternal care is central to most human societies with varying degrees of engagement in affiliative behaviors exhibited by fathers (i.e. carrying or grooming) which are partly distinct from those of mothers. Moreover, mothers and fathers have evolved differential roles with for example the majority of communicative interactions between infants and mothers tending to lower arousal activity including mutual gazing, co-vocalizations and affectionate touch while interactions between fathers and infants, such as play, tend to increase arousal. Meanwhile, neural synchronicity occurs between mothers and fathers and their children during these social interactions but it is unclear whether they differ in this respect.

In the current study, we used data from a publically available fNIRS-based hyperscanning dataset with 33 mother-child and 29 father-child dyads to examine the inter-subject synchronization (ISS) differences in mothers and fathers and their children during passive co-viewing of 3-min children's program videos and 10-min free-play activities. Both the video complexity of the videos and the behavioral and emotional interactions of the dyads during free-play were micro-coded. In addition, all parents were administered the Parenting Stress Index-Short Form to assess the parents' perceived parenting stress. We employed a phase-locked values and K-means algorithm respectively to evaluate the dynamic synchronization strength and identify specific patterns of ISS across different regions during passive or active interaction tasks. Changes specific to parent-child dyads were established by contrasting them with randomized pairs of parents and children using a K-space-based permutation test that relies on the K-means and K-Nearest Neighbor algorithm.

We found that, during passive viewing of videos, mothers showed greater synchrony with their children than fathers in an ISS pattern involving the aPFC and IFG and synchronization was positively associated with video complexity and negatively associated with parental stress. During play interactions, mothers showed more controlling behaviors over their child and greater evidence for joint gaze and joint imitation play with their children whereas fathers were less controlling and more sensitive but spent more time gazing at other things. While no parental gender differences were observed in the strength of synchronization patterns during the free-play sessions, the proportion of one involving the left SFG, MFG and IFG was only positively correlated in mothers with their level of child involvement. Interestingly, patterns of neural synchrony showed a high degree of overlap between passive and active interaction contexts. Furthermore, while mother-child dyads showed greater synchronization in an ISS pattern mainly involving the SFG when the child smiled, in father-child dyads it did so in another pattern involving the SFG and right MFG and IFG when the child verbalized. Notably, the synchronization strength in an ISS pattern associated with the child smiling was negatively associated with the level of how difficult the child was perceived to be.

Together, these findings provide evidence for greater neural synchrony between young children and their

mothers, relative to random mother-child pairings, during shared passive activities in some regions of the frontal cortex and greater joint attention during play interactions, although strength of synchrony was weakened by levels of parental distress and perceived child difficulty. Additionally, different aspects of child communication may promote neural synchrony between mothers and fathers and their children during active play interactions.
***Keywords*:** Parent-child, fNIRS, Synchrony, Frontal cortex, Parental stress

中小学生亲社会行为与心理适应问题的关系：同伴偏好与社交自我知觉的链式中介作用

李明欣[1]　金国敏[2]　任童颜[1]　阿尔升·海达别克[1]　陈凌隽[3]　丁雪辰[1]（通讯作者）
1 上海师范大学心理学系，上海，200234，通讯作者邮箱：dingxuechen_psy@163.com
2 华东师范大学心理与认知科学学院，上海，200062
3 上海交通大学教育学院，上海，200240

摘 要　亲社会行为是个体在社会交往中有利于他人和社会的自愿行为或倾向，虽然已有大量研究发现亲社会行为与个体心理适应问题之间呈负相关，但其中的潜在中间过程机制尚不明确。社交自我知觉是个体对自己社交状况的主观评价，同伴偏好是个体被同伴群体喜欢的程度，在以往研究中都是作为测量同伴地位的重要指标，本研究旨在探讨其在亲社会行为与心理适应问题中的中介作用。本研究对上海市某小学和中学的 951 名 3~7 年级的学生（*M*age =11 岁）采用同伴提名的方法收集了其亲社会行为和同伴偏好水平，运用自我报告方法收集了社交自我知觉以及心理适应问题指标（即孤独感和抑郁感）的水平。结果表明：（1）在中小学生群体中，亲社会行为与同伴偏好和社交自我知觉呈正相关，但与孤独感和抑郁感负相关；同伴偏好和社交自我知觉也与孤独感和抑郁感呈负相关；（2）在控制了性别和年龄后，同伴偏好和社交自我知觉在中小学生的亲社会行为和心理适应问题之间构成链式中介作用，即中小学生所表现出的亲社会行为使他们更受欢迎，拥有更高水平的同伴偏好，而这种高同伴偏好又能提高中小学生的社交自我知觉，进而减少他们的抑郁感和孤独感。因此，本研究揭示了中国文化背景下亲社会行为与中小学生心理适应问题之间的潜在中间机制，为理解中小学生群体的亲社会行为的适应功能提供了新的思考，并为预防和干预中小学生的心理适应问题提供了相应的理论参考。
关键词　亲社会行为，心理适应问题，同伴偏好，社交自我知觉，链式中介作用

Relations between Prosociality and Psychological Maladjustment in Chinese Elementary and Secondary School Students: Mediating Roles of Peer Preference and Self-PerceivedSocial Competence

Mingxin Li[1], Guomin Jin[2], Tongyan Ren[1], Aersheng Haidabieke[1], Lingjun Chen[3], Xuechen Ding [1]
1 Department of Psychology, Shanghai Normal University, Shanghai 200234, China
2 School of Psychology and Cognitive Science, East China Normal University, Shanghai 200062, China
3 School of Education, Shanghai Jiao Tong University, Shanghai 200240, China

Abstract： Prosociality refers to one's tendency to act in a manner that benefits others, and it manifests in many ways, such as caring, sharing, and helping, which have been proven to be negatively linked with psychological maladjustment. However, the mechanisms that might help to explain the association between prosociality and psychological maladjustment are not well understood. Peer preference means being well-liked and preferred by peers; Self-perceived social competence refers to one's subjective perceptions of competence or adequacy in the social domain of functioning. Previous findings have proved that both of peer preference and self-perceived social competence are relevant with students' prosociality and psychological maladjustment. Therefore, the goal of the present study was to examine the mediating effects of peer preference and self-perceived social competence on the associations between prosociality and psychological maladjustment (i.e., depressive symptoms and loneliness). Participants were 951 students (Mage = 11 years, 442 girls) in Grades 3~7 from Shanghai, China. They completed peer nominations of prosociality and peer preference and self-report measures of self-perceived social competence, depressive symptoms, and loneliness. Multiple mediation analyses revealed that: (1) prosociality is directly and negatively related to loneliness and depressive symptoms but positively related to peer preference and self-perceived social competence, while peer preference and self-perceived social competence related to loneliness and depressive symptoms negatively; (2) Prosociality is linked with psychological maladjustment through its negative associations with peer preference and self-perceived social competence in a serial way. That is, prosociality may be related to greater levels of peer preference, which in turn may be associated with higher levels of self-perceived social competence. Higher self-perceived social competence would then be related to decreased psychological maladjustment (i.e., depressive symptoms and loneliness) among students of elementary and secondary school in Chinese culture. The findings of this study point to potential targets in the prevention and intervention of Chinese students' internalization of problems.

Keywords： prosocial behavior, psychological maladjustment, peer preference, self-perceived social competence

4 至 10 岁儿童对学业进步和退步的理解与评价

胡颖[1] 舒宇航[2] 赵欣[1]（通讯作者）

1 华东师范大学教育心理学系，上海，200062，xzhao@dep.ecnu.edu.cn

2 弗吉尼亚大学心理学院,美国弗吉尼亚州夏洛茨维尔，22903

摘 要 当评价他人的学业表现时，我们不只关注某一次的表现，也会关注一段时间内表现的变化，比如进步或退步。以往研究发现，儿童会对他人的学业成就进行评价，但尚未有研究探究儿童如何看待一段时间内的表现的变化，因而本研究探究儿童对一段时间内学业表现变化的理解、推测和评价。在研究一中（102 名 4~10 岁儿童和 92 名成人），我们给被试呈现两位故事人物在一学期内的两次考试的表现，其中一位故事人物在两次考试中均获得 4 张贴纸（即，不变者），另一位故事人物则在第一次考试获得 3 张贴纸，第二次考试获得 4 张贴纸（即，进步者）。接着，我们让被试推测两位故事人物谁更聪明，谁更努力，并且进行评价（如，奖励给谁？你更喜欢谁？谁以后会更成功？）。结果发现，4~9 岁的儿童均推测不变者更加聪明（$t(100) = -7.578$, $p < 0.001$），但年龄较小的儿童认为不变者也更加努力，而年龄更大的儿童及成人则认为进步者更努力（$r = 0.397, p < 0.001$）。此外，儿童的评价也随年龄变化，年龄更大的儿童对进步者评价更高（$r = 0.635, p < 0.001$）。研究二（103 名 4~9 岁儿童和 106 名成人）采用与研究一基本一致的方法，并探究变化方向（即，进步或退步，被试内变量）的影响。结果发现，儿童和成人对成绩变化者的偏好均受变化方向的影响。具体表现为，当比较成绩进步者与不变者时，年龄较小的儿童更加偏好不变者，年龄更大的儿童及成人则更加偏好进步者（$r = 0.470, p < 0.001$）；当比较成绩退步者与不变者时，年龄较小的儿童更加偏好退步者，年龄更大的儿童及成人则更偏好不变者（$r = -0.387, p < 0.001$）。研究三（51

名 4~6 岁儿童）进一步探究，最后一次考试中，进步者成绩与不变者成绩的比较情况是否会影响学龄前儿童的评价。结果发现，当进步者最后一次考试的表现与不变者相同时，4~6 岁儿童的评价稍微倾向于不变者（$t(49) = -1.801$, $p = 0.078$）；但当进步者最后表现超过不变者时，4~6 岁儿童则明显对进步者评价更高（$t(48) = 2.830$, $p = 0.007$）。综上所述，随着年龄的增长，儿童对进步和退步的理解越来越成熟，并且他们对于学业变化的理解和评价会灵活考虑到变化方向及最终表现等因素。本研究对了解儿童是如何理解学业变化，从而引导儿童理性对待进步或者退步有重要意义。
关键词　学业表现，成就认知，学业进步，聪明努力，学龄前儿童

Understanding and Evaluations of Academic Progress and Regress in Children Aged 4 to 10

Ying Hu[1]　Yuhang Shu[2]　Xin Zhao[1] (Corresponding author)

1 Department of Educational Psychology, East China Normal University, Shanghai, 200062, xzhao@dep.ecnu.edu.cn

2 Department of Psychology, University of Virginia, Charlottesville, Virginia, USA, 22903

***Abstract*:** When evaluating others' academic performance, we not only focus on how one performs at one time, we also consider changes in performance over time (e.g., increase or decrease in performance). Previous studies have found that children can reason about evaluate about others' academic achievements, but there has been no investigation on how children reason and evaluate changes in academic performance over a period of time. In the current study, we investigated children's inferences and evaluations of changes in academic performance over time. In Study 1, 102 children aged 4-10 and 92 adults were presented with two story characters and their performances in two exams over one semester. One of the characters got 3 stickers in the first exam and 4 stickers in the second exam (i.e.,the increasing character). The other character got 4 stickers in both exams (i.e., the constant character). Participants were then asked about their inferences of the two characters (i.e., "Who is smarter?", "Who is more hardworking?"), and the comparative evaluations of the two characters (i.e.,"Who would you award a prize to ?", "Who do you prefer?", "Who will be more successful in the future?"). The results showed that children aged 4 to 9 all inferred the constant character as smarter ($t(100) = -7.578$, $p < 0.001$). Younger children also inferred the constant character as more hardworking, while older children and adults inferred the increasing character as more hardworking ($r = 0.397$, $p < 0.001$). In addition, with age, children tended to evaluate the increasing character more favorably than the constant character ($r = 0.635$, $p < 0.001$). Study 2 (103 children aged 4 to 9 years and 106 adults) employed similar method as Study 1, and further examined the effect of direction of change (i.e., increasing or decreasing, within-subject). The results showed that children's and adults' preference for the changed character was influenced by the direction of change. Specifically, when comparing the increasing character with the constant one, with age, children tended to favor the increasing character ($r = 0.470$, $p < 0.001$). However, when comparing the decreasing character with the constant one, with age, children tended to favor the constant character ($r = -0.387$, $p < 0.001$). Study 3 (51 children aged 4-6 years) further investigated whether the comparative performance in the last exam influenced preschoolers' evaluations. The results showed that when the increasing character's performance on the last exam was the same as that of the constant character, children aged 4 to 6 evaluated the constant character more favorably ($t(49) = -1.801$, $p = 0.078$). However, when the increasing character outperformed the constant in the last exam, children aged 4 to 6 instead evaluated the improved character more favorably ($t(48) = 2.830$, $p = 0.007$). In summary, with age, children's understanding and evaluation of changes in performance over time gradually develop, and they gradually flexibly take into account factors such as the

direction of change and comparative final performance. This research is of great significance to our knowledge of how children understand changes in performance and guide children to rationally evaluate these changes.

Keywords：academic performance, achievement cognition, academic progress, intelligence, effort, preschoolers

学业拖延的成因与影响因素的研究进展

温丞[1]　　张鹏程[2]（通讯作者）

1 南通大学教育科学学院，江苏南通， 226001

2 南通大学教育科学学院；江苏南通， 226001，E-mail:444617269@qq.com

摘 要　现教育过程中学业拖延越来越广泛流行，其普遍存在于个体或群体的学生之间。学业拖延是指在既定学习任务的基础上，按照要求完成所需要的学业任务过程中，出现的学业拖延现象，且伴随着不愉快的主观体验。对于广大学生来说，学业拖延情况的改善有助于其学业成就的提高，促进学生个体心理健康的发展。此外，学业拖延情况的改善有助于教师管理和提高教育水平，对于教育事业的长期发展有着不可忽视的作用。学业拖延受多种因素的影响，是个体主观的选择，一般有内心冲突的表现，往往会导致不良的结果。现有国内外研究提出了许多关于学习拖延概念的解释，同时制定了多种度量学习拖延的工具，提出了多种解释学习拖延原因的理论。文章对于现有研究对学业拖延含义的界定进行了简单的归纳；从一个新的视角去讨论分析了学业拖延的产生原因以及各因素对学业拖延的影响。从人格特质理论、本能论或自我防御理论、强化说、时间折扣与期望价值理论来分析学业拖延的产生原因。任务性质、人格特质、完美主义与自我阻碍、动机都会在一定程度上对学业拖延造成影响。内部因素和外部环境，都会导致学业拖延的产生，同时不同的内部和外部环境对学业拖延的影响不同。最后，本文提出了现有研究中的一些不足之处，并基于这些不足之处，对未来的研究方向进行了展望。

关键词　学业拖延，成因，影响因素

Research progress of the cause and factors of academic delays

WenCheng[1]　　ZhangPengchneg[2]（Communication Author）

1 School of Education and Science, Nantong University, Nantong, Jiangsu, 226001

2 School of Education and Science, Nantong University; Nantong, Jiangsu, 226001, e-mail: 444617269@qq.com

Abstract：The current education process is becoming more and more widely popular, and it is generally existing between individual or group students. Academic delay refers to the academic delay phenomenon that appears in the process of completing the academic tasks required in accordance with the required academic task, accompanied by unpleasant subjective experience. For the majority of students, the improvement of academic delay will help improve their academic achievements and promote the development of individual mental health of students. In addition, the improvement of academic delays can help teachers' management and improve education level, which has a role in the long -term development of education. Academic delays are affected by various factors. They are individual subjective choices. Generally, they have inner conflict and often lead to bad results. There are many explanations on learning delayed concepts, at the same time, it has developed a variety of measures for learning delay, and a variety of interpretation of the theory of learning delay is proposed. The article simply summarizes the definition of academic delay in the existing research; discussed and analyzed the cause of academic delay from a new perspective and the impact of various factors on academic delay. The cause of

academic delay is analyzed from personality theory, instinctive theory or self -defense theory, strengthening theory, time discounts and expectations of value. Mission nature, personality characteristics, perfectionism and self -obstruction, and motivation will affect academic delay to a certain extent. Internal factors and external environments will lead to the emergence of academic delays. At the same time, different internal and external environments have different impact on academic delay. Finally, this article proposes some of the shortcomings in the existing research, and based on these shortcomings, the future research direction is outlook.
Keywords：Academic delays, Causes, Influencing factors

后新冠疫情时代大学生大五人格与焦虑情绪的关系研究

温丞[1]　　张鹏程[2]（通讯作者）
1 南通大学教育科学学院，江苏南通，　226001
2 南通大学教育科学学院；江苏南通，　226001，E-mail:444617269@qq.com

摘 要　2020 年初，新冠病毒肺炎疫情在全球爆发,疫情防控常态化措施在 2022 年被执行，新冠疫情给全球各地人民的生活带来了不同程度的影响，其中个体的心理健康受到的危害尤其严重。其主要外显的表现为焦虑、抑郁等情绪的增加。个体身心健康是人民全面发展的目标，面对这种个体身心健康危机，在后新冠疫情时代，为揭示后新冠疫情时代大学生大五人格与焦虑情绪的关系，通过有效的利用人格去预测被试的焦虑情绪，在这项研究的基础上从而为后续更深入的大学生身心健康研究做铺垫。研究对高校大学生使用大五人格量表 BFI 与新冠肺炎相关焦虑量表进行网络线上问卷调查，使用 SPSS 对影响因子进行独立性 t 检验、相关性检验以及线性回归分析，探讨二者之间的相关关系。在大背景后新冠疫情时代，本研究中大学生经历新冠肺炎后相关焦虑处于轻度焦虑，在人口学特征中，女性大学生在经历新冠疫情后焦虑情绪高于男性大学生，较男性大学生受到更多影响。人格特质对焦虑情绪具有直接的预测作用，大五人格五个维度与后新冠疫情焦虑情绪呈现相关关系且相关性不同，神经质与后新冠疫情焦虑情绪呈现显著正向相关，宜人性、责任心与后新冠疫情焦虑情绪呈现显著负相关。经历新型冠状肺炎疫情后，高校应在现阶段新冠疫情防控工作中，对女性大学生、神经质的大学生给予更多关注。
关键词　神经质,新冠疫情,大五人格,焦虑情绪

Research on the relationship between the five personality and anxiety of college students in the era of the Post- COVID-19 epidemic

WenCheng[1]　　ZhangPengchneg[2]（Communication Author）
1 School of Education and Science, Nantong University, Nantong, Jiangsu, 226001
2 School of Education and Science, Nantong University; Nantong, Jiangsu, 226001, e-mail: 444617269@qq.com

Abstract：At the beginning of 2020, the new coronary virus pneumonia epidemic broke out around the world, and the normalization measures for the prevention and control of the epidemic were implemented in 2022. The COVID-19 epidemic has a varying degree of impact on the lives of people around the world. Among them, the harm of individual mental health is particularly serious. The main manifestations are the increase in emotions such as anxiety and depression. Individual physical and mental health is the goal of the people's comprehensive development. Facing this kind of personal and mental health crisis in individuals, in the post -COVID-19 epidemic era, in order to reveal the relationship between the five personality and anxiety emotions of college students in the

Post- COVID-19 epidemic era, it is effectively using personalities to predict the trial. Anxiety, on the basis of this research, pave the way for subsequent deepening college students' physical and mental health research. Study on college students using large five personality tables BFI and new coronary pneumonia related anxiety tables to conduct network online questionnaire surveys, use SPSS to conduct independent T test, related testing, and linear regression analysis of influencing factors, and explore the two between the two relationship. In the era of the COVID-19 epidemic after the big background, the relevant anxiety is in mild anxiety after experiencing the new crown pneumonia in China. In the characteristics of population, female college students are higher than male college students after experiencing the COVID-19 epidemic. Essence Personal traits have a direct predictive effect. The five dimensions of the five -person personality and the post -COVID-19 epidemic are different and the correlation is different. The neurotic and the post -COVID-19 epidemic anxiety emotion is significantly positive. The COVID-19 epidemic anxiety is significantly negative. After experiencing a new type of coronary pneumonia, colleges and universities should pay more attention to female college students and neurotic college students in the current COVID-19 epidemic prevention and control work.

Keywords：Nervous, Post- COVID-19, Big five personality, Anxiety

中小学生病理性互联网使用与学业表现的关系随年龄发展显著变弱

李静[1] 吴欢欢[1] 于晓丹[1]（通讯作者）

1 中国海洋大学教育系，青岛，266100，yuxiaodan@ouc.edu.cn

摘 要　随着信息技术的广泛应用，病理性互联网使用成为全球关注的社会问题，研究者将其定义为一种无法控制互联网使用而导致不良后果的成瘾行为。青少年是受病理性互联网使用影响最大的群体，由于自我控制和自我管理能力尚未成熟，他们更容易被互联网分散时间和精力从而导致较差的学业表现。虽然有研究关注病理性互联网使用与学生学业成绩之间的关系，但很少有研究深入探讨问题性互联网使用与学业成绩之间的关系如何随年龄变化。本研究采用整群随机抽样方法对我国 17208 名四年级学生（M_{age}=9.79±0.44；男生 8898 名）和 11127 名八年级学生（M_{age}=13.65±0.54；男生 5477 名）进行病理性互联网使用和数学成绩的数据收集，以探析病理性互联网使用发生率的年级差异以及病理性互联网使用与学业表现相关性的随龄变化规律。结果表明：（1）四年级病理性互联网使用发生率为 9.50%，其中男生 1359 名，女生 605 名；八年级发生率 6.60%，其中男生 482 名，女生 247 名。小学成瘾比例高于初中，男生比例高于女生。（2）病理性互联网使用与数学成绩之间存在显著的负相关关系，其中强迫性冲浪和负面后果维度与四年级、八年级学生的数学成绩呈显著负相关。（3）年级上，八年级学生病理性互联网使用与数学成绩的相关性在两个维度上都明显低于四年级；性别上，八年级女生的相关性明显低于男生。（4）多因素方差分析结果显示，年级和性别对强迫性冲浪维度具有显著的交互效应，但对负面后果维度没有影响；年级和性别对强迫性冲浪与数学表现之间的关系以及负面后果与数学表现之间的关系存在显著的交互效应。本研究对不同年龄病理性互联网使用的发生率进行比较，进一步探析病理性互联网使用与数学成绩之间负相关的随龄变化情况，可从教育环境变化角度为提高病理性互联网使用学生的学习成绩提供思路。

关键词　病理性互联网使用，数学成绩，发生率，年龄差异

The Relationship between Pathological Internet Use and Academic Performance in Primary and Secondary Schools Weakens Significantly with Age

Li Jing[1], Wu Huanhuan[1], Yu Xiaodan[1] (Corresponding Author)
1 Department of Education, Ocean University of China, Qingdao 266100,
yuxiaodan@ouc.edu.cn

Abstract： With the wide application of information technology, pathological Internet use has become a social problem of global concern. Researchers define pathological Internet use as an addictive behavior that can not control Internet use and lead to adverse consequences. Teenagers are the group most affected by pathological Internet use. As their self-control and self-management abilities are not yet mature, they are more likely to be distracted by the Internet, which will lead to poor academic performance. While research has focused on the relationship between pathological Internet use and student academic achievement, few studies have delved into how the relationship between problematic Internet use and academic achievement changes with age. In this study, cluster random sampling was applied to 17208 fourth grade students in China (Mage=9.79±0.44; 8898 boys) and 11127 eighth graders (Mage=13.65±0.54; 5477 boys) collected the data of pathological Internet use and math performance to explore the grade differences in the incidence of pathological Internet use and the age-related changes of the correlation between pathological Internet use and academic performance. The results showed that: (1) The incidence of pathological Internet use was 9.50% in the fourth grade, including 1359 boys and 605 girls; In grade 8, the incidence was 6.60%, with 482 boys and 247 girls. The proportion of addiction in primary school is higher than that in junior middle school, and the proportion of boys is higher than that of girls. (2) There was a significant negative correlation between pathological Internet use and math achievement, in which compulsive surfing and negative consequences were significantly negatively correlated with fourth and eighth grade students' math achievement. (3) In grade, the correlation between pathological Internet use and math achievement of eighth graders was significantly lower than that of fourth graders in both dimensions; In terms of gender, the correlation was significantly lower for eighth grade girls than for boys. (4) The results of multivariate analysis of variance showed that grade and gender had significant interaction effects on the compulsive surfing dimension, but had no effect on the negative consequences dimension; Grade and gender had significant interactive effects on the relationship between compulsive surfing and math performance, and on the relationship between negative consequences and math performance. This study compared the incidence of pathological Internet use at different ages, and further explored the age-related negative correlation between pathological Internet use and math performance, which could provide ideas for improving the academic performance of students with pathological Internet use from the perspective of changes in educational environment.

Keywords： Pathological Internet use, Mathematics achievement, Incidence, Age difference

青春期学生学业评价反馈中的白色谎言：基于整合视角下的阐释

王喆[1]　黄蓉[2]　方紫梦[3]　陈建新[3]（通讯作者）
1 中国科学技术大学人文与社会科学学院，合肥，230051
2 武汉机电工程学校学工处，武汉，430012
3 湖北大学师范学院，武汉，430061
通讯作者 E-mail：CHY_990802@163.com

摘 要　**目的：**“善意的谎言”即白色谎言是儿童、青少年社会交往与个人发展过程中的一个重要内容。本文从整合的视角出发，探讨青春期学生在真实的学业水平的“基准”之上，在施予和接受学业评价反馈的过程中产生了多大程度的偏差(即白色谎言)，并进一步分析在白色谎言的交流与反馈中，是否会因年龄和性别的不同产生差异。**方法：**研究 1 通过模拟学生相互评价场景，从施予角度验证白色谎言的存在与年级差

异。研究 2 通过模拟教师作文批阅任务，从接受角度验证白色谎言的存在与性别差异。研究 3 则探讨了自然条件下学生互评中的白色谎言，从施予和接受两个角度再次印证了研究 1 和研究 2 的结论。**结果：**（1）在各研究条件下平均评分均高于真实情况（t=20.59、t=14.13，P＜0.001）；（2）研究 1、研究 3 显示白色谎言在年级上存在显著差异（F=5.96，p=0.001, η_p^2 = 0.11；F=3.59，P=0.02, η_p^2 = 0.13）；（3）研究 2、研究 3 显示白色谎言在性别上存在一定的显著性（t(61)=-1.77，P=0.08；χ^2 (1, N = 77) = 5.096, P = 0.02, ϕ(Phi) = 0.26）。**结论：**三项研究的结果表明：(1)白色谎言在学业评价反馈中普遍存在；(2)从施予视角看，白色谎言的程度存在年级差异，在五年级即 11 岁左右达到最高；(3)从接受视角看，白色谎言的程度存在着性别差异，女性可能会接受更高程度的白色谎言反馈，而男性接受的反馈则相对更接近真实水平。
关键词　白色谎言，整合视角，青春期学生，学业评价反馈

White lies in the feedback of adolescent students' academic evaluation: An interpretation from the perspective of integration

WANG Zhe[1]　HUANG Rong[2]　FANG Zi-meng[3]　CHEN Jian-xin[3](Corresponding author)

1 School of Humanities and Social Sciences, University of Science and Technology of China, Hefei, Anhui 230051

2 Department of Student Affairs, Wuhan Electromechanical Engineering School, Wuhan, Hubei 430012

3 Normal School, Hubei University, Wuhan, Hubei 430061

***Abstract*：** **Objective:** kind lies, or white lies, are an important part of the social interaction and personal development of children and adolescents. From the perspective of integration, this paper explores to what extent adolescent students have deviations in terms of white lies in the process of giving and receiving academic evaluation feedback based on the "benchmark" of real academic level, and further analyzes whether there are differences in the communication and feedback of white lies due to age and gender**. Methods:** Study 1 verified the existence and grade differences of white lies from the giving perspective by simulating peer evaluation scenarios. Study 2 verified the existence and gender differences of white lies from the receiving perspective by simulating teacher essay grading tasks. Study 3 explored white lies in student peer evaluation under natural conditions, and confirmed the conclusions of Studies 1 and 2 from both giving and receiving perspectives. **Results:** (1) The average scores in all study conditions were higher than the actual situation (t=20.59, t=14.13, P<0.001); (2) Studies 1 and 3 showed significant grade differences in white lies (F=5.96, p=0.001, η_p^2 = 0.11; F=3.59, P=0.02, η_p^2 = 0.13); (3) Studies 2 and 3 showed some significance in gender differences in white lies (t(61)=-1.77，P=0.08；χ^2 (1, N = 77) = 5.096，P = 0．02，ϕ(Phi) = 0．26). **Conclusion:** The results of three studies indicate that: (1) White lies are common in academic evaluation feedback; (2) From the giving perspective, there are grade differences in the degree of white lies, reaching a peak at grade five or around age eleven; (3) From the receiving perspective, there are gender differences in the degree of white lies; females may receive higher levels of white lie feedback while males receive feedback that is closer to reality.

***Keywords*：** White lies, integrative, adolescent students, academic evaluation feedback

数学知识类型与学生数学焦虑的关系—

—基于结构方程模型的实证研究

吴欢欢[1]　李静[1]　于晓丹[1]（通讯作者）
1 中国海洋大学教育系，青岛，266100，yuxiaodan@ouc.edu.cn

摘 要　数学焦虑是在完成与数学相关任务时紧张焦虑的情绪反应。大量研究表明数学焦虑与数学成绩之间存在显著负相关，个体的数学焦虑水平越高，在不同类型数学任务中的表现就越差。但数学知识的不同类型与学生数学焦虑的关系如何尚未得到证实。数学知识类型包含情境数学、符号数学和言语数学三部分，其中的情境数学指包含数学原理的情境，符号数学是采用特定的数学符号（数字和字母）等对数学原理加以表示，言语数学主要指用自然语言对数学原理进行描述。本研究旨在探讨数学知识的不同类型（三元数学）与学生数学焦虑的关系。研究招募 4496 名四年级学生（男生 2144 名，女生 2352 名）和 4018 名八年级学生（男生 1898 名，女生 2120 名），共 8514 名学生。所有学生均参加了数学焦虑问卷调查和数学成就测验，其中数学成就测验的试题内容划分为言语类、符号类、情境类的问题解决任务。结果发现：（1）四年级数学焦虑高于八年级；四年级女生数学焦虑高于男生，八年级男生数学焦虑高于女生，随年级增长，数学焦虑出现性别转移。（2）数学焦虑与数学成就之间存在显著的负相关，八年级学生数学焦虑与数学成就的负相关关系低于四年级。（3）利用结构方程模型定量分析了符号类、情境类、言语类数学问题解决任务对数学焦虑的影响程度，结果表明，符号类数学问题解决任务与学生数学焦虑的关系相较于言语类和情境类数学问题解决任务更为密切；符号类数学问题解决任务比言语类和情境类数学问题解决任务更容易引发数学焦虑。数学焦虑主要通过符号类数学问题解决任务影响学生数学学业成就，在数学教学过程中，应重视数学内容的呈现形式、教学方法等，尤其是符号类数学问题解决任务，尽量降低数学焦虑的负面影响，帮助其提高学业成就。

关键词　数学焦虑，数学知识类型，符号数学，性别差异

The relationship between types of mathematical knowledge and students' mathematical anxiety--An empirical study based on structural equation modelling

Wu Huanhuan [1], Li Jing[1], YU Xiaodan[1] (Corresponding Author)
1 Department of Education, Ocean University of China, Qingdao 266100,
yuxiaodan@ouc.edu.cn

Abstract: Mathematical anxiety is the emotional response of nervousness and anxiety when completing tasks related to mathematics. Numerous studies have shown that there is a significant negative correlation between maths anxiety and maths performance, and that the higher an individual's level of maths anxiety, the worse he or she performs in different types of maths tasks. However, how different types of mathematical knowledge relate to students' mathematical anxiety has not been proven. The types of mathematical knowledge contain three parts: situational mathematics, symbolic mathematics and verbal mathematics, where situational mathematics refers to situations containing mathematical principles, symbolic mathematics is the representation of mathematical principles using specific mathematical symbols (numbers and letters), etc., and verbal mathematics mainly refers to the description of mathematical principles in natural language. The aim of this study was to investigate the relationship between different types of mathematical knowledge (ternary mathematics) and students' mathematical anxiety. The study recruited 4496 fourth grade students (2144 males and 2352 females) and 4018 eighth grade students (1898 males and 2120 females), totalling 8514 students. All students took the Maths Anxiety Questionnaire and the Maths Achievement Test, in which the content of the Maths Achievement Test was divided

into verbal, symbolic, and situational problem-solving tasks. The results found that (1) maths anxiety was higher in grade 4 than in grade 8; girls' maths anxiety was higher than boys' in grade 4, and boys' maths anxiety was higher than girls' in grade 8, and there was a gender shift in maths anxiety as the grades increased. (2) There was a significant negative correlation between maths anxiety and maths achievement, and the negative correlation between maths anxiety and maths achievement was lower for eighth graders than for fourth graders. (3) Structural equation modelling was used to quantitatively analyse the degree of influence of symbolic, contextual and verbal mathematical problem solving tasks on mathematical anxiety, and the results showed that the relationship between symbolic mathematical problem solving tasks and students' mathematical anxiety is closer than that between verbal and contextual mathematical problem solving tasks, and that symbolic mathematical problem solving tasks are more likely to trigger mathematical anxiety than verbal and contextual mathematical problem solving tasks. Anxiety. Mathematics anxiety mainly affects students' academic achievement in mathematics through symbolic mathematical problem solving tasks. In the process of teaching mathematics, attention should be paid to the presentation of mathematical content and teaching methods, especially symbolic mathematical problem solving tasks, to minimise the negative effects of mathematics anxiety and help students improve their academic achievement.

Keywords： Mathematical Anxiety, Types of mathematical knowledge, Symbolic mathematics, Gender differences

认知技能对学龄期儿童家庭读写环境与阅读能力的中介作用

刘泽琪[1] 刘佳欣[1] 凌嘉[2] 王伊[2] 李京晓[2] 苏萌萌[1]（通讯作者）

1 首都师范大学初等教育学院，北京，100048，sumengmeng@cnu.edu.cn

2 首都师范大学心理学院，北京，100048

摘 要 早期家庭读写环境对儿童阅读能力的发展起着重要作用。家庭读写模型认为，儿童在家庭中接触到的读写活动大致可以分为两类：正式读写活动和非正式读写活动。有学者基于该模型，以拼音文字为母语的学前期儿童为研究对象，发现正式读写活动通过促进儿童的字词解码技能，进而提升儿童的阅读能力；非正式读写活动通过促进儿童的口语理解技能，进而提升儿童的阅读能力。然而，目前尚不清楚以汉语为母语的学龄期儿童家庭读写环境与阅读能力的关系，以及字词解码等认知技能在此之间的中介作用。因此，本研究基于家庭读写模型，以 226 名北京市 1-6 年级儿童 (M 年龄 ＝9.35，SD 年龄 ＝1.73) 为研究对象，探究其家庭读写环境与阅读能力的关系。研究结果表明：(1)字词解码技能 (字词阅读准确性) 在正式读写活动与阅读理解能力之间起完全中介作用 ($p < 0.001$, 95%CI[-33.10, -15.23])。(2)字词解码技能 (字词阅读流畅性) 在正式读写活动与阅读理解能力之间起完全中介作用 ($p < 0.001$, 95%CI[-39.43, -19.34])。(3)口语理解技能 (语素产生) 在非正式读写活动与阅读理解能力之间起完全中介作用 ($p < 0.001$, 95%CI[-26.16, -6.64])。上述家庭读写活动与阅读理解能力之间呈显著负相关。综上，本研究考察了家庭读写模型在汉语学龄期儿童中的适应性，发现读写活动通过作用于认知技能，间接影响儿童的阅读能力。该研究结果为家庭读写模型在中国学龄期儿童中的应用提供了部分支持。

关键词 学龄期，儿童，阅读，家庭读写环境

The mediation of cognitive skills in the relationship between home literacy environment and reading skills in Chinese school-age children

Liu Zeqi[1] Liu Jiaxin[1] Lin Jia[2] Wang Yi[2] Li Jingxiao[2] Su Mengmeng[1] (corresponding author)
1 College of Elementary Educaiton, Capital Normal University, Beijing, 100048,
sumengmeng@cnu.edu.cn
2 College of Psychology, Capital Normal University, Beijing, 100048

Abstract: Early home literacy environment plays an important role in the development of children's reading skills. The home literacy model argued that children are exposed to two types of literacy experiences at home; namely, formal and informal literacy activities. Based on this model, researchers had studied the home literacy environment of preschool children in alphabetic languages, and found that formal literacy activities are associated with later reading skills through decoding skills. Informal literacy activities are associated with later reading skills through oral language skills. However, it is still unclear the relationship between home literacy environment and reading skills in Chinese school-age children, and the mediation of cognitive skills (decoding skills and oral language skills) in this relationship. Therefore, the present study aimed to explore the relationship between the home literacy environment of Chinese school-age children and reading skills based on the home literacy model. The present study involved 226 children in grades 1-6 (M_{age} = 9.35, SD = 1.73) from Beijing. The results of the study indicated that: (1) Decoding skills (word reading accuracy) fully mediated the relationship between formal literacy activities and reading comprehension (p < 0.001, 95%CI [-33.10, -15.23]). (2) Decoding skills (word reading fluency) fully mediated the relationship between formal literacy activities and reading comprehension (p < 0.001, 95%CI [-39.43, -19.34]). (3) Oral language skills (word product) fully mediated the relationship between informal literacy activities and reading comprehension (p < 0.001, 95%CI [-26.16, -6.64]). All the home literacy activities showed significant negative correlations with reading comprehension. In conclusion, this study examined the adaptability of the home literacy model in Chinese school-age children, and found that literacy activities indirectly influenced children's reading skills through cognitive skills. Our findings provided partial support for the home literacy model in Chinese school-age children.

Keywords: School-age, Children, Reading, Home literacy environment

词汇广度和深度对阅读流畅性和阅读理解的影响：来自追踪的证据

辛紫菡[1] 侯峥榕[1] 程冬阳[1] 伍新春[2,3] 李利平[1]（通讯作者）
1 山西师范大学教育科学学院，太原，030031，liliping2092@163.com
2 北京师范大学心理学部，应用实验心理北京市重点实验室，儿童阅读与学习研究院，北京，100875
3 北京师范大学(珠海校区)应用心理学院，广东 珠海，519087

摘 要 阅读流畅性和阅读理解是阅读的重要方面。阅读流畅性指快速进行字词解码，包括出声的朗读流畅性和不出声的默读流畅性；阅读理解指在无时间限制的情况下对文本内容的理解和掌握程度。研究表明不论是母语还是二语学习，词汇均影响书面阅读。词汇两维度理论(Ouellette, 2006)提出词汇包括词汇广度和词汇深度。词汇广度指掌握的词汇数量及对词汇主要信息的把握，体现语音表征。词汇深度指词汇知识的质量与词汇在心理词典中的组织，体现语义表征。词汇质量假说理论(Perfetti, 2007)认为对词汇意义理解越深，越有益于阅读。为探讨词汇对阅读流畅性和阅读理解的影响作用，采用追踪设计，对 127 名一年级学生进行为期一年的跟踪调查，包括词汇广度、词汇深度、朗读流畅性、默读流畅性、阅读理解和 IQ，运用结构方程模型对数据进行分析，结果显示：（1）词汇广度和深度与一年后的阅读流畅性、阅读理解的相关均达到统计性显著；（2）在控制 IQ 后，一年级时的词汇广度对一年后二年级的朗读流畅性、默读流畅性和阅读理解的路径系数分别为 0.30、0.37 和 0.16；（3）一年级的词汇深度对二年级的默读流畅性和阅读理解的路径系数分别为 0.22 和 0.24，但对朗读流畅性的预测作用不显著。结果表明词汇广度是阅读流畅性和

阅读理解的重要预测因素，对阅读流畅性的作用更大；词汇深度促进默读流畅性和阅读理解的发展，但对朗读流畅性作用不明显。
关键词　词汇广度，词汇深度，阅读流畅性，阅读理解

Effects of Vocabulary Breadth and Depth on Reading Fluency and Reading Comprehension: Evidence from Tracking

Zihan Xin[1]　Zhengrong Hou[1]　Dongyang Cheng[1]　Xinchun Wu[2,3]　Liping Li[1](Corresponding author)

1 School of Education Science, Shanxi Normal University, Taiyuan 030031

2 Institute of Children's Reading and Learning, Beijing Key Laboratory of Applied Experimental Psychology, Faculty of Psychology, Beijing Normal University, Beijing 100875

3 School of Applied Psychology, Beijing Normal University at Zhuhai, Zhuhai 519087

***Abstract*:** Reading fluency and reading comprehension are important aspects of reading performance. Reading fluency refers to the rapid decoding of words, it includes both reading aloud fluency and silent reading fluency; reading comprehension refers to the degree of understanding and mastery of text content without time constraints. Research has shown that vocabulary affects written reading in both native and second language learning. The two-dimensional theory of vocabulary (Ouellette, 2006) proposes that the vocabulary includes vocabulary breadth and vocabulary depth. Vocabulary breadth refers to the number of words mastered and the grasp of the main message of the words, reflecting phonological representation. While vocabulary depth refers to the quality of vocabulary knowledge and the organization of vocabulary in the mental lexicon, reflecting semantic representation. The theory of vocabulary quality hypothesis (Perfetti, 2007) suggests that the deeper the understanding of the meaning of vocabulary, the more beneficial it is to reading. To explore the role of vocabulary on reading fluency and reading comprehension, a tracking design was used to follow 127 first graders for one year, including vocabulary breadth, vocabulary depth, reading aloud fluency, silent reading fluency, reading comprehension, and IQ, the data were analyzed using structural equation modeling. The results showed that: (1) the correlations of vocabulary breadth and depth with reading fluency and reading comprehension one year later all reached statistical significance; (2) after controlling for IQ, the path coefficients of vocabulary breadth in first grade on reading aloud fluency, silent reading fluency, and reading comprehension in second grade one year later were 0.30, 0.37, and 0.16, respectively; (3) The path coefficients of vocabulary depth in first grade on silent reading fluency and reading comprehension in second grade were 0.22 and 0.24, respectively, but the predictive effect on reading aloud fluency was not significant. These findings demonstrates that vocabulary breadth is a significant predictor of reading fluency and reading comprehension, especially favoring reading fluency; vocabulary depth promotes silent reading fluency and reading comprehension, but had an insignificant effect on reading aloud fluency.

***Keywords*:** vocabulary breadth, vocabulary depth, reading fluency, reading comprehension

语素意识对默读流畅性的影响:词汇广度和词汇深度的作用

侯峥榕[1]　辛紫菡[1]　程冬阳[1]　伍新春[2,3]　李利平[1]（通讯作者）

1 山西师范大学教育科学学院，太原，030031，liliping2092@163.com

2 北京师范大学心理学部，应用实验心理北京市重点实验室，儿童阅读与学习研究院，北京，100875

3 北京师范大学(珠海校区)应用心理学院，广东 珠海，519087

摘 要 快速进行默读即默读流畅性是阅读教学的任务之一。语素意识是默读流畅性的重要影响因素，同时词汇也影响着儿童默读的顺利进行。语素意识是个体对语言中最小语义单元的感知和操纵能力，儿童对语素的加工越熟练，越能够进行快速阅读。词汇质量假说(Perfetti，2007)认为词汇表征的质量越高，越能够促进儿童阅读的顺利进行。词汇包含词汇广度和词汇深度两个维度，较多研究探讨了词汇的深度，对词汇广度的研究涉及较少。随着儿童阅读发展阶段的不同，底层的认知技能对高层的阅读行为的影响作用可能有所不同。因此本研究欲探讨：（1）语素意识对默读流畅性的直接影响作用；（2）词汇广度和词汇深度的中介作用以及年级效应。选取两所小学一年级和三年级共 291 名儿童，分别对儿童语音意识、语素意识、词汇广度、词汇深度、默读流畅性等语言技能进行测查，运用结构方程模型对数据进行分析，由同音语素意识、同形语素意识和复合语素意识三者抽取潜变量语素意识，并把语音意识作为控制变量，建立一、三年级的直接作用模型和中介作用模型，并且通过模型比较考察不同年级之间加工模式的差异。结果显示：（1）在一、三年级的直接模型中，语素意识对默读流畅性的直接效应值分别为 0.33 和 0.49，均达到统计显著；（2）在一年级的中介模型中，词汇广度和词汇深度在语素意识和默读流畅性之间的间接效应不显著，但在三年级的中介模型中，词汇广度和词汇深度在语素意识和默读流畅性之间起着完全中介的作用，词汇广度和词汇深度的间接效应值分别为 0.31 和 0.23，均达到统计显著，但二者的中介作用差异不显著，即语素意识通过词汇广度和词汇深度对默读流畅性的影响作用相同；（3）通过多群组模型比较，一、三年级的中介模型无显著差异(χ^2=4.674，*df*=2，*p*=0.0966)，具有相同的影响机制。研究表明语素意识是默读流畅性的重要影响因素，并且词汇广度和词汇深度在语素意识和默读流畅性之间的作用随着年级的发展而变化。
关键词 语素意识，默读流畅性，词汇广度，词汇深度

The Influence of Morphological Awareness on Silent Reading Fluency: The Role of Vocabulary Breadth and Depth

Zhengrong Hou[1] Zihan Xin[1] Dongyang Cheng[1] Xinchun Wu[2,3] Liping Li[1] (Corresponding author)

1 School of Education Science, Shanxi Normal University, Taiyuan 030031

2 Institute of Children's Reading and Learning, Beijing Key Laboratory of Applied Experimental Psychology, Faculty of Psychology, Beijing Normal University, Beijing 100875

3 School of Applied Psychology, Beijing Normal University at Zhuhai, Zhuhai 519087

Abstract: Silent reading fluency is one of the tasks of reading teaching. Morphological awareness is an important factor affecting silent reading fluency, and vocabulary also affects the smooth progress of children's silent reading. Morphological awareness is an individual's ability to perceive and manipulate the smallest semantic unit in a language. The more proficient children are in morpheme processing, the more fluent they are in fast reading. The lexical quality hypothesis (Perfetti, 2007) holds that the higher the quality of lexical representation, the more able it is to promote children's reading. Vocabulary includes two dimensions: vocabulary breadth and vocabulary depth. Many studies have discussed the vocabulary depth, but the research on vocabulary breadth is less involved. With the different stages of children's reading development, the influence of the underlying cognitive skills on the high-level reading behavior may be different. Therefore, this study intended to explore: (1) The direct effect of morphological awareness on silent reading fluency; (2) The mediating effect of vocabulary breadth and vocabulary depth and grade effects. A total of 291 children from grade 1 and grade 3 of two primary schools were selected to test their language skills such as phonological awareness, morphological awareness, vocabulary breadth,

vocabulary depth, and silent reading fluency. Structural equation model was used to analyze data. The latent variable morphological awareness was extracted from homophone awareness, homograph awareness, and compounding awareness at the word level, and the phonological awareness was used as the control variable, the direct effect model and the mediation effect model of grade 1 and grade 3 were established. The differences of processing modes between different grades were investigated through model comparison. The results demonstrated: (1) In the direct effect model of grade 1 and grade 3, the direct effect of morphological awareness on silent reading fluency was 0.33 and 0.49, respectively, which were statistically significant. (2) In the mediation effect model of grade 1, the indirect effects of vocabulary breadth and vocabulary depth on morphological awareness and silent fluency were not significant. However, in the mediation effect model of grade 3, vocabulary breadth and vocabulary depth played a full mediator role between morphological awareness and silent reading fluency. The indirect effects of vocabulary breadth and vocabulary depth were 0.31 and 0.23 respectively, which were statistically significant, but there was no significant difference between the two mediations, morphological awareness has the same effect on silent reading fluency through vocabulary breadth and vocabulary depth. (3) Through the comparison of multi-group models, there was no significant difference between the mediation models of grade 1 and grade 3(χ^2=4.674, *df*=2, *p*=0.0966), and they have the same influence mechanism. The research showed that morphological awareness is an important influencing factor of silent reading fluency, and the role of vocabulary breadth and vocabulary depth between morpheme awareness and silent reading fluency changes with the development of grade.

Keywords：morphological awareness, silent reading fluency, vocabulary breadth, vocabulary depth

攻击主题偏好与中学生网络欺凌：道德推脱和应对方式的并行中介作用

陈倩倩[1]　王磊[1]（通讯作者）

1 武汉体育学院心理学系，武汉，430079

摘 要　随着网络技术的发展，电子媒介成为现代青少年的必备物品。电子媒介使用增加了青少年网络游戏的频率，导致不同的攻击主题偏好，产生更多的网络欺凌，需要关注攻击主题偏好与网络欺凌的内在关联。为了减少网络欺凌发生，探究其影响因素，我们研究了攻击主题偏好，道德推脱，应对方式和网络欺凌之间的关系。选取湖北省恩施州某中学 558 名初中生，采用网络欺凌，攻击主题偏好，道德推脱和应对方式量表收集数据，利用 SPSS 和 Mplus 分析数据。结果：（1）攻击主题偏好和网络欺凌显著正相关(r=0.26,p<0.01)，和道德推脱正相关（r=0.23,P<0.01),应对方式显著正相关(r=0.15,p<0.01)；道德推脱和网络欺凌正相关（r=0.27,P<0.01)；应对方式和网络欺凌显著正相关(r=0.14,p<0.01)；（2）道德推脱和应对方式在攻击主题偏好影响中学生网络欺凌之间起并行中介作用。攻击主题偏好影响中学生网络欺凌，在这一过程中，需要关注个体道德推脱和应对方式的重要影响。

关键词 中学生，网络欺凌，攻击主题偏好，应对方式

Sensational Interests and Cyberbullying：Parallel Mediating Roles of moral disengagement and coping

Qianqian Chen , Lei Wang

Wuhan Sports University,Wuhan,430079

***Abstract*：Background:** The rapid development of the network has made electronic media usage an essential part of adolescent daily life. The utilisation of electronic media has improved the lifestyle of young individuals, however, it has also resulted in a social issue known as cyberbullying, which is affecting numerous families. **Objective:** The purpose of this study is to examine the correlation between sensational interests, coping mechanisms, and cyberbullying. Our aim is to identify the factors that influence cyberbullying and provide recommendations for mitigating such behaviours. We will present empirical evidence to support our findings. Methods: In this study, a questionnaire was utilised to survey 558 students from the first to the third grade of Gaoping Experimental Middle School in Hubei Province. The data was analysed using SPSS and Mplus.**Results:** (1) The findings of the research indicate a positive correlation between sensational interests and cyberbullying($r = 0.26$, $p < 0.01$), as well as between cyberbullying and moral disengagement ($r = 0.27$, $p < 0.01$) and coping($r = 0.15$, $p < 0.01$). Additionally, there was a positive correlation between sensational interests and moral disengagement ($r = 0.23$, $p < 0.01$) and coping ($r = 0.15$, $p < 0.01$). The results suggest that moral disengagement and coping partially mediate the relationship between sensational interests and cyberbullying. **Conclusion:** The impact of sensational interests on cyberbullying should be addressed by prioritising moral disengagement and coping strategies.

***Key words:* s**ensational interests, moral disengagement, coping, Cyberbullying, Junior high school student

童年创伤与中学生网络攻击行为之间的关系：特质愤怒和道德推脱的作用

李燕筠[1] 杨玲[1] 曹华[2]（通讯作者）

1 西北师范大学心理学院，兰州，730070

2 西北师范大学心理学院，兰州，730070，caohua360083915@163.com

摘 要 近年来，随着互联网的高速发展与普及，网络攻击行为作为导致中学生出现一系列生理、心理甚至行为问题的重要预测因素，受到研究者的广泛关注。以往研究发现，中学生群体中网络攻击行为的检出率较高。本研究基于社会学习理论与社会信息加工理论构建了一个链式中介模型，以探讨童年创伤与中学生网络攻击行为的关系，并进一步探讨童年创伤、特质愤怒与道德推脱对网络攻击行为的影响机制。采用儿童期创伤问卷、少年网络攻击行为量表、特质愤怒量表和道德推脱问卷对 1089 名在校中学生进行问卷调查。结果发现：(1)童年创伤、特质愤怒、道德推脱和网络攻击行为两两之间呈显著正相关；(2)童年创伤既可以直接预测网络攻击行为,还可以通过特质愤怒经道德推脱的链式中介作用来正向预测网络攻击行为。具体来说，童年创伤不仅直接影响中学生的网络攻击行为，还可能通过特质愤怒和道德推脱对网络攻击行为产生影响。本研究不仅解释了导致网络攻击行产生的影响因素，以及在何种条件下的影响作用更大；也启示我们关注对特质愤怒和道德推脱两个方面的干预，这可能是阻止或减少中学生网络攻击行为产生的一种有效方法。童年创伤和网络攻击行为都是中学生面临的重要问题，中学生正处于人生发展历程中一个非常重要的阶段，而童年创伤对中学生的影响是深远的，并可能影响到个体成年后网络攻击行为的产生。基于此，对于有网络攻击行为的中学生需要关注他们的早期创伤经历，以及童年创伤经历对特质愤怒、道德推脱的影响。

关键词 网络攻击行为，童年创伤，特质愤怒，道德推脱

Childhood Trauma and Cyber-aggression in Middle School Students: Mediating Role of Trait Anger and Moral Disengagement

Li Yanjun[1] Yang Ling[1] Cao Hua[2]
1 school of Psychology, Northwest Normal University,Lanzhou, 730070
2 school of Psychology, Northwest Normal University,Lanzhou, 730070,
caohua360083915@163.com

Abstract: In recent years, with the rapid development and popularization of the Internet, cyber-aggression, as an important predictor of a series of physical, mental and even behavioral problems among middle school students, has been widely concerned by researchers. Previous studies have found that there is a high detection rate of cyber-aggression among middle school students. This study constructs a chain mediating model based on social learning theory and social information processing theory to explore the relationship between childhood trauma and middle school students' cyber-aggression. and further explore the underlying mechanism of childhood trauma, trait anger and moral disengagement on cyber-aggression. 1089 middle school students were investigated with the Childhood Trauma Questionnaire, the Juvenile Cyber-aggression Scale, the Trait Anger Scale and the Moral Disengagement Questionnaire. The results showed that: (1) There was a significant positive correlation among childhood trauma, trait anger, moral disengagement and cyber-aggression; (2) Childhood trauma can directly predict cyber-aggression, it can also positively predict cyber-aggression through the chain mediating role of trait anger through moral disengagement. Specifically, childhood trauma not only directly affects the cyber-aggression of middle school students, but may also have an impact on cyber-aggression through trait anger and moral disengagement. This study not only explains the factors that lead to cyber-aggression, but also under what conditions the impact is greater; It also sheds light on our concern that intervention in trait anger and moral disengagement may be an effective way to stop or reduce the occurrence of cyber-aggression by middle school students. Childhood trauma and cyber-aggression are important issues faced by middle school students, and the middle semester is a very important stage in the development of an individual's life, and the impact of childhood trauma on secondary school students is far-reaching and may affect the occurrence of cyber-aggression in adulthood. Based on this, middle school students with cyber-aggression need to pay attention to their early experiences, as well as the impact of childhood traumatic experiences on trait anger and moral disengagement.

Keywords: Cyber-aggression, Childhood trauma, Trait anger, Moral disengagement

语言认知技能对学龄前儿童口语叙事能力的预测作用

凌嘉[1] 李京晓[1] 王伊[1] 刘佳欣[2] 刘泽琪[2] 周蔚[1] 苏萌萌[2]（通讯作者）
1 首都师范大学心理学院，北京，100048
2 首都师范大学初等教育学院，北京，100048，sumengmeng@cnu.edu.cn

摘 要 学龄前儿童处于读写萌发阶段，其口语叙事能力对后续读写能力的发展至关重要。口语叙事能力是书面叙事（写作）的基础，有研究者指出儿童的口语叙事能力会随着年龄、语言水平以及认知水平的发展而发展。幼小衔接阶段（大班）是儿童语言发展的关键时期，培养叙事能力有助于幼儿做好入学准备，更好适应小学生活。以往研究发现了学龄前儿童的相关语言认知技能与口语叙事能力的相互关系，但对于幼小衔接阶段这一特殊发展阶段的探讨还较少。本研究通过构建分层回归模型，探讨了幼儿园大班儿童的

口语叙事能力特点及其与语言认知技能的相互关系。来自北京市某城区的 152 名儿童（72 名男孩，80 名女孩，M = 5.80 岁，SD = 0.40）参与本研究，我们对其进行了口语词汇、听力理解、语音意识等认知技能的测量；观察收集了这 152 名儿童的口语叙事内容并进行转录，从宏规结构（语篇质量评分）和微观结构（实际词汇量、非重复词汇量等）两个维度进行研究。结果发现，在控制了总字数、性别以及智力后，儿童的口语词汇能够显著预测口语叙事的微观结构维度（非重复词汇量，β= 0.215，p = 0.004）以及宏观结构维度（语篇质量，β= 0.295，p < 0.001）得分，而听力理解则显著预测了儿童口语叙事的微观结构维度（实际词汇量，β= 0.183，p = 0.042）得分。这表明儿童的口语词汇得分越高，口语叙事时词汇运用越丰富，叙事语篇质量越高；听力理解得分越高，儿童对故事内容的理解越全面，从而有助于儿童在叙事时有更多的词汇产出。我们的发现为探索提高儿童口语叙事能力的方法提供了实证依据，帮助幼小衔接阶段儿童更好进行入学准备。

关键词　口语叙事，学龄前儿童，词汇，听力理解

The predictive effect of language cognitive skills on preschooler's oral narrative skill

Jia Ling[1]　Jingxiao Li[1]　Yi Wang[1]　Jiaxin Liu[2]　Zeqi Liu[2]　Wei Zhou[1]　Mengmeng Su[2]

1 School of Psychology, Capital Normal University, Beijing, 100048, China

2 College of Elementary Education, Capital Normal University, Beijing, 100048, China

Abstract：Oral narrative skill of preschoolers in the stage of emergent literacy plays a crucial role in the subsequent development of literacy skills. Oral narrative skill serves as the foundation for written narrative (writing), and researchers have noted that children's oral narrative skill develops alongside their age, language proficiency, and cognitive abilities. The process of kindergarten and primary school connection (Kindergarten Senior Class) is a critical period for children's language development, and cultivating narrative skill can help young children prepare for school and adapt better to primary school life. Previous research has found the relationship between preschool children's relevant language cognitive skills and oral narrative ability, but there is little discussion on the special development stage of young children's cohesion. By constructing a hierarchical regression model, this study discusses the characteristics of oral narrative ability of kindergarten children in large classes and its relationship with language cognitive skills. One hundred fifty-two Chinese children (72 boys and 80 girls, M = 5.80 *years, SD* = 0.40) from a district in Beijing in this study. All children were attending Kindergarten Senior Class. We assessed their cognitive skills, including vocabulary, listening comprehension, and phonological awareness. Next we observed and transcribed their narratives and estimated it from two perspectives: macrostructure (text quality) and microstructure (actual vocabulary size, non-repetitive vocabulary size, etc.). Results showed that, after controlling for total word count, gender, and intelligence, children's vocabulary significantly predicted the scores of microstructure (non-repetitive vocabulary size, β=0.215, p=0.004) dimension and macrostructure (text quality, β=0.295, p<0.001) dimension of their oral narratives. Additionally, listening comprehension score significantly predicted the microstructure (actual vocabulary size, β=0.183, p=0.042) score of children's oral narratives. Results suggests that children with higher vocabulary scores exhibit richer vocabulary usage and higher text quality during oral narrative. And higher listening comprehension score helps children better understand the story content, leading to a greater vocabulary output during narrative. Our findings provide empirical evidence for exploring methods to improve children's oral narrative skill and help children in the process of kindergarten and primary school connection have better school readiness.

Keywords：Oral narrative, preschooler, vocabulary, listening comprehension

数字游戏化学习中听觉情绪设计对学习效果的影响

詹杰妮[1] 王智铿[1] 桂阳[1] 蔡志慧[1]（通讯作者）
1 华中师范大学心理学院，武汉，430079，caizhihui922@mail.ccnu.edu.cn

摘 要 在游戏化学习中，关于情绪设计的研究尚处于起步阶段，情绪设计对于学习效果的影响仍然存在争议。情绪设计假设认为在学习过程中，有吸引力的设计元素，如有趣的上下文声音，能够促进学习者的认知加工过程。然而，无关的听觉辅助可能会加重认知负荷，对学习效果无益反损。因此，本文采用单因素被试间实验设计，选取 162 名大学生（45 名男生），将其随机分配到积极、中性和无背景音乐 3 种条件下，以探讨数字游戏化学习中听觉情绪设计的作用。结果表明，积极的听觉情绪设计能够显著地提升学习者的积极情绪，且无论是积极还是中性的背景音乐，都要比无背景音乐更能促进学习者的参与度、心流体验和学习保持成绩。进一步的中介效应分析证明了参与度和心流体验在背景音乐和学习保持成绩之间起链式中介作用。此外，通过行为日志分析，发现有背景音乐条件下的学习者更能够获取核心学习信息，活动过程更流畅，从而表现出更多与学习相关的行为。对表情识别分析的数据进行卡方检验，结果显示，积极背景音乐组的学习者表现出更多的积极情绪和更少的消极情绪，中性背景音乐组的学习者表现出更多的积极情绪、中性情绪和更少的消极情绪。因此，与游戏内容契合的音乐并不会阻碍学习者的学习，反而能够起到促进的作用。综合主观报告与客观的行为分析、表情分析的结果，本研究发现在游戏化学习中，背景音乐可以显著提高数字游戏化学习中的学习效果。本研究证明了听觉情绪设计在数字游戏化学习中的重要作用，为如何设计更有效的教育游戏提供了实证证据。

关键词 数字游戏化体验，听觉情绪设计，参与度，心流体验，学习成绩

The effect of auditory emotional design on learning outcomes in digital game-based learning

ZHAN Jieni[1]; WANG Zhikeng[1]; GUI Yang[1]; CAI Zhihui[1]
2 School of Psychology, Central China Normal University, Wuhan 430079,
caizhihui922@mail.ccnu.edu.cn

Abstract: Research on emotional design in digital game-based learning is still in its infancy, and the impact of emotional design on learning outcomes remains controversial. The emotional design hypothesis suggests that attractive design elements, such as interesting contextual sounds, can facilitate learners' cognitive processing during the learning process. However, irrelevant auditory aids may add to the cognitive load, which is not beneficial but detrimental to learning outcomes. Therefore, in this paper, a one-way between-subjects experimental design was conducted to select 162 college students (45 males), who were randomly assigned to three conditions: positive, neutral, and no contextual music, in order to explore the role of auditory emotional design in digital game-based learning. Results indicated that a positive auditory emotional design significantly boosted learners' positive mood and that both positive and neutral background music promoted learners' engagement, flow, and learning retention scores more than no background music. Further mediation effect analyses demonstrated that engagement and flow acted as chain mediators between background music and learning retention scores. In addition, behavioral log analysis revealed that learners in the condition with background music are more able to access core learning information and have a more fluid activity process, thus exhibiting more learning-related

behaviors. A chi-square test on the data analyzed for expression recognition showed that learners in the positive background music group showed more positive emotions and fewer negative emotions, and learners in the neutral background music group showed more positive emotions, neutral emotions, and fewer negative emotions. Thus, music that fits with the game content does not hinder learners' learning, but rather can be a facilitator. Combining the results of subjective reports with objective behavioral and expression analyses, this study found that background music in digital game-based learning can significantly enhance learning outcomes. This study demonstrates the important role of auditory emotional design in digital game-based learning and provides empirical evidence on how to design more effective educational games.
Keywords：digital gamification experience, auditory emotional design, engagement, flow, learning outcomes

自发性动作同步——合作学习中脑间同步的外源性因素

李媛媛[1#] 苏畅[1#] 潘亚峰[*]
浙江大学心理与行为科学系，杭州，310058
yafeng.pan@zju.edu.cn

摘 要 合作学习是人类社会文化演化和生存的关键。通过与同伴合作学习，个体能够不断进步和发展。最近的研究表明，个体之间的脑间同步（Interbrain Synchronization,个体间大脑活动在时间上的耦合）与有效合作学习密切相关。然而，对于互动学习过程中脑间同步的源头，我们仍不清楚。为了填补这方面的研究空白，我们从具身的角度出发，检验了动作同步是否是驱动脑间同步的外源性因素。我们根据被试先验知识水平的高低来配对个体，形成了高-高、高-低、低-低三种学习小组，并要求他们合作分析一首中国古诗。在学习小组进行合作学习任务的过程中，我们使用功能性近红外光谱成像技术(functional Near-Infrared Spectroscopy, fNIRS)同时记录了他们的脑活动，并通过基于计算机视觉的运动能量分析（Motion Energy Analysis，MEA）对人际运动同步进行了解析。结果显示，低-低组的学习结果表现最好，高-高组次之，高-低组最差。相比异质学习小组（即高-低组），同质学习小组（高-高或低-低组）表现出更强的动作同步和脑间同步。进一步的中介分析显示，个体之间自发的同步性身体动作有助于建立脑间同步，从而促进学习。这一发现填补了我们对理解个体之间信息传递的空白：个体间的动作同步是合作学习中脑间信息传递的外源性因素，最终作用于社会学习。这项研究提供了新的视角来理解人类社会学习的本质和机制，同时也为教育领域提供了新的思路和方法。
关键词 自发性动作同步，脑间同步，合作学习，小组结构，fNIRS 超扫描

Spontaneous movement synchrony as an exogenous source for interbrain synchronization in cooperative learning

Yuanyuan Li[1#], Chang Su[1#], Yafeng Pan[*]
Department of Psychology and Behavioral Sciences, Zhejiang University, Hangzhou, China

Abstract： Learning through cooperation with conspecifics – “cooperative learning” – is critical to cultural evolution and survival. Recent progress has established that interbrain synchronization (IBS) between individuals predicts success in cooperative learning. However, the likely sources of IBS during learning interactions remain poorly understood. To address this dearth of knowledge, we tested whether movement synchrony serves as an exogenous factor that drives IBS, taking an embodiment perspective. We formed dyads of individuals with varying

levels of prior knowledge (high-high [HH], high-low [HL], low-low [LL] dyads) and instructed them to collaboratively analyze an ancient Chinese poem. During the task, we simultaneously recorded their brain activity using functional near-infrared spectroscopy and filmed the entire experiment to parse interpersonal movement synchrony using the computer-vision Motion Energy Analysis. The results showed that the LL dyads achieved the highest learning outcomes, followed by the HH dyads, and the HL dyads performed the worst. Interestingly, the homogeneous groups (HH and/or LL) exhibited stronger movement synchrony and IBS compared to the heterogeneous group. Importantly, a mediation analysis revealed that spontaneous and synchronized body movements between individuals contribute to IBS, hence facilitating learning. This study therefore fills a critical gap in our understanding of how interpersonal transmission of information between individual brains, contributed to by behavioral entrainment, shapes social learning.

Keywords： spontaneous body movement, interbrain synchronization, cooperative learning, group composition, fNIRS hyperscanning

课程学习与青少年社会参与素养的关系：一项潜在转变分析

王雨 [1] 陈宁 [1]（通讯作者）唐甜 [2]

1 上海师范大学，上海，200233

2 上海师范大学心理学系，上海，200233，chenning@shnu.edu.cn

摘 要 以上海市某中学 297 名高中生为被试进行 2 年，间隔三次的追踪研究，采用潜在剖面分析与潜在转变分析考察了青少年社会参与素养的亚组分化与转变情况，以及课程学习在青少年社会参与发展中的作用。结果发现：（1）青少年的社会参与素养在三个时间点分化成 3 个亚组：发展良好组、分化加剧组、整体弱化组；（2）从 T1 到 T2，分化加剧组的青少年呈现出了高稳定性，整体弱化组的青少年则具有较高的转变性，从 T2 到 T3，发展良好组的青少年呈现出了高稳定性，分化加剧组的青少年则具有较高的转变性；（3）学习社会参与素养特色课程数量越多，青少年更可能处于或保留在发展良好组，更低概率地进入整体弱化组，但从 T2 到 T3，随着课程学习数量的增加，T2 时处于整体弱化组和分化加剧组的青少年转变到 T3 发展良好组的概率并没有显著升高。

关键词 社会参与素养,课程学习,潜在剖面分析,潜在转变分析,青少年

The Relationship Between Curriculum Learning and Adolescent Social Participation Competencies: A Latent Transition Analysis

Wang Yu,Cheng Ning,tang tian

Shanghai Normal University，Shanghai

Abstract: A total of 297 high school students in a middle school in Shanghai were selected as subjects for a two-year, three-time follow-up study. Latent profile analysis and latent transformation analysis were used to investigate the subgroup differentiation and transformation of adolescents ' social participation competencies, and the role of curriculum learning in the development of adolescents ' social participation. The results showed that : (1) Adolescents ' social participation competencies was divided into three subgroups at three time points : good development group, intensified differentiation group, and overall weakening group ; (2) From T1 to T2, the adolescents in the intensified differentiation group showed high stability, while the adolescents in the overall

weakening group showed high transformation. From T2 to T3, the adolescents in the well-developed group showed high stability, while the adolescents in the intensified differentiation group showed high transformation. However, from T2 to T3, with the increase of the number of curriculum learning, the probability of adolescents in the overall weakening group and the differentiation group at T2 to the well-developed group at T3 did not increase significantly.

Keywords：social participation competencies,curriculum learning,latent profile analysis,latent transition analysis, adolescent

The Effect of Death Anxiety on Older Adults' Vulnerability to Fraud: The Moderating Role of Mental Simulation

Zhihu Chen[1], Jing Wen[1], Jingjin Shao[1,2], Chun Gou[1]

1 Centre for Mental Health Education, Southwest University, Chongqing, 400715

2 Faculty of Psychology, Southwest University, Chongqing, 400715, jingjinshao@126.com

Abstract: Fraud in older adult has become a serious public social problem that is currently of widespread concern in countries around the world. However, most of the fraud victims are unwilling to actively report their fraud experiences, and fraud vulnerability can help to predict the likelihood that an individual will be easily defrauded in some real fraud situation in the future. Death anxiety arousal is one of the most common fraud tactics used in the older adults, considering that death anxiety is more likely to be felt when in older age than younger. However, the relationship between death anxiety and the vulnerability to fraud in old age still lacks empirical support. Due to the weakened emotional regulation and cognitive processing ability, older adults are hardly able to make a comprehensive and rational understanding of the fraud, and death anxiety may further increase the vulnerability to fraud. Secondly, older adults are not passively submissive to the scammer, but affected by their self-control, which ultimately determines whether they will fall into the scam. It was found that mental simulation, as an effective self-regulation mechanism, can effectively reduce consumers' irrational consumption behaviors. Accordingly, it may play an important role in reducing the vulnerability of the older adults to fraud. This study used two experiments to examine the effects of death anxiety on older adults' vulnerability to fraud, as well as the moderating role of mental simulation. Study 1 used a mortality salience paradigm to examine whether mortality salience could significantly increase older adults' vulnerability to fraud (i.e., advertisement credibility scores and purchase intention scores). Study 2 further manipulated the moderating variable of mental simulation, which was divided into process simulation (i.e., imagining the detailed process of purchasing goods), upward outcome simulation (i.e., imagining possible positive outcomes after purchasing), and downward outcome simulation (i.e., imagining possible negative outcomes after purchasing). That is, the study employed a 2 (Death anxiety: high, low) * 3 (Mental simulation: process simulation, upward outcome simulation, and downward outcome simulation) mixed design. It was found that: (1) the mortality salience group had significantly higher advertisement credibility scores and purchase intention scores than those in the control group; (2) mental simulation could significantly affect the relationship between death anxiety and older adults' vulnerability to fraud. Specifically, in the process simulation condition, the high death anxiety group rated advertisement credibility significantly higher than the low death anxiety group, while the purchase intention of advertised goods was rated significantly lower than the low death anxiety group. In the downward outcome simulation condition, the high death anxiety group had significantly lower advertisement credibility and purchase intention than the low death anxiety group. In the upward outcome simulation condition, the high death anxiety group had significantly higher advertisement

credibility and purchase intention than the low death anxiety group. These findings contribute to understanding the role of death anxiety in older adults' fraud, suggest that mental simulation can increase or decrease vulnerability to fraud, provide empirical evidence for the role of mental simulation in fraud prevention and intervention for older adults.

Key words: older adults; vulnerability to fraud; death anxiety; mental simulation

儿童观点采择、共情关心与父母过度保护的交叉滞后分析

莫然[1] 高聃[2] 刘俊升[3] 刘阳阳[1] 熊明慧[1] 成丹丹[1]（通讯作者）

1 山东中医药大学健康学院，济南，250399

2 莱顿大学教育与儿童研究所，荷兰莱顿，2333AK

3 华东师范大学心理与认知科学学院，上海，200062

通讯作者 E-mail 512671170@qq.com

摘 要 **目的** 本文主要探讨 7-11 岁中国儿童在共情不同维度上的发展，以及与父亲和母亲过度保护教养方式之间的双向关系。儿童共情包含观点采择(perspective taking)和共情关心(empathic concern)两个维度。通过区分共情的具体维度，可以更好了解儿童共情与父母过度保护之间的纵向关系，为儿童的社会情绪发展提供更好的教养理念。 **方法** 选取 288 名小学生(44.1%女孩, M_{age} = 9.75, *SD* = 1.17)及其父母，进行为期两年的纵向研究。选用人际反应指数量表(Davis Interpersonal Reactivity Index)测量儿童共情的不同维度，以及儿童抚养行为问卷(Child-Rearing Practices Report)测量父亲和母亲过度保护。使用 Mplus 8 进行验证性因素分析，并建立交叉滞后模型，通过对比多组模型分别得出父亲和母亲与儿童共情的纵向关系。**结果** 父亲和儿童共情纵向关系的模型拟合指数为：CFI = .83, TLI = .80, RMSEA = .04, SRMR = .08； 母亲和儿童共情纵向关系的模型拟合指数为：CFI = .82, TLI = .80, RMSEA = .04, SRMR = .08。模型结果显示，儿童在第一年的观点采择能力，显著正向预测第二年父亲(*b*=.46, *SE*=.08, *p*<.001)和母亲(*b*=.47, *SE*=.07, *p*<.001)的过度保护水平。儿童第一年的共情关心水平对父母第二年的过度保护预测不显著。母亲在第一年的过度保护水平，显著正向预测第二年儿童的观点采择能力(*b*=.18, *SE*=.09, *p*<.05)，对儿童共情关心水平的预测没有显著预测作用。父亲在第一年的过度保护对儿童在第二年的观点采择和共情关心预测都不显著。**结论** 父母过度保护对儿童共情发展的不同维度起到了不同的作用，并且父亲和母亲在儿童共情发展中的作用也有显著不同。本研究揭示了父母教养需要关注和区分儿童共情能力的不同方面，从而促进儿童共情能力的整体发展。并且儿童可以通过学习如何进行适当共情，以调节其父母过度保护的教养行为。

关键词 儿童共情，观点采择，共情关心，过度保护，父亲和母亲

Cross-lagged panel analyses of young adolescents'perspective taking and empathic concern and parental overprotection

Ran Mo[1] Dan Gao[2] Junsheng Liu[3] Yangyang Liu[1] Minghui Xiong[1] Dandan Cheng[1]

1 College of Health Sciences, Shandong University of Traditional Chinese Medicine, Jinan, China, 250399

2 Institute of Education and Child Studies, Leiden University, Leiden, the Netherlands, 2333AK

3 College of Psychological and Cognitive Science, East China Normal University, Shanghai, China, 200234

***Abstract*： Objective** This study aimed to examine the development of different dimensions of empathy in

Chinese children aged 7-11 years, and the bidirectional relation between children's empathy and overprotective parenting practices of fathers and mothers. Children's empathy includes two dimensions: perspective taking and empathic concern. By distinguishing the specific dimensions of empathy, we can gain a better understanding of the longitudinally bidirectional relation between children's empathy and parental overprotection, as well as provide improved parenting concepts for children's social-emotional development. **Methods** A sample of 288 primary school students (44.1% girls, M_{age} = 9.75, *SD* = 1.17) and their parents participated in a two-year longitudinal study. The Davis Interpersonal Reactivity Index was used to measure the different dimensions of children's empathy, and the Child-Rearing Practices Report was used to assess paternal and maternal overprotection. Confirmatory factor analysis and cross-lagged panel models were conducted using Mplus 8. **Results** The cross-lagged panel model of paternal overprotection and child empathy showed acceptable fitting indexes: CFI =.83, TLI =.80, RMSEA =.04, SRMR =.08; The fitting indexes of the model of maternal protection and child empathy were CFI =.82, TLI =.80, RMSEA =.04, SRMR =.08. The results revealed that children's perspective-taking ability in the first year positively predicted the level of fathers' overprotection (*b*=.46, *SE*=.08, *p*<.001) and mothers' overprotection (*b*=.47, *SE*=.07, *p*<.001) in the second year. However, children's empathic concern in the first year did not predict parents' overprotection in the second year. Additionally, Mothers' overprotection level in the first year positively predicted children's perspective taking in the second year (*b*=.18, *SE*=.09, *p*<.05), but did not predict children's empathic concern. Paternal overprotection in the first year did not predict children's perspective taking and empathic concern in the second year. **Conclusion** Parental overprotection has different effects on the distinguished dimensions of children's empathy development. Fathers and mothers play different roles in children's empathy development. Therefore, to promote the overall development of the children's empathy, it is recommended to focus on and distinguish different aspects of children's empathy in relation to parenting practices. Furthermore, children have the ability to shape their parents' overprotective parenting behaviors by learning how to develop their empathy.

Keywords：Children's empathy, Perspective taking, Empathic concern, Overprotection, Father and mother

物质主义与亲社会行为:道德认同的中介和公我意识的调节效应

王燕[1] 肖海雁[1,2]（通信作者） 张宇[2] 杨丽丽[2]

1 山西师范大学教育科学学院，太原，030000

2 山西大同大学心理健康教育与咨询中心，大同，037000，E-mail:xiaohaiyan@sohu.com

摘 要 物质主义是指物质财富对于个人生活重要性的价值观念，将物质的获取和占有当作生活的中心、幸福的根本和成功的标准。该价值观随着国内消费主义文化的兴起，通过网络媒体大范围的传播开来。该观念对社会普遍道德发起否定，对中国传统价值观念造成冲击，并带来消极影响，如降低主观幸福感，诱发强迫性购买，减少亲社会行为等。亲社会行为是指对他人有益的行为，对个体主观幸福感，生活满意度，生命意义感等有积极影响，也与我国的德育教育和核心价值观建设密切相关。虽然研究表明高水平物质主义会降低个体亲社会行为，但其影响机制仍然缺乏探索。因此本研究基于道德认同视角构建了一个有调节的中介模型，采用物质主义价值观量表，青少年道德认同量表，自我意识量表，亲社会行为倾向量表对 1708 名本科生(男生 693 名，年龄 19.73±4.17)进行施测，得到如下结果：①相关分析表明，物质主义与亲社会行为(*r*=-0.31，*p*<0.01)，道德认同(*r*=-0.17，*p*<0.01)显著负相关，而物质主义与公我意识(*r*=0.32，*p*<0.01)显著正相关；②中介分析表明，物质主义可以通过道德认同预测大学生亲社会行为(B=-0.16，95%CI=[-0.21,-0.11])，中介效应占比 27.12%；③公我意识在道德认同符号化与亲社会行为之间起调节作用。具体而言,公我意识在物质主义通过道德认同符号化负向影响亲社会行为的后半段路径中起着调节作用。当公我意识较强时，物质主义通过道德认同符号化作用于亲社会行为的间接效应较弱(B=-0.11，95%CI=[-0.15，-0.07])；当公我意

识较弱时，该间接效应较强(B=-0.14，95%CI=[-0.18，-0.09])。可以推测，高物质主义者拥有更低的道德认同水平是减少亲社会行为的重要原因，而提高公我意识有助于抑制这一效应。基于上述发现，教育工作者需要重视在校大学生的德育教育工作，这对帮助大学生提高道德修养，树立正确的价值观念，促进亲社会行有一定的教育意义。
关键词　物质主义，道德认同，亲社会行为，道德认同符号化，公我意识

Materialism and Prosocial Behavior: The Mediating Role of Moral Identity and the Moderating Role of Public Self-consciousness

Wang Yan[1] Xiao Haiyan[1,2] Zhang Yu[2] Yang Lili[2]
1 School of Education Science, Shanxi Normal University, Taiyuan
2 Metal Health Education and Counseling center, Shanxi Datong University, Datong

Abstract: Materialism refers to the value concept of the importance of material wealth to personal life, which regards the acquisition and possession of material as the center of life, the foundation of happiness and the standard of success. With the rise of consumerism culture, materialism has been widely disseminated through Internet media. This concept negates the general morality of society, impacts traditional Chinese values, and brings negative impacts, such as reducing subjective well-being, inducing compulsive purchases, and declining pro-social behaviors. Prosocial behavior refers to the behavior that is beneficial to others, which have a positive impact on individual subjective well-being, life satisfaction, meaning in life. It is also closely related to China's moral education and core values construction . Although some studies have pointed out that high levels of materialism can weaken individual prosocial behavior, the mechanism of its effects are still unexplored. In this study ,a moderated mediation model constructed based on the perspective of moral identity, using the materialistic values scale, adolescent moral identity scale, self-consciousness scale, prosocial behavior tendency scale to measure 1708 undergraduates(693 males, age 19.73±4.17) .The following results were obtained:①Correlation analysis showed that materialism was significantly negatively correlated with prosocial behavior (r=-0.31, p<0.01), moral identity(r=-0.17, p<0.01) ; there was positive correlation between materialism and public self-consciousness(r=0.32, p<0.01);②Mediation analysis showed that materialism could significantly predict college students prosocial behavior through moral identity(B=-0.16, 95%CI=[-0.21,-0.11]), and the mediation effect accounted for 27.12%;③Public self-consciousness modulates the relationship between moral identity symbolization and prosocial behavior. The mediating effect of moral identity symbolization between materialism and prosocial behavior was moderated by public self-consciousness. When public self-consciousness was strong, the indirect effect of materialism on prosocial behavior through the moral identity symbolization was weaker (B=-0.11, 95%CI=[-0.15, -0.07]);when public self-consciousness was low, this indirect effect was stronger (B=-0.14, 95%CI=[-0.18, -0.09]). It can be speculated that high materialists have a lower level of moral identity is an important reason for reducing prosocial behavior, while increasing public self-consciousness helps to suppress negative effect. Based on above findings, educators need to pay attention to moral education of college students, which has certain educational implications for helping college students improve their moral cultivation, establish correct values, and promote pro-social behavior.

Keywords: Materialism, moral identity, prosocial behavior, moral identity symbolization, public self-consciousness

杨梦圆[1] 张芫蓓[1] 蒲昭君[1] 杨帆[2] 任垒[3] 武圣君[1,*](通讯作者)
1 空军军医大学军事医学心理学系，西安，710032
2 空军军医大学药学院药理学教研室，西安，710032
3 武警后勤学院军事心理学系，天津，300309
通讯作者 E-mail：wushj@fmmu.edu.cn

摘 要 学业倦怠（academic burnout）不仅会带来心理健康方面的问题，而且容易引起物质滥用甚至自杀等不良的行为后果。弹性(resilience)作为一种保护机制可以减弱学业倦怠的不良影响。尽管学业倦怠与弹性之间存在明确的关联，对于个体学业倦怠的不同症状与弹性各个维度之间的关系研究较少。因此，本研究使用网络分析方法，将学业倦怠与弹性作为具有互动节点的体系来探索它们之间的关系。在本研究中，我们在大学生群体样本（N=1236）中评估学业倦怠的不同症状与弹性各个维度之间的结构关系。首先，我们在各自网络中计算了预期影响(expected influence, EI)值来揭示学业倦怠和弹性内部的内在关联。在联合网络中，我们进一步计算了桥预期影响(bridge expected influence, BEI)值来确定连接学业倦怠不同症状与弹性各个维度之间最具影响力的节点。结果揭示了学业倦怠症状与弹性各个维度之间的潜在关联。学业倦怠网络中的“学习兴趣减退”和弹性网络中的“克服困难达到目标”和“认为自己是强大的人”具有最高的预期影响值。此外，通过桥预期影响值的计算确定“战胜压力可以让我更强大”和“自我效能感下降”作为维持整个学业倦怠和弹性网络最重要的桥梁节点。本研究结果与应激相关成长理论（stress-related growth）相一致，并且强调了压力事件后的自我成长对于预防学业倦怠的重要作用。最后，目前的研究强调了针对弹性的干预来改善大学生学业倦怠的潜在价值。
关键词 学业倦怠，弹性，网络分析，大学生

Examining the associations between academic burnout symptoms and aspects of resilience through network analysis among Chinese university students

Mengyuan Yang[1], Yuanbei Zhang[1], Zhaojun Pu[1], Fan Yang[2], Lei Ren[3], Shengjun Wu[1,*]
[1] Department of Military Medical Psychology, Air Force Medical University, 169 West Changle Road, Xi’an, Shaanxi 710032, China
[2] Department of Pharmacology, School of Pharmacy, Air Force Medical University, 169 West Changle Road, Xi’an, Shaanxi 710032, China
[3] Department of Military Psychology, Armed Police Logistics College, Tianjin 300309, China

***Abstract*:**
Background: Academic burnout not only brings about mental health problems, but also can lead to adverse behavioural consequences such as substance abuse and even suicide. Resilience as a protective mechanism can attenuate the adverse effects of academic burnout. Despite the clearly established link between academic burnout and resilience, little is known about how individual symptoms of academic burnout and aspects of resilience interrelate.
Method: The study used network analysis to explore the association between academic burnout and resilience as a system of interacting nodes. In this study, we assessed the structural relationships between the different symptoms of academic burnout and the aspects of resilience in a population sample of university students (N = 1236). First,

we computed expected influence (EI) values to reveal differential associations among academic burnout symptoms and aspects of resilience in their respective networks. Further, in the joint network we calculated bridge expected influence (BEI) values to identify the most influential nodes connecting the different symptoms of academic burnout to the aspects of resilience.

Results: The results revealed potential associations between symptoms of academic burnout and aspects of resilience. "Decreased interest in learning" in the academic burnout network and " Can achieve goals despite obstacles " and "Thinks of self as strong person" in the resilience network had the highest EI values. In addition, the calculation of the BEI value identified "Coping with stress can strengthen me" and "Decreased self-efficacy" as the most important bridge nodes to maintain the entire academic burnout and resilience network.

Conclusion: The findings are consistent with stress-related growth theory and highlight the importance of self-growth after stressful events in preventing academic burnout. Ultimately, the current study highlights the potential value of resilience-targeted interventions to alleviate academic burnout among college students.

***Keywords*:** academic burnout, resilience, network analysis, college students

父母低头行为与学前儿童问题行为的关系：一个双路径模型

周姝颖[1]（通讯作者） 马颖[1]

1 陕西师范大学教育学部，西安，710062，shuyingzhou01@163.com

摘 要 低头行为是一种与使用手机相关的社会排斥行为，在人际交往中，低头症会损害人际关系，造成低质量的沟通。已有研究证明家庭中伴侣低头会降低配偶的心理健康，关系质量和满意度。然而，作为家庭系统中的重要一环，少有研究关注父母低头症对学前儿童行为发展的影响及作用机制。学龄前期是儿童心理行为发展的关键时期，也是最容易产生问题的时期，父母低头行为会让幼儿感受到忽视和排斥，增加幼儿产生问题行为的风险。根据情境-过程-结果模型，父母低头行为作为远端情境，不一定能直接作用于幼儿行为，需要借助近端情境发挥作用。亲子关系，如亲子间的亲密与冲突，可能是重要的近端情境。父母低头行为会打断亲子互动，降低亲密度，增加亲子间的冲突，使儿童产生不良行为。同时，不良的亲子关系容易使父母在养育中感到疲惫，养育效能感降低，形成养育倦怠，进一步增加对孩子的忽视或暴力，影响儿童行为发展。因此，本研究拟探讨父母低头行为对学前儿童问题行为的预测作用及亲子亲密、亲子冲突与养育倦怠在其中的作用机制。研究采用父母低头行为量表、亲子关系量表、养育倦怠量表、儿童行为评定-长处和困难量表，对西安市 1594 名父母进行问卷调查，结果发现：（1）父母低头行为、亲子关系、养育倦怠、学前儿童问题行为之间两两相关显著；（2）父母低头行为正向预测学前儿童问题行为；（3）亲子亲密、养育倦怠在父母低头行为与学前儿童问题行为的关系中起序列中介作用（保护减少效应）；亲子冲突、养育倦怠在父母低头行为与学前儿童问题行为的关系中起序列中介作用（风险增加效应），其中风险增加效应更加突出。具体而言，父母低头行为通过亲子亲密、亲子冲突、养育倦怠的单独中介作用及亲子亲密、养育倦怠和亲子冲突、养育倦怠的序列中介作用影响学前儿童问题行为。本研究揭示了父母低头行为与儿童发展的关系，加深了人们对父母低头行为消极影响及内在机制的认识，启示父母规范使用手机，减少低头行为。

关键词 父母低头行为，学前儿童问题行为，亲子关系，养育倦怠，双路径模型

The Relationship Between Parental Phubbing and Preschool Children's Behavior Problems: A Two-Path Model

Zhou Shuying[1] Ma Ying[1]
1 Shaanxi Normal University, Xian, 710062, shuyingzhou01@163.com

***Abstract*：** Phubbing is a form of social exclusion behavior associated with mobile phone use. In interpersonal interactions, phubbing has been demonstrated to damage relationships and hinder effective communication. Previous research has indicated that phubbing in the family can reduce spouses' mental health, relationship quality and satisfaction. However, as an important part of the family system, few studies have focused on the effect and mechanism of parental phubbing on the behavioral development of preschool children. The preschool period is a critical stage for children's psychological and behavioral development, and it is during this time that issues are most likely to emerge. Parental phubbing will make children feel neglected and rejected, increasing the risk of children's behavior problems. According to the context-process-outcomes model, parental phubbing, as a distal context, may not directly affect children's behavior, but needs to through the proximal context to play a role. Parent-child relationships, such as parent-child intimacy and conflict, may be important proximal context. Parental phubbing may interrupt parent-child interaction, reduce intimacy, increase parent-child conflict, and lead to problem behaviors in children. At the same time, poor parent-child relationship is easy to make parents feel tired, reduce parenting efficacy, form parenting burnout, further increase the neglect or violence to children, and affect children's behavior development. Therefore, this study aims to explore the predictive effect of parental phubbing on the behavior problems of preschool children and the mechanism of parent-child intimacy, parent-child conflict, and parenting burnout. A total of 1594 parents in Xi 'an were investigated by using the Parental Phubbing Scale, Child-Parent Relationship Scale, The Parental Burnout Assessment and the Strengths and Difficulties Questionnaire. The results showed that: (1) Parental phubbing, parent-child relationship, parenting burnout and preschool children’s behavior problems were significantly correlated; (2) Parental phubbing positively predicted the preschool children’s behavior problems; (3) Parent-child intimacy and parenting burnout play a sequential mediating role in the relationship between parental phubbing and preschool children’s behavior problems (protection-reduced effect); Parent-child conflict and parenting burnout played a sequential mediating role in the relationship between parental phubbing and preschool children’s behavior problems (risk-increased effect), and the risk-increased effect was more prominent. Specifically, parental phubbing affected preschool children’s behavior problems through the separate mediating effects of parent-child intimacy, parent-child conflict, and parenting burnout and the sequential mediating effects of parent-child intimacy, parenting burnout and parent-child conflict, and parenting burnout. This study revealed the relationship between parental phubbing and children's development, deepened people's understanding of the negative impact and internal mechanism of parental phubbing, and inspired parents to regulate the use of mobile phones and reduce parental phubbing.

***Keywords*：** parental phubbing, preschool children’s behavior problems, parent-child relationship, parenting burnout, a two-path model

父母心理控制对本科护生社交媒体成瘾的影响:错失焦虑的中介作用

吕童玉[1] 张雪雁[1]（通讯作者）
1 滨州医学院，山东 烟台，264003

摘 要 目的 本研究以护理专业大学生为研究对象，考察错失焦虑在父母心理控制与社交媒体成瘾间的中介效应。方法 采用便利抽样法选取山东省某所医学院校 425 名护生，采用自制的一般资料调查表、父母心理控制量表、错失焦虑量表、社交媒体成瘾量表对其进行调查，运用 SPSS 26.0 软件对数据进行共同

方法偏差检验、描述性统计、相关分析、中介效应分析。结果　本研究护生父母心理控制与错失焦虑、社交媒体成瘾得分分别为（41.73±12.23）、（23.93±6.27）、（89.94±19.48）。护生父母心理控制与错失焦虑、社交媒体成瘾均呈显著正相关（$P<0.001$）；Bootstrap 检验结果显示，错失焦虑在护生父母心理控制和社交媒体成瘾间的中介效应为-0.25（95%CI：-0.05~0.15），占总效应的 46.94%。结论　父母心理控制既可以直接影响社交媒体成瘾，也可以通过错失焦虑间接影响社交媒体成瘾。
关键词　本科护生，父母心理控制，错失焦虑，社交媒体成瘾，中介作用

The Relationship between Parental Psychological Control and Nursing Undergraduates' Social Media Addiction: The Mediating Effect of Fear of Missing Out

Lv Tongyu[1], Zhang Xueyan[1]
1School of nursing, Binzhou medical university, Yantai (264003), Shandong Province, China

Abstract：Objective This study was conducted to examine the mediating effect of fear of missing out between parental psychological control and social media addiction among nursing undergraduates. Methods Totally 425 nursing students from five universities in Shandong Province were recruited by using convenience sampling, then they were investigated utilizing a general information questionnaire, the Parental Psychological Control Scale (PCS), the Fear of Missing Out Scale (FOMOS), and the Social Media Addiction Scale (SMAS)，and SPSS 26.0 software was used to conduct common method bias testing， descriptive statistics， correlation analysis， mediation effect analysis. Results The scores of psychological control and fear of missing out and social media addiction of nursing students' parents in this study were (41.73±12.23), (23.93±6.27), and (89.94±19.48), respectively. Parental psychological control of nursing undergraduates was significantly and positively correlated with fear of missing out and social media addiction (P<0.001). The results of Bootstrap test showed that the mediating effect of fear of missing out on the relationship between parental psychological control and social media addiction was 0.25 (95% CI： 0.05 ~0.15)， accounting for 46.94% of the total effect. Conclusion Parental psychological control can influence social media addiction both directly and indirectly through fear of missing out.
Keywords：nursing undergraduates, parental psychological control, fear of missing out, social media addiction, mediating role

小学生语素意识与字词识别的关系：来自追踪的证据

程冬阳[1]　侯峥榕[1]　辛紫菡[1]　伍新春[2,3]　李利平[1]（通讯作者）
1 山西师范大学教育科学学院，太原，030031，liliping2092@163.com
2 北京师范大学心理学部，应用实验心理北京市重点实验室，儿童阅读与学习研究院，北京，100875
3 北京师范大学（珠海校区）应用心理学院，珠海，519087

摘 要　小学阶段字词识别不仅是课文阅读的重要前提，还是教学的主要任务之一。根据简单阅读观(Gough & Tunmer, 1990)，字词识别作为解码能力是一种自下而上的加工，指根据字形提取语音和语义的过程(Ehri, 2000)。汉语作为一种表意文字，识别时需要通过字形来通达语义。语素作为语言中的最小语义单位，不仅是个体的底层语言技能的展示，更是个体对字词内部语素结构感知及操作能力的体现，这也就决定了语素意识在字词识别中的作用。语素意识也有助于儿童对字词进行准确的识别和理解(周怡彤 等,2023)。同时，

交互激活模型(Reilly & Radach, 2006)提出，高水平的字词识别会促进低水平认知技能的发展。而以往研究也发现字词识别可能会经由字形知识、语音意识、词汇知识贡献于语素意识的发展。儿童从“学习阅读”转向“从阅读中学习”的过程中，语素意识与字词识别之间的关系可能也存在动态变化。据此，为探明(1)小学生语素意识与字词识别的因果关系；(2)小学生语素意识与字词识别的关系是否存在年级差异？本研究选取了 124 名小学一年级学生(低年级)和 123 名小学三年级学生(高年级)进行了为期三年的语素意识(同音字意识、同形词意识、复合词意识)和字词识别的追踪测试，并运用交叉滞后模型分析。结果显示：(1)一年级的交叉滞后模型拟合较好(χ^2=72.14、*df*=46、RMSEA=0.06、CFI=0.96、TLI=0.95、SRMR=0.04)。一年级字词识别对二年级语素意识有单向预测，路径系数为 0.2；二年级字词识别与三年级语素意识有双向预测，路径系数分别为 0.19 和 0.21。(2)三年级的交叉滞后模型拟合指数较好(χ^2=82.59、*df*=45、RMSEA=0.08、CFI=0.04)。三年级语素意识对四年级字词识别的单向预测显著，路径系数为 0.28；四年级时的语素意识对五年级字词识别的单向预测在边际水平上显著，路径系数为 0.19，*P*=0.06。研究表明，语素意识与字词识别的因果关系随着儿童阅读阶段的发展而变化，字词识别的作用在低年级时更大，而语素意识的作用在高年级时更大。

关键词　语素意识，字词识别，追踪研究

The Relationship between Morpheme Awareness and Word Recognition in Primary School Students: Evidence from Tracking

Dongyang Cheng[1]　Zhengrong Hou[1]　Zihan Xin[1]　Xinchun Wu[2,3]　Liping LI[1](Corresponding author)

1 School of Education Science, Shanxi Normal University, Taiyuan, 030031

2 Faculty of Psychology, Beijing Key Laboratory of Applied Experimental Psychology, Research Center of Children’s Reading and Learning, Beijing Normal University, Beijing, 100875

3 School of Applied Psychology, Beijing Normal University At Zhuhai, Zhuhai, 519087

Abstract: Word recognition in primary school is not only an important prerequisite for text reading, but also one of the main tasks of teaching. According to the simple reading view (Gough & Tunmer, 1990), word recognition as a decoding capability is a bottom-up process that refers to the process of extracting speech and semantics from glyph (Ehri, 2000). As an ideogram, Chinese needs to understand the semantics through glyph when identifying. As the smallest semantic unit in language, morphemes are not only the display of an individual's underlying language skills, but also the embodiment of an individual's ability to perceive and operate the internal morpheme structure of words, which also determines the role of morpheme awareness in word recognition. Morpheme awareness also helps children to accurately identify and understand words (Zhou et al., 2023). At the same time, the interaction activation model (Reilly & Radach, 2006) proposes that high levels of word recognition promote the development of low-level cognitive skills. Previous studies have also found that word recognition may contribute to the development of morpheme awareness through glyph knowledge, phonological awareness, and vocabulary knowledge. As children shift from "learning to read" to "learning from reading", there may also be dynamic changes in the relationship between morpheme awareness and word recognition. Accordingly, in order to explore the causal relationship between (1) primary school students' morpheme awareness and word recognition; (2) Is there a grade difference in the relationship between morpheme awareness and word recognition among primary school students? In this study, 124 primary 1 students (lower grades) and 123 primary 3 students (upper grades) were selected to conduct three-year tracking tests of morpheme awareness (homophone awareness, homograph awareness, compound word awareness) and word recognition, and cross-lag model analysis was used.

The results showed that: (1) The cross-hysteresis model fit well in the first grade (χ^2=72.14, *df*=46, RMSEA=0.06, CFI=0.96, TLI=0.95, SRMR=0.04). First-grade word recognition had a one-way prediction of second-grade morpheme awareness with a path coefficient of 0.2, while second-grade word recognition and third-grade morpheme awareness had two-way prediction, with path coefficients of 0.19 and 0.21, respectively. (2) The fitting index of the cross-hysteresis model in the third grade was good (χ^2=82.59, *df*=45, RMSEA=0.08, CFI=0.04). The one-way prediction of word recognition in grade 4 was significant, with a path coefficient of 0.28, and the one-way prediction of morpheme awareness on word recognition in grade 5 was significant at the marginal level, with a path coefficient of 0.19 and *P*=0.06. Studies have shown that the causal relationship between morpheme awareness and word recognition changes with the development of children's reading stage, and the role of word recognition is greater in the lower grades, while the role of morpheme awareness is greater in the upper grades.

Keywords: morpheme awareness, word recognition, tracking research

跨文化视角下童年期创伤和成人期自杀意念的关系：一项元分析

陶芽[123] 吴俊杰[123]（通讯作者）

1 教育部人文社会科学重点研究基地天津师范大学心理与行为研究院，天津，300387

2 天津师范大学心理学部，天津，300387

3 学生心理发展与学习天津市高校社会科学实验室，天津，300387，通讯作者 E-mail:psywujunjie@tjnu.edu.cn

摘 要 自杀是一个严重的全球卫生问题,童年期创伤被认为是成人期自杀意念的重要影响因素。尽管诸多研究探讨了这种关系，但是研究结果却存在很大差异，并且也不清楚该现象是否存在文化差异。本研究采用传统元分析的方法来明确不同类型的童年期创伤（情感虐待、情感忽视、身体虐待、身体忽视和性虐待）和成人期自杀意念之间的关系，并探讨了影响两者关系的调节变量。共检索了 Medline,Embase,Web of Science,CINAHL,WangFang Data,CNKI 和 CQVIP 数据库，检索时限截止至 2022 年 12 月 30 日，共获取 45 项研究，含 180 个效应量，涉及被试 147310 名，其中东方被试 28455 名，西方被试 118855 名。结果发现，童年期创伤越严重，成人期自杀意念越强烈（r = 0.19[0.17,0.21]）；该现象在整体上具有文化普遍性（东方 r = 0.18[0.16,0.18]，西方 r = 0.21[0.19,0.24]),但是性虐待与成人期自杀意念的关系紧密程度在东方文化下可能弱于西方文化（东方 r = 0.11[0.07,0.16],西方 r = 0.17[0.13,0.21]）；该现象在不同类型的创伤中存在差异，其中情感虐待最高（r = 0.25[0.19,0.30]),性虐待最低（r = 0.14[0.11,0.18]），情感忽视（r = 0.25[0.19,0.29]）、身体忽视（r = 0.19[0.14,0.24]）和身体虐待（r = 0.17[0.13,0.22]）居中；此外，调节效应检验发现五种童年创伤和成人期自杀意念之间的正相关关系不受被试年龄、男性比例、是否为临床样本、测量工具的影响。这些结果表明，在不同文化氛围下，童年期创伤都是成人期自杀意念的风险因子。本研究启示未来研究可以更多地关注童年期创伤经历者自杀的潜在机制，进一步探索两者关系的调节变量，寻找影响童年期创伤经历者自杀意念的保护因素，从而指导制定更有效的干预措施。

关键词 童年创伤，自杀意念，元分析

Cross-Cultural Perspectives on Childhood Trauma and Adult Suicidal Ideation: A Meta-Analysis

Ya Tao[123]Junjie Wu[123](Corresponding author)

1 Key Research Base of Humanities and Social Sciences of the Ministry of Education, Academy of Psychology and Behavior, Tianjin Normal University, Tianjin 300387;

2 Faculty of Psychology, Tianjin Normal University, Tianjin 300387;

3 Tianjin Social Science Laboratory of Students' Mental Development and Learning, Tianjin 300387.
Email address:psywujunjie@tjnu.edu.cn

Abstract: Suicide is a serious global health problem. Childhood trauma is thought to be an important factor in adult suicidal ideation. Although many studies have explored this relationship, the results have varied widely, and it is unclear whether the phenomenon has cultural differences. This meta-analysis was to estimate the association between adult suicidal ideation and different types of childhood trauma (emotional abuse and neglect, physical abuse and neglect, sexual abuse) and find their factors affecting. Medline, Embase, Web of Science, CINAHL, WangFang Data, CNKI, and CQVIP databases were searched until December 30, 2022. The present study obtained 46 studies (124811 participants;180 effect sizes). There were 28,455 participants in the East and 118,855 participants in the West. The results showed that the more severe the trauma in childhood, the more intense the suicidal ideation in adulthood (r = 0.19[0.17,0.21]). The phenomenon is culturally universal overall (Eastern r = 0.18[0.16,0.18], Western r = 0.21[0.19,0.24]), but the relationship between sexual abuse and suicidal ideation in adult life may be weaker in Eastern culture than in Western culture (Eastern r = 0.11[0.07,0.16], Western r = 0.17[0.13,0.21]). This phenomenon varied among different types of trauma, with emotional abuse being the highest (r = 0.25[0.19,0.30]) and sexual abuse the lowest (r = 0.14[0.11,0.18]). Emotional neglect (r = 0.25[0.19,0.29]), physical neglect (r = 0.19[0.14,0.24]) and physical abuse (r = 0.17[0.13,0.22]) were in the middle. In addition, the moderating effect test found that the positive correlation between the five types of childhood trauma and adult suicidal ideation was not affected by the age of the subjects, male proportion, whether the clinical sample was used or not, and the measurement instrument. These results suggest that childhood trauma is a risk factor for adult suicidal ideation across cultures. This study suggests that future studies should pay more attention to the potential mechanism of suicide in childhood traumatic experiences, further explore the moderating variables of the relationship between the two, and find protective factors affecting suicide ideation in childhood traumatic experiences, to guide the development of more effective intervention measures.

***Keywords*:** childhood trauma, suicidality, meta-analysis

中学生友谊质量与基本心理需要满足：社交网站自我呈现和社会比较的链式中介

摘 要 基本心理需要的满足是个体寻求心理上的成长、内化和幸福的重要途径。根据自我决定理论，青少年基本心理需要的满足能否顺利实现受制于外部环境提供的支持。友谊质量是交往双方提供陪伴交流的亲密程度以及解决冲突矛盾的水平，反映了个体与朋友之间关系的亲密程度，与他人之间良好的关系为个体基本心理需要的满足提供了支持性的环境。随着社交网站的广泛使用，社交网站为中学生人际交往、自我呈现提供新的平台，社交网站的一系列特性，也使得个体在社交网站中都能够寻找到满足其基本心理需要的方式。此外，个体在社交网站中不同的自我呈现策略可能会引起不同的社会比较倾向，进而导致不同的情感体验，最终影响到中学生基本心理需要的满足。基于此，本研究以 769 名中学生为研究对象，考察中学生社交网站自我呈现和社会比较在友谊质量与基本心理需要满足间的中介作用以及中介作用的年级差异。研究采用友谊质量量表、一般基本心理需要满足量表、社交网站自我呈现量表和社会比较倾向量表进行问卷调查。结果发现：（1）友谊质量、社交网站真实自我呈现、社交网站积极自我呈现与基本心理需要满足均呈显著正相关；社会比较与基本心理需要满足呈显著负相关。（2）社交网站真实自我呈现、社会比较的独立中介作用及链式中介作用均显著。（3）社交网站真实自我呈现和社会比较的独立中介作用和链式中介作用仅在高中生中显著。具体而言，中学生基本心理需要的满足既通过友谊质量的直接影响，也通过

社交网站真实自我呈现和社会比较的独立中介作用和链式中介起作用，同时这种中介作用在年级上存在显著差异。
关键词　中学生，友谊质量，基本心理需要满足，社交网站自我呈现，社会比较

The Relationship Between Friendship Quality and satifaction of Basic Psychological Needs Among Middle-school Students:The Chain Mediating Role of Self-presentation on SNSs and Social comparison

Abstract:The satisfaction of basic psychological needs is an important way for individuals to seek psychological growth, internalization and happiness. According to the self-determination theory, whether the satisfaction of teenagers' basic psychological needs can be successfully realized is subject to the support provided by the external environment. Friendship quality refers to the intimacy of companionship and communication and the level of conflict resolution, which reflects the intimacy of the relationship between individuals and friends. A good relationship with others provides a supportive environment for the satisfaction of individual basic psychological needs. With the wide use of social networking sites, social networking sites provide a new platform for middle school students' interpersonal communication and self-presentation. A series of characteristics of social networking sites also enable individuals to find ways to satisfy their basic psychological needs in social networking sites. In addition, different self-presentation strategies of individuals in social networking sites may lead to different social comparative tendencies, and then lead to different emotional experiences, which ultimately affects the satisfaction of basic psychological needs of middle school students. Based on this, this study investigated the mediating role of self-presentation on SNSs and social comparison between friendship quality and satisfaction of basic psychological needs of middle school students, and the grade differences of mediating role. Friendship Quality Scale, General Basic Psychological Needs Satisfaction Scale, Self-Presentation on SNSs Scale and Social Comparative Tendency Scale were used in the study. The results showed that: (1) Friendship quality, authentic self-presentation on SNSs, positive self-presentation on SNSs were significantly positively correlated with the satisfaction of basic psychological needs; Social comparison is negatively correlated with the satisfaction of basic psychological needs. (2) The independent mediating role and chain mediating role of authentic self-presentation and social comparison are significant (3) The independent mediating role and chain mediating role of authentic self-presentation on SNSs and social comparison are significant only among senior high school students. Specifically, the satisfaction of middle school students' basic psychological needs is not only directly affected by friendship quality, but also through the independent mediating role and chain mediating role of authentic self-presentation on SNSs and social comparison. At the same time, there are significant differences in grades.
Key words: middle-school students, friendship quality, satisfaction of basic psychology needs, self-presentation on SNSs, social comparison

体育锻炼与大学生领悟社会支持的关系：社会情感能力的中介作用及其性别差异

舒俊文[1]，颜军[2]（通讯作者）
1.　扬州大学体育学院，江苏扬州　225100

2. 扬州大学体育学院，江苏扬州，225100，

摘 要 体育锻炼是以增强身体健康增进体质为目的，以身体运动、关节活动、骨骼肌收缩为主要内容和手段，由强度、频率和持续时间的身体活动。领悟社会支持是社会支持中的一个子类型，是指个体对外界给予自身支持、理解、尊重的主观感受和评价，是对可能得到的社会支持的信念。社会情感能力被定义为认识和管理与自我、与他人、与集体关系的能力，以及做出负责任决策能力。为探究体育锻炼、社会情感能力、性别和大学生领悟社会支持的关系。采用体育锻炼等级量表（PARS-3）、领悟社会支持量表（PSSS）、中国大学生社会情感能力量表（SECS）对江苏、山东、湖北 408 名在校大学生进行调查。结果发现:（1）在控制了学历、专业类别等人口统计学变量之后，体育锻炼量显著正向预测大学生领悟社会支持（β=0.11，t=3.99，P＜0.001）; (2) 社会情感能力在体育锻炼与大学生领悟社会支持中起中介作用，中介效应量占比54.33%，95%*CI* 为[0.101,0.180]; (3) 性别在体育锻炼与大学生领悟社会支持之间起调节作用（t=2.01，P＜0.05）。本研究的结果表明体育锻炼不仅会直接影响大学生的领悟社会支持，还会通过社会情感能力间接地影响大学生的领悟社会支持；性别对体育锻炼影响大学生领悟社会的直接效应具有显著的调节作用。具体而言，相对于男生，女生对领悟社会支持的正向预测作用更显著。

关键词 领悟社会支持，体育锻炼，社会情感能力，大学生

The relationship between physical activity and college students' appreciation of social support: The Mediating Role of Socioemotional Competence and Its Gender Differences

Junwen Shu

College of Physical Education, Yangzhou University, Yangzhou, Jiangsu, China

Abstract： Physical exercise is to enhance physical health to improve physical fitness for the purpose of physical movement, joint activity, skeletal muscle contraction as the main content and means, by the intensity, frequency and duration of physical activity. Comprehending social support is a subtype of social support, which refers to an individual's subjective feelings and evaluations of the support, understanding, and respect given to him or her by the outside world, and is a belief in the social support that may be available to him or her. Social-emotional competence is defined as the ability to recognise and manage relationships with self, with others, and with the collective, as well as the ability to make responsible decisions. To explore the relationship between physical activity, social-emotional competence, gender, and college students' perceptions of social support. The Physical Activity Rating Scale (PARS-3), Perceived Social Support Scale (PSSS), and Social-Emotional Competence Scale for Chinese College Students (SECS) were used to investigate 408 college students in Jiangsu, Shandong, and Hubei. The results found that: (1) the amount of physical activity significantly and positively predicted college students' comprehension of social support after controlling for demographic variables such as education and professional category (β = 0.11, t = 3.99, P < 0.001); (2) socio-emotional competence mediated the role of physical activity and college students' comprehension of social support, with a mediating effect size of 54.33%, and a 95% CI of [0.101, 0.180]; (3) Gender plays a moderating role between physical activity and college students' comprehension of social support (t = 2.01, P < 0.05). The results of this study indicate that physical activity not only directly affects college students' perceptual social support, but also indirectly affects college students'

perceptual social support through socio-emotional competence; gender has a significant moderating effect on the direct effect of physical activity on college students' perceptual social support. Specifically, female students had a more significant positive predictive effect on perceptual social support than male students.
Keywords：Perceived Social Support, Physical Activity, Social Emotional Competence, College Students

被动干扰会引发主动行为吗？科技干扰对青少年手机冷落行为的影响

詹永吉[1]　何安明[1](通讯作者)
1 信阳师范大学教育科学学院，信阳，464000，anming.he@163.com

摘 要　随着智能手机和社交网络的不断普及，手机冷落行为已经蔓延至世界各地，该行为正逐渐成为一种社会常态，在青少年群体中已经非常普遍。手机冷落行为是指个体在与他人交流时全神贯注于自己的智能手机，避免与他人进行沟通交流的现象。而手机冷落行为作为一种普遍的社会现象，现有研究缺乏社会环境层面对其影响的探讨和解释。研究科技干扰（社会环境因素）对其的影响作用和其中的作用机制具有一定理论和现实意义。本研究主要基于社会交换理论，探讨科技干扰与青少年手机冷落行为的关系，并在此基础上建构了有调节的中介模型，考察无手机恐惧的中介作用和环境敏感性、社会比较倾向的调节作用。研究采用科技干扰量表、环境敏感性量表、社会比较倾向量表中文版、无手机恐惧量表中文版和手机冷落行为量表中文版对 5070 名青少年进行调查。结果显示：（1）在控制性别和年龄之后，科技干扰显著正向影响青少年手机冷落行为；（2）无手机恐惧在科技干扰与青少年手机冷落行为之间起到部分中介的作用；（3）环境敏感性和社会比较倾向分别调节“科技干扰→无手机恐惧→手机冷落行为”这一中介作用的前半段路径和后半段路径。简而言之，科技干扰与无手机恐惧之间既存在中介效应，又存在调节效应。该研究揭示了科技干扰与手机冷落行为的关系及其个体差异，为降低青少年的手机冷落行为提供实证支持和理论依据。
关键词　科技干扰，环境敏感性，无手机恐惧，手机冷落行为，青少年

Does Passive Interference Induce Active Behavior？The Influence of Technoference on Phubbing among Adolescents

Zhan Yongji, He Anming
School of Education Science, Xinyang Normal University, Xinyang 464000, China

Abstract: With the increasing popularity of smartphones and social networks, phubbing has spread all over the world, and it is gradually becoming a social norm, which has become very common among adolescents. Phubbing refers to the phenomenon that individuals focus on their smart phones when communicating with others and avoid communicating with others. However, as a common social phenomenon, the existing researches lack the discussion and explanation on the influence of social environment. It is of theoretical and practical significance to study the influence of technoference (social environmental factors) on it and its mechanism. Based on the social exchange theory this study explores the relationship between technoference and adolescents' phubbing. On this basis, a moderated mediation model is constructed to investigate the mediating effect of nomophobia and the moderating effect of environmental sensitivity and social comparison orientation. This study used the Technoference Scale, Environmental Sensitivity Scale, Social Comparative Orientation Scale, Chinese Version of

Nomophobia Scale and Phubbing Scale to survey 5070 teenagers study. The results showed that: (1) At the control of gender, age, technoference significantly negatively predicted adolescents' phubbing; (2) Nomophobia partially mediated the relationship between technoference and phubbing; (3) The direct and second half of the mediating pathways of technoference, nomophobia, and adolescents' phubbing were moderated by environmental sensitivity and social comparison orientation. In short, there are both mediating and moderating effects between technoference and adolescents' phubbing. This study revealed the relationship between technoference and the adolescents' phubbing and the individual differences, provided an empirical basis for improving the adolescents' phubbing.
Key words: technoference, environmental sensitivity, nomophobia, phubbing; adolescents

大五人格与错失恐惧：一项系统评价与元分析

张万双[1]　贺璐佳[1]　陈雨舟[1]　高雪梅[2]（通讯作者）
1 西南大学心理学部，重庆，400700
2 西南大学心理学部，重庆，400700，38153531@qq.com

摘 要　**背景**：错失恐惧是一种普遍的忧虑，即担心错过当自己不在场时的有益经历。在当今数字媒体时代，错失恐惧已成为一种常见现象，特别是在社交媒体的普及之下，错失恐惧现象引起了心理学领域的广泛研究。基于 I-PACE 模型，人格特质被理解为个体的个人特征，而错失恐惧则可被视为在人格特质的影响下产生的情感和认知变量，因此有助于更好地探索错失恐惧对问题性行为的影响。然而，关于大五人格与错失恐惧之间的关系，目前的研究结果存在较大差异，并且缺乏系统评价来验证二者之间的关联。**目的**：本研究旨在通过元分析方法探索大五人格特征与错失恐惧之间的关联强度，并探讨可能的调节因素。**方法**：本研究基于 21 项实证研究（N=13453），采用元分析方法进行定量分析。方法遵循系统审查和元分析（PRISMA）声明的指南，并将研究方案预先注册在国际系统评价前瞻性登记册（PROSPERO）上。**结果**：利用随机效应模型进行分析，结果显示尽责性与错失恐惧呈显著的负相关（r = -0.119，95% CI [-0.200, -0.036]），神经质与错失恐惧呈显著的正相关（r = 0.295，95% CI [0.146, 0.431]）。然而，宜人性、外向性和开放性与错失恐惧之间没有显著相关性。此外，发展阶段、文化构建和大五人格量表类型在调节大五人格与错失恐惧之间关联的过程中发挥着显著作用。**结论**：本元分析的结果表明尽责性可被视为错失恐惧的保护因素，而神经质可被视为错失恐惧的危险因素。这些发现提示，培养个体的自控能力、减少社交焦虑可能有助于减轻错失恐惧现象。
关键词　大五人格，错失恐惧，尽责性，神经质，元分析

Big Five Personality and Fear of Missing Out: A Systematic Review and Meta-Analysis

Wanshuang Zhang[1]　Lujia He[1]　Yuzhou Chen[1]　Xuemei Gao[2] (Corresponding author)
1 Faculty of Psychology, Southwest University, Chongqing, 400700
2 Faculty of Psychology, Southwest University, Chongqing, 400700, 38153531@qq.com

Abstract **：** BACKGROUND: Fear of missing out is a generalized concern about missing out on beneficial experiences when one is not present. In today's digital media age, fear of missing out has become a common phenomenon, especially with the popularity of social media, and the phenomenon of fear of missing out has

attracted extensive research in the field of psychology. Based on the I-PACE model, personality traits are understood as personal characteristics of an individual, whereas fear of missing can be viewed as an affective and cognitive variable that arises under the influence of a personality trait, thus helping to better explore the impact of fear of missing out on problematic behaviors. However, there is a large discrepancy in the current findings regarding the relationship between Big Five personality and fear of missing out and a lack of systematic evaluations to validate the association between the two. OBJECTIVE: The aim of this study was to explore the strength of the association between Big Five personality traits and fear of missing out through a meta-analytic approach and to explore possible moderating factors. METHODS: This study was based on 21 empirical studies (N = 13,453) that were quantitatively analyzed using meta-analytic methods. The methodology followed the guidelines of the systematic review and meta-analysis (PRISMA) statement and the study protocol was pre-registered in the Prospective International Registry for Systematic Evaluation (PROSPERO). RESULTS: Analyses using a random-effects model showed that due conscientiousness was significantly and negatively associated with fear of missing out (r = -0.119, 95% CI [-0.200, -0.036]) and neuroticism was significantly and positively associated with fear of missing out (r = 0.295, 95% CI [0.146, 0.431]). However, there was no significant correlation between agreeableness, extraversion, and openness and fear of missing out. Furthermore, developmental stage, cultural constructs, and the Big Five personality scale types played a significant role in moderating the association between Big Five personality and fear of missing out. CONCLUSION: The results of this meta-analysis suggest that conscientiousness can be considered a protective factor for fear of missing out, whereas neuroticism can be considered a risk factor for fear of missing out. These findings suggest that developing self-control and reducing social anxiety in individuals may help to reduce the phenomenon of fear of missing out.
Keywords：Big Five personality, fear of missing out, conscientiousness, neuroticism, meta-analysis

学龄前校外培训参与时间对儿童入学准备的影响：自我效能感的中介作用

鞠亦南[1]　史瑾[2]（通讯作者）

1 首都师范大学学前教育学院，北京，100048

2 首都师范大学学前教育学院，北京，100048，shijin365@aliyun.com

摘 要　“双减”政策颁布后，校外培训得到一定的治理，但在学前阶段，仍有许多家长基于“帮助孩子做好入学准备”的初衷，让儿童花较多时间参加各类校外培训。在影响儿童入学准备的因素中，校外培训究竟起到多少作用？是否参与校外培训时间越长，儿童入学准备效果越好？已有对儿童入学准备影响的研究较多关注的是外界的因素，如家庭、学校等，较少关注儿童发展的内在机制。儿童的自我效能感即是处于不同环境中，儿童对自己行为组织和坚持能力的一种信心。自我决定理论认为幼儿主动学习的内部动机得益于其心理需求的满足，包括自主感、能力感和归属感等。因此，儿童的自我效能感是否也会影响其入学准备？基于这些问题，本研究采用问卷调查法对 998 名学前儿童及其家庭进行调查，旨在探明校外培训参与时间与儿童入学准备之间的作用机制。结果发现：（1）学龄前校外培训参与时间对儿童入学准备有正向预测作用，但对入学准备中的生活准备没有显著影响。（2）校外培训参与时间、自我效能感与儿童入学准备有显著的正相关关系，儿童自我效能感越高，入学准备水平越好，其作用机制效应量大于校外培训参与时间的作用。（3）自我效能感在学龄前校外培训参与时间与儿童入学准备间起到部分中介作用。且在身心准备、社会准备和学习准备间都存在部分中介作用。研究结果启示：在影响儿童入学准备的相关因素中，儿童内

部心理机制可能是影响儿童各方面能力发展的重要途径，研究结果也启示家长要理性选择校外培训，合理安排儿童的各类活动时间。

关键词　学龄前校外培训，学龄前校外培训参与时间，儿童入学准备，自我效能感

The Effect of Participation Time in Preschool Extracurricular Activities on School Readiness: The Mediating Role of Self-efficacy

Ju Yinan[1]　Shi Jin[1]（Corresponding author）

1 College of Preschool Education, Capital Normal University, Beijing, 100048

Abstract：After the promulgation of the "double reduction" policy, extracurricular activities has been effectively governed, but in the preschool stage, there are still many parents based on the original intention of "helping children get ready for school", so that children spend more time to participate in various extracurricular activities. How much of the role does extracurricular activities play in influencing children's school readiness? Does the longer the children participate in extracurricular activities, the better their readiness for school? Existing studies on the influence of children's school readiness focus more on external factors, such as family and school, and less on the internal mechanism of children's development. Children's self-efficacy is a kind of confidence in their ability to organize and persist their behavior in different environments. According to the self-determination theory, the internal motivation of children's active learning benefits from the satisfaction of their psychological needs, including the sense of autonomy, competence and belonging. So does a child's self-efficacy also affect their readiness for school? Based on these questions, this study investigated 998 preschool children and their families by using a questionnaire to explore the mechanism of the relationship between extracurricular activities participation time and children's school readiness. The results showed that: (1) The participation time of preschool extracurricular activities had a positive predictive effect on school readiness, but had no significant effect on life readiness. (2) There is a significant positive correlation between extracurricular activities participation time and self-efficacy and children's school readiness. The higher children's self-efficacy is, the better their school readiness level is, and its effect is larger than the extracurricular activities participation time. (3) Self-efficacy plays a partial mediating role in the relationship between the participation time of preschool extracurricular activities and children's school readiness. It also plays a partial mediating role between physical and mental readiness, social readiness and learning readiness. The research results suggest that among the factors affecting children's school readiness, children's internal psychological mechanism may be an important way to affect children's ability development in all aspects. The research results also suggest that parents should rationally choose extracurricular activities and reasonably arrange children's various activities.

Keywords：preschool extracurricular activities, preschool extracurricular activities participation time，children's school readiness, self-efficacy

粗暴养育与青少年消极社会适应的关系：自我厌恶和友谊质量的作用

耿影慧　张野（通讯作者）刘致宏　张安鸽

沈阳师范大学教育科学学院，沈阳，110034，zhangye_psy@163.com

摘 要 儿童青少年的社会适应一直是心理学重点关注的方向。社会适应是衡量个体生存质量与社会化发展程度的重要指标，也是反映个体身心健康的重要表现。青少年时期是适应不良的高发期，社会适应不良则更容易使青少年罹患焦虑、抑郁等情绪障碍及问题行为；因此探究青少年消极社会适应的产生机制，寻求促进青少年社会适应的积极因素便显得尤为重要。本研究通过整群抽样方式，采用粗暴养育问卷、自我厌恶量表、友谊质量量表和消极社会适应问卷表对 925 名中学生进行问卷调查。通过 SPSS25.0 和 Mplus8.0 软件对数据进行处理和分析，探讨粗暴养育对青少年消极社会适应的影响，以及自我厌恶和友谊质量的作用。在控制性别和年龄后，结果表明：(1)粗暴养育正向预测青少年的消极社会适应；(2)自我厌恶在粗暴养育与消极社会适应之间起部分中介作用；(3)友谊质量调节了粗暴养育通过自我厌恶影响消极社会适应中介过程的前半段路径和后半段路径。研究最终梳理出一条“消极父母养育→不良人格发展→负性适应结果”的理论作用机制，同时揭示了高质量同伴关系的正向缓冲作用。该结果提示家长应重点关注青少年的社会适应问题，营造良好的家庭氛围，降低青少年家庭风险因素；同时家校一体从实践出发为青少年消极社会适应制定有效干预方案，共同关注青少年的学习和成长。
关键词 粗暴养育，消极社会适应，自我厌恶，友谊质量，青少年

The Relationship between Harsh Parenting and Adolescents' Social Maladjustment: the Role of Self-disgust and Friendship Quality

GENG Yinghui, ZHANG Ye, LIU Zhihong, ZHANG Ange

College of Education Science, Shenyang Normal University, Shenyang, 110034, zhangye_psy@163.com

Abstract: Social adaptation of children and adolescents has always been the direction of psychological focus. Social adaptation is an important indicator of an individual's quality of life and socialization, and also an important manifestation of an individual's physical and mental health. Adolescence is a period of high incidence of maladjustment, and social maladjustment is more likely to cause adolescents to suffer from emotional disorders and problematic behaviors such as anxiety, depression, etc. Therefore, it is particularly important to explore the mechanism of adolescents' social maladjustment and to seek for positive factors to promote adolescents' social adaptation. In this study, 925 secondary school students were surveyed by using the Rough Parenting Questionnaire, the Self-Absorption Scale, the Friendship Quality Scale and the Negative Social Adaptation Questionnaire in a whole group sampling method. Data were processed and analyzed through SPSS 25.0 and Mplus 8.0 software to explore the effects of rough parenting on adolescents' social maladjustment and the role of self-disgust and friendship quality. After controlling for gender and age, the results indicated that: (1) Harsh parenting significantly positively predicted social maladjustment among adolescents; (2) Self-disgust was the mediator between harsh parenting and social maladjustment; (3) Friendship quality moderated the relation between harsh parenting and self-disgust.The study combs out a theoretical mechanism of "negative parenting→adverse personality development→negative adaptive outcome" and the positive moderating effect of high friendship quality. The results suggest that parents should pay more attention to adolescents' social adjustment problems, create a good family atmosphere, and reduce adolescents' family risk factors; meanwhile, home and school should work together to formulate an effective intervention program for adolescents' negative social adjustment from the perspective of practice, and pay attention to adolescents' learning and growth together.

***Keywords*:** Harsh parenting, Social maladjustment, Self-disgust, Friendship quality, Adolescents

校园欺凌受害对青少年恶意创造力的影响：愤怒反刍的中介作用和社

会善念的调节作用

杨薇静 田鑫 胡东 郭英（通讯作者）
四川师范大学心理学院，成都，610066，E-mail：guoying517@163.com

摘 要 恶意创造力是个体以蓄意伤害他人为目的而产生的新颖想法，其行为表现包括恐怖袭击、电信诈骗、恶意中伤和撒谎等。研究表明，童年期创伤与恶意创造力显著正相关，而同样作为个体早期创伤经历的校园欺凌受害与恶意创造力的关系尚不清楚。同时鉴于青少年兼具高创造和高叛逆双重特性，本研究将青少年作为研究对象。基于影响创造力的 4P 模型、一般压力理论和挫折-攻击理论，考察校园欺凌受害与恶意创造力的关系，以及愤怒反刍和社会善念在其中的作用机制。采用《特拉华欺凌受害量表（学生卷）》、《愤怒反刍思维量表》、《社会善念自陈量表》和《恶意创造性行为量表》对 1019 名青少年进行问卷调查。通过构建一个有调节的中介效应模型,检验愤怒反刍在校园欺凌受害和恶意创造力之间的中介作用,以及社会善念对上述中介路径的调节作用。研究发现，青少年校园欺凌受害与恶意创造力显著正相关；愤怒反刍在校园欺凌受害和恶意创造力之间起部分中介作用，中介效应占总效应的 65.68%；有调节的中介检验进一步表明，社会善念调节中介模型的后半段路径，社会善念水平越高，愤怒反刍对恶意创造力的影响越弱。即校园欺凌受害可以直接预测恶意创造力，也可以通过愤怒反刍的中介作用间接预测恶意创造力；愤怒反刍影响恶意创造力的路径受到社会善念的调节。通过了解校园欺凌受害对恶意创造力的影响机制，对阻止校园欺凌事件进入恶行循环模式，以及未来对促进校园欺凌中受害者身心健康发展提出更有效的措施具有重要现实意义。

关键词 校园欺凌受害，恶意创造力，愤怒反刍，社会善念

The relationship between school bullying victimization and malevolent creativity：a moderated mediation

Yang Weijing Tian Xin Hu Dong Guo Ying
College of Psychology, Sichuan Normal University, Chengdu 610066

Abstract: Malevolent creativity refers to novel ideas generated by individuals with the intent to deliberately harm others, manifested through behaviors including terrorist attacks, Telecom fraud, malicious slander, and lying etc. Researches show that childhood trauma is significantly positively correlated with Malevolent creativity. However, the relationship between school bullying victimization, also an early trauma experience, and Malevolent creativity remains unclear. Given that adolescents possess dual characteristics of high creativity and high rebelliousness, this study focused on adolescents as research subjects. Based on the 4P's model of creativity, A General Strain Theory, and the Frustration-Aggression Theory, this study examined the relationship between school bullying victimization and Malevolent creativity, as well as the mediating roles of anger rumination and social mindfulness. Questionnaire surveys using the Chinese Version of Delaware Bullying Victimization Scale-student in Adolescents, Anger Rumination Scale, Social Mindfulness Self-Report Scale, and Malevolent Creativity Behavior Scale were conducted with 1019 adolescents. A moderated mediation model was constructed to test the mediating effect of anger rumination between school bullying victimization and Malevolent creativity, and the moderating effect of social mindfulness on this mediation pathway. Results showed school bullying victimization was significantly positively correlated with Malevolent creativity. Anger rumination partially mediated the relationship between school bullying victimization and malicious creativity, accounting for 65.68% of the total effect. The moderated mediation analysis further indicated that social mindfulness moderated the latter half of the

mediation model's pathway, such that higher social mindfulness weakened the influence of anger rumination on Malevolent creativity. In summary, school bullying victimization could directly and indirectly through anger rumination predict malicious creativity; the pathway from anger rumination to Malevolent creativity was moderated by social mindfulness. Understanding the mechanisms linking school bullying victimization and Malevolent creativity has important practical implications for interrupting the vicious cycle of school bullying and developing more effective interventions to promote the well-being of victims.
Keywords: School Bullying Victimization, Malevolent Creativity, Anger Rumination, Social Mindfulness

亲子情绪对话在父母元情绪理念与儿童情绪调节关系中的作用

裴呈祥[1]　孙映昱[2]　王异芳*（通讯作者）
1 首都师范大学学前教育学院，北京，10048
2 首都师范大学心理学院，北京，10048
* 首都师范大学学前教育学院，北京，10048，99722843@qq.com

摘 要　近年来，幼儿的情绪健康发展成为社会关注的焦点。情绪调节作为帮助个体调节自身情绪状态的能力，对幼儿的情绪社会性发展具有重要影响。已有研究表明，父母的情绪理念可以影响幼儿情绪调节的发展，而亲子情绪对话作为父母关键的情绪社会化行为，又在元情绪理念和情绪调节发展之间发挥重要作用。基于此，本研究从亲子情绪对话入手，探究对话频率、内容和类型在父母元情绪理念与儿童情绪调节中的作用。

研究一测查了亲子情绪对话的频率在父母元情绪理念与儿童情绪调节中的作用，通过网络向 228 名 2-7 岁儿童的父母发放问卷。研究结果表明：父母情绪紊乱理念能够显著负向预测亲子情绪对话的频率和儿童情绪调节性，亲子情绪对话的频率能够显著正向预测儿童情绪调节性。亲子情绪对话的频率在父母情绪紊乱理念与儿童情绪调节关系中的中介作用显著。研究二测查了亲子情绪对话的内容在父母元情绪理念与儿童情绪调节中的作用，线下招募了 52 名 2-7 岁儿童及其家长进行游戏，并对亲子对话内容进行录像编码。研究结果表明：父母情绪词汇在情绪摒除理念与儿童中性调节策略中存在显著的调节效应。当父母表达的情绪词汇越多时，情绪摒除理念对儿童中性调节策略的正向预测作用显著。但父母表达的情绪词汇较少时，情绪摒除理念对儿童中性调节策略不具有预测作用。儿童情绪因果在父母情绪摒除理念与消极调节策略中起调节作用，父母情绪词汇在情绪摒除理念与儿童中性调节策略中起调节作用。研究三对亲子对话中的心理状态话语（愿望语言、知觉语言和认知语言）进行编码，更系统地研究了情绪对话在父母元情绪理念与儿童情绪调节关系中的作用。研究结果表明：亲子间陈述·不当回应对话类型在父母情绪教导理念与儿童积极调节策略关系中起调节作用。亲子使用的陈述·不当回应类型较多时，情绪教导理念对儿童积极调节策略具有显著的正向预测作用，亲子使用的陈述·不当回应类型少时，情绪教导理念对儿童积极调节策略不具有预测作用。
关键词　元情绪理念，亲子情绪对话，情绪调节

The Role of Parent-Child Emotional Dialogue in the Relationship Between Parental Meta-Emotional Concepts and Children's Emotion Regulation

Chengxiang Pei[1]　Yingyu Sun[2]　Yifang Wang*

College of Preschool Education, Capital Normal University, Beijing, 100048
School of Psychology, Capital Normal University, Beijing, 100048

Abstract：In recent years, the emotionally healthy development of young children has become a focus of social concern. Emotion regulation, as the ability to help individuals regulate their own emotional states, has an important impact on young children's emotional social development. It has been shown that parents' emotional philosophy can influence the development of emotion regulation in young children, and parent-child emotion dialogue, as a key emotional socialisation behaviour of parents, plays an important role between meta-emotional philosophy and emotion regulation development. Based on this, the present study began with parent-child emotion dialogue to investigate the role of dialogue frequency, content, and type in parental meta-emotional philosophy and children's emotion regulation.

Study 1 measured the role of frequency of parent-child emotion dialogue in parental meta-emotional concepts and children's emotion regulation by distributing a questionnaire via the Internet to 228 parents of children aged 2-7 years. The results of the study showed that parental emotion disorder philosophy significantly negatively predicted the frequency of parent-child emotion dialogue and children's emotion regulation, and the frequency of parent-child emotion dialogue significantly positively predicted children's emotion regulation. The frequency of parent-child emotion dialogue mediated the relationship between parental emotion disturbance concepts and children's emotion regulation. Study 2 measured the role of the content of parent-child emotion dialogues in the relationship between parental meta-emotional concepts and children's emotion regulation. 52 children aged 2-7 years and their parents were recruited offline to play the game and the content of parent-child dialogues was video-coded. The results of the study showed that there was a significant moderating effect of parental emotional vocabulary in the emotional dismissal concept and children's neutral regulation strategies. When parents expressed more emotional vocabulary, emotional dismissal concepts positively predicted children's neutral regulatory strategies. However, when parents expressed less emotional vocabulary, emotion exclusion concepts were not predictive of children's neutral regulatory strategies. Children's emotional causation moderated parental emotion dismissal concepts and negative regulation strategies, and parental emotion vocabulary moderated emotion dismissal concepts and children's neutral regulation strategies. Study 3 coded mental state discourse (wish language, perceptual language, and cognitive language) in parent-child dialogues to more systematically examine the role of emotional dialogue in the relationship between parental meta-emotional ideas and children's emotion regulation. Findings suggest that the type of parent-child stated-inappropriate response dialogue plays a moderating role in the relationship between parental emotion teaching concepts and children's positive regulation strategies. Emotion teaching concepts were significant positive predictors of children's positive regulation strategies when parents and children used more types of stated-inappropriate responses, and emotion teaching concepts were not predictive of children's positive regulation strategies when parents and children used fewer types of stated-inappropriate responses.

Keywords：Meta-emotional concepts, parent-child emotional dialogue, emotional regulation

父母冲突对高中生网络欺凌的影响：一个有调节的中介模型

王晨 张野（通讯作者）原筱婷
沈阳师范大学教育科学学院，沈阳 110034，zhangye_psy@163.com

摘 要 随着互联网技术的快速发展，传统欺凌已悄然向网络空间转移。近几年来，网络欺凌所引发的内外化问题备受关注，其产生机制也逐渐成为重要议题。已有研究从家庭教养方式、道德推脱等探寻其对网

络欺凌的影响，而少有研究涉及不良父母关系、网络道德、学校支持与网络欺凌的关系。本研究探讨父母冲突与网络欺凌间的关系及网络道德与学校支持的作用。采用父母婚姻冲突子女感知量表、网络欺凌量表、网络道德问卷、学校支持问卷，通过整群抽样法对辽宁省 1025 名高中生进行问卷调查，使用 SPSS25.0 和 AMOS24.0 软件对数据进行录入和分析。结果表明：(1)父母冲突、网络道德、学校支持与网络欺凌两两间均呈显著相关；(2)父母冲突正向预测网络欺凌，网络道德在父母冲突与网络欺凌间起中介作用；(3)学校支持在中介后半段路径上以及直接效应上均起到调节作用。研究最终梳理出一条学校支持在“负面家庭关系→负面网络道德→网络欺凌行为”中调节作用的理论机制，该结果提示要重视学校内部人际关系支持在青少年网络欺凌防御中的积极作用。此外，还需进一步关注青少年网络人际关系及其家庭内部关系，并通过家校联合塑造培养青少年网络道德，深化德育教育并针对青少年网络欺凌行为进行有效的干预计划，构建良好的学校教育生态。
关键词　父母冲突，网络道德，学校支持，网络欺凌，青少年

The Impact of Parental Conflict on Cyberbullying Among High School Students: A Moderated Mediation Model

WANG Chen, ZHANG Ye, YUAN Xiaoting

College of Education Science, Shenyang Normal University, Shenyang, 110034, zhangye_psy@163.com

Abstract: With the rapid development of Internet technology, traditional bullying has quietly shifted to cyberspace. In recent years, the internalization and externalization problems caused by cyberbullying have attracted much attention, and its generating mechanism has gradually become an important topic. Some studies have explored the effects of family parenting styles and moral excuses on cyberbullying, while few studies have addressed the relationship between poor parental relationships, internet morality, school support and cyberbullying. This study explores the relationship between parental conflict and cyberbullying and the role of internet morality and school support. The Children's Perception of Parental Marital Conflict Scale, Cyberbullying Scale, Internet Morality Questionnaire, and School Support Questionnaire were used to conduct a questionnaire survey on 1025 high school students in Liaoning Province through the whole cluster sampling method, and the data were entered and analyzed using SPSS25.0 and AMOS24.0 software. The results showed that (1) parental conflict, internet morality, school support and cyberbullying were significantly correlated with each other; (2) parental conflict positively predicted cyberbullying, and internet morality mediated the relationship between parental conflict and cyberbullying; (3) school support moderated the second half of the path of the mediator as well as the direct effect. The study finally identified a theoretical mechanism for the moderating role of school support in "negative family relationships → negative internet morality → cyberbullying", which suggests that it is important to pay attention to the positive role of interpersonal support within the school in adolescents' defense against cyberbullying. In addition, it is also necessary to pay more attention to adolescents' interpersonal relationships on the Internet and their intra-family relationships, and to shape and cultivate adolescents' internet morality through the joint efforts of home and school, deepen moral education and carry out effective intervention programs for adolescents' cyberbullying behaviors, so as to build up a good ecology of school education.
Keywords: Parental Conflict, Internet Morality, School Support, Cyberbullying, Teenagers

道家人格与大学生婚恋焦虑的关系：情绪调节与身体自尊的链式中介作用

邓皖潼[1]　王磊[1]（通讯作者）
1 武汉体育学院心理学系，武汉，430079，378299706@qq.com

摘 要　根据埃里克森人格发展理论，个体在大学阶段的主要任务是获得亲密感,避免孤独感,体验爱情的实现。婚恋焦虑是大学生焦虑的重要来源，长期的持续性的婚恋焦虑对大学生的身心健康造成不利影响。道家人格是指在道家思想文化的影响下形成的一种人格特质,这种人格特质强调不过分要求与责备自己, 为人大度、处世豁达。拥有高水平道家人格的个体往往对自己的身形更不苛刻，情绪调节能力更强，焦虑水平更低，在面临婚恋焦虑时更容易平和对待、解决冲突。道家人格与大学生婚恋焦虑之间的关系目前仍缺乏深入分析。鉴于此，本研究采用问卷法，试图从心理层面着手探究道家人格影响大学生婚恋焦虑的具体作用机制，以期为大学生婚恋焦虑问题的实际干预提供科学的理论依据。

选取两所高校的在校大学生和硕士生进行问卷调查，最终获得有效问卷 611 份，其中文化生 224 名，体育生 387 名。采用《道家人格量表》、《应对方式量表》、《身体自尊量表》和《婚恋焦虑量表》,要求调查对象进行自我报告。使用 SPSS 和 PROCESS 宏程序进行数据的整理与分析，先进行信效度检验、描述性统计、相关分析、回归分析，再采用 Bootstrap 检验中介效应模型。

相关分析发现，道家人格、情绪调节、身体自尊、婚恋焦虑均两两相关。回归分析表明，道家人格可以负向预测婚恋焦虑。中介效应检验结果表明，其中道家人格对婚恋焦虑的总效应为-0.302，在模型引入情绪调节和身体自尊之后，直接效应变为-0.150；情绪调节和身体自尊在道家人格对婚恋焦虑的间接效应为-0.152，效应量（即中介效应占总效应的百分比）为：50.3%。以上结果表明，道家人格对大学生婚恋焦虑的影响是通过情绪调节和身体自尊的中介作用,以及两者间的链式中介作用得以实现的。

关键词　大学生，道家人格，婚恋焦虑，情绪调节，身体自尊

The Relationship between Daoist Personality and Marriage Anxiety: Chain Mediation of Emotional Regulation and Body Esteem

Wantong Deng[1]　Lei Wang[1] (Corresponding Author)
1 Department of Psychology, Wuhan Sports University, Wuhan, 430079

Abstract：According to the Erik Erikson's Theory of Psychosocial Development, college students are in the sixth stage of development. During this stage, the major conflict centers on forming intimate, loving relationships with other people. Marriage anxiety is the main type of anxiety among college students, and long-term marriage anxiety will have adverse effects on the physical and mental health of college students. Daoist personality is a personality trait originating from Taoist philosophy which is emphasized that we should living life kindly, compassionately, gracefully, never striving to be first. Individuals with higher levels of Daoist personality tend to be less strict with their body shape, have stronger ability to regulate emotions, and are more likely to handle and resolve conflicts peacefully when facing marriage anxiety. The relationship between Daoist personality and college students' marriage anxiety is currently lacking in-depth research. Therefore, this study tried to explore the mechanism of the influence of Daoist personality on college students' marriage anxiety from a psychological perspective by

questionnaire method, in order to provide a scientific theoretical basis for practical intervention in college students' marriage anxiety.

Questionnaire surveys were conducted among undergraduate students and master's students from two universities. In the end, 611 valid questionnaires were obtained, including 224 normal students and 387 students with PE specialty. Daoist Personality Scale, Abbrieviated Self-reported Coping Scale, Body Esteem Scale and Marriage Anxiety Scale were used to require respondents to conduct self reporting. SPSS 26.0 and PROCESS macro programs were used for data analysis includes evaluation on reliability and validity, descriptive statistics, correlation analysis, regression analysis and mediating effect test.

Correlation analysis showed that all correlations between the four variables are significant. Regression analysis showed that Daoist personality can negatively predict marital anxiety. By means of analysis of mesomeric effect, it can be found that Daoist personality have indirect effects on marriage anxiety through emotional regulation and body esteem respectively and sequentially. In the serial mediation model, the total effect of Daoist personality on marriage and love anxiety is -0.302, the direct effect is -0.150, the indirect effect is -0.152, and the amount of effect (that is, the percentage of mesomeric effect in the total effect) is 50.3%.

Keywords：college students, Daoist personality, marriage anxiety, emotional regulation, body esteem

师生关系与学龄儿童学业适应的双向关系：基于随机截距交叉滞后模型的分析

邢秀，邢晓沛（通讯作者）

首都师范大学心理学院，北京，100048，xingxiaopei2006@126.com

摘 要 师生关系对学生学业适应的重要作用已得到众多研究的支持，但相关研究主要从个体间层面对两者间的关系进行了揭示，尚未有研究从个体内水平对师生关系与学龄儿童学业适应的双向关系进行探讨。基于生态系统理论，个体和环境因素是相互影响的。基于此，本研究采用追踪研究设计和随机截距交叉滞后模型（RI-CLPM）从个体间和个体内层面上揭示师生关系与学龄儿童学业适应之间的双向互动关系，并进一步考察了个体内层面的动态性双向互动效应是否会因师生关系维度和儿童性别而不同。本研究对 519 名中国学龄儿童（$M_{年龄}$ = 10.35, 51.6% 为男生）进行为期半年（共 3 个时间点）的追踪测查，采用师生关系量表测查师生关系，采用小学生心理素质量表测查学生学业适应。采用 RI-CLPM 分别建构师生冲突或亲密和学生学业适应的模型。结果发现：在个体间水平上，师生冲突和师生亲密与学生学业适应均显著相关。在个体内水平上，前一个时间点师生冲突的减少和师生亲密的增加可以显著预测后一个时间点学生学业适应的增加，但前一个时间点学生学业适应的增加只能显著预测后一个时间点师生冲突的减少。此外，师生冲突和师生亲密在三个时间点内相对稳定。最后，多群组分析结果发现上述关系中无明显的性别差异。总之，本研究创新性地从个体内水平揭示了师生关系与学龄儿童学业适应之间存在双向关系，并且双向关系在师生亲密与师生冲突维度上存在不同模式。研究结果表明，师生关系质量的提高有助于促进学龄儿童学业适应，进而减少后续的师生冲突，但并不必然会增强师生亲密。

关键词 师生关系，学业适应，个体间水平，个体内水平，性别差异

Reciprocal Relations between Teacher-student Relationships and School-aged Children's Learning Adaptation: Based on the Random Intercept Cross-Lagged Panel Model Analysis

Xing Xiu, Xing Xiaopei (corresponding author)
School of Psychology, Capital Normal University, Beijing 100048, China

***Abstract*:** Previous studies have supported the important roles of teacher-student relationships in student's learning adaptation, but most of them examined this issue at the between-person level. To date, few studies separated within-person variance from between-person variance to explore the dynamic reciprocal relations between the above two constructs. Given individual and contextual factors are influenced reciprocally based on ecological system theory, we conducted a short-term longitudinal study (three waves, 3 months apart) to explore whether the relations between teacher-student relationships and school-aged children's learning adaptation were reciprocal and whether the relations would differ by teacher-student relationships dimensions and child gender. Random-intercept cross-lagged panel model (RI-CLPM) was used to investigate the hypothesized reciprocal relations. Five hundred and nineteen Chinese elementary school students (*M*age = 10.35, 51.6% boys) participated in the survey. Student's perceptions of the quality of their relationship with teachers was assessed by the Teacher-Student Relationship Questionnaire (STRQ) and learning adaptation was assessed by the learning adaptation subscale from Pupils' Psychological Suzhi Scale (PPSS). Several main results are obtained: (1) At the between-person level, teacher-student conflict and closeness were significantly related to student's learning adaptation; (2) At the within-person level, when teacher-student conflict decreased or teacher-student closeness increased beyond their own average levels, children tended to display subsequent increases in their own average level of learning adaptation; However, changes in learning adaptation only predicted subsequent changes in teacher-student conflict, rather than changes in teacher-student closeness; (3) Positive carry-over stability effects were observed for teacher-student closeness and conflict, but not for learning adaptation; (4) No gender differences existed in the above relations. In conclusion, our findings make an important contribution to our understanding of how teacher-student relationships and children's learning adaptation dynamically related across time periods at intra-individual level and how reciprocal patterns vary according to teacher-student relationship dimensions. A practical implication of this study is that improving the teacher-student relationship quality would help to promote children's learning adaptation, which in turn would reduce the subsequent teacher-student conflict, but not necessarily strengthen the closeness between them.

***Keywords*:** teacher-student relationship, learning adaptation, within-person level, between-person level, gender difference

初中生自尊与负面身体自我的关系：坚韧人格的中介作用

赵娟 丁芳（通讯作者）
苏州大学教育学院心理学系，苏州，215123，dingfang@suda.edu.cn

摘 要 负面身体自我是指对自我消极的身体意向，包括消极的认知、情感体验和相应的行为控制。近几年由负面身体自我引起的心理行为障碍和身心疾病的案例越来越多，并表现出明显的低龄化。因此，对初中生负面身体自我的影响因素及内在机制进行探讨对于提高其心理健康水平具有重要意义。研究发现，自尊是负面身体自我的影响因素之一，两者之间的关系非常密切。低自尊个体可能更易受到外界环境的影响，从而引发对自我身体的不满。虽然国内外对自尊与负面身体自我的相关研究较多，但自尊与负面身体自我之间作用机制的探讨仍需进一步深入。坚韧人格是能够保护个体自身免受各种应激伤害的一种积极人格特质。研究发现，自尊与坚韧人格之间存在显著的正相关。虽然坚韧人格与负面身体自我之间的相关实证研究较少，但根据坚韧人格的含义，可以推测当个体面对体重增加、容貌焦虑等应激事件时，坚韧人格能够使个体保持积极乐观的心态，并及时调整自身心理或行为状态，转变对身体自我的消极认知。本研究做出

假设：坚韧人格在自尊与负面身体自我之间起中介作用。因此，本研究以 590 名初中生为研究对象，采用自尊量表、坚韧人格量表、以及负面身体自我量表探讨初中生自尊、坚韧人格和负面身体自我的关系以及坚韧人格在自尊与负面身体自我之间的中介作用。研究结果表明：（1）初中生自尊、坚韧人格与负面身体自我呈显著负相关，自尊与坚韧人格呈显著正相关；（2）坚韧人格在自尊与负面身体自我之间起部分中介作用。由此得出，自尊不仅直接影响初中生负面身体自我，还可以通过坚韧人格对其产生影响。本研究启示我们，在初中生发展过程中，学校及家庭可通过丰富教育内容或加强体育锻炼来提高学生自尊与坚韧人格水平，引导他们增强积极应对困境和挫折的能力，提高心理健康水平和积极的心理素质。另外，学校也可以开展相关讲座对学生身体自我的负面认知给予正确的引导和干预，使学生形成积极的身体自我。
关键词　自尊，负面身体自我，坚韧人格，中介作用，初中生

The Relationship between Self-esteem and Negative Physical Self of Junior School Students: The Mediating Role of Hardiness Personality

Zhao Juan, Ding Fang
Department of Psychology, School of Education, Soochow University, Suzhou

Abstract: Negative physical self refers to the negative physical intention towards self, including negative cognition, emotional experience and corresponding behavior control. In recent years, there are more and more cases of mental behavior disorders and physical and mental diseases caused by negative physical self, and they have shown obvious younger age. Therefore, it is of great significance to explore the influencing factors and internal mechanism of negative physical self for improving the mental health level of junior school students. Research has found that self-esteem is one of the predictors of body dissatisfaction, and the relationship between the two is very close. Individuals with low self-esteem may be more susceptible to external influences, which may lead to body dissatisfaction. Although there are many researches on self-esteem and negative physical self , the mechanism of action between self-esteem and negative physical self still needs to be further explored. Hardiness personality is a positive personality trait that can protect an individual from various kinds of stress. The study found that there is a significant positive correlation between self-esteem and hardiness personality. Although there are few empirical studies on the correlation between hardiness personality and negative physical self, according to the meaning of hardiness personality, it can be inferred that when individuals face stressful events such as weight gain and appearance anxiety, hardiness personality can make individuals maintain a positive and optimistic attitude, timely adjust their psychological or behavioral states, and change their negative cognition of physical self. This study hypothesized that hardiness personality plays a mediating role between self-esteem and negative physical self. Therefore, this study took 590 junior high school students as the research objects, and used Self-esteem Scale, Hardiness Personality Scale, and Negative Physical Self Scale to explore the relationship between self-esteem, hardiness personality and negative physical self of junior school students, as well as the mediating role of hardiness personality between self-esteem and negative physical self. The results showed that: (1) Self-esteem and hardiness personality were significantly negatively correlated with negative physical self, self-esteem was significantly positively correlated with hardiness personality; (2)

Hardiness personality played a partial mediating role between self-esteem and negative physical self. It can be concluded that self-esteem not only directly affects the negative physical self of junior school students, but also has an impact on negative physical self through hardiness personality. This study reveals that schools and families can improve their self-esteem and hardiness personality level by enriching educational content or strengthening physical exercise, guide them to enhance their ability to actively deal with difficulties and setbacks, and improve their mental health and positive psychological quality in the development process of junior school students. In addition, the school can also arrange relevant lectures to give correct guidance and intervention to students' negative cognition of physical self, so that students can form a positive physical self.

Keywords: self-esteem, negative physical self, hardiness personality, mediating role, junior school students

父母婚姻质量与儿童焦虑的关系：儿童拒绝敏感性的中介作用

郑文杰　钱靖轩　刘文雪　刘莉（通讯作者）

山东师范大学心理学院，济南，250014，liuli3514@126.com

摘 要　家庭系统理论指出儿童适应问题往往与家庭因素相关，其中，父母婚姻关系对儿童适应尤为重要。情绪安全理论强调，父母低婚姻质量会削弱儿童在家庭中的情绪安全感，增加儿童脆弱性，极易导致儿童产生焦虑等心理健康问题。拒绝敏感性模型和认知-情感处理系统理论认为，拒绝敏感性源于个体早期被拒绝的经历，父母低婚姻质量的负面后果可能会产生溢出效应，使儿童感知到拒绝，从而使儿童拒绝敏感性升高，而这可能损害儿童社会情感功能并激活其回避和退缩的防御机制，导致儿童产生更多的焦虑情绪。既有研究大多只关注父母报告的婚姻质量或儿童感知的婚姻质量与儿童焦虑的关系，鲜有研究同时考察父母报告的婚姻质量与儿童感知的父母婚姻质量对儿童焦虑的影响。从父母和儿童的角度同时考察，有助于更全面的了解婚姻质量与儿童焦虑的关系，这也部分支持主客体相互作用的观点。因此，本研究以 526 名小学儿童及其父母为被试，进行连续三次（间隔半年）的追踪测查，同时揭示父母报告的婚姻质量与儿童感知的父母婚姻质量与儿童焦虑之间的关系，以及拒绝敏感性在其中的中介作用。结果发现：（1）父亲和母亲报告的婚姻质量均能显著负向预测儿童焦虑，而儿童感知的婚姻质量对儿童焦虑无直接预测作用；（2）儿童拒绝敏感性在儿童感知的婚姻质量与儿童焦虑的关系中起中介作用，而在父母报告的婚姻质量与儿童焦虑的关系中不起中介作用；（3）多群组分析表明该中介关系不存在显著的儿童性别差异。这一结果提示了同时考察父母报告的婚姻质量与儿童感知的父母婚姻质量对儿童焦虑影响的重要性，并在一定程度上揭示了父母婚姻质量与儿童焦虑之间关系的认知情感作用机制，对于儿童焦虑的预防和干预工作具有重要的实践意义。

关键词　父母婚姻质量，儿童感知的父母婚姻质量，拒绝敏感性，儿童焦虑

Interparental marital quality and children's anxiety: The mediating role of children's rejection sensitivity

Li Liu[1], Wenjie Zheng[1], Jingxuan Qian[1], Wenxue Liu[1]
[1]Department of Psychology, Shandong Normal University, Jinan, China

Abstract: Family systems theory indicates that children's adjustment problems are often associated with family factors, in which the marital relationship is particularly important. The emotional security theory emphasizes that low interparental marital quality undermines children's sense of emotional security in the family relationship. Children's emotional insecurity increases children's vulnerability to internalizing symptoms and takes a variety of forms including anxiety. The rejection sensitivity model and cognitive-affective processing systems theory indicate that rejection sensitivity is considered to stem from an individual's experience of rejection. The negative consequences of low marital quality may have a spill-over effect, which may result in child perceived parental rejection and higher rejection sensitivity. Rejection sensitivity is a defensive motivational system in children, which may dispose the children toward active avoidance and withdrawal, and thus result in increased children's anxiety. Prior research focused on the relations among parent-report marital quality or children perception of interparental marital quality and child anxiety separately. However, less research examined the relations among parent-report marital quality and children perception of interparental marital quality and child anxiety simultaneously. And the current study simultaneously explored the effects of both parent-report marital quality and children's perception of interparental marital quality on children's anxiety to facilitate a more comprehensive understanding of the effects of marital relationship on child anxiety, which partially supports the idea of objective-subjective interaction interactions. Accordingly, the longitudinal data of 526 elementary school-aged children and both their mothers and fathers to explore the relations between interparental marital quality and children's anxiety as well as the mediating role of child rejection sensitivity. The results showed that (1) Both mother-report and father-report marital quality negatively predicted children's anxiety directly, while children's perception of interparental marital quality had no direct effects on child anxiety; (2) Children's perception of interparental marital quality had indirect effects on children's anxiety through their rejection sensitivity, while parent-report marital quality had no indirect effects; (3) The results of the multi-group analysis of child gender differences showed that there is no significant child gender difference in the mediating effects of child rejection sensitivity among parent-report marital quality and children perception of interparental marital quality and child anxiety. These findings not only shed light on the importance of exploring the effects of both mothers' and fathers' self-reported marital quality and children's perception of interparental marital quality on children's anxiety simultaneously, but also provide support for the mediating role of synthetical cognitive-affective state (e.g., rejection sensitivity) in these relations. Some valuable information and practical implications can be originated from the current study for reducing children's anxiety.

Keywords: parent-report marital quality, children perception of interparental marital quality, children's anxiety, children's rejection sensitivity

父母教养压力与协同教养的关系：基于纵向主客体互倚模型的分析

刘文雪　郑文杰　钱靖轩　刘莉（通讯作者）
1 山东师范大学心理学院，济南，250014，liuli3514@126.com

摘 要　教养压力是一种普遍存在的现象，然而高水平的教养压力会对父母的教养行为产生不利影响。已有研究表明，父母教养压力与协同教养关系密切。虽然研究者对父母教养压力与协同教养之间的关系进行了一系列理论探讨和实证研究并获得了一些有价值的研究结论。然而，关于二者间关系的研究大多只关注父母一方或考察二者的单向关系，鲜有研究在中国文化背景下同时考察父母教养压力与协同教养间的主客体效应和双向关系。基于家庭系统理论和溢出交叉假说，个体的情感和行为在影响自身的同时也会影响到伴侣，并且个体子系统（教养压力）与三元子系统（协同教养）间会相互影响，父母高水平的教养压力可能导致其消极协同教养行为的增多，而消极协同教养行为也会加剧父母的教养压力。本研究以 522 名小学儿童的父母为被试进行了连续两次（间隔半年）的追踪调查，在同一模型中考察父母教养压力与协同教养间的主客体效应及双向关系。通过建构纵向主客体互倚模型，本研究得到如下结果：（1）父亲和母亲的教养压力显著负向预测配偶的协同教养（客体效应），母亲的协同教养显著负向预测配偶的教养压力（客体效应），但父母教养压力与协同教养间的主体效应均不显著；（2）父亲教养压力与母亲协同教养在 T1、T2 两个时间点上存在双向关系。具体来说，T1 父亲的教养压力显著负向预测 T2 母亲协同教养；同时，T1 母亲协同教养显著负向预测 T2 父亲教养压力。研究结果揭示了父母教养压力与协同教养间的复杂的关系动态，对于减少父母教养压力以及提高协同教养质量具有重要的实践意义。
关键词　教养压力，协同教养，双向关系，主客体互倚模型

Parenting Stress and Coparenting: The Actor-Partner Interdependence Model

Li Liu[1], Wenxue Liu[1], Wenjie Zheng[1], Jingxuan Qian[1]
[1]Department of Psychology, Shandong Normal University, Jinan, China

Abstract：Parenting stress is a prevalent phenomenon; however, high levels of parenting stress have negative influences on parenting behavior for parents. Although parents' parenting stress has been found to be related to coparenting, existing research has mostly focused only on one parent or examined the unidirectional effects between the two factors. There is a lack of studies that simultaneously investigate the actor and partner effects as well as the bidirectional association between parenting stress and coparenting in the context of Chinese culture. Based on the family systems theory, individual emotions and behaviors affect not only themselves but also their partners. Furthermore, the individual subsystem (parenting stress) and the triadic subsystem (coparenting) are mutually influential. High levels of parenting stress between parents may lead to an increase in negative coparenting behaviors, which, in turn, exacerbate their parenting stress. Given above, 522 mother-father dyads with elementary school children were followed for two measurement occasions (half a year apart), and a cross-lagged model in combination with an actor-partner interdependent model (APIM) was used to simultaneously examine the actor and partner effects as well as the bidirectional association between parenting stress and coparenting within the same model. The results showed that: (1) Both fathers' and mothers' parenting stress significantly negatively predicted their spouses' coparenting (partner effects), and mothers' coparenting significantly negatively predicted their spouses' parenting stress (partner effects). However, the actor effects between parents' parenting stress and coparenting were not significant; (2) Fathers' parenting stress at T1 significantly negatively predicted mothers' coparenting at T2, at the same time, mothers' coparenting at T1 also significantly negatively predicted fathers' parenting stress at T2, which indicated a bidirectional pattern. The findings from the current study reveal the complex family dynamics between parenting stress and coparenting.

Some valuable information and practical implications can be derived from the present study for reducing parenting stress and enhancing the quality of coparenting.

Keywords：parenting stress, coparenting, bidirectional association, APIM

情节模拟对助人意愿的双刃剑效应

车洁[1]　　白利莉[2]

1 福建师范大学心理学院，福建，350108，chejiepsy@163.com

摘 要　情节模拟(episodic simulation)是一种生动地想象特定时间和空间经历的心理能力。研究发现，想象帮助他人的场景可以提高一个人的助人意愿。前人的大部分研究都聚焦在情节模拟对亲社会行为的促进作用上，对其在不道德行为方面的作用知之甚少。本研究测试了情节模拟帮助行为或旁观者行为是否会对被试的助人意愿产生不同影响。实验 1 采用单因素被试内实验设计，选取在校大学生 29 名（Mage = 19.65, SD = 1.54）。被试阅读一个故事情境后，需要在 40 秒内完成想象帮助他人、想象自己是旁观者、想象故事结局或者撰写故事标题的任务，随后让被试回答问题考察想象场景的生动性、情绪感受（高兴、自豪、难过、内疚）以及助人意愿。通过比较几种条件下被试助人意愿的差异，初步推断情节模拟的不同作用效果，并检验想象场景生动性和情绪感受在情节模拟影响助人意愿的过程中是否存在中介效应。结果发现，与撰写标题任务相比，想象帮助行为促进了帮助意愿（p<0.001），该效果由想象生动性和自豪感中介；想象旁观者行为之后的帮助意愿有所降低，边缘显著（p=0.097）；单纯想象故事结局并不会影响帮助意愿（p=0.509）。实验 2 采用不同的实验范式对实验一的结果进行检验，被试（41 人，Mage = 20.15, SD = 1.74）分三次参与实验，每次完成以下三个任务中的一个：撰写标题、想象帮助行为、想象旁观者行为。想象帮助行为的结果复制了实验 1 的发现；想象旁观者行为之后的助人意愿显著下降（p<0.001），场景生动性通过中介作用削弱了想象旁观者行为带来的负面影响。本研究的结果揭示出情节模拟存在双刃剑效应——想象帮助和旁观者行为会对帮助意愿产生相反的影响。而想象场景的生动性在情节模拟中是一个关键因素。

关键词　情节模拟，助人意愿，帮助行为，旁观者行为

The Double-Edged Sword Effect of Episodic Simulation on Willingness to Help

Jie Che Lili Bai

School of Psychology, Fujian Normal University, Fujian, 350108

Abstract：Episodic simulation is the mental ability to vividly visualize specific experiences in time and space. Previous research has shown that imagining scenarios where one helps others can increase willingness to help. However, most research has focused on the positive effects of episodic simulation on prosocial behavior, and little is known about its role in unethical behavior. This study aimed to test whether episodic simulation of helping or bystander behaviors would differentially affect willingness to help.

For experiment 1, a within-subjects experimental design was utilized with 29 college students (Mage = 19.65, SD = 1.54). After reading a story situation, subjects completed the task of imagining helping others, imagining themselves as bystanders, imagining the end of the story, or writing a story headline within 40 seconds. They were then asked questions examining the vividness of the imagined scenario, their emotional feelings (happiness, pride, sadness, and guilt), and their willingness to help. Linear mixed models were used to compare differences in willingness to help across conditions. We also tested whether scene vividness and emotional feeling mediated the

effects of episodic simulation on willingness to help. The results found that imagining helping behaviors facilitated willingness to help compared to the headline-writing task ($p < 0.001$）, the effect mediated by vividness and pride. Willingness to help decreased after imagining bystander behaviors. This effect is marginally significant ($p = 0.097$）. Imagining the end of the story did not affect willingness to help（$p=0.509$）.

Experiment 2 replicated the findings of experiment 1 using a different experimental paradigm. In this paradigm, subjects (n=41, Mage = 20.15, SD = 1.74) participated in the experiment on three separate occasions, completing one of the following tasks each time: writing a headline, imagining helping behaviors, and imagining bystander behaviors. The results of "imagining helping behaviors" replicated the findings of experiment 1. Willingness to help decreased significantly after imagining bystander behavior ($p<0.001$). Scene vividness attenuated the negative effect of imagining bystander behavior through mediation. These results reveal a previously unexplored double-edged effect of episodic simulation: imagining helping behaviors and bystander behaviors can have opposite effects on willingness to help. Furthermore, the vividness of the imagined scenario is a key factor in episodic simulation.

Keywords：episodic simulation, willingness to help, helping behavior, bystander behavior

父母物质惩罚与农村青少年主观幸福感：链式中介效应

范甜甜[1]　刘博文[1]　耿捷[1]　项锦晶[1]（通讯作者）

1 北京林业大学人文社会科学学院，北京，100083，通讯作者 E-mail：xiangjj@bjfu.edu.cn

摘 要　青春期是个体主观幸福感发展的重要时期。已有研究发现青春期个体的主观幸福感在 10 岁左右开始持续下降。其中，家庭是影响青少年主观幸福感的重要因素。受中国传统文化影响，父母惩罚常被视为恰当且必要的管教孩子方式，现有研究表明中国父母对青少年主要采用限制的惩罚方式，即剥夺孩子某些权利。物质惩罚（Material Punishments）作为一种限制性教养行为，指当孩子遭遇失败或做出不良行为时对孩子珍爱的物品采取暂时或永久的剥夺，在中国家庭中应用广泛。同时，物质惩罚是儿童物质主义价值观社会化的重要机制之一。研究发现个体经历的物质惩罚越多，越倾向将物质财富看作是衡量成功的标准。此外，不确定感管理模型指出物质主义可以满足个体控制感，进而对幸福感产生影响。由此看来，物质惩罚、物质主义、控制感和主观幸福感之间可能存在密切联系。然而，当下较少有研究对此进行探讨。基于此，为探究父母物质惩罚与农村青少年主观幸福感的关系及物质主义和控制感在其中的中介作用，本研究采用父母物质惩罚量表、控制感量表、物质主义价值观量表和幸福感指数量表对河南省某农村地区 1081 名青少年施测。结果发现：父母物质惩罚、物质主义、控制感和主观幸福感存在显著的两两相关；父母物质惩罚显著负向预测主观幸福感，控制感在父母物质惩罚与主观幸福感之间的中介效应显著，并且物质主义与控制感的链式中介作用也显著。由此得出结论，父母物质惩罚既可以负向预测农村青少年主观幸福感，还可以通过控制感的单独中介作用和物质主义与控制感的链式中介作用预测农村青少年主观幸福感。本研究发现父母经常对孩子实施物质惩罚会加强孩子的物质主义，进而不利于控制感的满足，使得幸福感下降。这一发现不仅扩展和丰富了现有研究，同时为提高青少年幸福感、促进心理健康发展提供了理论指导。

关键词　农村青少年，父母物质惩罚，物质主义，控制感，主观幸福感

Parental Material Punishment and Subjective Well-being among Rural Adolescents : A Chain Mediation Effect

Fan Tiantian[1], Liu Bowen[1], Geng Jie[1], Xiang Jinjing[1]

(1 Beijing Forestry University, Beijing)

***Abstract*:** Adolescence is an important period for the development of individual subjective well-being. Previous studies have found that the subjective well-being of adolescents begins to decline continuously at around the age of 10. Among them, family is an important factor affecting adolescents' subjective well-being. Under the influence of traditional Chinese culture, parental punishment is often regarded as an appropriate and necessary way to discipline children. Existing research showed that Chinese parents mainly use restrictive punishment for teenagers, that is, depriving children of certain rights. Material Punishments, as a restrictive parenting behavior, which refers to the temporary or permanent deprivation of a child's prized possessions when the child fails or misbehaves, are widely used in Chinese families. At the same time, material punishment is one of the important mechanisms of children's materialistic values socialization. The study found that the more material punishment individuals experienced, the more likely they were to view material wealth as a measure of success. In addition, the uncertainty management model suggests that materialism can satisfy an individual's sense of control, thus affecting happiness. Therefore, there may be a close relationship between material punishment, materialism, sense of control and subjective well-being. However, few studies have explored this. Based on this, in order to explore the relationship between parental material punishment and rural adolescents' subjective well-being, as well as the mediating role of materialism and sense of control, this study used the parental material punishment scale, sense of control scale, materialistic values scale and index of well-being to measure 1081 adolescents in a rural area of Henan Province. The results showed that parental material punishment, materialism, sense of control and subjective well-being were significantly correlated. Parental material punishment had a significant negative effect on subjective well-being, and sense of control had a significant mediating effect between parental material punishment and subjective well-being, and the chain mediating effect between materialism and sense of control was also significant. It is concluded that parental material punishment can not only negatively predict the subjective well-being of rural adolescents, but also can predict the subjective well-being of rural adolescents through the independent mediating effect of the sense of control and the chain mediating effect of materialism and the sense of control. This study found that parents often impose material punishment on children will strengthen children's materialism, which is not conducive to the satisfaction of the sense of control, resulting in the decline of happiness. These findings not only expand and enrich the existing research, but also provide theoretical guidance for improving adolescent happiness and promoting mental health development.

***Keywords*:** rural adolescents, parental material punishment, materialism, sense of control, subjective well-being

幼儿教师压力知觉与心理健康问题的关系——应对方式的中介作用

李欣冉[1] 柘有丹[2] 王异芳*（通讯作者）

1 首都师范大学心理学院，北京，100048

2 首都师范大学教师教育学院，北京，100048

*首都师范大学学前教育学院，北京，100048，wangyifang6275@126.com

摘 要　随着经济社会的快速发展，国家和社会越来越关注幼儿教育在儿童全面健康发展中的奠基性作用。在幼儿教师被赋予更多责任和期待的同时，他们的职业压力也与日俱增。根据压力过程理论，个体压力知觉会影响其心理健康状态，同时，个体如何应对工作所带来的压力也对心理健康有着重要影响。已有研究表明，幼儿教师的心理健康问题堪忧，他们的心理健康问题需要得到更多的关注和重视。基于此，本研究将考察幼儿教师压力知觉、压力应对方式与心理健康问题之间的关系。

本研究采用方便抽样的方法，使用压力知觉量表（PSS）、应对方式问卷（CSQ）、症状自评量表（SCL-90）对北京市和鄂尔多斯市的 714 名幼儿教师进行问卷调查。结果表明：幼儿教师压力知觉对心理健康问题的正向预测作用显著（β=3.15,t=14.42,p<0.001）；当消极应对方式做为中介变量加入后，幼儿教师压力知觉对心理健康问题的直接预测作用依然显著（β=2.13,t=9.66,p< 0.001），压力知觉对消极应对方式的正向预测作用显著（β=0.50,t=11.97,p< 0.001），消极应对方式对心理健康问题的正向预测作用也显著（β=2.04,t=11.28,p< 0.001）；当积极应对方式做为中介变量加入后，幼儿教师压力知觉对心理健康问题的直接预测作用依然显著（β=2.75,t=11.66,p< 0.001），压力知觉对积极应对方式的负向预测作用显著（β=-0.20,t=-11.85,p< 0.001），积极应对方式对心理健康问题的负向预测作用也显著（β=-1.93,t=-4.11,p< 0.001）。幼儿教师消极应对方式和积极应对方式在压力知觉与心理健康问题之间的中介效应系数均有统计学意义(β=1.02,SE=0.13,p<0.001,95%CI=[0.18,0.66],β=0.39,SE=0.17,p<,95%CI=[0.70,1.37])，中介效应分别占总效应的 32%、12%。研究结果表明，幼儿教师压力知觉不仅能预测心理健康问题，而且受到压力应对方式的部分中介作用，其中消极应对方式对心理健康问题有正向预测作用，积极应对方式对心理健康问题有负向预测作用。

关键词　幼儿教师，压力知觉，心理健康，压力应对方式

The relationship between preschool teachers' perceived stress and mental health problems: the mediating role of coping styles

Xinran Li[1]　Youdan Zhe[2]　Yifang Wangn*

1 School of Psychology, Capital Normal University, Beijing, 100048

2 College of Teacher Education，Capital Normal University, Beijing, 100048

*College of Preschool Education, Capital Normal University, Beijing, 100048

***Abstract*：** With the rapid development of economy and society, the country and society pay more and more attention to the foundational role of early childhood education in the comprehensive and healthy development of children. At the same time that preschool teachers are given more responsibilities and expectations, their professional pressure is also increasing. According to the stress process theory, an individual's perception of stress can affect his mental health, and how an individual copes with the stress brought by work also has an important impact on his mental health. Studies have shown that preschool teachers' mental health problems are worrying, and their mental health problems need to be paid more attention and attention. Based on this, this study will investigate the relationship between preschool teachers' stress perception, stress coping style and mental health problems.

In this study, 714 preschool teachers in Beijing and Ordos were investigated by means of Stress Perception Scale (PSS), Coping Style Questionnaire (CSQ) and Symptom Self-rating Scale (SCL-90). The results showed that the preschoolers' perceived stress had a significant positive predictive effect on mental health problems (β=3.15,t=14.42,p<0.001). When the negative coping style was added as an intermediary variable, the direct prediction effect of preschool teachers' perceived stress on mental health problems was still significant (β=2.13,t=9.66,p< 0.001), and the positive prediction effect of perceived stress on negative coping style was significant (β=0.50,t=11.97,p< 0.001). Negative coping style also had a significant positive predictive effect on mental health problems (β=2.04,t=11.28,p< 0.001). When the positive coping style was added as the mediating variable, the direct prediction effect of stress perception on mental health problems was still significant (β=2.75,t=11.66,p< 0.001), and the negative prediction effect of stress perception on positive coping style was significant (β=-0.20,t=-11.85,p< 0.001). Positive coping style also had a significant negative predictive effect on mental health problems (β=-1.93,t=-4.11,p< 0.001). The mediating effect coefficients of negative coping styles and

positive coping styles between stress perception and mental health problems were statistically significant (β=1.02,*SE*=0.13,*p*<0.001,95%*CI*=[0.18,0.66],β=0.39,*SE*=0.17,*p*<,95%*CI*=[0.70,1.37]), the intermediate effect accounted for 32% and 12% of the total effect, respectively. The results show that preschool teachers' perceived stress can not only predict mental health problems, but also be partially mediated by stress coping styles. Negative coping styles have a positive predictive effect on mental health problems, while positive coping styles have a negative predictive effect on mental health problems.

Keywords：Preschool teachers, stress perception, mental health, stress coping styles

童年期创伤对离婚者的婚姻满意度的影响：解决冲突方式的中介作用

瞿振[1] 杨玲[1] 申张晓[2] 曹华[3]（通讯作者）

1 西北师范大学心理学院，兰州，730070

2 西北师范大学心理学院，兰州，730070，caohua360083915@163.com

摘 要 近年来，离婚率呈现出明显的上升趋势，离婚问题已经成为我国的一个社会问题。如何提高夫妻间的婚姻满意度进而减少离婚率，受到研究者的广泛关注。个体早期的创伤经历，会削弱个体成年期建立和维持亲密关系的能力，并对其亲密关系产生持续的消极影响，其具体的作用机制还有待进一步探讨。因此本研究基于家庭系统理论、婚姻危机理论与社会学习理论构建了一个中介模型，以探讨童年创伤对离婚者婚姻满意度的影响，并进一步探讨解决冲突方式在二者间的中介作用。采用儿童期创伤问卷、解决冲突方式问卷、婚姻满意度问卷对 205 名处于离婚冷静期的个体进行问卷调查。结果发现: (1)童年创伤、解决冲突方式与婚姻满意度之间均存在显著的相关关系; (2)童年创伤可以显著的负向预测婚姻满意度，负向预测解决冲突方式，而解决冲突方式可以正向预测婚姻满意度。解决冲突方式在童年创伤对婚姻满意度起完全中介作用。具体来说，离婚群体其较低的婚姻满意度受到早期的创伤经历的影响，而这种影响是直接通过影响婚姻中冲突的解决方式起作用。本研究不仅探讨了离婚群体的童年创伤、解决冲突方式、婚姻满意度之间的关系，也启示我们在预防和干预个体的童年创伤经历时，应特别关注解决冲突能力的提高，从而增加婚姻满意度减少离婚率。

关键词 童年创伤, 离婚者, 婚姻满意度, 解决冲突方式

The Impact of Childhood Trauma on Marital Satisfaction Among Divorcees: Mediating Role of Conflict Resolution Styles

Qu Zhen[1] Yang Ling[1] Shen Zhangxiao[2] Cao Hua[3]

1 school of Psychology, Northwest Normal University,Lanzhou, 730070

2 school of Psychology, Northwest Normal University,Lanzhou, 730070,

caohua360083915@163.com

Abstract: In recent years, the divorce rate has shown a clear upward trend, and divorce has become a social problem in China. How to improve marital satisfaction between couples and thus reduce the divorce rate has received extensive attention from researchers. Early traumatic experiences can weaken an individual's ability to establish and maintain intimate relationships in adulthood and have a lasting negative impact on intimate relationships, and its specific mechanism of action needs to be further explored. Therefore, this study constructed a mediation model based on Family Systems Theory, Marital Crisis Theory, and Social Learning Theory in order to explore the effects of childhood trauma on divorcees' marital satisfaction, and to further explore the mediating role

of conflict resolution styles between the two. The Childhood Trauma Questionnaire, the Conflict Resolution Style Questionnaire, and the Marital Satisfaction Questionnaire were used to survey 205 individuals in the cooling-off period of divorce. The results revealed that: (1) significant correlations existed between childhood trauma, conflict resolution styles, and marital satisfaction; (2) childhood trauma could significantly negatively predict marital satisfaction and negatively predict conflict resolution styles, while conflict resolution styles could positively predict marital satisfaction. Conflict resolution style plays a fully mediating role in childhood trauma on marital satisfaction. Specifically, lower marital satisfaction in the divorced group was influenced by early traumatic experiences that worked directly by influencing conflict resolution styles in the marriage. This study not only explored the relationship between childhood trauma, conflict resolution styles, and marital satisfaction in a divorced group, but also revealed that when preventing and intervening in an individual's childhood traumatic experiences, special attention should be given to improving conflict resolution skills, which can lead to an increase in marital satisfaction and a decrease in divorce rates.
Keywords: Childhood trauma, Divorcees, Marital satisfaction, Conflict resolution styles

母亲控制的潜在类别及其与儿童问题行为的关系：以个体为中心的视角

张洁[1] 杜巧金[1] 马东乐[1] 王健楠[1] 周楠[1]（通讯作者）

1 首都师范大学学前教育学院，北京，100048

通讯作者 E-mail：nanzhou@cnu.edu.cn

摘 要 新冠疫情发生之后，多地学前儿童问题行为发生率不断攀高（邓延峰，2019；任妍，2023；余敏，2023）。母亲经常使用消极行为控制和侵入性心理控制策略都会使儿童产生各种内外化问题行为，如焦虑（Rostami & Saadati，2018）、社会退缩（Park，2013）、同伴交往不良（Liu et al.，2015）。当前研究大多以变量为中心关注不同控制行为的群体水平，而忽略了不同控制行为的组合模式及其对儿童问题行为的影响（Cho et al.，2019；Thanh et al.，2022）。本研究采用以个体为中心的视角，使用潜在剖面分析探究母亲不同的行为控制和心理控制的潜在剖面特征，并考察潜在母亲控制模式在学前儿童问题行为上的差异作用。

采用亲子互动观察编码测量北京市城区 84 对学前儿童及其母亲行为控制水平(Seo, Cheah, & Hart , 2017)，通过问卷测量母亲心理控制水平（Porter et al., 2005），并由教师评价儿童问题行为水平（Goodman, 1997）。

结果发现：（1）根据母亲积极控制与引导、消极控制、严厉侵入型的心理控制和关系诱导型的心理控制可以将母亲控制行为分成两种亚型：高心理侵入型（90.9%）、高行为管控型（9.1%）。高心理侵入型母亲采用较多的爱的撤回、引发羞愧、个人攻击和社会比较行为，而在行为引导上水平较低；但高行为管控型母亲则更注重行为规则、规范和说理，较少使用严厉侵入型的心理控制。（2）在情绪问题和多动问题上，高心理侵入型母亲的子女比高行为管控型母亲的子女更容易表现出较高的上述问题行为；在儿童同伴交往和品行问题上，高心理侵入型母亲和高行为管控型母亲不存在差异性。

本研究以个体为中心的视角，通过对母亲控制行为的潜在剖面分析，初步揭示了我国母亲在学前期的潜在控制行为类型及其对学前儿童问题行为的影响。此研究结果有助于改善母亲控制行为，助力母亲更好地进行家庭教育，促进学前儿童健康发展。

关键词 母亲控制行为，儿童问题行为，潜在剖面分析，学前儿童

Latent profiles of maternal control and their associations with

children's problem behaviors: An person-centered perspective

Jie Zhang [1] Qiaojin Du [1] Dongle Ma [1] Jiannan Wang [1] Nan Zhou [1]
Capital normal university， Beijing，100048

Abstract ： After the outbreak of COVID-19, the incidence of problem behaviors among preschool children in many places has been increasing (Deng, 2019; Ren, 2023; Yu, 2023). Mothers' frequent use of negative behavioral control and intrusive psychological control strategies tend to lead to a variety of internal and external problem behaviors, such as anxiety (Rostami & Saadati, 2018), social withdrawal (Park, 2013) and poor peer communication (Liu et al., 2015). Most of the current studies focus on the group-level of different control behaviors based on variable-centered perspective, while ignoring the potential combination patterns of different controlling behaviors and their effects on children's problem behavior (Cho et al., 2019; Thanh et al., 2022). Based on an person-centered perspective, our study utilized latent profile analysis to explore the potential profile characteristics of mother's different behavioral control and psychological control, and to investigate the different effects of potential controlling patterns on preschool children's problem behaviors.

Parent-child interaction observation was coded to measure the behavioral control levels of 84 pairs of preschool children and their mothers in Beijing urban area (Seo, Cheah, & Hart, 2017). Maternal psychological control was measured by questionnaire (Porter et al., 2005), and children's problem behaviors was evaluated by preschool teachers (Goodman, 1997).

The results showed that: (1) Based on maternal positive control and guidance, negative control, hostile psychological control and relational induction forms of psychological control, maternal controlling behaviors can be divided into two profiles: high psychological invasion profile (90.9%) and high behavioral control profile (9.1%). Mothers with high psychological invasion used more shaming, personal attack and social comparison, but implemented a lower level of behavioral guidance, while mothers with high behavioral control pay more attention to setting up rules and norms, as well as the use of reasoning. (2) In terms of emotional problems and hyperactivity problems, the children with high psychological invasion mothers were more likely to show emotional and hyperactivity problem behaviors than those with high behavioral control mothers. However, there is no difference on peer communication and conduct problems between children with two profiles of maternal controlling behaviors.

From the person-centered perspective, our study utilized the latent profile analysis and revealed the different patterns of mother's controlling behaviors during preschool period and their influences on preschool children's problem behaviors. The results of this study are helpful to improve Chinese mother's controlling behaviors in their parenting strategies and to promote the healthy development of preschool children.

Keywords ： maternal control behavior, child problem behavior, latent profile analysis, preschool children

家庭社会经济地位对高中生职业生涯规划能力的影响：家庭文化资本和父母生涯社会支持的作用

张宇雯[1] 游双艳[1] 戴艳[1]（通讯作者）
四川师范大学心理学系，成都, 610066，通讯作者 E-mail：daiyanch@163.com

摘 要　职业发展贯穿个体终生,高中阶段是培养个体职业生涯规划能力的关键期。考察高中生职业生涯规划能力的影响因素和边界条件可以为后续提升其职业生涯规划能力提供可操作的干预策略，因此具有一定的实践意义。以往研究表明，相比于学校和同伴因素，家庭对于个体职业生涯发展的影响更大，其中家庭社会经济地位是高中生职业生涯规划能力的重要因素，并且家庭文化资本可能在其中发挥桥梁作用。同时,由于父母在高中生群体中扮演着重要角色,其生涯社会支持可能对上述中介效应进行调节,进而提升其职业生涯规划能力。鉴于此，本研究构建一个有调节的中介模型对家庭社会经济地位与高中生职业生涯规划能力内在机制进行考察。采用由家长受教育程度，家长职业以及家庭所有物三个指标测量的《家庭社会经济地位指数》,《家庭文化资本量表》,《生涯社会支持量表》和《高中生职业生涯规划能力量表》对四川省内成都、崇州、德阳、眉山、泸州、都江堰 6 个地区的 9 所中学共 2068 名高中生进行调查。结果显示：（1）家庭社会经济地位正向预测高中生职业生涯规划能力；（2）家庭文化资本在家庭社会经济地位和高中生职业生涯规划能力间起完全中介作用；（3）来自于父母的生涯社会支持调节了家庭社会经济地位通过家庭文化资本影响高中生职业生涯规划能力中介过程的前半路径、后半路径。具体而言，在高父母生涯社会支持的条件下，家庭社会经济地位对家庭文化资本的预测作用更强；家庭文化资本对高中生职业生涯规划能力预测作用更强。这一结果表明，家长和学校应当重视当前教育背景下家庭各层面因素对高中生职业生涯规划能力的培养的重要作用。

关键词　家庭社会经济地位，家庭文化资本，生涯社会支持，高中生职业生涯规划能力

The influence of family socioeconomic status on high school students' career planning ability: The role of family cultural capital and parents' social support for career

Zhang Yuwen[1] You Shuangyan[1] Dai Yan[1]
1.Sichuan Normal University, Lion Mountain Campus, Sichuan Normal University, Jing'an Road, Jinjiang District, Chengdu, Sichuan Province

Abstract: Career development runs through an individual's whole life. High school is the key period to cultivate the individual's career planning ability. Investigating the influencing factors and boundary conditions of high school students' career planning ability can provide operable intervention strategies for the subsequent improvement of their career planning ability, so it has certain practical significance.Previous studies have shown that family has a greater impact on individual career development than school and peer factors. Family socioeconomic status is an important factor in high school students' career planning ability, and family cultural capital may play a bridging role in it.At the same time, because parents play an important role in the group of high school students, their career social support may regulate the above mediating effect, and thus improve their career planning ability.Based on this, this study constructs a moderated mediation model to investigate the internal mechanism between family socioeconomic status and high school students' career planning ability.In this study, I

used some scales about family socioeconomic status index which were measured by parents' education level, parents' occupation and family possessions,family cultural capital questionnaire, career social support questionnaire, and career planning ability questionnaire for high school students.In this study,A total of 2068 high school students from nine middle schools in Chengdu,Chong zhou, Deyang, Meishan, Luzhou and Dujiangyan in Sichuan Province were investigated.The results showed that: (1) family socioeconomic status positively predicted the career planning ability of high school students; (2) Family cultural capital plays a completely mediating role in family socioeconomic status and senior high school students' career planning ability; (3) The career social support from parents moderates the family socioeconomic status through family cultural capital influences the first and second half paths of the mediating process of high school students' career planning ability. Specifically, under the condition of high parental social support, family socioeconomic status has a stronger predictive effect on family cultural capital. Family cultural capital plays a stronger role in predicting the career planning ability of senior high school students. The result shows that parents and schools should pay attention to the important role of family factors in the cultivation of high school students' career planning ability under the current educational background.
Key words: family socioeconomic status, family cultural capital, career social support, high school students' career planning ability

初中生学业压力、学习中心理疲劳、游戏障碍的关系：一项交叉滞后研究

张愉蕙[1] 蔡定均[2] 马鹏[1] 余洁玉[3] 温忠麟[1]（指导老师）

1 华南师范大学心理学院，广州，510000，2022023800@m.scnu.edu.cn

2 南方医科大学口腔医院（口腔医学院），广州，510000

3 深圳市南山区教育科学研究院，深圳，518052

摘 要 青少年的游戏障碍（gaming disorder）已成为国内外成为无法忽视的社会问题，对青少年身心发展产生不利影响。在高学业压力和高心理疲劳的背景下，初中生很容易将注意力转向游戏以缓解学习带来的压力和心理疲劳，因此有必要考察两者与游戏障碍的关系。本研究采取追踪设计对 453 名初中生进行 3 次测量，采用交叉滞后模型考察了学业压力、学习中心理疲劳、游戏障碍之间的预测关系。结果发现：（1）学习中心理疲劳、游戏障碍的得分有随着时间变化逐渐增加的趋势。（2）初中生的学业压力与学习中心理疲劳呈同时性和继时性的正相关，学习中心理疲劳与游戏障碍呈同时性和继时性的正相关。（3）T1 和 T2 的学习中心理疲劳正向预测 T2 和 T3 的学业压力，并正向预测 T2 和 T3 的游戏障碍；T1 的学业压力正向预测 T2 的学习中心理疲劳；T2 的学业压力正向预测 T3 的学习中心理疲劳；T2 的游戏障碍正向预测 T3 的学习中心理疲劳。**结论：**（1）初中生的学业压力、学习中心理疲劳、游戏障碍具有横向稳定性；（2）初中生的学业压力、学习中心理疲劳、游戏障碍具有高跨时间稳定性；（3）学业压力和学习中心理疲劳可以相互预测；（4）学习中心理疲劳和游戏障碍可以相互预测。本研究结果对干预青少年游戏障碍具有实践指导意义。

关键词 初中生，学业压力，学习中心理疲劳，游戏障碍，交叉滞后分析

The relationship between academic stress, mental fatigue and gaming disorder in junior middle school students: a cross-lag study

Zhang Yuhui[1] Cai Dingjun[2] Ma Peng[1] Yu Jieyu[3] Wen Zhonglin[1]

1 School of Psychology, South China Normal University，Guangzhou，510000，2022023800@m.scnu.edu.cn
2 Stomatological Hospital, School of Stomatology, Southern Medical University，Guangzhou，510000
3 Nanshan Educational Science Research Institute of Shenzhen，Shenzhen，518052

Abstract: The gaming disorder of teenagers has become an undeniable social problem both domestically and internationally, which has a negative impact on their physical and mental development. In the context of high academic pressure and high mental fatigue, junior high school students are prone to turning to games to alleviate the pressure and mental fatigue brought about by learning. Therefore, it is necessary to examine the relationship between the two and gaming disorders.This study used a tracking design to measure 453 junior high school students three times, and used a cross lagged model to examine the predictive relationship between academic stress, mental fatigue during learning, and gaming disorders. **Result:**(1) The scores of mental fatigue and gaming disorders in learning gradually increase over time.(2) The academic pressure of junior high school students is positively correlated with both simultaneity and metachronism in learning mental fatigue, while learning mental fatigue is positively correlated with gaming disorders.(3) mental fatigue in T1 and T2 learning positively predicts academic stress in T2 and T3, and positively predicts gaming disorders in T2 and T3; T1's academic stress positively predicts T2's mental fatigue during learning; T2's academic pressure positively predicts T3's mental fatigue during learning; T2's gaming disorder positively predicts T3's mental fatigue during learning.**Conclusion:** (1) Junior high school students' academic pressure, psychological fatigue during learning, and gaming disorders have lateral stability; (2) The academic pressure, psychological fatigue during learning, and game barriers of junior high school students have high cross time stability; (3) Academic pressure and psychological fatigue during learning can predict each other; (4) Psychological fatigue and gaming disorders in learning can be mutually predicted. The results of this study have practical guiding significance for intervening in adolescent gaming disorders.

Keywords: junior high school students, academic pressure, mental fatigue in learning, gaming disorder, cross lag analysis

学生学业负担对学业成绩影响的大样本多层线性模型分析

路博文[1]　盖笑松[1]（通讯作者）
1 东北师范大学心理学院，长春，130024，gaixiaosong@126.com

摘 要　在国家“双减”改革背景下，青少年的过度学习和学业负担影响学生心理健康的问题日益受到重视。以往研究发现，学生的学业负担对学业成绩有消极影响，该影响因素通常具有个人和学校两方面的层次性。多层线性模型（HLM）能够同时考虑多个层次因素，对个体层面和学校层面的学业负担因素全面探索和分析，提供与实际情况更加吻合的结果。本研究使用一项大型研究项目数据库中某省会城市所有小学的六年级学生的调研数据，有效数据共 35182 名学生。以学生的语文、数学、英语三科的加权合并成绩为因变量，以学生个体和学校层面的学业负担因素为自变量，使用多层线性模型分析的方法分析对学生学业成绩有影响的个体层面和学校层面的学业负担因素。结果发现：六年级学生的学业成绩具有显著的校际差异。(1)在学生个体层面，学生个人家教次数、家教时长和写作业时长对六年级学生学业成绩的影响达到负向显著，学生个人课外班时长、自由时长和睡眠时长对六年级学生学业成绩的影响达到正向显著；(2)在学校层面，学校平均家教时长、写作业时长和睡眠时长对学校平均六年级学生学业成绩的影响达到负向显著，学校平均课外班数量、课外班时长和自由时长对学校平均六年级学生学业成绩的影响正向显著；(3)课外班数量、课外班时长和写作业时长的跨层级的交互作用正向显著。结果解释：在个体层面上，随着上家教和课后作

业的学业负担增加，学生成绩有所下降。在学校层面上，学校层次越差的学校，其课外班学业负担越轻。而学校层次较好学校的课外班学业负担呈现两级分化的趋势，其学生平均学业成绩较好，这导致了分析结果上课外班越多成绩越好的假象。学校层次越差的学校，其平均学业负担水平越低，其学生平均睡眠时间较长，导致分析结果上学生平均学业成绩越低。
关键词　过度学习，学业负担，学业成绩，多层线性模型，跨层交互作用

A Large-Sample Hierarchical Linear Modeling Analysis of the Effect of Students' Academic Burden on Academic Performance

Bowen Lu, Xiaosong Gai
Department of Psychology, Northeast Normal University, Changchun, Jilin

Abstract：Under the background of the Chinese "Double Reduction" reform, the issue of excessive learning and academic burden among adolescents and its impact on students' mental health has received increasing attention. Previous research has found that academic burden negatively affects academic performance and is influenced by factors at both the individual and school levels. Hierarchical Linear Modeling (HLM) allows for the simultaneous consideration of multiple hierarchical factors, enabling a comprehensive exploration and analysis of individual and school-level factors related to academic burden, thus providing results that align more closely with the actual situation. The study comprises valid data from 35,182 sixth-grade students in primary schools. The data was collected from a large-scale research project database, encompassing all survey data from a provincial capital city. The weighted combined scores of students in three subjects, Chinese, Mathematics, and English, were taken as the dependent variable, while students' individual- and school-level academic burden factors as the independent variables. The HLM method was employed to analyze the impact of students' individual- and school-level academic burden factors on students' academic performance. Results showed that there were significant inter-school differences in sixth-grade students' academic performance. (1) At the individual level, the effects of individual student tutoring frequency, tutoring hours, and homework writing hours had a negative significant impact on the academic performance of sixth-grade students. Conversely, the effects of individual student extracurricular classes hours, free time, and sleep hours had a positive significant impact on their academic performance. (2) At the school level, the effects of school-averaged tutoring hours, homework writing hours, and sleep hours had a negative significant impact on the average academic performance of sixth-grade students in schools. On the other hand, the effects of school average number of extracurricular classes, extracurricular class hours, free time had a positive significant impact on the average academic performance of sixth-grade students in schools. (3) There was a positive significant cross-level interaction effect between the number of extracurricular classes, extracurricular class hours, and homework hours. The results were interpreted as follows: At the individual level, as the burden of private tutoring and after-school homework increases, students' academic performance declines. At the school level, schools with lower hierarchical levels had lighter extracurricular class academic burdens. On the other hand, schools with relatively higher levels exhibited a two-level differentiation trend in extracurricular class academic burdens, with better average academic performance among students, leading to the illusion that more extracurricular classes resulted in better grades. Schools with lower levels had lower average academic burden levels and longer average sleep hours, resulting in lower average academic performance among students.

Keywords：excessive learning, academic burden, academic performance, hierarchical linear model, cross-layer interaction

孤独特质影响视觉刺激的可联想性和情绪性信息加工

陈晴[1] 王迪[1] 周颖文[1] 王增建[1,2]（通讯作者）
1 华南师范大学心理学院，广州，510000
2 华南师范大学心理学院，广州，510000，zengjianw@m.scnu.edu.cn

摘 要 联想是由一个事物联想到另一个事物的过程，视觉刺激的可联想性和情绪效价是大脑可自动加工的重要信息，能够促进对视觉刺激的识别。孤独特质是一种广泛存在于正常人群中的连续性人格特质，影响个体对视觉刺激的识别加工。本研究旨在探讨孤独特质是否影响个体对视觉刺激的可联想性和情绪性信息的知觉加工。

实验一招募了 10 名被试对 276 张实验图片的情绪效价进行评分，评分越高，情绪效价越高。同时完成孤独特质量表、焦虑自评量表和抑郁自评量表。根据情绪效价评分，276 张图片被分为 69 张积极刺激，69 张消极刺激，69 张高联想性的中性刺激以及 69 张低联想性的中性刺激。将图片效价评分与焦虑总分、抑郁总分、AQ 量表总分及 AQ 的五个维度（社交技巧、注意力的转换、对细节的注意力、沟通及想象力）进行 Pearson 相关分析，结果显示，个体的孤独特质影响他们对视觉刺激的情绪效价评分。个体的注意力转换能力越差，对高联想性的中性视觉刺激的消极评分越高；个体的想象力越差，对积极视觉刺激的情绪效价评分越低。实验二另外招募了 42 名独立被试对 276 张图片进行联想性测试,并完成 AQ 量表。每张图片被呈现给平均 14 个评分者(年龄范围:18-28;42 人每人观看了三分之一的总图像集)。结果分析显示，个体对细节的注意力越强，其对强联想中性图片的联想性越强。

结论：个体的孤独特质得分越高，其注意力转换越差，想象力越差，对视觉刺激的消极评分越高；个体对细节的注意力越强，其对强联想中性图片的联想性越强。这些结果可能进一步指出孤独特质影响个体对视觉刺激的联想性以及情绪效价的知觉加工。

关键词 孤独特质，情绪效价，联想性

Autistic Like Traits Affect the Associability and Emotional Information Processing of Visual Stimulation

Qing Chen Di Wang Yingwen Zhou Zengjian Wang
South China Normal University of Psychology

Abstract： Association is the process of associating one thing with another. The associability and emotional valence of visual stimuli are important information that can be processed automatically by the brain, which can promote the recognition of visual stimuli. Autistic Like Traits is a kind of continuous personality trait widely existing in normal population, which affects the recognition and processing of visual stimuli. The purpose of this study was to investigate whether loneliness affects individuals' perceptual processing of associative and emotional information to visual stimuli.

In experiment 1, 10 subjects were recruited to score the emotional valance of 276 experimental pictures. The higher the score, the higher the emotional valance. Autism Quotient(AQ), Self-Rating Anxiety Scale(SAS) and Self-rating Depression Scale(SDS) were also completed. According to the emotional valance score, 276 images were classified as 69 positive stimuli, 69 negative stimuli, 69 strongly associative neutral stimuli, and 69 weakly associative neutral stimuli. Pearson correlation analysis was conducted between the picture valence score and the

total score of anxiety, depression, AQ scale and the five dimensions of AQ (social, communication, imagination, attention to detail, and attention switching).The results showed that individuals' autistic like traits affected their emotional valance score of visual stimuli. The worse the attention switching ability of the individual, the higher the negative score of the strongly associative neutral stimuli. The worse the individual's imagination, the lower the emotional valance score for positive visual stimuli.In experiment 2, an additional 42 independent subjects were recruited to conduct association tests on 276 images and complete the AQ scale. Each image was presented to an average of 14 raters (age range: 18-28; 42 people each viewed one-third of the total image set). The result analysis shows that the stronger an individual's attention to detail, the stronger their association with strongly associative neutral stimuli.

Conclusion: The higher the autistic like trait score, the worse the attention switch, the worse the imagination, and the higher the negative score for visual stimuli. The stronger an individual's attention to detail, the stronger their association with strongly associative neutral stimuli. These results may further indicate that autistic like traits affect individuals' association with visual stimuli and perceptual processing of emotional valence.

Keywords： Autistic Like Traits, Emotional Valance, Associability

统计学习效能感量表在中国大学生群体中的信效度检验

傅芃[1] 黄发杰[1] 田千峰[1] 陈叶[1] 廖美玲[2]（通讯作者）

1 福建医科大学健康学院，福州，350122

2 福建医科大学应用心理系，福州，350122，E-mail：Liaoml@fjmu.edu.cn

摘 要 **目的：**对统计学习效能感量表在大学生群体中进行修订并检验其效度和信度。**方法：**采用方便取样法选取 1951 名大学生为研究对象，进行问卷测评，并对数据进行项目分析、结构效度、聚合效度、校标关联效度、内部一致性信度和测量等值性等统计检验，选取统计学焦虑等级量表、统计学课程成绩和学习投入量表作为校标指标。半个月后，对初测样本随机抽取 70 人进行重测信度分析。**结果：**统计学习效能感量表的所有条目鉴别力良好，探索性因素分析和验证性因素分析均表明，修订后的量表因子结构与原量表一致，表现为单因子结构，解释总变异的 86.51%，验证性因子模型拟合度良好（$\chi^2 = 411.402$，$df = 77$, $\chi^2/df = 5.34$, $p < 0.001$，RMSEA = 0.083，SRMR = 0.028，CFI = 0.912，TLI = 0.896）；量表的 AVE 和 CR 均达到测量学标准（AVE=0.89,CR=0.99）；统计学习效能感与统计学课程成绩和学习投入呈显著正相关（r=0.21，r=0.45，p＜0.01），与统计焦虑呈显著负相关（r=-0.36，p＜0.001）；量表的内部一致性信度为 0.99，重测信度为 0.82（p＜0.001）；在大学生性别上具有较好的测量等值性（△CFI<0.01, △RESEA<0.01）。**结论：**中文版统计学习效能感量表修订无逻辑错误，在大学生群体中的信效度较好，符合量表修订的要求，是一个信效度较好，结构合理的测量工具，能比较科学地测量出我国大学生统计学习效能感水平。

关键词 统计学习效能感，效度，信度，大学生

Reliability and Validity of Statistical Learning Self-Efficacy Scale in Chinese College Students

Fu Peng[1] Huang Fajie[1] Tian Qianfeng[1] Chen Ye[1] Liao Meiling[2]

1College of health, Fujian Medical University, Fuzhou, 350122

2Department of Psychology, Fujian Medical University，Fuzhou, 350122，E-mail：Liaoml@fjmu.edu.cn

Abstract： **Objective:** To test the validity and reliability of Statistical Learning Self-Efficacy Scale (SLS) in college students. Methods: A total of 1951 college students were selected by convenience sampling, and the data were analyzed by item analysis, construct validity, convergent validity, criterion-related validity, internal consistency reliability, test-retest reliability and measurement equivalence. **Results:** All items of the scale were well discriminated.The exploratory factor analysis and confirmatory factor analysis showed that the factor structure of the scale was consistent with the original scale, showing a single factor structure, and the confirmatory factor model fitted well ($\chi^2 = 411.402$，$df = 77$, $\chi^2/df = 5.34$, $p < 0.001$，RMSEA = 0.08，SRMR = 0.03，CFI = 0.91，TLI = 0.90), AVE and CR of the scale reached the measurement standard (AVE=0.89, CR=0.99); Statistical learning self-efficacy was positively correlated with statistical course achievement and learning engagement（r_1=0.21，p=0.002；r_2=0.45，p＜0.001）, and negatively correlated with statistical anxiety (r=-0.36, p＜0.001); The internal consistency reliability of the scale was 0.99 and the test-retest reliability was 0.82 (p <0.001); There was a good equivalence of measurement in the gender of college students (△CFI<0.01, △RESEA<0.01. **Conclusion**: The Chinese version of Statistical Learning Self-efficacy Scale had good reliability and validity in college students, and it was a measurement tool with good reliability and validity and reasonable structure, which was suitable for measuring the level of statistical learning self-efficacy of college students in China.

Keywords： Statistical learning efficacy，Validity，Reliability，College students

初中生感恩与情绪弹性的关系：社会支持的中介作用与亲子亲合的调节作用

严心怡[1]　谯力萍[1]　杨晓[1]　吴鹏[1]

1.湖北大学师范学院　武汉　430062 reavenwp@hubu.edu.cn

摘　要　青少年正处于身心发展的关键时期，但生理发育与心理发育不一致。与成年人相比，青少年的情绪常常起伏不定。随着成长环境的变化或扩大，青少年面临的负性生活事件也显著增加。情绪弹性是心理弹性的重要组成部分，能够帮助个体有效应对挫折环境。感恩作为一种积极情绪，有助于个体获得心理资源，以更积极的心态面对挫折。此外，感恩还有助于个体获得社会资源，更容易觉察和接纳社会支持资源。情绪弹性同时具有社会性，根据压力缓冲模型，社会支持能够有效缓解消极情绪带来的压力。因此，社会支持可能是感恩和情绪弹性的中间环节。最后，家庭作为影响青少年情绪弹性的重要社会环境之一，亲子亲合是影响青少年积极情绪的重要外部因素。亲子关系良好的家庭能够帮助孩子培养积极情绪并提供情感支持，孩子能够更好地应对挫折和压力事件，从而更容易从负性情绪中恢复。因此，亲子亲合可能会调节感恩对情绪弹性的影响路径。本研究采用问卷法对来自陕西省西安市的 921 名初一学生进行了调查，采用感恩量表、青少年情绪弹性量表、社会支持量表和亲子亲合量表，探究青少年感恩与情绪弹性之间的关系，以及社会支持的中介作用和亲子亲合的调节作用。结果显示：（1）感恩正向预测情绪弹性水平；（2）社会支持在感恩与情绪弹性之间起中介作用；（3）亲子亲合能显著调节感恩对情绪弹性的影响路径。这一结果支持了压力缓冲模型，为今后情绪弹性的研究提供了新的理论视角。此外，本研究的结论也为实际德育工作提供了一定的指导与贡献，道德教育及培养需要兼顾认知与情绪、学校与家庭两个层面的心理因素。

关键词　感恩，情绪弹性，社会支持，亲子亲合，初中生

The Relationship Between Gratitude and Emotional Resilience in Middle School Students: The Mediating Effect of Social Support And

The Moderating Effect of Parental Cohesion

Yan Xinyi Qiao Liping Yang Xiao Wu Peng
Hubei University

Abstract：Teenagers are in a critical period of physical and mental development, but their physiological and psychological development are not consistent. Compared to adults, teenagers often have fluctuating emotions. As the growth environment changes or expands, the negative life events faced by teenagers also significantly increase. Emotional resilience is an important part of psychological resilience, which can help individuals cope with frustration effectively. As a positive emotion,gratitude helps individuals gain psychological resources and face setbacks with a more positive attitude.In addition, gratitude also helps individuals gain access to social resources, making it easier to perceive and accept social support resources. Emotional resilience also has a social nature, and according to the stress-buffering model, social support can effectively alleviate the pressure caused by negative emotions. Therefore, social support may be an intermediate link between gratitude and emotional resilience. Finally, as one of the important social environments that affect the emotional resilience of adolescents, parental cohesion is an important external factor that affects their positive emotions. Families with good parent-child relationships can help children cultivate positive emotions and provide emotional support, enabling them to better cope with setbacks and stressful events, making it easier for them to recover from negative emotions. Therefore, parental cohesion may regulate the impact pathway of gratitude on emotional resilience. This study used a questionnaire method to investigate 921 first year middle school students from Xi'an, Shanxi Province. The gratitude scale, adolescent emotional resilience scale, social support scale, and parental cohesion scale were used to explore the relationship between gratitude and emotional resilience in adolescents, as well as the mediating role of social support and the moderating role of parental cohesion. The results show that: (1) gratitude positively predicts the level of emotional resilience; (2) Social support plays a mediating role between gratitude and emotional resilience; (3) Parental cohesion can significantly regulate the impact pathway of gratitude on emotional resilience. This result supports the stress-buffering model and provides a new theoretical perspective for future research on emotional resilience. In addition, the conclusions of this study also provide certain guidance and contributions for practical moral education work. Moral education and cultivation need to balance cognitive and emotional factors, as well as psychological factors at the school and family levels.

Keywords：Gratitude,Emotional resilience,Social support,Parental cohesion,Middle-school students

高中生生涯未来时间洞察力对职业生涯规划能力的影响：未来工作自我清晰度和职业决策自我效能感的链式中介作用

赵钦瑞[1] 戴艳[2]（通讯作者）
1 四川师范大学心理学院，成都，610066
2 四川师范大学心理学院，成都，610066，daiyanch@163.com

摘 要 四川省部分高中生已经开始选科走班，提早面临专业和职业的选择，但是许多高一学生自我认识不足，职业规划没有头绪，选科或选专业存在盲目性，而较低的职业生涯规划能力不利于高中生对专业和未来职业的选择。根据人格发展的社会投资模型，未来工作自我清晰度越高的个体，职业角色越明确，越会对自己的职业生涯负责，倾向于提前做职业准备；未来取向的个体，倾向于积极职业规划，主动规划未来。本文采用《生涯未来时间洞察力量表》、《未来工作自我清晰度量表》、《职业决策自我效能感量表》、

《高中生职业生涯规划能力问卷》对四川省成都市某中学高一年级和高二年级的 719 名普通高中生进行问卷调查，探讨生涯未来时间洞察力、未来工作自我清晰度、职业决策自我效能感和高中生职业生涯规划能力的关系以及高中生职业生涯规划能力的影响因素和作用机制，得出如下研究结论：

（1）高中生生涯未来时间洞察力、未来工作自我清晰度、职业决策自我效能感、职业生涯规划能力之间两两相关；

（2）高中生未来工作自我清晰度在生涯未来时间洞察力与职业生涯规划能力之间起中介作用；

（3）高中生职业决策自我效能感在生涯未来时间洞察力与职业生涯规划能力之间起中介作用；

（4）高中生未来工作自我清晰度、职业决策自我效能感在生涯未来时间洞察力与职业生涯规划能力之间起链式中介作用。
关键词 高中生，生涯未来时间洞察力，未来工作自我清晰度，职业决策自我效能感，职业生涯规划能力

The effect of high school students' career future time insight on career planning ability: the chain-mediated effects of future job self-clarity and career decision self-efficacy

Zhao Qinrui[1]　Qai Yan[2]（corresponding author）

Sichuan Normal University , No.5 Jing'an Road, Jinjiang District, Chengdu, Sichuan, China

Abstract： Some high school students in Sichuan Province have already started to select subjects and go to classes, and face the choice of majors and careers earlier, but many first-year high school students do not have enough self-knowledge, have no clues about career planning, and have blindness in selecting subjects or choosing majors, and lower career planning ability is not conducive to high school students' choices of majors and future careers. According to the social investment model of personality development, individuals with higher future work self-clarity have clearer career roles, are more responsible for their own careers, and tend to make career preparations in advance; future-oriented individuals tend to make positive career planning and take the initiative to plan for the future. In this paper, we used the Career Future Time Insight Scale, the Future Work Self-Clarity Scale, the Career Decision Self-Efficacy Scale, and the Questionnaire on High School Students' Career Planning Ability to conduct a questionnaire survey on 719 general high school students in the freshman and sophomore grades of a senior high school in Chengdu City, Sichuan Province, to explore the relationship between career future time insight, future work self-clearness, career decision self-efficacy, and high school students' To explore the relationship between career future time insight, future job self clarity, career decision self-efficacy and high school students' career planning ability, as well as the influencing factors and mechanisms of high school students' career planning ability, the following research conclusions were drawn:

(1) There is a two-by-two correlation between high school students' career future time insight, future work self-clarity, career decision self-efficacy, and career career planning ability;

(2) High school students' future work self-clarity mediates the relationship between career future time insight and career career planning ability;

(3) High school students' career decision-making self-efficacy mediates between career future time insight and career career planning ability;

(4) High school students' future work self-clarity and career decision-making self-efficacy mediate the chain between career future time insight and career career planning competence.

Keywords： Senior High School Students, Career Future Time Insight, Future Work Self-Clarity, Career Decision

执行功能与幼儿社会退缩的关系：一个有调节的中介模型

吕晋晋 刘彤 肖伊兰 黄嚞青（通讯作者）
首都师范大学，北京，100048，aivita@126.com

摘 要 社会退缩是指个体独自游戏、消磨时光的孤单行为，具有跨情境、跨时间的一致性。社会退缩的形成受到认知因素和情感因素的共同作用。其中，执行功能作为一种高级的认知功能，广泛参与到社会适应的各个环节中，和幼儿社会性的发展有密切的关系。此外，共情和情绪调节能力作为一种社会情绪反应，在个体的社会化发展进程中也发挥着重要的作用。为了探索幼儿共情在执行功能与社会退缩关系中的中介作用,以及情绪调节对上述中介效应的调节作用，本研究共选取 283 名（男孩 144 名，女孩 139 名）3-6 岁幼儿作为研究对象进行测查。使用《社会退缩教师问卷》考察幼儿社会退缩程度，包括沉默害羞、主动退缩和被动退缩三个维度；使用《执行功能量表》(CHEXI)考察幼儿执行功能的发展状况；通过早期儿童共情量表（EmQue）考察幼儿的共情能力；以及通过《儿童情绪调节检核表》考察幼儿的情绪调节能力。使用 SPSS 及其 process 插件进行数据处理。结果表明，在控制了性别和年龄后：（1）执行功能显著负向预测幼儿的社会退缩；（2）共情在执行功能和社会退缩的关系中起部分中介的作用；（3）共情中介作用的前半段受到情绪调节能力的调节，对于情绪调节能力低的个体，共情起到的中介效应更强。研究结果有助于揭示执行功能对幼儿社会退缩行为的影响及其作用机制，对幼儿社会退缩的预防和干预有积极的意义。
关键词 执行功能，社会退缩，共情，情绪调节

The relationship between executive function and social withdrawal in young children: a moderated mediation model

Lv JinJin, LiuTong, Xiao Yilan, Huang Heqing（Correspondence author）
The Capital Normal University, BeiJing, 100048, aivita@126.com

***Abstract*：** Social withdrawal is the lonely behavior of individuals who play and spend time alone, with consistency across situations and time. Social withdrawal is shaped by a combination of cognitive and affective factors. Among them, executive function, as an advanced cognitive function, is widely involved in all aspects of social adaptation and is closely related to the development of sociality in young children. In addition, empathy and emotion regulation, as a kind of social-emotional response, also play an important role in the developmental process of individual socialization.In order to explore the mediating role of young children's empathy in the relationship between executive functioning and social withdrawal, as well as the moderating role of emotion regulation on the above mediating effects, a total of 283 (144 boys and 139 girls) 3-6 year old children were selected to be measured in this study.The degree of social withdrawal was examined using the Social Withdrawal Teacher's Questionnaire, which includes three dimensions: silent-shyness, active withdrawal, and passive withdrawal; the development of executive functioning was examined using the Executive Functioning Inventory (CHEXI); empathy was examined through the Early Childhood Empathy Scale (EmQue); and emotional regulation was examined through the Children's Emotion Regulation Checklist. Data were processed using SPSS and its process plug-in.The results showed that after controlling for gender and age: (1) executive functioning significantly and negatively predicted social withdrawal in young children; (2) empathy partially mediated the

relationship between executive functioning and social withdrawal; (3) the first half of the mediating role of empathy was moderated by emotion regulation ability, and empathy played a stronger mediating effect for individuals with low emotion regulation ability. The findings help to reveal the influence of executive function on young children's social withdrawal behavior and its mechanism of action, which has positive implications for the prevention and intervention of young children's social withdrawal.
Keywords：executive functioning，social withdrawal，empathy，emotion regulation

父母对儿童消极情绪反应方式和家庭情绪表露的关系：夫妻婚姻满意度的中介作用

肖伊兰　吕晋晋　刘彤　黄嚞青　（通讯作者）
首都师范大学，北京，100048，aivita@126.com

摘 要　家庭情绪表露是指家庭成员间言语或非言语的情绪表达风格，分为积极情绪表露和消极情绪表露两个维度。生活在积极情绪表露家庭中的个体更能理解他人，也会表现出更多积极的社会适应行为，生活在消极情绪表露家庭中的成员间缺乏爱与安全感，进而会产生一系列不良的情绪行为。父母对儿童消极情绪反应方式在家庭情绪氛围的构建中发挥着重要作用。由父母非支持性反应导致的亲子冲突会使整个家庭产生更加消极的情绪表露风格，而父母支持性反应则会使幼儿以及父母自身产生更加积极的情绪体验，因此，不同的父母反应方式和家庭情绪表露之间可能存在某种关系。此外，夫妻婚姻满意度参与到家庭系统互动的各个环节中，可能在不同的父母对儿童消极情绪的反应方式和不同的家庭情绪表露风格的关系中产生某种作用。为了考察父母对儿童消极情绪反应方式与家庭情绪表露的关系，以及夫妻婚姻满意度在其中的作用，本研究共选取 263 名 3-6 岁幼儿的家长 (父亲 56 名，母亲 206 名)作为研究对象进行测查，使用《家庭情绪表露问卷》考察家庭情绪表达风格，包括积极情绪表露与消极情绪表露两个维度；使用《父母应对幼儿消极情绪反应方式量表》考察父母对幼儿消极情绪反应方式，包括支持性反应：鼓励表达、问题关注、情感关注，以及非支持性反应：惩罚反应、忽视反应、苦恼反应，通过婚姻满意度考察父母婚姻关系的和谐与满意程度。使用 SPSS 及其 process 插件进行数据处理。结果表明，在控制了父母性别后：(1)问题关注反应显著正向预测夫妻婚姻满意度；(2)情感关注反应显著正向预测夫妻婚姻满意度；(3)夫妻婚姻满意度显著负向预测家庭消极情绪表露；(4)夫妻婚姻质量在问题关注反应和家庭情绪氛围中起中介作用 ；(5)夫妻婚姻质量在情感关注反应和家庭情绪氛围中起中介作用。本研究揭示了父母应对幼儿消极情绪反应方式对于家庭情绪表露的影响及其内在的作用机制，对家庭情绪氛围的构建具有积极的意义。
关键词　父母应对幼儿消极情绪反应方式，家庭情绪表露，夫妻婚姻满意度

The Relations between Parental Reactions to Children's Negative Emotions and Family Emotional Expression : The Mediating Role of Marital Satisfaction

Xiao Yilan　Lv Jinjin　Liu Tong　Huang Heqing (Correspondence author)
The Capital Normal University, Beijing, 100048

Abstract：Family emotional expression refers to the verbal or nonverbal style of emotional expression among

family members and includes two dimensions: positive and negative emotional expression. Individuals living in positive emotional expression families are more understanding of others and will show more positive social adaptive behaviors, while members living in negative emotional expression families lack a sense of love and security, which in turn leads to a range of undesirable emotional behaviors. Parental reactions to children's negative emotions play an important role in the construction of the family's emotional climate. Parent-child conflict resulting from non-supportive parental reactions produces a more negative style of emotional expression in the family, whereas supportive parental responses produce a more positive emotional experience for the child as well as for the parents themselves. Thus, there may be a relationship between different parental reactions and family emotional expressions. In addition, couples' marital satisfaction is involved in various aspects of family system interactions and may play some role in the relationship between different parental reactions to children's negative emotions and different styles of family emotional expression. In order to examine the relationship between parental reactions to children's negative emotions and family emotional expression, as well as the role of couples' marital satisfaction, a total of 263 parents (56 fathers and 206 mothers) of 3-6 year old children were selected for this study, and the Family Emotional Expression Questionnaire was used to examine the family's emotional expression styles, which included two dimensions: positive emotional expression and negative emotional expression. The Parental Reactions to Children's Negative Emotions Questionnaire was used to examine parental response styles to children's negative emotions, including supportive responses: encouragement to express, problematic concerns, and emotional concerns, as well as non-supportive responses: punitive, neglectful, and distressing responses. The Marital Satisfaction Questionnaire was used to examine the degree of harmony and satisfaction in parents' marital relationship. Data were processed using SPSS and its process plug-in. Results indicated that after controlling for parental gender: (1) problem concern responses significantly and positively predicted couple marital satisfaction. (2) Emotional concern responses significantly positively predicted couple marital satisfaction. (3) Couple marital satisfaction significantly and negatively predicted negative family emotional expressions. (4) Couple marital quality mediated problematic attention responses and family emotional climate . (5) Couple marital quality mediated affective concern response and family emotional climate. The present study reveals the impact of parental reactions to children's negative emotions on family emotional expressions and their intrinsic mechanisms of action, which have positive implications for the construction of a family emotional climate.

***Keywords*：** Parental Reactions to Children's Negative Emotions， Family Emotional Expression， Marital Satisfaction

家庭功能对中学生学习投入的影响：自我同情和心理韧性的链式中介作用

宋明燚[1]　曾练平[1]（通讯作者）

1 贵州师范大学心理学院，贵阳，550001，zenglianping@163.com

摘 要　“双减”是一项系统教育工程，本质在于减轻学生学业负担，认清教育性质，厘清教育评价模式。在减轻学业负担之后，如何保证学生的学习质量，有效提升学习效率，以转变重结果轻过程的教育评价模式？我们可以将目光投向积极心理视角的学习投入。学习投入是一种与学习相关的、持久的、完整的积极心理状态，可分为活力、奉献、专注三个主成分。立足于如何提高学生的学习投入水平的角度，探讨学生学业质量和教育教学质量更为直接和有效。学习投入的动力形成受到环境和个人的双重影响，在以往研究中，已发现家庭和社会支持性因素会影响学习投入，也发现一些影响学习投入的个人心理保健因素，例如

自我效能感、个人成长主动性等。为了进一步探讨学习投入具体的影响机制，本研究采用家庭功能量表、自我同情量表、心理韧性量表和学习投入量表对贵州省 883 名中学生进行问卷调查分析，探讨家庭功能对学生学习投入的影响，及自我同情和心理韧性在二者之间的链式中介作用。结果发现：（1）中学生家庭功能、自我同情、心理韧性与学习投入两两呈显著正相关，家庭功能显著正向预测学习投入。（2）家庭功能可通过自我同情的中介作用、心理韧性的中介作用、自我同情——心理韧性的链式中介作用对中学生学习投入产生间接效应。研究结果揭示了家庭功能对中学生学习投入的影响及作用机制，为更有效地提高中学生学习投入水平提供了一些启示。

关键词　家庭功能,学习投入,自我同情,心理韧性

The influence of family functioning on middle school students' investment in learning: the chain-mediated role of self-compassion and psychological resilience

Song Mingyi[1]　Zeng Lianping[1]（Corresponding author）
1 School of Psychology, Guizhou Normal University，Guiyang，550001，zenglianping@163.com

Abstract: "Double reduction" is a systematic education project, the essence of which is to reduce students' academic burden, recognize the nature of education, and clarify the mode of education evaluation. After reducing the academic burden, how to ensure the quality of students' learning, effectively improve the efficiency of learning, and transform the educational evaluation mode that emphasizes the result but not the process? We can focus on learning engagement from a positive psychological perspective. Learning engagement is a kind of persistent and complete positive mental state related to learning, which can be divided into three main components: vitality, dedication and concentration. Based on how to improve the level of students' learning involvement, it is more direct and effective to discuss the quality of students' learning and teaching. The motivation formation of learning engagement is influenced by both environment and individual. In previous studies, it has been found that family and social supportive factors affect learning engagement, and some personal mental health factors, such as self-efficacy and personal growth initiative, have been found to affect learning engagement. In order to further explore the specific influence mechanism of learning investment, 883 students from three high schools in Guizhou Province were investigated by the author, self- compassion scale, psychological resilience scale, family function scale and learning investment scale were adopted in this investigation. The results were as follows: (1) There were significant correlations among high school students' family function, self-compassion, psychological resilience and learning investment, and family function could significantly positively predict learning investment.(2) Family function not only has a direct effect on middle school students' learning investment, but also has an indirect effect on middle school students' learning investment through the mediating effect of self-sympathy and psychological resilience, through the chain mediating effect of self-sympathy-psychological resilience. The author reveal the influence and mechanism of family function on middle school students' learning investment, and provide some enlightenment for improving middle school students' learning investment more effectively by analyzing the results.

Key words: family function, learning investment, self-compassion, psychological resilience

统计焦虑量表的结构：一项基于中国大学生群体的验证性因子分析

田千峰[1] 黄发杰[1] 傅芃[1] 陈叶[1] 廖美玲[2]（通讯作者）
1 福建医科大学健康学院应用心理学系，福州，350108
2 福建医科大学健康学院应用心理学系，福州，350108，Liaoml@fjmu.edu.cn

摘 要 本研究以中国大学生群体为样本探讨统计焦虑量表的心理测量特性和结构。选取 2687 名中国大学生填写量表，得到 1617 份有效数据。对 575 名大学生（样本 1）进行项目分析、探索性因子分析，对 575 名大学生（样本 2）进行验证性因子分析、内部一致性信度分析、聚合效度分析、区分效度分析，对 70 名（样本 3）大学生进行重测信度分析。选取统计自我效能感量表、状态——特质焦虑问卷、学习投入量表作为校标量表，对 397 名大学生（样本 4）进行校标效度分析。结果显示本量表的心理测量特性与该量表其他国家版本得到的结果非常相似。本量表的探索性因子分析得到统计焦虑量表包括 51 个项目，由解释焦虑、考试焦虑、提问焦虑、统计学价值、自我认同及对教师的恐惧 6 个维度组成，累积解释量表总变异量的 73.62%；量表的 *AVE*、*CR* 均达到测量学标准；验证性因子分析显示模型拟合良好(χ^2 = 4257.14，*df* = 859，χ^2/df =4.96，*CFI* = 0.84，*TLI* = 0.83)；量表总分与总量表的内部一致性系数为 0.979，重测信度为 0.890。统计焦虑与状态焦虑呈显著正相关。统计焦虑与统计自我效能感、统计学课程成绩、学习投入水平呈现显著负相关；中国版量表在大学生性别上具有较好的测量等值性（△*CFI*<0.01,△*RESEA*<0.01）。因而统计焦虑在中国大学生群体中信效度较好，测量结果在不同性别人群间具有可比性，适用于测量大学生群体的统计焦虑水平。

关键词 统计焦虑量表，信度，效度，量表结构，大学生

The Structure of the Statistical Anxiety Scale: A Confirmatory Factor Analysis Based on the Chinese College Student Population

Qianfeng Tian[1] Fajie Huang[1] Peng Fu[1] Ye Chen[1] Meiling Liao[2] (Corresponding author)
1 Department of Applied psychology,School of Health,Fujian Medical University,Fuzhou,350108
2 Department of Applied psychology,School of Health,Fuzhou,350108,Liaoml@fjmu.edu.cn

***Abstract*:** To explore the psychological measurement characteristics and structure of the Statistics Anxiety Rating Scale(STARS) using a sample of Chinese college students. 2687 Chinese college students were selected to fill out the scale and 1617 valid data were obtained. Project analysis and exploratory factor analysis were conducted on 575 college students (Sample 1), confirmatory factor analysis, internal consistency reliability analysis, aggregated validity analysis, and discriminant validity analysis were conducted on 575 college students (Sample 2), and retest reliability analysis was conducted on 70 college students (Sample 3). Selecting the Statistical Self Efficacy Scale, State Trait Anxiety Questionnaire, and Learning Engagement Scale as the school scale, the school scale validity analysis was conducted on 397 college students (sample 4).The psychological measurement characteristics of this scale are very similar to the results obtained from other national versions of the scale. The exploratory factor analysis of this scale showed that the Statistics Anxiety Rating Scale included 51 items, which was composed of six dimensions, namely, explanatory anxiety, Test anxiety, questioning anxiety, statistical value, self-identity and fear of teachers. The cumulative variance of the explanatory scale was 73.62%; *AVE* and *CR* of the scale reached the Surveying standard; Confirmatory factor analysis shows that the model fits well（χ^2=4257.14, *df*=859, χ^2/df=4.96, *CFI*=0.84, *TLI*=0.83); The internal consistency coefficient between the total score of the scale and the total scale is 0.979, and the retest reliability is 0.890. There is a significant positive correlation between statistical

anxiety and state anxiety. Statistical anxiety is significantly negatively correlated with statistical self-efficacy, statistical course performance, and level of learning engagement; The Chinese version of the scale has good measurement equivalence in terms of gender among college students (△*CFI*<0.01, △*RESEA*<0.01). Statistical anxiety has good reliability and validity among Chinese college students, and the measurement results are comparable among different groups of people of the same sex. It is suitable for measuring the level of statistical anxiety among college students.

Keywords：Statistics Anxiety Rating Scale, Reliability, Validity, Scale Structure, College Students

职前与在职学前教师对幼儿社会性行为信念的差异研究

马东乐[1] 杜巧金[1] 王健楠[1] 张洁[1] 周楠[1]（通讯作者）

1 首都师范大学学前教育学院，北京，100048

通讯作者 E-mail：nanzhou@cnu.edu.cn

摘 要 幼儿教师对幼儿社会化行为的信念包括对行为的反应、情绪体验、认知和评价（Rusher et al.，1992）。教师对于幼儿问题行为的信念直接决定了教师与幼儿的互动及教学行为，进而影响幼儿的社会化发展（Coplan et al., 2011; Nelson et al., 2019）。教师在面对幼儿攻击性、社会退缩等问题行为的信念的研究大多基于西方文化背景，对于我国文化背景下幼儿教师的信念所知甚少（Li et al., 2015）。另外，职前教师正处于教师信念形成的重要阶段，了解他们与在职教师的信念异同将有助于理解教师信念发展的历程和影响因素（王英杰，2016）。因此，本研究探究职前与在职幼儿教师面对幼儿不同社会性问题行为所表现出的信念的差异。

本研究以 378 名（职前教师 261 名，在职教师 117 名）职前与在职教师为被试，对攻击性行为（身体攻击、关系攻击）、退缩行为（害羞、不合群）、精力旺盛和打闹游戏共 6 种学前儿童经常出现的行为情境所反应出的行为反应、评价以及情绪反应进行报告。采用 SPSS 22.0 进行多元重复测量方差分析职前与在职教师对不同性别幼儿社会性行为信念的差异。

结果发现：（1）相较于职前教师，在职教师对于男孩关系攻击行为的宽容、顺其自然的反应以及被同伴喜欢的可能性评价显著高于女孩，但对于男孩孤僻行为的阻止反应显著高于女孩；（2）相较于职前教师，在职教师对于男孩害羞行为的生气反应显著高于女孩，但对于男孩打闹游戏行为的担心程度和被同伴喜欢的可能性评价显著高于女孩；（3）在职教师对孤僻男孩、精力旺盛男孩的社会性发展评价显著高于女孩，而职前教师对精力旺盛女孩的社会性发展评价显著高于在职教师。

本研究初步揭示了职前教师与在职教师对不同性别幼儿的社会性问题行为的信念的差异，结果将为我国职前的培养和在职教师的培训提供科学合理的指导，以促进幼儿教师的科学的师幼互动和幼儿的发展。

关键词 职前教师，在职教师，社会性行为信念

A Study of Differences in Pre-service and In-service Preschool Teachers' Beliefs about Young Children's Social Behavioral Behaviors

Dongle Ma Qiaojin Du Jie Zhang Jiannan Wang Nan Zhou

Capital Normal University，Beijing，100048

Abstract：Early childhood teachers' beliefs about young children's socialization behaviors include reactions to the

behavior, emotional experiences, cognitions, and evaluations (Rusher et al., 1992). Teachers' beliefs about young children's problematic behaviors directly determine teachers' interactions with young children and teaching behaviors, which in turn influence young children's socialization development (Coplan et al., 2011; Nelson et al., 2019). Most of the research on teachers' beliefs in confronting problematic behaviors such as aggression and social withdrawal in young children is based on the Western cultural context, and little is known about the beliefs of early childhood teachers in our cultural context (Li et al., 2015). In addition, pre-service teachers are at an important stage in the formation of teachers' beliefs, and understanding the similarities and differences between their beliefs and those of in-service teachers will help to understand the course of teachers' belief development and the factors influencing it (Wang, Y., 2016); therefore, this study explored the differences in beliefs between pre-service and in-service early childhood teachers' beliefs when faced with different socially problematic behaviors of young children.

In this study, 378 (261 pre-service teachers and 117 in-service teachers) in-service and pre-service teachers were used as subjects to report behavioral responses, appraisals, and emotional reactions reacting to a total of six frequent behavioral situations in preschool children, including aggressive behavior (physical aggression, relational aggression), withdrawn behavior (shyness, nonconformity), energetic, and playful play. Differences in pre-service and in-service teachers' beliefs about young children's social and behavioral behaviors across genders were analyzed using multivariate repeated measures ANOVA with SPSS 22.0.

Results found that (1) compared to preservice teachers, in-service teachers rated boys' relational aggression, go-with-the-flow responses, and likelihood of being liked by peers as significantly higher than girls', but rated boys' discouragement of withdrawn behaviors as significantly higher than girls'; (2) compared to preservice teachers, in-service teachers rated boys' shyness behaviors as significantly higher than girls' anger responses, but rated boys' disruptive play behaviors as significantly higher than boys' worry and likelihood of being liked by peers were rated significantly higher than those of girls; (3) in-service teachers rated the social development of withdrawn and energetic boys significantly higher than that of girls, while pre-service teachers rated the social development of energetic girls significantly higher than that of in-service teachers.

This study preliminarily revealed the differences between pre-service teachers' and in-service teachers' beliefs about the socially problematic behaviors of young children of different genders, and the results will provide scientifically sound guidance for the training of pre-service and in-service teachers in China in order to promote scientific teacher-child interactions and young children's development among early childhood teachers.

Keywords：Pre-service teachers, in-service teachers, socio-behavioral beliefs

情绪调节策略与幼儿教师心理健康的关系：认知灵活性的中介作用

郭梦欣 代佳 高甜雯 杜思奇 吕怡晴 曲方炳（通讯作者）

首都师范大学学前教育学院，北京，100048

Email:qufangbing@cnu.edu.cn

摘 要 目的：幼儿教师心理健康是社会多方广泛关注的话题。作为日常情绪劳动较高的群体，能够有效使用不同的情绪调节策略对幼儿教师心理健康发展具有重要促进作用。本研究从情绪调节策略入手，探究情绪调节策略与幼儿教师心理健康之间的关系以及认知灵活性在二者之间的作用机制，为提升幼儿园教师心理健康提供理论与实证依据。方法：本研究聚焦认知重评和表达抑制两种情绪调节策略的使用情况对幼儿教师心理健康的影响，从焦虑和抑郁两个负性情绪方面进行探讨，以 121 名幼儿教师作为研究对象，采用情绪调节策略问卷、认知灵活性问卷、焦虑自评量表、抑郁自评量表分别测量幼儿教师情绪调节策略、认

知灵活性、焦虑及抑郁情绪水平。结果：（1）幼儿教师情绪调节策略的使用存在显著差异，幼儿教师使用认知重评情绪调节策略的频率显著高于使用表达抑制情绪调节策略的频率（2）认知重评情绪调节策略与幼儿教师心理健康水平呈现正相关，表达抑制情绪调节策略与幼儿教师心理健康水平呈现负相关（3）认知灵活性与幼儿教师心理健康水平呈现正相关，认知重评情绪调节策略与认知灵活性水平之间存在显著正相关，表达抑制情绪调节策略与认知灵活性水平存在显著负相关，认知灵活性在情绪调节策略与幼儿教师心理健康之间起部分中介作用。结果表明，情绪调节策略既可以直接影响幼儿教师心理健康，又可以间接通过认知灵活性影响幼儿教师心理健康，提示教育工作者可以从提高认知灵活性角度入手，促进幼儿教师心理健康发展。
关键词　幼儿园教师，情绪调节策略，心理健康，认知灵活性

The relationship between emotional regulation strategies and preschool teachers' mental health: The mediating role of cognitive flexibility

Guo Mengxin　Dai Jia　Gao Tianwen　Du Siqi　Lv Yiqing　Qu Fangbing(Corresponding author)
College of Preschool Education, Capital Normal University, Beijing, 100048

***Abstract*：Purpose**: The mental health of early childhood teachers is a topic of widespread concern in many parts of society. As a group with a high level of daily emotional labour, the ability to effectively use different emotion regulation strategies has an important role to play in the development of early childhood teachers' mental health. This study explored the relationship between emotion regulation strategies and the psychological health of kindergarten teachers, and the role of cognitive flexibility in the relationship, in order to provide theoretical and empirical evidence for improving the psychological health of kindergarten teachers. **Methods**: This study focused on the effects of the use of two emotion regulation strategies, cognitive reappraisal and expressive inhibition, on the mental health of kindergarten teachers, and explored the two negative emotions, anxiety and depression, with 121 kindergarten teachers as the subjects of the study, and used the Emotion Regulation Strategies Questionnaire, the Anxiety Self-Assessment Inventory, the Depression Self-Assessment Inventory, and the Cognitive Flexibility Questionnaire to measure the emotion regulation strategies, cognitive flexibility, anxiety and depressive mood levels of the kindergarten teachers, respectively. and anxiety and depression levels, respectively. **Results**: (1) There was a significant difference in the use of emotion regulation strategies among kindergarten teachers, with kindergarten teachers using cognitive reappraisal of emotion regulation strategies significantly more often than expressing inhibition of emotion regulation strategies. (2) Cognitive reappraisal of emotion regulation strategies was positively correlated with kindergarten teachers' mental health, and expressing inhibition of emotion regulation strategies was negatively correlated with kindergarten teachers' mental health. (3) Cognitive flexibility was positively correlated with kindergarten teachers' mental health. (3) Cognitive flexibility was positively correlated with ECE teachers' mental health; there was a significant positive correlation between cognitive reappraisal of emotion regulation strategies and cognitive flexibility; there was a significant negative correlation between expressive inhibition of emotion regulation strategies and cognitive flexibility; and cognitive flexibility was partially mediating the relationship between emotion regulation strategies and ECE teachers' mental health. The results suggest that emotion regulation strategies can directly affect the mental health of early childhood teachers and indirectly affect the mental health of early childhood teachers through cognitive flexibility, suggesting that educators can start from the perspective of improving cognitive flexibility to promote the development of the mental health of early childhood teachers.

***Keywords*：** Kindergarten teachers, Emotion regulation strategies, Mental health, Cognitive flexibility

青少年感恩与社会支持的关系：一项短期交叉滞后分析

谯力萍 严心怡 杨晓 吴鹏(通讯作者）
湖北大学心理学系，武汉，430062，reavenwp@hubu.edu.cn

摘 要 感恩和社会支持可以有效维护青少年的心理健康，是青少年社会适应与发展的重要保护性因素。以往研究指出，在高水平社会支持情境下，个体更容易获得感恩的体验和情绪，社会支持正向预测感恩。此外，积极情绪的扩展建构理论和感恩的道德情绪假说认为，感恩有助于个体获得更多的社会资源和心理资源，使得个体建立具有支持性的社会系统，能够促进社会支持的获得。综上，感恩与社会支持可能存在双向关系。目前研究较多采用横断设计对二者间的单向关系进行探究，尚缺乏考察两者间双向关系的纵向研究。本研究采用交叉滞后设计来探讨青少年感恩与社会支持之间的关系，试图阐明二者之间具体的作用机制，采用中文版感恩问卷与青少年社会支持量表对 968 名青少年（平均年龄 13.13±1.33 岁，男生 497 人）进行了相隔 6 个月的前后两次追踪调查。采用 SPSS25.0 进行统计分析之后，采用 Mplus7.0 软件建立了感恩与社会支持的交叉滞后路径分析的结构方程模型，结果表明：（1）感恩与社会支持间的同时性相关和继时性相关均显著；（2）社会支持显著预测下一个时间点的感恩，但感恩不能显著预测随后的社会支持。本研究结果提示我们，学校和家庭应积极发挥社会支持的增益作用，重视培养青少年的感恩特质，帮助他们获得积极的发展结果。

关键词 感恩，社会支持，交叉滞后分析

The relationship between gratitude and social support in adolescents: a short-term cross lagged analysis

Qiao Liping ,Yan Xinyi ,Yang Xiao ,Wu peng
Department of Psychology,Hubei University,Wuhan,China

Abstract:Gratitude and social support can effectively maintain the mental health of adolescents and are important protective factors for their social adaptation and development. Previous studies have shown that individuals are more likely to feel gratitude in high-level social support situations, and social support positively predict gratitude. In addition, the broaden-and-build theory of positive emotion and the moral emotion hypothesis of gratitude suggest that gratitude helps individuals gain more social and psychological resources, enabling them to establish a supportive social system and promoting the acquisition of social support. In summary, there may be a two-way relationship between gratitude and social support. At present, most studies use cross-sectional design to explore the one-way relationship between the two, but there is still a lack of Longitudinal study to investigate the two-way relationship between the two. This study used a cross lagged design to explore the relationship between gratitude and social support in adolescents, attempting to elucidate the specific mechanism of their interaction. A total of 968 adolescents (with an average age of 13.13 ± 1.33 years and 497 males) were tracked for 6 months using the Chinese version of the gratitude questionnaire and the adolescent social support rating scale . After conducting statistical analysis using SPSS 25.0, a structural equation model for the cross lagged path analysis of gratitude and social support was established using Mplus7.0 software. The results showed that: (1) there was a significant correlation between gratitude and social support in both synchronicity and duration; (2) Social support significantly predicts gratitude at the next point in time, but gratitude cannot significantly predict subsequent social support. The results of this study suggest that schools and families should provide sufficient social support, attach importance to cultivating gratitude among adolescents, and help them grow up healthy.

Keywords: Gratitude,Social Support,A cross-lagged regression analysis

纵向视角下批判性思维与学业自我概念对学习投入的影响研究

江润杰[1] 叶海谋[1] 张克顺[1]（通讯作者）

1 青岛大学师范学院心理系，青岛，266071，keshun.zhang@qdu.edu.cn

摘 要　已有研究证实，大学生的批判性思维和自我概念间存在相互影响，且二者共同作用于大学生的学习投入水平，但尚未有研究厘清变量间作用机制，既往研究证实，学科对于大学生的批判性思维、学业自我概念以及学习投入水平均存在重要影响。目前国内外基于不同学科视角对于批判性思维和学业自我概念与学习投入间关系的研究较少，且多基于单学科的数据得出结论，对于不同学科之间的差异未进行对比分析。本研究采用问卷法对 3437 名大学新生进行为期 1 年的追踪研究，考察不同学科中批判性思维、学业自我概念和学习投入的特点及三者之间的动态关系。结果显示，（1）批判性思维和学业自我概念与学习投入间存在交叉滞后效应，T1 的批判性思维正向预测 T2 的学习投入，T1 的学业自我概念负向预测 T2 的学习投入。（2）批判性思维和学业自我概念间存在显著的双向预测关系，T1 的批判性思维负向预测 T2 的学业自我概念，T1 的学业自我概念正向预测 T2 的批判性思维。（3）数学/英语学科中批判性思维、学业自我概念与大学生学习投入间存在稳健的路径关系，即该影响机制不存在学科差异。这一结果支持了批判性思维、学业自我概念和学习投入的交叉滞后模型，发展了批判性思维、学业自我概念和学习投入的理论和研究，对于揭示其具体影响机制具有积极作用。

关键词　批判性思维，学业自我概念，学习投入，纵向研究

A longitudinal study on the between critical thinking and academic self-concept and student engagement

Jiang Runjie Ye Haimou ZhangKeshun

Department of Psychology, Normal College, Qingdao University, Qingdao, China,

keshun.zhang@qdu.edu.cn

Abstract： Research has confirmed that there is a mutual influence between critical thinking and self-concept among college students. Both factors jointly affect the level of students' learning engagement. However, the mechanisms of interaction between variables have not been clarified in previous studies. Previous research has demonstrated the significant impact of discipline on college students' critical thinking, academic self-concept, and level of learning engagement. Currently, there is limited research both domestically and internationally that examines the relationship between critical thinking, academic self-concept, and learning engagement from different disciplinary perspectives. Moreover, most studies draw conclusions based on data from a single discipline, without conducting comparative analyses to identify differences between different disciplines. There is a significant interaction between critical thinking and academic self-concept, and both of them have a protective effect on students' learning involvement. More and more studies have examined students' critical thinking and academic self-concept, but how they affect college students' learning input has not been determined. This study hypothesizes that there is a cross-lag effect between critical thinking and academic self-concept, and can longitudinally predict the level of students' learning involvement. To test this hypothesis, 2 follow-up surveys were conducted on 1,782 college students from all over the country. The results show that: (1) critical thinking and

academic self-concept increase significantly with time; (2) critical thinking and academic self-concept have a two-way predictive relationship; (3) critical thinking at the first time point positively predicts learning input at the second time point and academic self-concept negatively predicts learning input at the second time point; (4) critical thinking and academic self-concept at the first time point can pass critical thinking at the second time point and academic self-concept predicts learning input at the second time point; this result supports the cross-lag model of critical thinking, academic self-concept and learning input and develops the theory and research of critical thinking, academic self-concept and learning input, which has a positive effect on revealing its specific influence mechanism.

Keywords：critical thinking, academic self-concept, learning engagement, longitudinal study

青少年父母关爱相对剥夺感对学习倦怠的影响：生活满意度的中介作用

郭雅霖[1] 陈顺森[2]（通讯作者）

1 闽南师范大学教育与心理学院，漳州，363000

2 闽南师范大学教育与心理学院，漳州，363000，shunsen@163.com

摘 要　在“三胎”政策出台的背景下，部分青少年在心理认知、健康等方面发生变化。选取福建省和广东省共 1211 名青少年为被试，采用调查法来探究青少年的父母关爱相对剥夺感、学习倦怠和生活满意度三者间的关系。调查工具包括：青少年父母关爱相对剥夺感量表、青少年学习倦怠量表和生活满意度量表。结果发现：（1）青少年的父母关爱相对剥夺感和学习倦怠呈显著正相关（r=0.44），父母关爱相对剥夺感对生活满意度呈显著负相关（r=－0.51），生活满意度和学习倦怠呈显著负相关（r=－0.48）；（2）青少年的父母关爱相对剥夺感对生活满意度具有负向预测作用（β=－0.511），生活满意度对学习倦怠具有负向预测作用（β=－0.348），父母关爱相对剥夺感在生活满意度的中介作用影响下，对学习倦怠起间接作用（ c '=0.267）。

综上所述可以认为，青少年的父母关爱相对剥夺感对学习倦怠和生活满意度都有显著的预测作用，生活满意度能显著预测学习倦怠。生活满意度对父母关爱相对剥夺感与学习倦怠的关系起部分中介作用。针对三者之间的关系并结合研究结果，提出以下的建议：作为父母，采用积极地教养方式来降低孩子的学习倦怠，避免消极的教养方式；父母生育选择应考虑全面，家庭资源能够较好分配给子女。在日后的心理健康教育工作或日常教学中，应给予父母关爱相对剥夺感水平高的学生更多的关心，设置合理教学目标，适时鼓励和引导，增进师生互动与感情，提高其生活满意度，以期降低学习倦怠水平。

关键词　父母关爱相对剥夺感，学习倦怠，生活满意度，青少年

The effect of relative deprivation of parental care on learning burnout in teenagers: the mediating role of life satisfaction

Yalin　GUO，Shunsen Chen

Minnan Normal University, Zhangzhou, China

Abstract：Under the background of Three-child policy, some teenagers had undergone changes in psychological cognition and other aspects. A total of 1211 teenagers from Fujian and Guangdong provinces were selected to

explore the relationship among relative deprivation of parental care, learning burnout and life satisfaction. The survey tools included: teenagers' relative deprivation of parental care scale, teenagers learning burnout scale and life satisfaction scale. The results showed that:（1）There was a significant positive correlation between the relative deprivation of parental care and learning burnout (r= 0.44), a negative correlation between the relative deprivation of parental care and life satisfaction (r=－0.51), and a negative correlation between life satisfaction and learning burnout (r=－0.48);（2）The relative deprivation of parental care had a negative predictive effect on life satisfaction (β=－0.511) and life satisfaction had a negative predictive effect on learning burnout (β=－0.348). Under the mediating effect of life satisfaction, the relative deprivation of parental care had an indirect effect on learning burnout (c'=0.267).

According to the relationship between the three and the research results, the following suggestions are put forward: as parents, adopt positive parenting methods to reduce children's learning burnout and avoid negative parenting methods; Parents' reproductive choice should be considered comprehensively, and family resources can be better allocated to their children. In the future mental health education or daily teaching, parents should show more concern for students with relatively high deprivation, set reasonable teaching objectives, encourage and guide them in time, enhance teacher-student interaction and feelings, and improve their life satisfaction, so as to reduce the level of learning burnout.

Keywords： relative deprivation of parental care， learning burnout， psychological life satisfaction， teenagers

乡村支教对职前教师生涯发展的影响及其模式

姜刻文[1] 陈宁[2]（通讯作者）

1 上海师范大学，上海，200030

2 上海师范大学心理系，上海，200030，chenning323@163.com

摘 要 教师的培养始终是教育领域中不可忽视的重要议题，也是提升教育质量的重要抓手。但当前的教育实习存在实践要素不足的现状，“轻实践，重理论”的问题也一直为人诟病。相比之下，顶岗式的教育实习有助于帮助职前教师体验更接近现实的教学环节，从而有利于个人成长与学术研究。因此，为了更好地探索职前教师在教育实习中如何发展，本研究选取了西部计划研究生支教团项目的成员作为被试，基于扎根理论，以质性访谈的方式进行研究，试图对职前教师在顶岗式教育实习中的成长模式进行探索与理论建构。结果发现：本研究通过对 12 名被试总计 17.2 万字的访谈文本进行整理与分析，总结了 8 个互相关联的类属，即“阻力感知”、“机遇挑战”、“支持经历”、“投入满足”、“从教感受”、“人格成熟”、“信念变化”、“技术改善”等。最终形成了以“投入满足”为核心类属的类属关联。基于类属关联得出的教师成长路径以及核心类属的维度分类，我们总结出了三种不同的成长模式，包括高投入高满足的 A 模式、高投入低满足的 B 模式以及低投入低满足的 C 模式。我们更进一步总结归纳了在教育环境中会促进或阻碍职前教师成长的不同因素，深入探讨了教师投入满足背后的深层原理，以及实际实习中可能促成教师成长的不同路径与方式，由此对改良教育实习模式提供理论支持。

关键词 乡村支教，职前教师，教育实习，扎根理论

The influence of rural volunteer teaching on the career development of pre-service teachers and its model

Jiang Kewen[1] and Chen Ning[1] (corresponding author)

1 Shanghai Normal University, Shanghai 200030, China
2 Department of Psychology, Shanghai Normal University, Shanghai 200030

Abstract：Teacher training has always been an important issue that cannot be ignored in the field of education, but also an important starting point to improve the quality of education. However, the current educational practice is lack of practical elements. In contrast, on-the-job educational practice helps pre-service teachers to experience more realistic teaching links, which is conducive to personal growth and academic research. Therefore, in order to better explore the development of pre-service teachers in educational practice, this study selected members of the China's Far West Program as subjects, based on Grounded theory, conducted qualitative interview research, and attempted to explore and theoretically construct the growth mode of pre-service teachers in on-the-job educational practice. The results are as follows: Through the collation and analysis of a total of 172,000 words of interview texts of 12 subjects, eight interrelated categories are summarized, namely, "resistance perception", "opportunity and challenge", "support experience", "input satisfaction", "teaching experience", "personality maturity", "belief change", "technology improvement" and so on. Finally, a generic association with "input satisfaction" as the core category is formed. Based on the teacher growth path and the dimension classification of the core categories, we summarized three different growth models, including model A with high input and high satisfaction, model B with high input and low satisfaction, and model C with low input and low satisfaction. We further summarized the different factors that can promote or hinder the growth of pre-service teachers in the educational environment, and deeply discussed the deep principle behind teacher engagement satisfaction, as well as the different paths and ways that may contribute to teacher growth in practical practice, thus providing theoretical support for improving the model of educational practice.

Keywords：Rural volunteer teaching, pre-service teacher, educational practice, Grounded theory

学前儿童执行功能与视觉观点采择的发展及其关系研究：城乡的调节作用

杜巧金[1]　孙晗月[1]　周楠[1]（通讯作者）
1 首都师范大学学前教育学院，北京，100048
通讯作者 E-mail：nanzhou@cnu.edu.cn

摘 要　儿童从自我中心迈向社会化的进程中，观点采择发挥着举足轻重的作用。执行功能作为在个体高级认知能力，在儿童进行观点采择时扮演了储存、抑制、转换等角色。学龄前期是执行功能与视觉观点采择发展的关键阶段，是儿童生理和心理发展的重要时期。统筹教育发展是民心所向、政之所行，性别和城乡因素是不容忽视的人口学变量。以往研究中已经证明了影响视觉观点采择发展的城乡差异，为进一步探究执行功能与视觉观点采择的关系，本研究假设城乡在执行功能与视觉观点采择中起调节作用。

本研究选取北京市城乡共 380 名幼儿为研究对象，其中城市儿童 145 人，农村幼儿 235 人；男生 190 人，女生 190 人；小班幼儿 118 人，中班幼儿 135 人，大班幼儿 127 人。采用早期儿童执行功能测量工具包考察学前儿童执行功能三成分（抑制控制、认知灵活性、工作记忆）的发展特点及水平，使用透视拍摄法考察儿童视觉观点采择的发展特点及水平。

研究结果表明（1）执行功能各子成分均存在显著的年龄班差异，即大班幼儿执行功能各子成分的发展显著好于中班和小班幼儿，中班幼儿执行功能各子成分的发展显著好于小班幼儿，而抑制控制存在显著的性别差异，女孩的抑制控制显著好于男孩；工作记忆和认知灵活性存在显著的城乡差异，城市幼儿工作记忆和认知灵活性的发展水平显著好于农村幼儿；（2）工作记忆的年龄班、性别和城乡的三者交互作用显著，

即城市中班女生的工作记忆的得分显著高于城市中班女生工作记忆得分，农村中班男生工作记忆得分显著高于城市中班男生工作记忆得分；（3）抑制控制和认知灵活性可以显著预测视觉观点采择的发展；城乡在工作记忆和视觉观点采择的关系中起调节作用。对于城市儿童来说，工作记忆得分随视觉观点采择的得分增加而增加；对于农村儿童来说，儿童工作记忆得分不能显著预测儿童视觉观点采择的得分。

本研究为促进城乡幼儿执行功能与观点采择的发展提供了实证研究支持。
关键词　学前儿童，执行功能，视觉观点采择，工作记忆

The development and relationship between executive function and visual perspective taking in preschool children：The moderating role of urban and rural areas

Qiaojin Du　Hanyue Sun　Nan Zhou
Capital Normal University, Beijing, 100048

Abstract：As children move from self-centeredness to socialization, point of visual perspective taking plays a pivotal role. Executive function, as an individual's advanced cognitive ability, plays a role in storing, inhibiting, and switching children's point of view. Preschool age is a critical stage in the development of executive function and visual perspective taking, and is an important period for children's physical and psychological development. Coordinating the development of education is the aspiration of the people and the action of the government, and gender and urban-rural factors are demographic variables that cannot be ignored. In order to further explore the relationship between executive function and visual perspective taking, this study hypothesizes that urban and rural areas play a moderating role in executive function and visual perspective taking.

In this study, a total of 380 children in urban and rural areas of Beijing were selected as the research subjects, including 145 urban children and 235 rural children. 190 boys and 190 girls; There are 118 children in kindergarten, 135 children in kindergarten and 127 children in kindergarten. The Early Childhood Executive Function Measurement Toolkit was used to investigate the developmental characteristics and levels of the three components of executive function (inhibitory control, cognitive flexibility, and working memory) in preschool children, and the developmental characteristics and levels of children's visual viewpoint selection were investigated by perspective photography.

The results showed that: (1) there were significant age class differences in each sub-component of executive function, that is, the development of each sub-component of executive function in kindergarten children was significantly better than that of kindergarten and kindergarten children, the development of each sub-component of executive function in middle class children was significantly better than that of kindergarten children, while there were significant gender differences in inhibition control, and the inhibitory control of girls was significantly better than that of boys. There were significant differences between urban and rural areas in working memory and cognitive flexibility, and the development level of working memory and cognitive flexibility of urban children was significantly better than that of rural children. (2) The interaction between age class, gender and urban and rural areas of working memory was significant, that is, the working memory score of urban middle school girls was significantly higher than that of urban middle school girls, and the working memory score of rural middle school boys was significantly higher than that of urban middle school boys. (3) inhibitory control and cognitive flexibility can significantly predict the development of visual perspective taking; Urban and rural play a regulating role in the

relationship between working memory and visual perspective taking. For urban children, working memory scores increased with scores on visual perspective taking; For rural children, children's working memory scores do not significantly predict children's visual perspective taking scores.

This study provides empirical research support for promoting the development of executive function and perspective taking in urban and rural children.

Keywords：preschool children，executive function，visual perspective taking，working memory

流动的焦虑：我国城市中小学家长教育焦虑生成与维持机制的质性研究

唐逸文[1] 邓林园[1]（通讯作者） 王婧怡[1] 田宏杰[2] 李蓓蕾[1]

1 北京师范大学教育学部，北京，100875

2 中国青少年研究中心少年儿童研究所，北京，100089，09036@bnu.edu.cn

摘 要 家长教育焦虑是目前我国教育语境下的热点话题，但关于其生成与维持机制还缺乏动态深入的研究，因而家长教育焦虑难以得到有效缓解。本研究运用程序化扎根理论的策略分析了 20 位城市中小学家长的访谈资料，得到了我国城市中小学家长教育焦虑生成与维持的机制模型——环境-认知-行为反馈-历时模型，这说明教育焦虑的产生是一个流动而非静止的动态过程。具体来说，影响我国城市中小学家长教育焦虑的因素包括认知因素（期望评估与教育效能感）、环境因素（教育体制、社会环境、同辈影响、学校环境、家庭氛围）、历时因素（个人经历与社会变迁）与行为反馈因素（积极反馈与消极反馈）四种。其中认知、环境与行为反馈因素对家长教育焦虑有直接影响，环境、历时与行为反馈因素会通过影响家长个体的认知因素影响其教育焦虑程度，而认知因素在环境因素和行为反馈因素与教育焦虑关系之间又发挥着调节作用。基于这一模型，本文认为应从改善家长认知、创设良好教育氛围和制度环境等方面入手，多角度缓解家长过高的教育焦虑情绪。

关键词 城市中小学，家长教育焦虑，生成与维持机制，扎根理论

The Flow of Educational Anxiety: A qualitative study on the generation and maintenance mechanism of educational anxiety of parents of urban primary and secondary schools in China

Yiwen Tang[1], Linyuan Deng[1], Jingyi Wang[1], Hongjie Tian[2], Beilei Li[1]

1. Faculty of Education, Beijing Normal University, Beijing 100875;

2. Institute of Children and Adolescents, China Youth & Children Research Center, Beijing, 100089

Abstract：Parental educational anxiety is a hot topic in the context of China at present, but there is still a lack of in-depth research on its generation and maintenance mechanisms, which makes it difficult to promote a deep understanding of this concept. This study adopted the strategy of procedural grounded theory to analyze the interview data of 20 urban primary and secondary school parents, which, in the end, generated the mechanism model of the generation and maintenance of educational anxiety among urban primary and secondary school parents in my country: the environment-cognition-behavioral feedback-diachronic model, which indicates that the

generation of educational anxiety is a dynamic process of flow rather than static. Specifically, the factors that affect parental education anxiety of urban primary and secondary schools include cognitive factors (expectation evaluation and educational efficacy), environmental factors (educational system, social environment, peer influence, school environment, family atmosphere), diachronic factors (personal experience and social change) and behavioral feedback factors. Among them, cognitive, environmental and behavioral feedback factors have a direct impact on parental education anxiety, and environmental, diachronic and behavioral feedback factors will affect the degree of educational anxiety by affecting individual parents' cognitive factors, while cognitive factors plays a moderating role in the relationship between environmental factors and parental educational anxiety, as well as that between behavioral feedback factors and parental educational anxiety. This model has a brilliant echo with the PPCT model proposed by Bronfenbrenner, which also proves the effectiveness of the PPCT model in explaining the phenomena generated by the interaction between people and contexts. Based on this model, parents' excessive education anxiety should be alleviated from the paths of improving parents' cognition ability, creating a healthy educational atmosphere, and improving the vocational education system.

Keywords： Urban primary and secondary schools，parents' education anxiety， generation and maintenance mechanism，grounded theory

马基雅维利主义对中小学生宽恕的影响：内控归因与移情的中介作用

刘静茹 1　彭文波 2

1 重庆师范大学教育科学学院，重庆，401331

2 重庆师范大学应用心理学重点实验室，重庆，401331

摘 要　目的：新时代课程标准改革指出，要坚持德育为先，培养学生适应发展的必备品格。宽恕作为改善被伤害后的攻击性状态的有效资源，改善不良情绪与行为的积极正向品质，能够减少对他人行为的负面反应，青少年的宽恕水平受认知、情感等因素的影响，不同的因素决定宽恕的不同水平，探讨中小学生宽恕的影响因素及作用机制尤为重要。探讨移情对中小学生宽恕影响，并进一步考察了内控归因与认知移情在其中的影响机制。方法：采用 Hearland 宽恕量表、儿童马氏量表中文版（KMS-C）、基本移情量表（BES）、归因方式量表(MMCS)对 2138 名中小学生进行集体施测。结果：马基雅维利主义、认知移情、内控归因对宽恕均有直接效应，且认知共情、内控归因能够正向预测中小学生宽恕水平，马基雅维利主义则负向预测宽恕。内控归因与认知移情在马基雅维利主义与中小学生宽恕之间起平行中介作用。研究以 8-16 周岁的中小学生为研究对象，旨在更深层次探讨中小学生马基雅维利主义与宽恕水平的关系以及内控归因与移情在其中的作用机制，为学校宽恕的培育研究提供更全面的心理依据，在宽恕现状及其影响因素的基础上，针对中小学生的宽恕特点，提出更科学、更合理的宽恕教育建议，以期提升中小学生的宽恕意识，促进其人际关系、身心健康的全面改善。

关键词　宽恕心理，中小学生，马基雅维利主义

The Influence of Machiavellianism on Forgiveness Among Primary and Secondary School Students: The Mediating Role of Internal Attribution and Empathy

LIU Jingru1　PENG Wenbo2
1 College of Educational Sciences，Chongqing Normal University，Chongqing　401331
2 Key Laboratory of Applied Psychology, Chongqing　Normal University，Chongqing　401331

Abstract：Objective: The reform of the new era curriculum standards emphasizes the priority of moral education and the cultivation of essential qualities for students to adapt to development. Forgiveness, as an effective resource for improving aggressive states after being hurt, positively enhances emotions and behaviors, reduces negative reactions towards others' actions. The forgiveness level of adolescents is influenced by cognitive, emotional, and other factors, with various determinants affecting forgiveness at different levels. Therefore, exploring the influencing factors and mechanisms of forgiveness among primary and secondary school students is of great importance. This study investigates the impact of empathy on forgiveness among primary and secondary school students, and further examines the mediating role of internal attribution and cognitive empathy in this relationship.Methods: A collective survey was conducted on 2138 primary and secondary school students using the Hearland Forgiveness Scale, the Chinese version of the Children's Manifest Anxiety Scale (KMS-C), the Basic Empathy Scale (BES), and the Multidimensional Multiattributional Causality Scale (MMCS).Results: Machiavellianism, cognitive empathy, and internal attribution all have direct effects on forgiveness, with cognitive empathy and internal attribution positively predicting forgiveness among primary and secondary school students, while Machiavellianism negatively predicts forgiveness. Internal attribution and cognitive empathy play parallel mediating roles between Machiavellianism and forgiveness among primary and secondary school students. The research focuses on primary and secondary school students aged 8 to 16, aiming to explore in-depth the relationship between Machiavellianism and forgiveness levels among them, as well as the role of internal attribution and empathy in this relationship. This study provides a more comprehensive psychological basis for researching forgiveness cultivation in schools. Based on the current status of forgiveness and its influencing factors, it proposes more scientific and rational forgiveness education suggestions tailored to the characteristics of primary and secondary school students, with the hope of enhancing their forgiveness awareness and promoting comprehensive improvements in their interpersonal relationships and mental health.

Keywords：Forgiveness psychology, Primary and secondary school students, Machiavellianism

急性应激对情感灵活性和认知情绪调节的影响:皮质醇反应性和性别差异的视角

郝秀荣[1]　李世佳[2]（通讯作者）
1,2 华东师范大学心理与认知科学学院，上海，200062，sjli@psy.ecnu.edu.cn

摘 要　应激源对个体身心的影响一直是健康心理学的关注重点，其中应激对认知灵活性的影响对于个体适应环境至关重要。大量研究显示，在经历急性应激的过程中和之后，情绪调节都发挥着重要作用，而情感灵活性也会相应受到影响，但目前暂没有相关实验室研究证据。本研究旨在探究急性应激影响情感灵活性和认知情绪调节的行为机理，并首次同时使用特质情绪调节和状态情绪调节的方法。研究共招募 74 名健康大学生，使用特里尔社会应激测试(TSST)进行急性应激诱导，使用情绪-中性规则转换任务测量情感灵活性，并完成认知情绪调节问卷和认知情绪调节任务。在应激诱导前后和任务后三个时间点采集唾液皮质醇且记录心率、血压和多维心理状态问卷(MDBF)。研究结果表明（1）生理指标和问卷均证明 TSST 成功诱导了被试的应激反应。（2）急性应激降低了被试从中性到消极情绪信息的转换成本。在女性被试中，皮质

醇响应者从消极情绪性信息到中性信息的转换成本高于非响应者。（3）皮质醇响应者在应激下使用重评进行情绪调节的效果比非响应者更差。本研究首次验证了急性应激对情感灵活性和情绪调节能力产生影响，而皮质醇响应性和性别可能造成这种影响的个体差异；此外，本研究首次提供了特质情绪调节和状态情绪调节能力与急性应激下的情感灵活性之间的关系。研究结果为考察个体在应激下相关能力表现和鉴别应激相关精神障碍发展的风险提供了重要参考。
关键词　急性应激，情感灵活性，认知情绪调节，皮质醇反应，性别差异

Effects of Acute Stress on Affective Flexibility and Cognitive Emotion Regulation: Insights from Cortisol Reactivity and Gender Differences

Xiurong Hao[1] Shijia Li[2]（Corresponding author）
1,2 School of Psychology and Cognitive Science, East China Normal University, Shanghai, 200062, sjli@psy.ecnu.edu.cn

***Abstract*:** The influence of stressors on physical and psychological well-being of individuals has long been a major focus in the field of Health Psychology, among which the impact of stress on cognitive flexibility is crucial for individuals to adapt to the environment. A large body of research has demonstrated that emotion regulation plays an important role during and after acute stress, and affective flexibility is correspondingly affected, while there is currently a lack of laboratory research evidence. The present study aims to investigate the behavioural mechanisms underlying the effects of acute stress on affective flexibility and cognitive emotion regulation, utilizing both trait and state emotion regulation measures for the first time. A total of 74 healthy university students were recruited and underwent acute stress induction using the Trier Social Stress Test (TSST), measured affective flexibility using an affective-neutral rule switch task, and completed Cognitive Emotion Regulation Questionnaire and Cognitive Emotion Regulation Task. Salivary cortisol was collected at three time points: before and after the stress induction and after the task, during which heart rate, blood pressure and Mehrdimensionale Befindlichkeitsfragebogen (MDBF) were also recorded. The results revealed the following findings: (1) Both physiological indicators and questionnaires proved the successful induction of stress response through TSST. (2) Acute stress reduced the switch cost from neutral to negative affective information. Among female participants, cortisol responders exhibited higher switch cost from negative to neutral affective information compared to non-responders. (3) Cortisol responders demonstrated poorer effectiveness in downregulating negative emotions using reappraisal under stress compared to non-responders. This study provides the first empirical evidence of the influence of acute stress on affective flexibility and emotion regulation abilities, with individual differences potentially attributed to cortisol reactivity and gender. Additionally, it offers novel insights into the relationship between trait and state emotion regulation abilities and affective flexibility under acute stress. The findings provide important implications for investigating individuals' relevant task performance under stress and identifying risks associated with the development of stress-related mental disorders.
***Keywords*:** acute stress, affective flexibility, cognitive emotion regulation, cortisol response, gender differences

人际感恩预测亲密关系满意度：亲密关系权力感的调节作用

金璐瑶　王艳梅*

华东师范大学心理与认知科学学院，上海，200062，ymwang@psy.ecnu.edu.cn

摘 要　感恩对良好的亲密关系质量至关重要，但二者之间也会受其他因素干扰而出现动态变化。亲密关系权力感，即个体在亲密关系中对自身权力的大小的感知，被指出可能存在潜在影响。为明确亲密关系权力感在人际感恩与亲密关系满意度中的影响机制，本研究构建了有调节的中介模型，考察了感知伴侣回应性在其中的中介作用以及亲密关系权力感的调节作用。利用网络平台数字化问卷调查，最终收集了 825 名处于亲密关系中且亲密关系时长超过六个月的被试（平均年龄：27.21±10.60 岁，女性占 46.9%，男性占 53.1%）的人际感恩、感知伴侣回应性、亲密关系权力感及亲密关系满意度。研究结果发现：（1）人际感恩可以显著正向预测亲密关系满意度（B=0.44, t=11.9, p<0.001）；（2）人际感恩能通过感知伴侣回应性的中介作用正向预测亲密关系满意度（B=0.21, t=6.17, p<0.001）；（3）人际感恩对亲密关系满意度的直接预测作用（B=-0.02, t=-2.41, p<0.05）及感知伴侣回应性在两者关系中的中介作用（B=-0.02, t=-2.20, p<0.05）均会收到亲密关系权力感的调节。随着亲密关系权力感水平的提高，人际感恩对亲密关系满意度的预测作用呈降低趋势，同时感知伴侣回应性对亲密关系满意度的预测作用也呈降低趋势。该结果揭示了亲密关系权力感在亲密关系中的特殊调节机制，总的来说，通过亲密关系权力感的相对高低水平，我们可以更深入了解感恩对亲密关系质量影响的个体差异。本研究对深化人际感恩在积极心理学的发展以及其对亲密关系影响的研究有理论意义，且对从以亲密关系权力感的创新性视角来干预亲密关系质量的心理健康服务领域有现实意义。

关键词　人际感恩，亲密关系满意度，感知伴侣回应性，亲密关系权力感

Interpersonal Gratitude Predicts Intimacy Relationship Satisfaction: The Moderating Role of Intimacy Power

Luyao Jin, Yanmei Wang*

School of Psychology and Cognitive Science, East China Normal University, Shanghai, China

***Abstract*:** Gratitude is positively related to good intimacy quality, but other factors also can moderate the relationship between gratitude and intimacy quality. Intimacy power, individuals' perceptions of the magnitude of their power in intimate relationships, were noted to have potential implications. To clarify the mechanism of sense of intimacy power in the influence of interpersonal gratitude on intimacy relationship satisfaction, this study constructed a moderated mediation model, examined the mediating role of perceived partner responsiveness and the moderating role of intimacy power. Using a digital questionnaire on a web-based platform, interpersonal gratitude, intimacy relationship satisfaction, perceived partner responsiveness and intimacy power were finally collected from 825 subjects who were in an intimate relationship which had been for more than six months (Mean age: 27.21 ± 10.60 years, 46.9% female, 53.1% male). The study found that: (1) interpersonal gratitude positively predicted intimacy relationship satisfaction(B=0.44, t=11.9, p<0.001); (2) interpersonal gratitude positively predicted intimacy satisfaction through the mediating effect of perceived partner responsiveness(B=0.21, t=6.17, p<0.001); and (3) both the direct predictive effect of interpersonal gratitude on intimacy relationship satisfaction(B=-0.02, t=-2.41, p<0.05) and the mediating effect of perceived partner responsiveness on intimacy relationship satisfaction(B=-0.02, t=-2.20, p<0.05) were moderated by the intimacy power. The predictive effect of interpersonal gratitude on intimacy relationship satisfaction tended to decrease as the level of intimacy power increased, as well as the predictive effect of perceived partner responsiveness on intimacy satisfaction. The results reveal a special moderation mechanism of the intimacy power in intimate relationships, and in general, the relative high and low levels of the intimacy power allow us to gain more insight into individual differences in the impact of gratitude on the quality of intimate relationships. This study has theoretical implications for deepening research on

the influential effect of interpersonal gratitude in positive psychology and its impact on intimate relationships, and has practical implications for intervening in the field of mental health services in intimate relationship quality from the innovative perspective of intimacy power.

Key words: Interpersonal gratitude, Intimacy relationship satisfaction, Perceived partner responsiveness, Intimacy Power

急性心理社会应激和应对方式对年轻女性不公平感决策的影响：一项 fNIRS 研究

王光亚[1] 唐珺[1] 尹周乾[1] 余思雨[1] 潘亚峰[3] 李世佳[1,2]（通讯作者）

1 华东师范大学心理与认知科学学院，上海，200062，sjli@psy.ecnu.edu.cn

2 上海市长宁区精神卫生中心，上海，200335

3 浙江大学心理与行为科学系，浙江，310058

摘 要 急性心理社会应激影响女性不公平感决策行为的结果尚未统一，在以往有限的研究中忽略了对其脑机制的探索和压力应对个体差异的影响。本研究招募 44 名女性健康大学生被试（20.98 ± 2.89 岁），随机分配到应激组（$n = 21$）和控制组（$n = 23$）。被试首先休息 30 分钟并填写特质应对方式问卷（TCSQ）。随后，采用特里尔社会应激测试（TSST）诱发急性应激或进行控制程序，并要求被试作为接受者完成最后通牒博弈（UG），每个试次分配者不同。分配总金额为 50 元，5 种分配被分为 3 种条件：公平（25 元）、低不公平（20 或 15 元）、高不公平（10 或 5 元）。采用功能性近红外光谱技术（fNIRS）记录额叶、颞叶活动。在 TSST 前、后及 UG 后，测量血压、心率，并要求被试填写多维情绪状态问卷（MDMQ）。基于不公平厌恶模型在 R 中对接受率进行计算建模，生成劣势不公平敏感性（α）、行为随机性（τ）、公平适应性（ε）三个行为学指标。计算三种公平条件下的 HbO 峰值作为脑激活指标。

主观与生理指标表明 TSST 操作有效。曼-惠特尼 *U* 检验未发现各条件下接受率的组间差异。独立样本 *t* 检验显示，应激组的行为随机性提升（$p = 0.005$），公平适应性下降（$p < 0.001$）。应激条件下，MDMQ 各维度与ε均呈显著正相关（$ps < 0.05$），平静-紧张维度与α呈显著负相关（$p = 0.039$），即主观应激水平越高，对劣势不公平越敏感，公平适应性越差。混合设计 ANOVA 显示，相比于控制组，应激组在低不公平条件下右侧颞顶联合区（rTPJ）的 HbO 峰值显著升高（$p = 0.002$），左侧颞中回（lMTG）峰值显著降低（$p = 0.008$），表明急性应激导致的心智化过程以及对道德加工的抑制。控制组中，α与 rTPJ 在低不公平条件下的峰值呈显著正相关（$p = 0.023$），应激组中则不显著。消极应对方式与τ在控制组中相关不显著，应激组中则呈显著正相关（$p = 0.001$）。综上，本研究首次采用计算模型探究急性应激对女性不公平感决策行为的影响，基于认知神经科学视角解释女性应激下的“照料与结盟”，并提供应对方式影响应激下决策随机性的证据。

关键词 急性心理社会应激，最后通牒博弈，右侧颞顶联合区，特质应对方式，雷斯科拉-瓦格纳规范适应模型

Acute psychosocial stress increased activation in the right temporoparietal junction when the healthy young females make decisions for the unfair offers

Guangya Wang[1] Jun Tang[1] Zhouqian Yin[1] Siyu Yu[1] Yafeng Pan[3] Shijia Li[1, 2, *]
1 Shanghai Key Laboratory of Mental Health and Psychological Crisis Intervention, Affiliated Mental Health Center (ECNU), Institute of Brain and Education Innovation, School of Psychology and Cognitive Science, East China Normal University, Shanghai, 200062
2 Shanghai Changning Mental Health Center, Shanghai, 200335
3 Department of Psychology and Behavioral Sciences, Zhejiang University, Hangzhou, 310058

***Abstract*:** Decision-making in social interactions is often accompanied by stress. While numerous studies have examined the impact of acute psychosocial stress on decision, its effect on unfairness decision-making behavior remains inconclusive, particularly among females. This could be attributed to the oversimplification of behavioral indicators used in the prior researches. In addition, it is crucial to emphasize the exploration based on cognitive neuroscience in this complex decision-making situation to gain a more profound understanding of the underlying process. Therefore, this study aimed to investigate how the acute psychosocial stress influence women's unfairness decision-making behavior, using computational modeling to generate behavioral indicators that can reflect the intricate process of decision-making. Furthermore, using the functional near-infrared spectroscopy (fNIRS), we explored how stress may affect the final decision-making behavior through brain activation.

In the present study, 44 young women participants (20.98 ± 2.89 years) were randomly assigned to a control group (n = 23) or a stress group (n = 21). Upon arrival the laboratory, participants were asked to take a rest for 30 minutes and complete the Trait Coping Style Questionnaire (TCSQ). Subsequently, acute psychosocial Stress was induced by Trier Social Stress Test (TSST), and participants were then required to complete the Ultimatum Game (UG), which is a classical paradigm of unfairness decision-making, as responder. In UG, the participant divided 50 yuan with an anonymous proposer, and could accept or reject the proposer's proposal. There were five distribution schemes defined as three fairness conditions: fair (F; offer = 25 yuan), moderately unfair (MU; offer = 20 or 15 yuan), and very unfair (VU; offer = 10 or 5 yuan). Subjective stress was measured with the Multidimensional Mood State Questionnaire (MDMQ) before, after TSST and after UG, and blood pressure and heart rate were collected as stress-related physiological indicators. During UG, fNIRS was used to record the frontal, temporal, and part of parietal cortex activations continuously. In R, we construct the computational model based on the inequality aversion model for the acceptance rate in UG, and three behavioral indicators, α (sensitivity to disadvantageous unfairness), τ (behavioral randomness) and ε (fairness norm adaptation), were generated. For fNIRS, the left and right hemisphere were divided into 7 regions of interest (ROI), and oxy-hemoglobin (HbO) peak under 3 fairness conditions within each ROI was calculated as the analysis indicator of brain activation.

Subjective and physiological indicators showed that TSST successfully induced acute psychosocial stress in the stress group. Although there was no significant difference between groups in the acceptance rate under all fairness conditions, the independent sample t-test showed that ε (t = -38.43, p < 0.001) and τ (t = -3.02, p = 0.005) were lower in the stress group, which indicated lower fairness adaptation and more random decision-making behavior. Pearson correlation analysis revealed that the stronger the subjective feeling of stress, the higher the sensitivity to disadvantageous unfairness, and the stronger the randomness of decision behavior (ps < 0.05). Mixed design analysis of variance (ANOVA) showed that in the MU condition, the activation of the left medial temporal gyrus (lMTG) was decreased in the stress group (p = 0.008), while the activation of the right temporoparietal junction (rTPJ) was enhanced (p = 0.002), suggesting that stress inhibited the processing of fairness and moral, while promoting mentalization in women, in another word, mobilized more cognitive resources trying to understand proposer's intentions, which can be interpreted as an indication of prosocial behavior in brain activation. There was a significant positive correlation between α and rTPJ activation under MU condition in the control group (r = 0.47, p = 0.023), but not significant in the stress group. The negative coping style was not

significantly correlated with τ in the control group, but showed a significant positive correlation in the stress group ($r = 0.66$, $p = 0.001$).

To sum up, our study found that acute psychosocial stress is not conducive to young women's adaptation to the social fairness norm in unfair decision-making and leads to more random decision behaviors. Nevertheless, the final decision-making process is still complex, potentially involving the inhibition of moral and fairness information processing, as well as heightened cognitive resource utilization to comprehend the partner's allocation intention. Using computational modeling, our study delved into the mechanism of stress's impact on women's decision-making behavior associated with unfairness, revealing the influence of trait coping style at the same time. Meanwhile, we provided cognitive neuroscience evidence for the "tend and befriend" pattern in young women under acute psychosocial stress with the fNRIS. These results facilitate a more comprehensive comprehension of how psychosocial stress and distributional inequality impact the economic decision-making process in social contexts, enabling us to better manage potential conflicts between economic benefits and social norms in decision-making.

Keywords **：** acute psychosocial stress, ultimatum game, right temporoparietal junction, trait coping styles, Rescorla-Wagner norm adaptation model

幼儿注意部署能力与内外倾倾向的关系：基于眼动的研究

朱泽鹏[1] 邓欢[2]（通讯作者）

1 淮北师范大学教育学院，淮北，235000

2 淮北师范大学教育学院特殊教育系，淮北，235000，zx10847@126.com

摘 要 幼儿会频繁使用生而知之的注意部署策略，帮助他们在无法有效使用高级情绪调节策略时调节情绪。为有效衡量幼儿注意部署能力以及了解内外倾人格倾向与其之间的关系，本研究招募 36 名 6 岁幼儿（男女各半），采用任务转换范式，借助眼动追踪技术，采集幼儿在完成不同任务类型的过程中获得的行为与眼动数据。研究采用 2(被试人格倾向：内倾、外倾)×4(任务类型：开心情绪识别、生气情绪识别、圆形形状识别、方形形状识别)两因素混合设计，通过两种数据层面探究幼儿人格倾向与注意部署能力之间的关系。

结果表明：(1)幼儿性别与注意部署能力之间在两种数据层面上都没有关系。(2)行为数据分析表明，在四种任务中，具有内倾倾向的幼儿更多的关注情绪任务，因此对情绪的判断反应时更短，正确率更高；具有外倾倾向的幼儿更多关注中性任务，对形状的判断反应时更短，正确率更高。因此外倾幼儿从情绪任务转换到中性任务的反应时更短，即相比于内倾幼儿，外倾幼儿的注意部署能力更好。(3)从眼动数据来看，内倾幼儿对于情绪兴趣区的注视相对更多，外倾幼儿对于形状兴趣区的注视相对更多。外倾幼儿从情绪任务脱离到进入中性任务的平均注视时间比内倾幼儿短，这说明外倾幼儿注意部署的速度更快；从情绪任务转换到中性任务时，外倾幼儿对于中性兴趣区的注视次数比例和注视时间比例都比内倾幼儿更大，这说明注意部署的有效性更好。

关键词 幼儿，注意部署，内外倾，眼动

The relationship between children's ability of attention deployment and their introverted and extroverted personality tendencies: An Eye-tracking study

Zhu Zepeng[1] Deng Huan[2]

Huaibei Normal University, Faculty of Education, Huaibei

Abstract：Children make frequent use of birthright attention deployment strategies to help them regulate their emotions when they are unable to use advanced emotion regulation strategies effectively. To effectively measure the ability of children to attention deployment and to understand the relationship between introverted and extroverted personality tendencies, 36 six years old children (half of each sex) were recruited to collect behavioural and Eye-tracking data during the completion of different task types using an task switch paradigm with the aid of Eye- tracking technology. The study used a two-factor mixed design of 2 (subjects' personality disposition: introverted, extroverted) x 4 (task type: happy emotion recognition, angry emotion recognition, round shape recognition, square shape recognition) to explore the relationship between children's personality disposition and their ability to attention deployment through two data dimensions.

The results showed that (1) there was no relationship between gender and attentional deployment ability at either data level; (2) among the four tasks, children with an introverted orientation focused more on the emotion task and therefore had shorter reaction times and higher correctness rates for judgments of emotion and relatively more attention to emotional interest areas; the opposite was true for children with an extroverted orientation; (3) In terms of behavioural data, extroverted children had shorter reaction times to switch from emotional to neutral tasks, i.e., they were better ability of attention deployment than introverted children. In terms of eye-movement data, the average gaze time from the emotional task to the neutral task was shorter for extroverted children than for introverted children; when switching from the emotional task to the neutral task, extroverted children had a greater proportion of gaze to the neutral area of interest and a greater proportion of gaze time than introverted children, indicating better attentional deployment.

These results indicate that both the behavioural and eye-movement data analysed show that extroverted children have better attention deployment ability than introverted children.

Keywords：children, attention deployment, introverted and extroverted, Eye-tracking

性别平等态度量表的编制与信效度检验

陈娇[1]　贡喆[2]（通讯作者）

1 2 四川师范大学心理学院，成都，610048，zhegong@sicnu.edu.cn

摘 要　党的二十大报告中，又一次写入了“坚持男女平等基本国策，保障妇女儿童合法权益”。当前，与性别平等相关的议题日益成为社会大众特别是年轻一代极度关注的热点领域。更重要的是，随着性别平等事业的不断推进，人们的性别角色观念正逐渐发生转变。因此，开展新时代的性别平等研究具备重要的理论与现实意义。回顾性别平等领域的研究发现，其可用的测量工具十分匮乏，现有的测量工具主要以间接测量法为主，即从其它相近变量的角度如性别角色、社会角色和女权主义等去测评个体的性别平等态度，这可能不利于精准表征个体对性别平等的态度。此外，现有的测量工具大部分是基于欧美国家文化背景下编制的，并非立足于我国社会文化背景编制，存在部分题目不适用的情况。为此，本研究拟编制适用于我国的性别平等态度量表(Gender Equality Attitude Scale, GEAS)，检验其信度和效度。首先，将发放性别平等开放式问卷，收集特征词后归类，编制初始量表题目，再邀请 5 名专家提出修改意见，最后确定量表题目；随后，将选取 666 名被试用于项目分析和探索性因子分析；另选取 664 名被试用于验证性因子分析；对 1330 名被试进行效标效度分析、信度分析等。使用矛盾性别偏见量表(Ambivalent Sexism Inventory, ASI)和女权主义信念量表(Liberal Feminist Attitude and Ideology Questions, LFAIS)为效标工具。最后，在探索性因子分析中，综合考虑了多方面因素，共删除 31 个条目；性别平等态度量表(GEAS)共 26 个条目，包括法律法规、

经济、教育、个性特质和两性关系 5 个因子；验证性因子分析在比较了 17 个假设模型后，得出 5 因子模型拟合最好(χ^2/df=2.473，IFI = 0.957，CFI = 0.956，GFI = 0.920，TLI = 0.951，RMSEA = 0.047)；效标效度检验显示，量表总分及各因子得分与 ASI 呈显著负相关，与 LFAIS 呈显著正相关；量表的内部一致性系数和分半信度分别为 0.936 和 0.822。综上来看，本研究编制的性别平等态度量表具有较好的信效度，是测量性别平等态度的有效工具。
关键词　性别平等，性别平等态度，信度，效度

Development and Validation of Gender Equality Attitude Scale

Chen Jiao, Gong Zhe
School of Psychology, Sichuan Normal University, Chengdu , China

Abstract：In the report of the 20th Party Congress, it is once again written that "we adhere to the basic state policy of gender equality and protect the legitimate rights and interests of women and children". Currently, issues related to gender equality are increasingly becoming hot areas of concern for society in general and the younger generation in particular. More importantly, as the cause of gender equality continues to advance, people's perceptions of gender roles are gradually changing. Therefore, it is of great theoretical and practical significance to conduct research on gender equality in the new era. A review of research in the field of gender equality reveals that there is a lack of available measurement tools, and the existing measurement tools are mainly based on indirect measures that measuring individuals' attitudes toward gender equality from the perspective of other similar variables such as gender roles, social roles, and feminism, which may not be conducive to accurately characterizing individuals' attitudes toward gender equality.In addition, most of the existing measurement tools were developed based on the cultural context of European and American countries, not based on the socio-cultural context of China, and there are cases that some of the questions are not applicable.To this end, this study proposes to develop a Gender Equality Attitude Scale (GEAS) applicable to China to test its reliability and validity. First, we will distribute the open-ended gender equality questionnaire, collect the characteristic words and categorize them, compile the initial scale questions, then invite five experts to propose modifications, and finalize the scale questions; subsequently, 666 participants will be selected for item analysis and exploratory factor analysis; 664 participants will be selected for validation factor analysis; and 1330 participants will be analyzed for validity and reliability. The Ambivalent Sexism Inventory (ASI) and the Liberal Feminist Attitude and Ideology Questions (LFAIS) were used as validity instruments. Finally, in the exploratory factor analysis, a total of 31 items were removed by considering various factors; the Gender Equality Attitude Scale (GEAS) had 26 items, including 5 factors of laws and regulations, economy, education, personality traits and gender relations; The validated factor analysis, after comparing 17 hypothetical models, resulted in the best fitting 5-factor model (χ^2/df= 2.473, IFI = 0.957, CFI = 0.956, GFI = 0.920, TLI = 0.951, RMSEA = 0.047); the validity scale validity test showed that the total scale score and each factor score were significantly negatively correlated with ASI and significantly positively correlated with LFAIS; the internal consistency coefficient and split-half reliability of the scale were 0.936 and 0.822, respectively. In conclusion, the present study The Gender Equality Attitude Scale developed in this study has good reliability and validity, and is a valid instrument for measuring gender equality attitudes.
Keywords：Gender equality, Gender equality attitude, Reliability, Validity

外显自尊与内隐自尊对青少年评价恐惧的影响

薛雅慧　邓欢

淮北师范大学教育学院，安徽淮北，235000

摘 要　评价恐惧是指个体对来自他人的评价感到紧张不适，甚至恐惧，分为负面评价恐惧和正面评价恐惧两种类型。评价恐惧是社交焦虑症状认知-行为模型的重要组成部分，而个体自尊水平是社交焦虑的主要影响因素，已有诸多研究证明评价恐惧与自尊之间存在显著负相关，具体表现为个体的自尊水平越低对外界的负面评价或者正面评价越容易感到恐惧。但很少有研究探讨内隐自尊对评价恐惧的影响，且处于社交焦虑症易发期的青少年群体的关注也不足。鉴于此，为研究外显自尊与内隐自尊对青少年评价恐惧的影响，本研究采用自尊量表和内隐联想测验筛选出 104 名被试，分为 4 种自尊类型（高外显-高内隐自尊组 26 人、高外显-低内隐自尊组 26 人、低外显-高内隐自尊组 26 人、低外显-低内隐自尊组 26 人），接着采用简版负面评价恐惧量表和正面评价恐惧量表测量其评价恐惧水平。结果发现：不同自尊类型的青少年在负面评价恐惧上存在显著差异，低外显-低内隐自尊的个体相比于其他三组个体对负面评价的恐惧程度更高；不同自尊类型的青少年在正面评价恐惧上也存在显著差异，低外显-高内隐自尊的个体相比于其他三组个体对外界正面评价更容易感到恐惧。因此，了解青少年的自尊对外界评价恐惧的影响机制并开展预防性研究十分重要。针对不同自尊类型的青少年，要使用恰当的评价方式，合理运用批评与表扬，能够降低青少年社交焦虑症发病的概率，这对促进青少年心理健康具有特殊的意义。

关键词　青少年,外显自尊,内隐自尊,负面评价恐惧,正面评价恐惧

The Effects of Explicit and Implicit Self-Esteem on Adolescents' Fears of Evaluation

Xue Yahui, Deng Huan
College of Education, Huaibei Normal University, Huaibei 23500

Abstract：Fears of evaluation refer to the individual's nervousness, discomfort, or even fear of evaluation from others, which are divided into two types: fear of negative evaluation and fear of positive evaluation. Fears of evaluation are important parts of the cognitive-behavioral model of social anxiety symptoms, and self-esteem is the main factor of social anxiety, and many studies have proved that there is a significant negative correlation between fears of evaluation and self-esteem, which is manifested as the lower the individual's self-esteem level, the easier it is to feel fear of negative or positive evaluation. However, few studies have investigated the effect of implicit self-esteem on fears of evaluation, and there is also insufficient attention paid to adolescents who are prone to social anxiety disorder. In order to examine the effects of explicit self-esteem and implicit self-esteem on adolescents' fears of evaluation, 104 participants were screened by self-esteem scale and implicit association test, divided into four self-esteem types (26 in the high explicit-high implicit self-esteem group, 26 in the high explicit-low implicit self-esteem group, 26 in the low explicit-high implicit self-esteem group, and 26 in the low explicit-low implicit self-esteem group), and then the simplified fear of negative evaluation scale and the fear of positive evaluation scale were used to measure their fears of evaluation levels. The results showed that adolescents with different self-esteem types had significant differences in fear of negative evaluation, and individuals with low explicit-low implicit self-esteem had a higher degree of fear of negative evaluation than the other three groups; Adolescents with different self-esteem types also had significant differences in fear of positive evaluations, and individuals with low explicit-high implicit self-esteem were more likely to be afraid of positive comments than the other three groups. Therefore, it is important to understand the mechanism by which adolescent self-esteem affects the evaluation of external fears and to conduct preventive research. For adolescents with different types of self-esteem, appropriate evaluation methods and reasonable use of criticism and praise can reduce the probability

of social anxiety disorder in adolescents, which is of special significance for promoting adolescent mental health.
Keywords： Adolescent, Explicit self-esteem, Implicit self-esteem, Fear of negative evaluation, Fear of positive evaluation

运动推断中客体特征对运动特征加工干扰的眼动研究

杨天奇[1] 郭亚宁[1] 毋琳[2] 武圣君[2] 王秀超[3] 王卉[1] 刘旭峰[1]（通讯作者）
1 空军军医大学军事医学心理学系基础心理学教研室，西安，710032
2 空军军医大学军事医学心理学系教学实验中心，西安，710032
3 空军军医大学军事医学心理学系航空航天心理学教研室，西安，710032
通讯作者：刘旭峰，E-mail: lxf_fmmu@126.com

摘 要 飞行中需要处理大量复杂信息，信息处理能力是飞行安全技术的重要组成部分。尽管运动客体的客体特征信息和运动特征信息分别由两条不同的神经通路进行加工，个体难以分离客体特征对运动特征加工的干扰，之前的研究发现，运动推断中运动客体的大小会影响运动时间估计的精确度。然而，被试对客体着眼位置的不同会导致运动距离的估计偏差，这可能会对客体大小对运动时间估计影响的研究产生干扰。眼动技术可用于解决这一问题，通过客体开始运动到被试按键的眼动位置可以确定被试实际运动推断距离。此外，运动推断的眼动研究有助于揭示其认知加工过程。本研究基于运动推断生成任务（motion extrapolation production task）范式，招募某大学 31 名本科学员参加实验，考查运动客体和目标客体相对大小（直径比为 3：1，1：1 或 1：3）对运动时间估计的精确度以及眼动指标（眼动距离、瞳孔大小、扫视次数、注视次数、扫视幅度和注视时长）的影响。结果发现，运动客体和目标客体直径比为 3：1 时，相对于直径比 1：1 或 1：3 时，个体估计的运动时间显著更长，且瞳孔大小显著更大；运动客体和目标客体直径比为 3：1 或 1：3 时，相对于直径比 1：1 时，注视次数和扫视次数显著更少，注视时长显著更长；三种条件下眼动距离指标没有显著差异。因此，在运动推断中，普通群体难以分离客体特征对运动特征加工的干扰，这种干扰可能是由于客体特征与运动特征加工占用了共同的认知资源，实际运动推断距离的相同保证了结论的可靠性。飞行活动中多种类、高负荷信息处理给飞行员提出了更高要求，在飞行选拔中，注重客体特征对运动特征加工干扰的考查，并结合眼动指标，以期进一步提高选拔预测效力。
关键词 运动推断，客体特征，运动特征，眼动，干扰

The interference of object property on motion property processing in motion extrapolation: An eye movement study

Yang Tianqi[1], Guo Yaning[1], Wu Lin[2], Wu Shengjun[2], Wang Xiuchao[3], Wang Hui[1], Liu Xufeng[1]*
1Department of Basic Psychology, Department of Military Medical Psychology, Air Force Medical University, Xi’an 710032, China
2Teaching and Experiment Center, Department of Military Medical Psychology, Air Force Medical University, Xi’an 710032, China
3Department of Aviation Psychology, Department of Military Medical Psychology, Air Force Medical University, Xi’an 710032, China

Abstract: A large amount of information needs to be processed during flight, and information processing capability is an important factor of flight safety. Although the object property and motion property are processed by two different neural pathways, it is difficult for individuals to separate the interference of object property on motion property processing. Previous studies of motion extrapolation found that the size of the moving object affected the accuracy of motion time estimation. However, object property may affect the motion distance estimation, which challenges the conclusion that object property interfere with motion property processing. Eye movement technology can help solve this problem and reveal the cognitive processing process of motion extrapolation. Based on the motion extrapolation production task paradigm, 31 undergraduate students from a university were recruited to participate in the experiment. The effects of the relative size of the moving object and target object (diameter ratio 3: 1, 1: 1, and 1:3) on the accuracy of motion time estimation and eye movement indices (eye movement distance, pupil size, saccade count, fixation count, saccade amplitude and fixation duration) were examined. As the results revealed, the estimated motion time was significantly longer when the diameter ratio was 3:1 than those when the diameter ratio was 1: 1 and 1: 3; the pupil size was significantly larger when the diameter ratio was 3: 1 than those when the diameter ratio was 1: 1 and 1: 3; the saccade count and fixation count was larger, and the fixation duration was shorter when the diameter ratio was 1:1 than those under the other two conditions; and there was no significant difference in eye movement distance under the three conditions. In conclusion, college students can hardly separate the interference of object property processing on motion property processing in motion extrapolation, these two processing may require the consumption of common cognitive resources, and the same motion extrapolation distance ensures the reliability of the conclusion. In flight selection, attention should be paid to the ability to resist the interference of object property on motion property processing, and the use of eye movement technology is expected to further improve the efficiency of selection.
Keywords: motion extrapolation, object property, motion property, eye movement, interference

形-名短语阅读中生命性语义预测研究

李京晓[1] 李明栋[1] 凌嘉[1] 刘泽琪[2] 王伊[1] 屈青青[3] 周蔚[1]（通讯作者）

1 首都师范大学心理学院，北京，100048，E-mail: zhouwei@cnu.edu.cn

2 首都师范大学初等教育学院，北京，100048

3 中国科学院心理研究所，北京，100101

摘 要 根据当前的言语信息，对将要出现的信息进行预测是人类重要的认知能力。在语言交流与语言理解中，同样存在着预测。人们对未看到的词语的语义信息进行提前预激活，被称为语义预测。近期研究者将表征相似性分析(RSA）的方法与语义预测研究相结合，尝试通过分析脑神经活动相似性的差异，在目标词前置词上发现预测的神经证据。大多数的研究证据来自于高限定性的语境，在这类语境中，读者可以预测到某一具体词汇（喝咖啡时，我喜欢加点糖和…）。那么，语言预测是否仅发生在可预测到具体词汇的高限定性语境？在低限定性语境下，预测是否会发生？对该问题的澄清具有重要的理论价值，因为低限定性语境更符合大部分自然语言理解的情境。另外，前人研究大多通过句子语境研究语言预测，句子语境通常会对目标词汇产生较高的限定，而相比句子，短语的限定性较低，且能够更好地控制复杂因素的影响。本研究考察在短语语境下，当语境仅提供有限的语义信息时，大脑是否基于有限的信息进行语义特征预测。研究采用脑电技术、结合表征相似性分析（RSA），利用形容词对随后名词的生命性进行限定，考察生命性语义特征的预测加工。另外，影响语言预测加工的变量尚不清楚，本研究还将初步探讨阅读能力与预测加工的关系。研究以形容词-名词短语为实验材料，设置了形容词的生命性条件（有生命-无生命）和短语的匹配性条件（匹配-不匹配），在被试阅读词语并完成合理性判断的过程中记录被试的脑电(EEG）数据。

研究关注名词呈现前被试脑神经活动的时间模式，结果发现形容词呈现后 400-500 毫秒时间窗口内，有生命条件的时间表征相似性显著大于无生命条件，这种差异无法用形容词本身的加工所解释，该效应反映了被试对未出现名词生命性语义信息的预测，为语义预测加工提供了证据。综上所述，本研究为低限定性语境情况下的语义预测提供了神经证据，并发现生命性语义信息的预测加工在时间表征模式上更稳定。
关键词　语义预测，局部预测，表征相似性分析，形容词，阅读能力

Research on the prediction of animacy semantics in the reading of morpho-syntactic noun phrases

Jingxiao Li[1]　Mingdong Li[1]　Jia Ling[1]　Zeqi Liu[2]　Yi Wang[1]　Qingqing Qu[3]　Wei Zhou [1]

1 School of Psychology, Capital Normal University, Beijing, 100048, China

2 College of Elementary Education, Capital Normal University, Beijing, 100048, China

3 Institute of Psychology, Chinese Academy of Sciences, Beijing, 100101

Abstract：According to current linguistic information, predicting upcoming information is an important cognitive ability of humans. Prediction also exists in language communication and comprehension. People pre-activate the semantic information of unseen words, which is called semantic prediction. Recent studies have combined the method of representational similarity analysis (RSA) with research on semantic prediction, attempting to discover neural evidence of prediction on preverbal cues by analyzing differences in neural activity similarity. Most of the research evidence comes from highly constraining contexts, where readers can predict specific vocabulary (e.g., "I like to add some sugar when I drink coffee..."). So, does language prediction only occur in highly constraining contexts where specific vocabulary can be predicted? Does prediction occur in less constraining contexts? Clarifying this question is of great theoretical value because less constraining contexts better align with most natural language understanding situations. Additionally, previous studies have mostly examined language prediction through sentence contexts, which usually provide high constraints on target vocabulary. Comparatively, phrases have lower constraints and can better control the influence of complex factors. This study explores whether the brain makes semantic feature predictions based on limited information in phrase contexts. The study utilizes electroencephalography (EEG) technique combined with RSA to examine the prediction process of semantic features of animacy by using adjectives to constrain subsequent nouns. Furthermore, the variables that influence language prediction processing are still unclear, so this study also conducts a preliminary exploration of the relationship between reading ability and prediction processing. The study uses adjective-noun phrases as experimental materials and sets the animacy condition of adjectives (animate vs. inanimate) and the matching condition of phrases (matching vs. non-matching). The participants read the words and made plausibility judgments while their EEG data were recorded. The study focuses on the temporal pattern of the participants' brain activity before noun presentation and finds that within the time window of 400-500 milliseconds after adjective presentation, the representational similarity of animacy conditions is significantly higher than that of the inanimate condition. This difference cannot be explained by the processing of the adjective itself. The effect reflects the participants' prediction of animacy semantic information of the noun that has not yet appeared, providing evidence for semantic prediction processing. In summary, this study provides neural evidence for semantic prediction in low-constraining contexts and reveals that the prediction processing of animacy semantic information is more stable in temporal representation patterns.

Keywords：semantic prediction, local prediction, similarity analysis, adjectives, reading ability

经颅直流电刺激左背外侧前额叶减少对自然界情绪性声音的注意偏向

王麟子[1, 2]　王爱君[2]　王艳梅[1]

1 华东师范大学心理与认知科学学院，上海，200062

2 苏州大学心理学系，心理与行为科学研究中心，苏州，215123

摘 要　以往研究发现左侧背外侧前额叶(left dorsolateral prefrontal cortex，L-DLPFC)会影响视觉情绪刺激的注意偏向，但听觉也是获取情绪信息的重要通道，而 L-DLPFC 对听觉情绪刺激注意偏向的影响则尚未得到关注。由于视、听觉早期加工存在差异，因此 L-DLPFC 在视觉和听觉情绪刺激中的作用可能不同。因此，本研究采用情绪空间线索范式，选取生态效度高的自然情绪声音作为听觉线索，并结合高精度经颅直流电刺激(high-definition transcranial Direct Current Stimulation，HD-tDCS)技术探究 L-DLPFC 对自然界听觉情绪刺激的注意偏向的注意投入和注意脱离两个子成分的影响。实验为 3(HD-tDCS 刺激：阳极 vs. 阴极 vs. 伪刺激) ×3(效价：积极 vs. 消极 vs. 中性)×2(有效性：有效 vs. 无效)的被试内实验设计，并以注意投入效应和注意脱离效应为主要因变量（注意投入分数=$RT_{有效中性}$-$RT_{有效积极/消极}$，注意脱离分数=$RT_{无效积极/消极}$-$RT_{无效中性}$）。结果发现，(1) 在伪刺激条件下，与以往研究结果一致，出现了对积极声音和消极声音的注意偏向；(2) 在阳极刺激条件下增强 L-DLPFC 的激活水平时，对积极声音和消极声音的注意投入减小，但不影响对情绪性声音的注意脱离成分；(3)在阴极刺激条件下抑制 L-DLPFC 的激活水平时，并不影响对情绪性声音的注意偏向。研究表明，L-DLPFC 的自上而下的调节功能仅在听觉情绪的注意投入中起作用，进一步扩展了 L-DLPFC 对不同感觉通道下情绪性刺激的注意偏向研究。

关键词　情绪注意偏向,背外侧前额叶，经颅直流电刺激,情绪性空间线索提示范式,自然界情绪性声音

Transcranial direct current stimulation (tDCS) targeting the left dorsolateral prefrontal cortex reduces positive and negative attentional bias

Linzi Wang[1, 2]　Aijun Wang[2]　Yanmei Wang[1]

1 School of Psychology and Cognitive Science, East China Normal University, Shanghai, China

2 Department of Psychology, Research Center for Psychology and Behavioral Sciences, Soochow University, Suzhou, China

Abstract：Previous studies have found that the left dorsolateral prefrontal cortex (L-DLPFC) influences attentional bias for visual emotional stimulus, but auditory modality also plays an important role in accessing emotional information, while the effect of L-DLPFC on the attentional bias toward auditory emotional stimuli has not been paid attention to. Due to the differences in early visual and auditory processing, the role of L-DLPFC in visual and auditory emotional stimuli may be different. Therefore, the present study used the emotional spatial cueing paradigm, selects natural emotional sounds with high ecological validity as auditory cues, and combines high-definition transcranial direct current stimulation (HD-tDCS) to explore the effect of L-DLPFC on the attention engagement and disengagement effect of natural auditory emotional stimuli, which are the subcomponents of the attention bias. The experiment was a 3 (tDCS stimulation: anodal vs. cathodal vs. sham) × 3 (valence: positive vs. negative vs. neutral) ×2(cue validity: valid vs. invalid) within-subject design. The attention

engagement effect and the attention disengagement effect were the main dependent variables (attentional engagement effect = $RT_{valid\ neutral\ cue}$ - $RT_{valid\ positive/negative\ cue}$, and the attentional disengagement effect = $RT_{invalid\ positive/negative\ cue}$ - $RT_{invalid\ neutral\ cue}$). The results showed that (1) in the sham condition, consistent with the previous study, individuals exhibit an attentional bias toward positive and negative natural sounds; (2) when the activation level of L-DLPFC was enhanced under the condition of anodal HD-tDCS, the attentional engagement toward positive and negative sounds decreased, but the attentional disengagement away from emotional sounds was not affected. (3) When the activation level of L-DLPFC was inhibited under the condition of cathodal HD-tDCS, it does not affect the attention bias toward emotional sounds. The present study have shown that the top-down regulatory function of L-DLPFC only plays a role in the auditory emotional attentional engagement, which further expands the researches on the effects the L-DLPFC have to emotional attentional bias in different sensory modalities.

Keywords： emotional attentional bias, dorsolateral prefrontal cortex, transcranial direct current stimulation; emotional spacing cue paradigm; natural emotional sounds

通讯作者：王艳梅，ymwang@psy.ecnu.edu.cn 或王爱君，ajwang@suda.edu.cn

急性应激与催产素对社会情绪和亲社会决策行为的影响

石昕笛[1] 李世佳[1,2,*]（通讯作者）

1 上海市心理健康与心理危机干预重点实验室，华东师范大学附属精神卫生中心，华东师范大学心理与认知科学学院脑与教育创新研究所，上海，200062

2 上海市长宁区精神卫生中心，上海 200335，E-mail: sjli@psy.ecnu.edu.cn

摘 要 先前的研究已广泛探索了应激与亲社会行为的相互关系，但急性应激对亲社会行为的影响并未达成一致，并且急性应激如何通过影响社会情绪进而影响亲社会行为的机理尚不明确。此外，催产素和皮质醇这两种和社会情绪、应激高度相关的激素在其中的作用机理也需要更多研究证据。

本研究采用急性应激诱导和鼻喷催产素双变量设计，招募 94 名健康男性大学生，最终纳入数据分析的被试控制组中 22 人鼻喷安慰剂，23 人鼻喷催产素；应激组中 23 人鼻喷安慰剂，23 人鼻喷催产素。使用马斯特里赫特应激刺激范式诱导应激反应，并通过改良的独裁者游戏测量被试在任务失败导致队友受到不同程度的伤害以及队友反馈态度差异情境下对队友的金钱分配和社会情绪反应。

结果显示，急性应激和催产素都没有直接改变被试的金钱分配，但应激组被试的感激和愤怒情绪程度显著低于控制组。混合线性模型分析表明，感激情绪正向预测金钱分配数量，而愤怒情绪负向预测金钱分配数量，且应激加强了感激情绪对金钱分配的正向预测。积极的预期违反（队友态度评分高于被试预期态度评分）增强感激情绪，降低愤怒情绪，并提高金钱分配数量；而催产素组的感激情绪低于安慰剂组，且催产素降低了预期违反对于感激情绪的正向影响。最后，预期违反、催产素以及应激三者的交互作用表明，同时接受应激诱导和鼻喷催产素的被试在相同预期违反情境下的金钱分配更少。

本研究表明，急性应激显著地改变了决策过程中被试的社会情绪，增强了社会情绪对金钱分配的影响；而催产素和急性应激对社会情绪的影响相似。此外，催产素和急性应激的作用叠加后导致更少的金钱分配，证明了实验室操纵的双激素（催产素和皮质醇）相互作用带来了更保守的决策行为。我们的结果验证了应激应对的资源保护理论和“照料与结盟”模型中的双激素理论，为应激的内分泌机理提供了更多理论证据。

关键词 急性应激，催产素，亲社会行为，社会情绪，预期违反

The Impact of Acute Stress and Oxytocin on Social Emotions and Prosocial Decision-making Behavior

Xindi Shi[a], Shijia Li[a,b,*]

a. Shanghai Key Laboratory of Mental Health and Psychological Crisis Intervention, Affiliated Mental Health Center (ECNU), Institute of Brain and Education Innovation, School of Psychology and Cognitive Science, East China Normal University, Shanghai, 200062 , China

b. Shanghai Changning Mental Health Center, Shanghai, 200335, China, E-mail: sjli@psy.ecnu.edu.cn

Abstract：Previous research has extensively explored the relationship between stress and prosocial behavior, but there is no consensus on the effect of acute stress. The mechanism of how acute stress affects prosocial behavior by influencing social emotions remains unclear. Furthermore, the roles of oxytocin and cortisol, two hormones highly correlated with social emotions and stress, require more empirical evidence.

In this study, we implemented a dual-variable design involving acute stress induction and intranasal oxytocin administration, recruiting 94 healthy male university students. Among the participants finally included in the data analysis, 22 individuals in the control group received intranasal placebo, and 23 received intranasal oxytocin. Similarly, in the stress group, 23 participants received intranasal placebo, and 23 received intranasal oxytocin. The Maastricht Acute Stress Task was used to induce stress responses, and a modified dictator game was utilized to measure the participants' monetary distribution and social emotional responses under varying scenarios of teammate injury severity and feedback attitude differences due to task failure.

Our results showed that neither acute stress nor oxytocin directly altered participants' monetary distribution. However, the gratitude and anger levels of the stress group were significantly lower than the control group. Further mixed linear model analysis revealed that gratitude positively predicted the amount of money distributed, while anger negatively predicted it, and stress enhanced the positive prediction of gratitude on monetary distribution. Positive expectancy violation (teammate attitude rating higher than expected by the participant) enhanced gratitude, reduced anger, and increased monetary distribution. However, oxytocin reduced the positive effect of expectancy violation on gratitude, which is consistent with the oxytocin group's lower gratitude levels than the placebo group (marginally significant). Primarily, this is because xxx. Finally, the interaction of expectancy violation, oxytocin, and stress revealed that participants who received both stress induction and intranasal oxytocin distributed less money under the same expectancy violation conditions.

This study demonstrated that stress significantly altered participants' social emotions during decision-making and amplified the effect of social emotions on monetary distribution. However, oxytocin reduced the positive emotional feedback in the decision-making process. Additionally, the combined effects of oxytocin and acute stress resulted in less monetary distribution, proving the conservative decision-making behavior brought by the interaction of two experimentally manipulated hormones (oxytocin and cortisol). Our findings validate the resource conservation theory of stress coping and the dual-hormone theory in the "Tend and Befriend" model, providing more theoretical evidence for pharmacological interventions of stress.

Keywords： Acute stress, Oxytocin, Prosocial behavior, Social emotion, Expectation violation

数字、尺寸和空间联结共享和分离的加工机制

苏圳伟[1]　林海都[1]　李富洪[1]　曹碧华[2]（通讯作者）

江西师范大学心理学院，南昌，330022，caobihua@jxnu.edu.cn

摘 要 空间数字联合反应编码效应（Spatial-Numerical Association of Response Codes effect,简称 SNARC 效应）指在完成数字大小比较和奇偶判断任务时，被试左手对小数字反应更快，右手对大数字反应更快的现象。尺寸一致性效应（size congruity effect，简称 SCE）指当数字大小与物理尺寸大小一致时（如小数字小尺寸和大数字大尺寸），被试的反应快于不一致条件（如小数字大尺寸和大数字小尺寸）的现象。使用数字 Stroop 范式，以往研究要求被试分别完成数字大小比较和物理尺寸大小比较任务时，SNARC 效应和 SCE 彼此独立，相互分离。本研究将采用内隐的奇偶判断任务探究两者的关系。实验采用数字 1、2、8 和 9，每个数字均有大小两个物理尺寸。结果表明存在显著的 SNARC 效应和 SCE，并且 SNARC 效应和 SCE 之间存在显著的交互作用。回归分析的结果发现，SNARC 效应在 SCE 一致条件的强度大于 SCE 不一致条件。另外，SNARC 一致条件下存在 SCE，而在 SNARC 不一致条件下 SCE 消失。同时，物理尺寸和空间存在交互作用，左手对小尺寸反应更快，右手对大尺寸反应更快，即类 SNARC 效应，这为数字、物理尺寸和空间的共享机制提供证据，支持了 ATOM 理论。为探究数字大小和物理尺寸在与空间上映射的强度差异，我们分析了反应手对 SCE 两种不一致条件的反应时差异。结果表明左手对小数字大尺寸的反应快于大数字小尺寸,而右手对大数字小尺寸的反应快于左手。这表明数字-空间的联结要强于物理尺寸-空间的联结，提供了数字、物理尺寸和空间分离的证据。

综上所述，由于数字、物理尺寸和空间信息在相同的顶叶皮层进行加工，SNARC 效应和 SCE 之间会产生交互。然而，SNARC 和 SCE 的交互作用是有条件的，需要数字大小，物理尺寸和反应手处于同一加工水平。另外，数字-空间的联结要强于物理尺寸-空间的联结，这些结果表明数字、物理尺寸和空间的表征既相互共享，又存在分离，可能与生物进化和任务需要有关，支持了 ATOM 理论。

关键词 SNARC 效应，SCE，ATOM 理论

Shared and distinct mechanism of the association among number, size and space

Zhenwei Su[1] Haidu Lin[1] Fuhong Li[1] Bihua Cao[2]
School of Psychology, Jiangxi Normal University, Nanchang

Abstract: The Spatial-Numerical Association of Response Codes effect (SNARC effect) refers to the phenomenon that participants respond faster to small numbers with the left hand and faster to large numbers with the right hand in number comparison task and parity comparison task. The size congruity effect (SCE) refers to the fact that when the numbers are congruent with the physical size (i.e., the numeral was larger/smaller having a larger/smaller size), participants respond faster to it than incongruent condition (i.e., the numeral was smaller/larger having a larger/smaller size). Using the numerical Stroop paradigm, previous research has shown that the SNARC effect and the SCE are independent of each other when participants are asked to complete a number comparison task and a physical size comparison task, respectively. This study will explore the relationship using an implicit parity judgement task. Experiment were conducted using digits 1, 2, 8, and 9, each with two sizes, large and small. The results show that the significant SNARC effect and SCE and a significant interaction between SCE and SNARC effect. The results of the regression analysis found that the SNARC effect in the SCE-congruent condition was larger than the SCE-incongruent condition and the SCE emerged in the SNARC compatible trials whereas was absent in the SNARC incompatible trials. At the same time, there was an interaction between physical size and space, with the left hand responding faster to small size and the right hand responding faster to large size, i.e. a SNARC-like effect. These findings provided the evidence of the shared mechanism among number, physical

size and space which support the ATOM. To explore differences in the strength of the mapping of number and physical size on vs. space, we analyzed differences in the RT of response hands to two SCE-inconsistent conditions. The result showed left-hand response was faster for small numbers-large size than large numbers-small size; while right-hand responded to large numbers-small size was faster than left-hand response. It suggested number-spatial association was stronger than the physical size-spatial association and provided the evidence of the distinct mechanism among number, physical size and space.

In summary, since numerical, physical size, and space are processed in the same parietal cortex, an interaction between the SNARC effect and SCE can occur. However, this interaction is conditional, requiring that the number, physical size and response hand are at the same level of processing, and the number-spatial association is stronger than the physical size-spatial association. These results of the study provide new evidence for the ATOM. These results suggest that representations of numerical, physical size, and space are both shared and distinct from each other, possibly related to biological evolution and task needs, supporting the ATOM theory.

***Keywords*:** SNARC effect, SCE, ATOM

催产素改变急性应激对趋近回避认知灵活性相关奖惩敏感性的影响

尹周乾[1] 李世佳[1,2,*]（通讯作者）

1 上海市心理健康与心理危机干预重点实验室，华东师范大学附属精神卫生中心，华东师范大学心理与认知科学学院脑与教育创新研究所，上海，200062

2 上海市长宁区精神卫生中心，上海 200335，E-mail: sjli@psy.ecnu.edu.cn

摘 要 许多心理疾病与对厌恶刺激趋近回避认知灵活性异常有关，了解这种异常的影响因素有助于理解这类疾病。应激通常被认为会损害认知灵活性。以往研究提出催产素具有改善被应激损害的认知灵活性的潜力。但其结果是否具有可重复性以及潜在机制尚不清楚。逆转学习是研究认知灵活性的常用范式，其中奖励和惩罚敏感性起到中心作用。在本研究中我们采用对厌恶刺激进行趋近和回避行动规则转换的逆转学习范式，通过双盲实验考察应激和鼻喷催产素对厌恶刺激趋近回避认知灵活性的影响，通过计算建模的方式验证奖励和惩罚敏感性是否为其潜在机制之一。本实验共招募 94 名健康男性被试：控制组催产素给药 24 人，安慰剂条件 24 人；压力组催产素给药 23 人，安慰剂条件 23 人。对相关历史研究中涉及的 7 个模型进行比较后选择最优模型并进一步分析。结果发现：1）在总体任务正确率上并未发现应激和催产素的效应，但应激和催产素都降低了个体对逆转的敏感性。2）当没有应激存在时，催产素组相比于安慰剂组的奖励敏感性更高；在安慰剂条件下，应激降低了惩罚敏感性，提高了奖励敏感性；而在催产素给药条件下，应激组惩罚敏感性和控制组没有显著差异，而奖励敏感性显著低于控制组。3）应激增加了对厌恶刺激的回避倾向，而催产素减少了这种倾向。上述结果表明，应激在本实验中对奖励和惩罚敏感性分别有着相反的影响且增加了避害倾向，但催产素减弱甚至逆转了应激的这些效果。本研究验证了催产素可能同时影响社会线索和非社会线索的信息加工，进而降低应激的影响，为催产素的减压作用提供了新证据。

关键词 应激，催产素，认知灵活性，趋近回避，奖励敏感性，惩罚敏感性

Oxytocin alters the effects of acute stress on reward-punishment sensitivity in approach-avoidance cognitive flexibility

Zhouqian Yin[a], Shijia Li[a,b,*]

a. Shanghai Key Laboratory of Mental Health and Psychological Crisis Intervention, Affiliated Mental Health Center (ECNU), Institute of Brain and Education Innovation, School of Psychology and Cognitive Science, East China Normal University, Shanghai, 200062 , China
b. Shanghai Changning Mental Health Center, Shanghai, 200335, China, E-mail: sjli@psy.ecnu.edu.cn

Abstract：Many mental disorders are related to aberrant cognitive flexibility of approach-avoidance behavior to aversive stimuli. Therefore to study this kind of aberrant behaviors is helpful to understand those mental disorders. Stress is commonly thought to impair cognitive flexibility. Prior researches demonstrated that oxytocin has the potential to improve cognitive flexibility impaired by acute stress. However whether this effect is repeatable or the underlying mechanism is not clear yet. Reversal learning is a widely used paradigm to study cognitive flexibility, in which reward and punishment sensitivity plays the central role. In current research, we used a reversal learning task in which participants were asked to approach or avoid aversive stimuli and the double-blind design to study the influence of stress and intranasal oxytocin in cognitive flexibility of approach-avoidance behavior to aversive stimuli. Moreover the computational modeling was used to verify whether reward and punishment sensitivity was one of the potential mechanisms. We recruited 94 participants: in stress group, 24 participants under oxytocin administration, 24 participants under placebo; in control group, 23 participants under oxytocin administration, 23 participants with placebo.The results showed that there was no main effect of acute stress or oxytocin on overall correctness; acute stress and oxytocin both decreased behavioral sensitivity to reversals of reward contingencies; under placebo condition, acute stress decreased punishment sensitivity and increased reward sensitivity; however under oxytocin condition, there was no difference of the punishment sensitivity between stress group and control group, and the reward sensitivity of stress group was lower than control group. In unstressed group, oxytocin increased reward sensitivity compared to placebo condition. Moreover stress increased the avoidance tendency to aversive stimuli but oxytocin decreased this tendency. Those results suggested that acute stress had opposite effects on reward and punishment sensitivity and induced stronger avoidance tendency to aversive stimuli; but oxytocin weakened, even reversed, those effects. Our findings verified that oxytocin may weaken the effects of acute stress by influencing the information processing of both social and non-social cues and showed more evidences of the stress-buffering effects of oxytocin.

Keywords：actue stress, oxytocin, cognitive flexibility, approach-avoidance, reward-punishment sensitivity

学习判断反应性：对熟悉性和回想的影响

高景[1]　王佳莹[2]（通讯作者）
1 东北师范大学心理学院，长春，130024
2 东北师范大学心理学院，长春，130024，wangjy675@nenu.edu.cn

摘 要　近来研究发现，进行元认知监测：学习判断(Judgments of learning)，会对学习者的记忆产生影响，这被称为学习判断的反应性效应。在最近采用词汇材料的研究中出现了相互矛盾结果：Senkova(2021)等人的研究中发现做出学习判断促进了自由回忆的记忆，但 Zhao(2022)的研究中却发现学习判断对自由回忆的记忆并没有产生影响，相反却促进了再认测验的记忆成绩。基于该矛盾本研究通过两个实验探讨了学习判断对词汇材料记忆成绩的影响，实验一分别使用再认测验和自由回忆测验，结果发现学习判断的反应性会受到测验类型的影响：在再认测验中表现出积极反应性；在自由回忆中则表现出消极反应性。基于实验一的结果，实验二采用 R/K 范式探索了学习判断对熟悉性和回想的影响，结果发现做出学习判断仅仅促进了

基于熟悉性的再认成绩，而对基于回想的再认成绩没有产生影响。这些结果表明，学习判断会对学习者的记忆成绩产生影响，但这种影响的程度并不牢靠：仅促进了基于熟悉性的记忆成绩，相反，当学习者进行较高要求的记忆任务时(如自由回忆)，进行学习判断可能会占用学习者的认知资源而产生相反的效果。
关键词　学习判断，反应性，熟悉性，回想

Reactivity of judgments of learning: Effects on familiarity and recollection

Jing Gao[1], Jiaying Wang[2]
([1 2] School of Psychology, Northeast Normal University, Changchun 130024, China)

Abstract: Recent research has revealed that metacognitive monitoring, specifically Judgments of Learning (JOL), can have an impact on learners' memory, known as the reactivity effect of Judgments of Learning. Contradictory findings have emerged from recent studies using vocabulary materials: Senkova et al. (2021) found that making JOLs enhanced free recall memory, while Zhao et al. (2022) found no effect of JOLs on free recall memory but instead improved performance on recognition tests. To address this contradiction, the present study conducted two experiments to examine the influence of JOLs on memory performance with vocabulary materials.

Experiment 1 utilized both recognition tests and free recall tests. The results demonstrated that the reactivity of JOLs was influenced by the test type: positive reactivity was observed in recognition tests, whereas negative reactivity was observed in free recall tests. Building on the findings of Experiment 1, Experiment 2 employed the R/K judgment to investigate the effects of JOLs on familiarity and recollection. The results indicated that making JOLs only provided benefits for familiarity and had no impact on recollection. These findings imply that JOLs can affect learners' memory performance, although the magnitude of this effect is not reliable. They solely enhance memory performance based on familiarity. Conversely, when learners engage in more demanding memory tasks like free recall, engaging in JOLs may deplete learners' cognitive resources and result in negative effects.
Keywords: judgments of learning, reactivity, familiarity, recollection

皮质醇采样期对探索睡眠与次日皮质醇昼夜节律关系的影响

郭凯格 [1,2#] 赵小淋 [1,2#] 罗家豪 [1,2] 任义鹏 [1,2] 刘源 [1,2*] 杨娟 [1,2*]
1 西南大学心理学院，重庆,400715
2 西南大学认知与人格重点实验室,重庆,400715, valleyqq@swu.edu.cn
#以下作者对本研究有共同贡献
*通讯作者

摘 要　关于前一晚睡眠与次日皮质醇昼夜节律之间的关系，以往的研究结果并不一致。本研究旨在探讨这种关系是否受皮质醇采样期和睡眠测量的影响。大学生（N = 79）连续三天每天提供七份皮质醇样本（起床、+30 分钟、+45 分钟、+1 小时、午餐前、晚餐前和入睡前），同时佩戴腕表测量前一晚的睡眠情况。建立了一个多层次模型来研究主观和客观睡眠对次日皮质醇昼夜节律的影响，使用了三个不同的皮质醇采样期：清晨、早晨至傍晚和下午至傍晚。逐日分析表明，较低的客观睡眠效率和较短的总睡眠时间与较低的皮质醇觉醒反应（CAR）有关，无论是在清晨还是从清晨到傍晚这段时间。参与者之间的分析表明，较低的客观睡眠效率和较短的总睡眠时间与较低的皮质醇觉醒水平有关，并且在清晨至傍晚和清晨采样期间，

皮质醇下降斜率较平。同时，较短的主观总睡眠时间与清晨和清晨至傍晚期间较高的皮质醇水平有关。总之，我们的研究结果表明，在探索睡眠与次日皮质醇昼夜节律之间的关系时，应采集清晨至下午的唾液样本。
关键词　睡眠效率,总睡眠时间,皮质醇昼夜节律,皮质醇采样周期

Effect of cortisol sampling period in exploring relationships between sleep and the following day's diurnal cortisol rhythm

Kaige Guo[1, 2#], Xiaolin Zhao[1, 2#], Jiahao Luo[1,2], Yipeng Ren[1,2], Yuan Liu[1, 2*] and Juan Yang[1, 2*]
1 Faculty of Psychology, Southwest University, Chongqing 400715, China
2 Key laboratory of cognition and personality, Southwest University, Chongqing 400715, China
#These authors equally contributed to this work.
*Corresponding Authors

Abstract：Concerning the relationships between previous night's sleep and the following day's diurnal cortisol rhythm, previous studies have revealed inconsistent results. The current study was designed to investigate whether such a relationship is influenced by cortisol sampling periods and sleep measurement. College students (N =79) provided seven cortisol samples each day (wakeup, +30 minutes, +45 minutes, +1 hour, before lunch, before dinner, and bedtime) on three consecutive days while wearing an actigraph to measure previous nighttime sleep. A multilevel model was created to examine the impact of both subjective and objective sleep on the diurnal cortisol rhythm of the following day, using three different cortisol sampling periods: early morning, morning to evening, and afternoon to evening. Day-to-day analysis showed that lower objective sleep efficiency and shorter total sleep time were linked to lower cortisol awakening response (CAR) both in the morning and the period from early morning to evening. Between-participant analysis indicated that lower objective sleep efficiency and shorter total sleep time were linked to lower waking cortisol levels and a flatter cortisol decline slope during the sampling periods from early morning to evening and in the morning. Meanwhile, the shorter subjective total sleep time was linked to higher waking cortisol levels during the morning and the period from early morning to evening. In conclusion, our findings suggested to collect salivary samples from early morning to afternoon in exploring relationships between sleep and the following day's diurnal cortisol rhythm.
Keywords：Sleep efficiency, Total sleep time, Diurnal cortisol rhythm, Cortisol sampling period

信心判断的两阶段模型：来自 ERP 的证据

李兆岚[1]　代文武[1]　贾宁[2]（通讯作者）
1 河北师范大学教育学院，石家庄，050024
2 河北师范大学教育学院，石家庄，050024，jnajh@126.com

摘 要　信心判断（judgment of confidence，JOC）是指在对学习过的内容进行提取后，对提取内容正确性的自信心判断。在经典的信心判断研究范式中，信心判断发生在再认/回忆任务之后。以往关于信心判断的研究将其视为一个仅涉及监测的单阶段过程。然而，随着对信心判断研究的深入，有研究提出信心判断过程可能并非是单阶段的，而是一个涉及提取和监测的两阶段过程。为明确信心判断的内部过程，本研究使用信心判断的经典实验范式，借助事件相关电位技术，从时间加工进程的角度对信心判断的内在机制进行

探讨。行为结果显示：信心判断反应时和信心判断等级之间存在倒 U 型曲线关系，低等级信心判断的反应时显著长于高等级信心判断且在测验阶段的再认成绩更差。ERP 结果显示：在 N400（300~500ms）时间窗口，与高等级信心判断相比，低等级信心判断在右侧额叶和右侧中央区上，诱发了更负的平均波幅；在晚期慢波时间窗口（500~700ms），与低等级信心判断相比，高等级信心判断在右侧额叶上诱发了更正的平均波幅。基于以上研究结果，本研究认为信心判断包含了不止一个加工过程，N400 反映了对线索进行提取的过程，而晚期慢波成分则反映了应用线索进行监测的过程。本研究支持了两阶段模型，丰富了元认知监测的机制研究，有助于理解回溯性元认知监测的加工机制。
关键词　信心判断，两阶段模型，元认知监测，事件相关电位

The two-stage model of judgment of confidence: evidence from ERP

Zhaolan Li[1], Wenwu Dai[1], Ning Jia[2] (Corresponding author)
Department of Education, Hebei Normal University, Shijiazhuang

Abstract：The judgment of confidence (JOC) refers to the confidence in the accuracy of the target item they have just retrieved. In the classical paradigm of JOC research, JOC occurs after the recognition/recall task. Previous studies primarily considered JOC as a single-stage process involving only monitoring. However， as research on JOC deepens, some studies suggest that the process of JOC may not be a one-stage, but a two-stage process involving extraction and monitoring. To better elucidate the internal process of JOC, this study uses the classic experimental paradigm of JOC and the event-related potential technique (ERP) to explore the internal mechanism of JOC from the perspective of time processing. The results show that there is an inverted U-shaped relationship between JOC reaction time and JOC judgment ratings. The reaction time is significantly longer in the low JOC condition compared to the high JOC condition, and individuals exhibit poorer recognition performance in the low JOC condition during the test stage. ERP results showed that in the N400 (300~500ms) time window, the low JOC condition elicits a more negative average amplitude in the right frontal lobe and right central region compared to the high JOC condition. Additionally, in the slow-wave time window (500~700ms), the high JOC condition induces a higher average amplitude in the right frontal lobe relative to the low JOC condition. Based on these research findings, this study proposes that JOC encompasses multiple processing stages, with the N400 reflecting the cue extraction process and the slow-wave component indicating the monitoring of cue utilization. Overall, this study provides support for the two-stage model, enhances the understanding of metacognitive monitoring mechanisms, and contributes to a deeper comprehension of the processes underlying retrospective metacognitive monitoring.
Keywords： Judgment of confidence, Two-stage model, Metacognitive monitoring, Event-related potential technique

汉语阅读中中央凹负荷对副中央凹预视加工程度的影响

张蕾[1]，陈婉莹[1]，谢芳[1]（通讯作者）
1 浙江师范大学心理学院，金华，321000
通讯作者 E-mail: xftjsf@126.com

摘 要　自然阅读中，读者不仅能加工中央凹注视词（词 N）的信息，还能对副中央凹词进行预视加工。已有研究分别从预视加工范围和预视加工程度两个维度对副中央凹预视加工进行了探讨。研究发现，在预视加工范围上，读者可以获取副中央词 N+1 和 N+2（词 N+1 为单字词时）的信息；预视加工程度上，读者可以从副中央凹获取不同类型的预视信息，如正字法信息，语音信息以及语义信息。根据中央凹负荷假说，副中央凹信息的获取受中央凹加工难度的影响，大量关于拼音文字的研究对此进行了探讨。汉语阅读中副中央凹的预视加工是否受到中央凹加工难度的影响仍需要进一步探讨。已有的两项研究考察了中央凹加工难度对副中央凹加工范围的影响，结果并未支持中央凹负荷假说。然而，副中央凹信息的预视加工程度是否会受中央凹加工负荷的调节尚不明确。因此，本研究采用边界范式通过两个实验考察中央凹加工负荷是否影响副中央凹预视加工程度。实验一操纵中央凹词的加工负荷和副中央凹词 N+1 的预视类型，实验二操纵中央凹负荷和副中央凹词 N+2 的预视类型,均采用 2(中央凹负荷：高频、低频)×5(预视类型：相同、正字法相关、语音相关、语义相关、假字)的被试内实验设计。结果发现：中央凹词频的主效应显著，实验 1 和 2 均表现为低频词的注视时间明显长于高频词；预视类型的主效应均显著，实验 1 表现为无关预视条件下的注视时间分别长于相同预视、正字法相关预视以及语音相关预视，实验 2 表现为无关预视条件下的注视时间分别长于相同预视及正字法相关预视，表明读者能够从副中央凹词 N+1 上获取正字法信息和语音信息，从副中央凹词 N+2 上仅能获取正字法信息。更重要的是，两实验均发现中央凹负荷和预视类型的交互作用不显著。这说明，汉语阅读过程中，中央凹加工负荷不会影响副中央凹预视加工的程度。
关键词　中央凹负荷，副中央凹预视，中文阅读，眼动

The Influence of Foveal Load on the Depth of Parafoveal Processing in Chinese reading

Lei Zhang[1], Wanying Chen[1], Fang Xie[1]
[1]School of Psychology, Zhejiang Normal University, Jinhua

Abstract: It is well-established that readers can obtain lexical information not only from the currently foveal words (word N), but also from upcoming parafoveal words during natural reading. Previous studies provided some evidence for the extent and depth of parafoveal processing. Readers could access the information of parafoveal word N+1 and N+2 (when N+1 is a single word) in terms of the spatial extent of parafoveal processing, and in terms of the depth of parafoveal processing, readers could obtain different types of preview information, such as orthographic, phonological and semantic information. According to the foveal load hypothesis, parafoveal processing is influenced by the difficulty of current foveal processing, which has been confirmed by numerous studies in alphabetic language.

The issue whether foveal load may affect parafoveal processing in Chinese reading still need to be further explored. Recently, two studies have examined whether foveal load affects the spatial extent of parafoveal processing, neither supports the foveal load hypothesis. However, it remains unclear whether foveal load could affect the depth of parafoveal processing. Accordingly, the present study using boundary paradigm to investigate this issue in two experiments. Parafoveal preview of the parafoveal target word N+1 (Experiment 1) and word N+2 (Experiment 2) were manipulated under high foveal load (low-frequency word N) compared with low foveal load (high-frequency word N) conditions. Both experiments adopted a 2 (foveal load: high-frequency, low-frequency)×5 (preview type: identical, orthographically related, phonologically related, semantically related, and pseudo-character unrelated) within-subject design. The results showed that main effect of foveal load was significant in Experiment 1 and Experiment 2, with longer fixations for low frequency words than for high

frequency words; Main effect of preview type was also found, with longer fixations for pseudo-character unrelated preview type compared to identical, orthographically related and phonologically related preview type in Experiment 1 and longer fixations for pseudo-character unrelated preview type in comparison with identical and orthographically related preview in Experiment 2. These findings showed that readers can obtain both orthographic and phonological information from parafoveal in Experiment 1, while in Experiment 2, they can only obtain orthographic information. More importantly, there was no interaction between foveal load and preview types in both Experiments, indicating that foveal load did not affect the depth of parafoveal processing during Chinese reading.
Keywords：Foveal load, Parafoveal preview, Chinese reading, eye movements

“只见森林，不见树木”：知觉加工中的整体优先性

皇甫秉哲[1] 龚明亮[1]（通讯作者）
江西师范大学心理学院，南昌，330022，gongml@jxnu.edu.cn

摘 要 人类的视觉系统可以在短时间内获取大量的信息，但是人脑能够同时处理的信息是有限的，这是由认知资源的有限性所决定的。幸运的是，面对这种情况人们似乎进化出了一种在视觉加工的初始阶段就能对大量而复杂的信息优先进行快速整体加工的能力，这就是知觉加工中的整体优先性。本文主要通过回顾三个方面的证据对整体加工的优先性进行了论证。当同时呈现全局层面的特征和局部层面的特征时，人们倾向于优先加工全局结构层面的特征，这就是全局优先效应（global precedence effect）。此外，人们在面对一组相似的刺激时，能够迅速而准确地提取它们的结构或语义上的平均属性，这被称为整体知觉（ensemble perception）。最后，在场景主旨（scene gist）加工时，人们能在一瞥中对自然场景迅速进行整体上的感知和分类，这能够帮助人们快速获取环境信息，即便此时还未对细节特征进行加工。这些证据都表明，在知觉加工过程中存在整体优先性，使我们可以“只见森林，不见树木”。这种对知觉信息的整体加工在人类认知加工过程中起着重要作用，它可以帮助人们快速获取信息并迅速做出适应性的反应。整体优先性为人们快速而准确地处理大量信息提供了有效策略，但关于整体优先性的研究还有很多领域值得探索。未来的研究可以从增加实验材料、创新实验范式、结合更多设备设施等方式，深入探讨整体加工的神经机制，为整体优先的应用提供更多的理论依据。
关键词 整体优先，整体加工，全局-局部，整体知觉，场景主旨

“Seeing the forest but not the trees”: Holistic priority in perceptual processing

Bingzhe Huangfu, Mingliang Gong (Corresponding author)
School of Psychology, Jiangxi Normal University, Jiangxi

Abstract：The human visual system is capable of acquiring a vast amount of information within a short period of time. However, the brain has a limited capacity to process information simultaneously, which is determined by the limited cognitive resources. Fortunately, humans seem to have evolved a capacity to prioritize the rapid holistic processing of a large and complex amount of information in the initial stages of visual processing, known as perceptual processing of global precedence. This article mainly provides supporting evidence for the precedence of holistic processing by reviewing three aspects. When global-level features and local-level features are presented

simultaneously, people tend to prioritize the processing of global-level features, which is known as the global precedence effect. In addition, when faced with a group of similar stimuli, people can rapidly and accurately extract their structural or semantic average attributes, referred to as ensemble perception. In the processing of scene gist, people can rapidly perceive and categorize natural scenes as a whole in a glance. This helps individuals quickly acquire environmental information, even before processing the detailed features. These pieces of evidence all indicate the existence of a global precedence in perceptual processing, allowing us to "see the forest, not the trees". This holistic processing of perceptual information plays a crucial role in human cognitive processing, enabling individuals to rapidly gather information and swiftly respond adaptively. The precedence of holistic processing provides an effective strategy for individuals to process a large amount of information quickly and accurately. However, there are still many areas to explore regarding the research on holistic precedence. Future studies can delve deeper into the neural mechanisms of holistic processing by increasing experimental materials, innovating experimental paradigms, and incorporating more equipment and facilities, providing a more robust theoretical basis for the applications of holistic precedence.
Keywords：holistic priority, holistic processing, global-local, ensemble perception, scene gist

电竞赛事中战队化身参照的加工优势：来自 ERPs 的证据

彭磊[2]　邵永聪[2] 邓欢[1]（通讯作者）
1 淮北师范大学教育学院，安徽淮北，235000，zxl0847@126.com
2 北京体育大学心理学院，北京，100084

摘　要 在网络发展十分迅速的情况下，网络游戏与人们的生活密切相关，成为人们社交的一个重要的方式。当个体在观看电子竞技赛事时，看到自己支持的战队会产生与战队联结在一起的感受，支持的战队的各种局势变化，观众的注意力和情绪都会因此而产生相关变化。化身作为个体表达自我一种重要方式，目前越来越多的研究者开始关注其领域的研究。本研究主要从认知加工的角度来探讨战队化身参照的加工优势，借助脑电仪器来探讨对战队化身参照在时间进程上的加工优势，通过个体的认知加工系统中已经存在的与战队化身参照的相关信息，内隐地探讨化身参照的加工优势。本研究选取招募了 20 名被试，自愿参加实验，每一位被试都有自己支持的战队，并且在最近半年内观看支持的战队的比赛不低于 10 场比赛，平均年龄 21.86±1.127；女性 2 人，平均年龄 21.23±1.278，均为高中及以上学历。参加实验的个体均为右利手，无视力问题，无精神疾病或者精神疾病史。所有被试在参加此实验之前，均未参加过类似实验。利用本研究使用 Oddball 实验范式，通过脑电内隐地考察了电竞赛事中的战队化身参照加工在时间进程上的优势以及相关的神经机制。研究结果表明：战队的化身参照名称相对于其他熟悉的组织名称能够诱发更大的 P2（150-270ms）和 P3（360-600ms）波幅，战队化身参照的名称比其他相关熟悉组织名称的 N2（260-360ms）和 P3 潜伏期更短。这表明，在对待其他相关信息时，个体不仅可以快速注意到与化身有关的信息，还可以对该信息进行更深入、更精细的加工。综上表明，时间进程的加工神经机制层面，电竞赛事中的化身参照具有显著加工优势。
关键词 化身参照，电子竞技，加工优势，ERPs

The processing advantage of team avatar references in esports events: evidence from ERPs

Lei Peng[2], Yongcong Shao[2], Huan Deng[1*]
1 College of Education, Huaibei Normal University, Anhui Huaibei,235000, zxl0847@126.com

2 School of Psychology, Beijing Sport University, Beijing,100084

Abstract In the case of rapid development of the Internet, online games are closely related to people's lives and have become an important way for people to socialize. When individuals watch esports events, they see the team they support and feel connected to the team, and the various situations of the supported team change, and the audience's attention and emotions will change accordingly. As an important way for individuals to express themselves, more and more researchers are now paying attention to research in their field. This study mainly discusses the processing advantages of team avatar reference from the perspective of cognitive processing, explores the processing advantage of team avatar reference in time course with the help of EEG instruments, and implicitly discusses the processing advantage of avatar reference through the relevant information that already exists in the individual's cognitive processing system and the team avatar reference. In this study, 20 participants were recruited and voluntarily participated in the experiment, each participant had his own supported team, and watched no less than 10 matches of the supported team in the past six months, with an average age of 21.86±1.127; 2 women, with an average age of 21.23±1.278, all of whom had high school education or above. The individuals who participated in the experiment were all right-handed, had no vision problems, no mental illness, or a history of mental illness. None of the participants had participated in a similar experiment prior to participating in this experiment. Using the Oddball experimental paradigm in this study, EEG instruments were used to implicitly investigate the advantages of team avatar reference processing in esports events in terms of time course and related neural mechanisms. Results: The results showed that the avatar reference names of the clan induced greater P2 (150-270ms) and P3 (360-600ms) amplitudes than other familiar organization names, and the incarnation reference names of the clan avatars had shorter incubation periods than N2 (260-360ms) and P3 of other familiar tissues. This suggests that when dealing with other relevant information, individuals can not only quickly notice information related to the avatar, but also perform deeper and more refined processing of this information. In summary, it is shown that at the level of processing neural mechanism of time process, the avatar reference in e-sports events has significant processing advantages.

Keywords Avatar references, esports, machining advantages, ERPs

早期同伴虐待影响下个体的韧性与涉及情绪调节的大脑区域皮层厚度有关

杨梦纯[1]　王郑昕玥[2]　曹新育[2]　朱键军[1]（通讯作者）

1 广州大学教育学院早期环境与脑发展研究中心，广州，510000，jianjunzhu722@gmail.com

2 杭州师范大学附属医院认知和脑障碍中心，杭州，310000

摘 要

目的：早期同伴虐待经历会对个体的心理健康产生负面影响，然而，有一些遭受过同伴虐待的个体能够抵抗这种影响，表现出韧性。我们尚不清楚早期同伴虐待影响下个体韧性与大脑结构的关系。因此，本研究将采用问卷调查和磁共振成像技术（MRI）来探讨早期同伴虐待影响下个体韧性的脑结构机制。

方法：217 名参与者接受了 MRI 扫描，以测量前额叶皮层不同区域的皮层厚度。采用虐待年报量表（MACE）和焦虑-抑郁-压力量表（DASS-21）来评估个体的同伴虐待经历和心理健康问题。以同伴虐待经历和心理健康问题将参与者分为韧性组（有同伴虐待经历但没有心理健康问题的参与者）、易感组（有同伴虐待经历和心理健康问题的参与者）和健康对照组（既没有同伴虐待经历也没有心理健康问题的参与

者）。分别在焦虑、抑郁、压力三种症状下，采用协方差分析和事后检验比较三组参与者前额叶区域皮层厚度的差异。

结果：在焦虑症状下，与易感组（$p \leq 0.035$）和健康对照组（$p \leq 0.042$）相比，韧性组的双侧额下回皮层厚度较小。与易感组（$p = 0.036$）相比，韧性组的右内侧眶额叶皮层厚度较大。在压力症状下，与易感组（$p < 0.01$）和健康对照组（$p < 0.01$）相比，韧性组的双侧额下回和双侧额中回的厚度较小。然而，在抑郁症状下，三组参与者的前额叶区域皮层厚度没有显著差异。

结论：这些结果表明，早期同伴虐待影响下个体的韧性与涉及情绪调节的前额叶区域皮层厚度有关。本研究首次探讨了早期同伴虐待影响下，个体的韧性与大脑结构之间的关系。研究结果可以加深我们对韧性神经机制的理解，从而为预防和干预同伴虐待经历所带来的心理健康问题提供更有针对性的建议和参考。

关键词　同伴虐待，皮层厚度，韧性，前额叶皮层

Resilience to childhood peer abuse can be explained by cortical thickness in brain regions involved in emotional regulation

Mengchun Yang[1], Zhengxinyue Wang[2], Xinyu Cao[2], Jianjun Zhu[1]*

1 Center for Early Environment and Brain Development, School of Education, Guangzhou University, Guangzhou, China

2 Center for Cognition and Brain Disorders of Affiliated Hospital, Hangzhou Normal University, Hangzhou, China

ABSTRACT

Background: Experiencing peer abuse in childhood can have negative impacts on mental health, but some people who have been abused exhibit resilience to this negative outcome. However, it remains uncertain which specific changes in brain structures are associated with this type of resilience. This study utilized questionnaire surveys and magnetic resonance imaging (MRI) techniques to investigate the neurostructural mechanisms that underlie individual resilience in relation to childhood peer abuse.

Methods: 217 participants underwent MRI scans to measure cortical thickness in various brain regions in the prefrontal cortex. The Maltreatment and Abuse Chronology of Exposure (MACE) Scale and the Depression Anxiety and Stress Scales (DASS-21) were used to assess individuals' experiences of peer abuse and mental health problems. This allowed for the creation of three groups: resilient, susceptible and health controls. Resilient individuals were those who had experienced peer abuse but did not show mental health problems, while susceptible individuals were those who had experienced peer abuse and currently exhibited mental health problems. The healthy control group consisted of participants who neither experienced peer abuse nor exhibited mental health problems. We used covariance analysis and post hoc tests to analyze the differences in cortical thickness among three groups of participants on three measures of mental health problems: anxiety, depression, and stress.

Results: In terms of anxiety symptoms, resilient individuals exhibited smaller cortical thickness in the bilateral inferior frontal gyrus (IFG) than both the control group ($p \leq 0.035$) and susceptible group ($p \leq 0.042$). Additionally, they showed larger thickness in the right medial orbitofrontal cortex (mOFC) compared to the susceptible group ($p = 0.036$). Regarding stress symptoms, compared to the vulnerable group ($p < 0.01$) and healthy control group ($p < 0.01$), resilient group exhibited smaller thickness in the bilateral IFG and bilateral middle frontal gyrus. When the groups were defined based on the level of depression, there was no significant group difference in cortical thickness in any of the ROIs.

Conclusions: These findings suggest that resilience to the effects of peer abuse is linked to cortical thickness in prefrontal brain regions related to emotion regulation. It is noteworthy that this is the first study to explore the relationship between resilience and brain structure in relation to peer abuse. These research findings can deepen our understanding of the neural mechanisms underlying resilience to peer abuse, thereby providing a conceptual foundation for future interventions aimed at preventing mental health problems.

***Keywords*:** Childhood peer abuse, cortical thickness, resilience, prefrontal cortex

人物和题跋对中国山水画审美心理的影响

瞿萌[1] 康廷虎[2]（通讯作者） 唐庭豪[1] 刘子馨[1]

1 西北师范大学心理学院，甘肃兰州，730070

2 西北师范大学心理学院，甘肃兰州，730070，kangyan313@126.com

摘 要 中国山水画的山水形态气势磅礴，人物形象小巧灵动，题跋与画作相辅相成，代表了人与自然和谐相融的处世之道，也表达出画者在山水自然中的审美趣味。人物和题跋作为山水画中不可或缺的元素，究竟对山水画审美过程起着怎样的作用？本研究选用国画家黄宾虹的 30 幅山水画作品，应用眼动追踪技术。实验一采用目标搜索范式和审美评价任务，探讨人物在山水画审美欣赏中的重要性；实验二采用自由浏览范式，通过判断任务和审美评价任务，试图发现题跋信息对山水画审美欣赏的作用。实验一和实验二均为单因素两水平（有人物、无人物条件）的被试内实验设计，并都对山水画作品的审美理解（完整、了解、熟悉）和审美感受（流畅、好看、喜欢）进行李克特 1~9 点计分。使用 Eyelink 1000 Plus 眼动仪追踪 83 名（实验一 40 名，实验二 43 名）在校大学生欣赏山水画过程时的眼动模式，参与者均不知道实验目的。结果发现，实验一在有人物条件下的平均注视时长和注视点个数显著多于无人物条件下，而平均眼跳幅度显著小于无人物条件。实验二在有人物条件下的平均眼跳幅度、注视点个数、瞳孔大小和眼跳个数均显著小于无人物条件。实验一和实验二的审美评分上，人物和题跋的主效应显著，有人物、有题跋时的审美评分均高于无人物、无题跋条件。此外，将实验一和实验二的审美评分进行对比，实验二（有题跋）比实验一在“了解”和“熟悉”程度上的得分显著更高。综上，实验一和实验二的结果均表明人物影响山水画审美欣赏过程的注意分配，而题跋信息可以让审美理解过程更加全面。有人物条件下，参与者较少对山水画进行大幅度的眼跳搜索，注意力更集中于人物形象上，并且审美评价得分更高，表明审美体验更佳。此外，题跋信息作为画作的相关背景信息，可以提高参与者对画作理解的程度。当人物和题跋信息均呈现时，可以显著提升参与者对山水画整体的审美体验。

关键词 中国山水画，审美，人物，题跋，眼动

The Influence of Figures and Inscriptions on the Aesthetic Psychology of Chinese Landscape Paintings

Qu Meng[1], Kang Tinghu[2] (Correspondent), Tang Tinghao[1], Liu Zixin[1]

1 Visual Cognition Laboratory, School of Psychology, Northwest Normal University, Lanzhou, 730070, Gansu, China

2 Visual Cognition Laboratory, School of Psychology, Northwest Normal University, Lanzhou, 730070, Gansu, China; kangyan313@126.com

***Abstract*:** The majestic and grandiose forms of Chinese landscape paintings, along with the delicate and agile

portrayal of figures, complemented by inscriptions, represent the harmonious integration of humans and nature and reflect the painter's aesthetic taste in natural landscapes. As indispensable elements in landscape paintings, how do figures and inscriptions exactly influence the process of aesthetic appreciation in Chinese landscape art? This study selected 30 landscape paintings by Chinese artist Huang Binhong and applied eye-tracking technology. Experiment 1 employed a target search paradigm and aesthetic evaluation tasks to explore the importance of figures in the aesthetic appreciation of Chinese landscape paintings. Experiment 2 utilized a free viewing paradigm and judgment tasks, aiming to investigate the role of inscription information in the aesthetic appreciation of landscape paintings. Both Experiment 1 and Experiment 2 adopted a within-subject design with a single-factor two-level condition (with figures, without figures) and rated the aesthetic understanding (completeness, comprehension, familiarity) and aesthetic perception (flow, attractiveness, liking) of the landscape artworks on a Likert scale ranging from 1 to 9. Using the Eyelink 1000 Plus eye tracker, eye movement patterns of 83 university students (40 participants in Experiment 1 and 43 participants in Experiment 2) were tracked during the process of appreciating landscape paintings. Participants were unaware of the experimental purpose. The results showed that in Experiment 1, the average gaze duration and fixation counts were significantly higher under the condition with figures compared to the condition without figures, while the average saccade amplitude was significantly smaller in the condition with figures. In Experiment 2, the average saccade amplitude, fixation counts, pupil size, and the number of saccades were all significantly smaller under the condition with figures compared to the condition without figures. In both Experiment 1 and Experiment 2, the main effects of figures and inscriptions on aesthetic ratings were significant, with higher aesthetic scores observed when there were figures and inscriptions present, compared to the conditions without figures and inscriptions. Additionally, when comparing the aesthetic ratings of Experiment 1 and Experiment 2, the scores for "comprehension" and "familiarity" were significantly higher in Experiment 2 (with inscriptions). Overall, the results of both Experiment 1 and Experiment 2 indicated that figures influence the allocation of attention during the aesthetic appreciation of landscape paintings, while inscription information can enhance the comprehensive understanding of the aesthetic appreciation process. Under the condition with figures, participants engaged in fewer large-scale eye movement searches of the landscape and focused more on the figures, resulting in higher aesthetic evaluation scores and a more enhanced aesthetic experience. Moreover, inscription information, as relevant background information, improved participants' understanding of the paintings. When both figures and inscriptions were present, participants' overall aesthetic experience of the landscape paintings was significantly enhanced.

Keywords：Chinese landscape paintings, aesthetics, figures, inscriptions, eye movements

通过前额叶-边缘回路功能连接在恐惧学习过程中的间接效应，探索早期物质困难与心理病理症状之间的关联

陈诚[1]，王郑昕玥[2]，曹新育[2]，朱键军[1]（通讯作者）

1 广州大学教育学院早期环境与脑发展研究中心，广州，510006

2 杭州师范大学附属医院认知与脑疾病研究中心，杭州，311121，Jianjunzhu722@gmail.com

摘 要 早期经历家庭物质困难已被证明与身体和心理发展的紊乱相关。然而，至今仍不清楚物质困难与恐惧学习过程中前额叶-边缘回路的功能连接之间的关联。因此，本研究招募了 160 名年龄在 17 至 28 岁之间的健康年轻成年人，进行了脑成像研究。本研究使用功能性磁共振成像（fMRI）技术并运用恐惧学习范式来探索物质困难与前额-边缘回路连接以及心理病理学之间的关系。

研究结果显示，家庭物质困难与左侧杏仁核和双侧背侧前扣带回皮层之间的正连接较高有关，同时与左侧海马和右侧前扣带前额叶皮层之间的负连接较高有关。这些发现表明，在经历家庭物质困难的个体中，特定脑区之间的连接模式发生了变化。此外，中介分析揭示了物质困难通过杏仁核功能连接间接影响抑郁症症状（间接效应 = 0.228，$p = 0.016$），以及通过海马连接间接影响攻击性和敌对症状（攻击性：间接效应 = 0.057，$p = 0.001$；敌对性：间接效应 = 0.169，$p = 0.048$）。

这些研究结果强调了家庭物质困难对前额-边缘回路的影响，并进一步说明了家庭物质困难会以不同的方式影响前边缘回路，从而可能导致特定的心理病理症状。我们的研究结果对于针对心理病理学症状的发展敏感性干预措施具有重要意义。通过针对这些特定的脑区连接模式的干预，我们可能能够缓解由家庭物质困难引起的心理健康问题的发生和发展。

总之，本研究为我们理解家庭物质困难对大脑功能和心理发展的影响提供了新的见解，并强调了前额-边缘回路在这一过程中的重要作用。这些发现对于发展预防和干预策略，以促进青少年和年轻成年人的心理健康具有重要的临床和社会意义。

关键词　功能连接，恐惧学习，物质困难，心理病理，中介模型

Exploring the Association between Early Exposure to Material Hardship and Psychopathology through Indirect Effects of Fronto-limbic Functional Connectivity during fear learning

Cheng Chen[1], Wang Zhengxinyue [2], Xinyu Cao [2], Jianjun Zhu[1]*

1 Center for Early Environment and Brain Development, School of Education, Guangzhou University, Guangzhou, China

2 Center for Cognition and Brain Disorders of Affiliated Hospital, Hangzhou Normal University, Hangzhou, China

Abstract：Experiencing family material hardship has been shown to be associated with disruptions in physical and psychological development. However, the association between material hardship and functional connectivity in the fronto-limbic circuit during fear learning is unclear. A total of 161 healthy young adults aged 17–28 were recruited in our brain imaging study, using the Fear Conditioning Task to test the associations between material hardhship and connectivity in fronto-limbic circuit and psychopathology. The results showed that family material hardship was linked to higher positive connectivity between the left amygdala and bilateral dorsal anterior cingulate cortex, as well as higher negative connectivity between the left hippocampus and right ventromedial prefrontal cortex. A mediation analysis showed that material hardship was associated with depression via amygdala functional connectivity (indirect effect = 0.228, p=0.016), and also indirectly associated with aggression and anger-hostility symptoms through hippocampal connections (aggression: indirect effect = 0.057, p = 0.001; anger-hostility: indirect effect = 0.169, p = 0.048). This is, family material hardship appears to affect frontolimbic circuits through changes in specific connectivity, and these specific changes in turn could lead to specific psychological symptoms. The findings have implications for designing developmentally sensitive interventions to mitigate the emergence of psychopathological symptoms.

Keywords：functional connectivity, fear learning, material hardship, psychopathology, mediation

执行功能三个子成分的神经认知加工过程——一项 ERP 研究

张弛[1]，王一峰[1]（通讯作者）
1 四川师范大学脑与心理科学研究院，成都，610066，通讯作者 E-mail:wyf@sicnu.edu.cn

摘 要 执行功能是指与执行目标导向行为有关的一组认知过程，它包括三个核心的子成分：抑制、更新和转换。执行功能作为一项重要的认知功能对人的认知和行为的调节是必不可少的，同时，执行功能受损也是多种精神障碍的一个突出表现，因此阐明执行功能的神经心理过程至关重要。然而，由于当前研究所使用的执行功能的任务不统一、信效度不高且存在任务杂质，导致对执行功能生理机制的研究结果和解释不一致。因此，本研究试图提供一个统一的高信效度的执行功能测量工具，并基于此采用脑电技术来探讨执行功能的神经心理加工过程。研究基于降低任务杂质，提高任务信效度，和提高任务敏感性的基本准则选择并改进任务范式。执行功能的测量包括三个组成部分：(1)抑制成分选用稳态组块设计的侧翼任务；(2)更新成分选择 0-back 和 1-back 任务；(3)转换成分使用颜色-形状规则转换任务，有两种规则（对形状或颜色进行反应）构成两种条件（重复条件：当前试次的反应规则与上一个试次相同；转换条件：当前试次的反应规则与上一个试次不相同），且设置转换概率为 25%。首先招募 99 名成人参与行为实验，结果表明三个任务的信度均大于 0.85，且任务间相关度低而任务内相关度高。其次，从中收集 39 名被试的脑电数据，ERP 结果表明：在抑制任务中，后部的 P3 为抑制的核心神经心理成分，不一致条件 P3 振幅更大且潜伏期较晚；在更新任务中，后部的 P3 反映了更新的操作过程，1-back 条件比 0-back 条件诱发更大的 P3 成分，左侧前部的 N500 反映了项目被更新为新项目的过程，1-back 不匹配条件相较于其他三个条件诱发更大的 N500；在转换任务中，中后部的 P3 成分与转换过程有关，转换条件相较于重复条件诱发更大的 P3 且潜伏期更长。因此，本研究改进后的 EF 测量范式表现出较好的信效度，有助于研究与 EF 相关的正常和异常人的认知和行为表现。执行功能三个子成分抑制、更新和转换相关的核心神经心理成分分别是后部的 P3、后部 P3 和左侧前部 N500、以及中后部 P3。
关键词 执行功能，抑制，更新，转换，ERP

The neuropsychological processes of the three core components of executive function: An ERP study

Chi Zhang[1], Yifeng Wang[1*]
Institute of Brain and Psychological Sciences, Sichuan Normal University, Chengdu, China, 610066.
* Corresponding author's E-mail address: wyf@sicnu.edu.cn.

***Abstract*：** Executive function (EF) refers to a set of neurocognitive processes involved in the execution of goal-directed actions, it involves three core components: inhibition, updating, and shifting. As an important cognitive function, EF is essential for the regulation of human cognition and behavior, and impaired EF is a prominent attribute of multiple mental disorders. So, it is crucial to elucidate the neuropsychological process of executive function. However, due to the inconsistency, low reliability and validity of tasks, and task impurities, the results and explanations of the physiological mechanisms of EF are inconsistent. Therefore, this study attempts to provide a unified measurement tool of EF with high reliability and validity, and based on this, to explore the neuropsychological processing of EF using ERP technology. The study selected and improved the task paradigm based on the basic criteria of reducing task impurities, improving task reliability and validity, and improving task sensitivity. The measurement of EF included three tasks: (1) Inhibition: using a steady-state block design of flanker task; (2) Updating: the experiment selects 0-back and 1-back task (0-back: compare each trial to the first one; 1-back: compare current trial to the previous one); (3) Shifting: select the color-shape rule switch task, there were

two rules (reaction to shape or reaction to color) to form two conditions (repetition condition: the response rule of the current trial was the same as that of the previous trial; shifting condition: the response rule of the current trial is different from that of the previous trial), and the switching probability is 25%. Firstly, 99 adults were recruited to participate in the behavioral experiments. The results showed that the reliability of the three tasks was greater than 0.85. The inter-task correlation was low and the intra-task correlation was high. Secondly, the results of ERP of 39 subjects showed that: the posterior P3 was the core neuropsychological component of inhibition, P3 amplitude was larger and latency was later in the incongruent condition compared to the congruent condition; in the updating, the posterior P3 reflects the updating process, the 1-back condition evoked a larger P3 component than the 0-back condition, and left anterior N500 reflects the process by which item was updated to a new item, the 1-back mismatch condition elicited a larger N500 than the other three conditions; in the shifting, the central-posterior P3 component is related to the shifting process, and the shifting condition induces larger P3 and later latency than the repetition condition. Therefore, the revised paradigms for the measurement of EF exhibited a high degree of reliability and validity, facilitating the investigation of typical and atypical human behaviors associated with EF. The core neuropsychological components for inhibition, updating, and shifting are distinctively expressed by the posterior P3, left anterior N500 and posterior P3, and central-posterior P3, respectively.

Keywords： executive function; inhibition; shifting; updating; ERP

未来情景模拟对亲社会行为的影响：内部细节的作用

陈书玥 王俭勤 周楚（通讯作者）

复旦大学心理学系，上海，200433，zhouchu@fudan.edu.cn

摘　要　未来情景模拟(Episodic future simulation) 指人们基于当前时刻或过去经历来想象、模拟未来的自传体事件。未来情景模拟能够通过情景生动性、情绪、心智化等增加个体帮助他人的意愿，进而影响个体的亲社会行为。在情景生动性方面，以往研究主要关注了主观生动性，并发现场景熟悉性可以影响被试对未来情景模拟的主观生动性评价，但缺少对被试想象生动性的客观指标分析，而未来情景模拟过程中的内部细节丰富性可以视为反映想象生动性的重要指标，更是建构性情景模拟假说的关键因素，因此可以引入内部细节数量作为客观指标来进一步考察其在未来情景模拟对亲社会行为影响中可能起到的关键作用。基于此，本研究通过对未来情景模拟的操纵来让被试模拟帮助他人的情景，并引入情景特异性诱导技术来进一步提升模拟时的内部细节数量，以考察内部细节在未来情景模拟对亲社会行为影响中的可能作用。实验采用 3(帮助条件：无帮助条件、想象在不熟悉场景的帮助行为条件、想象在熟悉场景的帮助行为条件)×2(诱导条件：情景特异性诱导、控制性诱导)完全被试内设计，因变量为被试在这些事件中的帮助意愿、愿意捐赠的数额、心智化程度和帮助行为的能动性。结果发现：(1) 当想象在熟悉场景下帮助他人时，个体的帮助意愿要显著高于想象事件来自的社交平台条件；(2) 想象未来在熟悉的场景下帮助他人时，个体的帮助主观能动性要显著高于想象不熟悉场景条件和社交平台条件；(3) 未来情景模拟中的内部细节数量与帮助意愿存在显著的正相关，即内部细节数量越多，帮助意愿越强烈，但在控制了心智化与帮助主观能动性后，内部细节数量与帮助意愿不再相关，而心智化及帮助主观能动性与帮助意愿存在显著正相关。当前研究结果表明，未来情景模拟能够提升个体的帮助意愿，这种帮助意愿的提升与内部细节数量有关，但这一效应可能受到心智化、帮助主观能动性等更多因素影响，未来研究可以进一步考察未来情景模拟中的内部细节与帮助意愿及行为之间的关系。

关键词　未来情景模拟，亲社会行为，内部细节，情景特异性诱导

The Impact of Episodic Future Simulation on Pro-social Behavior: The Role of Internal Details

Shuyue Chen, Jianqin Wang, Chu Zhou
Department of Psychology, Fudan University, Shanghai, China, 200433, zhouchu@fudan.edu.cn

Abstract： Episodic future simulation refers to people's ability to imagine and simulate future autobiographical events based on current moments or past experience. Episodic future simulation can increase people's willingness to help others through episodic vividness, emotion and mentalizing, and this process is also moderated by moral beliefs. In terms of episodic vividness, previous studies have focused on subjective vividness, controlling the subjective vividness of subjects' episodic future simulations through scenario familiarity, lacking analysis of other indicators of vividness, while the abundance of internal (episodic) details is an important factor in reflecting subjective vividness, and it is a key element of the constructive episodic simulation hypothesis, so the amounts of internal details can be introduced as an objective indicator to further examine the key role it may play in the effect of episodic future simulation on pro-social behavior. Therefore, this study plans to conduct episodic future simulation to simulate a situation in which subjects help others and introduce episodic specificity induction to increase the amounts of internal details when simulating and examine the possible role of internal details in the influence of episodic future simulation on pro-social behavior. The study used 3 (Helping condition: no helping condition, imagining helping behavior in unfamiliar location, and imagining helping behavior in familiar location) × 2 (Induction conditions: episodic specificity induction, control induction) complete within-subject design. The dependent variables were subjects' willingness to help, the amount they were willing to donate, mentalizing, and their ability to help. The results found that (1) individuals' willingness to help others were significantly higher for imagining helping others in familiar locations in the future than for imagining the social media platform from which the event came; (2) the abilities of individuals to help is significantly higher when they imagine helping others in familiar locations than other conditions; and (3) there was a significant correlation between the amounts of internal details and willingness to help, but the correlation were no longer significant after controlling for mentalizing and helping ability. The results show that episodic future simulation can increase an individual's willingness to help, and this increase in willingness to help is related to the amounts of internal details, but this effect may be influenced by more relevant factors such as mentalizing and helping ability. Future research could further examine the relationship between internal details in episodic future simulation and help willingness and behavior.

Keywords： Episodic Future Simulation, Pro-social Behavior, Internal Details, Episodic Specificity Induction

双任务条件下词表属性对词汇工作记忆保持过程的影响

陶布迪　郭晶晶*（通讯作者）
陕西师范大学心理学院，陕西省行为与认知神经科学重点实验室，西安，710062，guojjok@snnu.edu.cn

摘 要　言语工作记忆是个体对于外界输入的言语信息进行暂时存储、加工且容量有限的记忆系统，具有编码、保持和检索三个过程。以往研究发现言语工作记忆的信息保持依赖发音复述、注意刷新和巩固等机制，然而随着学习条件的变化，记忆保持机制如何发生适应性变化并不清楚。本研究操纵记忆词汇表单词间的音、义相似性及词汇频率并结合双任务研究范式，考察词表属性、词频以及干扰因素对言语工作记忆信息保持的效应，揭示记忆保持机制的适应性变化。本研究采用 3（词表类型：语音相似、语义相似和控

制词表）*2（词频：高频和低频）*3（干扰类型：无干扰、发音抑制和认知负荷）的混合设计，其中词频和词表类型为被试内变量，干扰类型为被试间变量。实验包括记忆、延迟保持期与回忆三个阶段。被试首先需记忆匹配记忆跨度的汉字词表，随后在延迟保持期完成干扰任务，同时保持此前看到的汉字，最后书面填写延迟保持期记住的汉字，记录被试的汉字保持量。统计结果显示词频主效应、词表类型主效应以及干扰类型与词类类型的交互作用显著。首先，高频词表的记忆成绩显著高于低频词表，且词频效应在所有词表记忆中都出现；其次，语义相似词表的记忆成绩显著优于控制词表和语音相似词表，同时这种记忆优势不受发音抑制及认知负荷干扰任务的影响。这可能由于语义相似词表词汇间语义关联度高，词汇概念间存在自动化的交叉激活扩散，从而促进了对记忆词汇信息的保持。此外，这种激活扩散机制独立于发音复述和注意资源的影响。最后，语音相似词表的记忆成绩在无干扰条件下显著低于控制词表，但在两种任务干扰下该劣势消失。这表明与控制词表相比，语音相似词表词汇发音相似对词汇记忆造成干扰，但该效应受发音复述和注意刷新状态的调节。总之，研究结果表明，个体的记忆保持机制会随着学习词表属性的不同而发生适应性变化，在词表词汇语义关联度高时可以通过概念自动化激活扩散保持信息，在词表包含语音线索时使用发音复述和注意刷新机制保持信息。
关键词　词频，语音相似性，语义相似性，工作记忆保持机制

The Influence of Word List Properties on lexical Working Memory Maintenance under Dual-Task Conditions

Budi Tao[1] Jingjing Guo[1]*
Shaanxi Provincial Key Laboratory of Behavior and Cognitive Neuroscience, School of Psychology, Shaanxi Normal University, Xi'an 710062

***Abstract*:** Verbal working memory is a limited-capacity memory system that temporarily stores, processes, and retrieves verbal information. It involves three processes: encoding, maintenance, and retrieval. Previous studies has shown that the maintenance of information in verbal working memory relies on mechanisms such as phonological rehearsal, attentional refreshing, and consolidation. However, how memory maintenance mechanisms adapt to changes in learning conditions remains unclear. This study manipulated the phonological and semantic similarity, as well as word frequency, of a memory word list and employed a dual-task paradigm to examine the effects of word list property, word frequency, and interference on verbal working memory maintenance, revealing the adaptive changes in memory maintenance mechanisms. This study adopted a mixed experimental design of 3 (Word List Type: Phonologic Similarity, Semantic Similarity, and Control) * 2 (Word Frequency: High and Low) * 3 (Interference Type: No Interference, Phonological Suppression, and Cognitive Load), with word frequency and word list type as within-subject variables and interference type as a between-subject variable. The experiment comprised three stages: memory encoding, delay retention, and recall. Participants were first required to memorize a list of words of Chinese characters that matched their memory span. During the delay retention phase, they completed interference task while holding the previously seen Chinese characters in memory. Finally, participants provided written recall of the Chinese characters remembered during the delay retention phase, and the quantity of retained characters was recorded. Statistical results revealed significant main effects of word frequency and word list type, and an interaction between interference type and word list type. Firstly, high-frequency word lists demonstrated significantly better memory performance than low-frequency word lists, and this word frequency effect was consistent across all word lists. Secondly, semantically similar word lists exhibited significantly higher memory scores compared to control word lists and phonologically similar word lists, and this memory advantage remained unaffected by the interference tasks of phonological suppression and cognitive load. This may be

attributed to the high semantic associations between words in the semantically similar lists, facilitating automated spreading activation between lexical concepts and promoting memory maintenance. Additionally, this spreading activation mechanism was independent of the effects of phonological rehearsal and attentional resources. Lastly, the memory performance for phonologically similar word lists was significantly lower than control word lists under no interference conditions, but this disadvantage disappeared under both interference tasks. This suggests that phonological similarity among words in the list interfered with lexical memory, but this effect was modulated by the phonological rehearsal and attentional refreshing states. In conclusion, the study results indicate that individuals' memory maintenance mechanisms adapt flexibly to different word list properties. High semantic associations among words in a list can facilitate memory maintenance through automated concept activation spreading, while phonological cues in a word list are maintained using phonological rehearsal and attentional refreshing mechanisms.

***Keywords*:** word frequency, phonological similarity, semantic similarity, working memory retention mechanism

基于精细加工可能性模型的微博信息可信度研究：来自自我报告和眼动的证据

乔冰堰[1]　郭嘉[2]　贾小雯[1]　周蔚[1]（通讯作者）

1 首都师范大学心理学院，北京，100048，通讯作者 zhouwei@cnu.edu.cn

2 北京市朝阳外国语学校，北京，100012

摘 要　数字化时代下，新浪微博这一社交媒体上充斥着海量真假难辨的信息，信息的可信度成为大众关注的重要问题。本研究基于心理说服领域经典的精细加工可能性模型，从行为和认知水平上探索信源、信息呈现形式、转评赞、个体认知需求对可信度感知的影响。实验 1 采用 2（信源：官媒/普通网友）×2（信息呈现形式：文本/图文）×2（转评赞数：高/低）的混合设计，通过问卷调查在行为水平上发现（1）官媒的信源可信度、信息质量和信息可信度显著高于普通网友，图文的信息质量和信息可信度显著高于文本，高转评赞的信息可信度显著高于低转评赞（2）转评赞与信源共同影响信息质量，信息接收者的认知需求在可信度评估中起调节作用。实验 2 使用图文形式的微博作为实验材料，将认知需求作为自变量,借助眼动追踪技术采用 2（信源：官媒/普通网友）×2（转评赞数：高/低）×2（认知需求：高/低）的混合设计从认知水平上探索对这些因素对可信度的影响以及可信度、眼动指标、转发行为的关系。结果发现（1）官媒的信息可信度显著高于普通网友（2）从首次注视前时间和注视次数等眼动指标来看，转评赞影响用户对博主身份的关注，且与信源共同影响对文字的认知加工；认知需求影响用户加工图片和转评赞栏的优先顺序（3）可信度和图片、转评赞栏兴趣区的眼动指标正相关，和转发行为呈正相关，图片兴趣区的访问次数和转评赞栏兴趣区的首次注视时间可以有效预测转发行为。两实验的结果表明，信源和转评赞不仅从边缘路线影响微博用户对博主身份的关注与认知，还从中心路线共同影响对文字内容的精细加工。信息呈现形式从中心路线发挥作用，图片能增加用户对信息精细加工的可能性。不同认知需求的人在信源、信息和转评赞线索的关注程度上存在差异。本研究优化了在新浪微博情境下的精细加工可能性模型，丰富了社交媒体平台上信息可信度的研究。

关键词　社交媒体,信息可信度,认知需求,精细加工可能性模型,眼动追踪

The study of information credibility on social media platform based on the Elaboration Likelihood Model: Evidence from Self-report and

Eye-tracking technology

Bingyan Qiao[1] Jia Guo[2] Xiaowen Jia[1] Wei Zhou[1] (corresponding author)
1 School of Psychology, Capital Normal University, Beijing, 100048, zhouwei@cnu.edu.cn
2 Beijing Chaoyang Foreign Language School, Beijing, 100012

***Abstract*:** The credibility of the information has become a significant matter of public concern in the digital era because Sina Weibo, a new social media platform, is filled with a vast amount of information that is difficult to identify from real ones. The current study examined the influence of information source, presentation form, forward, comment, and like, as well as the need for cognition on the credibility perception from the behavioral and cognitive levels based on the Elaboration Likelihood Model (ELM) in the psychological persuasion field. Experiment 1 adopted a mixed experimental design of 2 (information source: official media/ordinary netizen) × 2 (presentation form: text/picture-plus-text) × 2 (forward, comment, and like: high/low), and found that (1) official media was significantly higher than ordinary netizen on source credibility, information quality, and information credibility, and picture-plus-text was significantly higher than text on information quality and information credibility, and high forward, comment and like was significantly higher than low forward, comment and like on information credibility (2) information source and forward, comment and like jointly influenced information quality, and need for cognition played a moderating role in credibility assessment from the behavioral level through the questionnaire survey. Microblogs in picture-plus-text form were employed as the experimental material in experiment 2, with the need for cognition as one of the independent variables. A mixed experimental design of 2 (information source: official media/ordinary netizen) × 2 (forward, comment, and like: high/low) × 2 (need for cognition: high/low) was used to explore the influence of these factors and relationship among credibility, eye-tracking indicators, and forwarding behavior from the cognitive level using eye-tracking technology. Experiment 2 found that (1) official media was significantly higher than ordinary netizen (2) from eye-movement indicators (e.g., time to first duration (TFF), visit count(VC)), forward, comment, and like affected users' attention to the blogger's identity, and together with information source influenced cognitive processing of text; need for cognition played a moderating role in users' prioritization of the processing of the picture and the forward, comment and like column (3) credibility was positively correlated with the eye movement indicators of the picture and the forward, comment, and like column, and positively correlated with the forwarding behavior, and the more important was that the visit count (VC) to the picture and the first fixation duration (FFD) to the forward, comment, and like column could jointly accurately predict the forwarding behavior. The findings of the two experiments showed that information source and forward, comment and like not only influence attention and cognition of blogger identity from the peripheral route but also jointly affect the elaborate processing of text content from the central route. The presentation form works from the central route, and the picture can boost the potential of elaborate processing. Attention to source, information, and forward, comment and like of individuals with different levels of need for cognition is different. Individuals with varying levels of need for cognition show diverse attention to sources, information, forward, comment, and like. The present study optimized Elaboration Likelihood Model (ELM) under the Sina Weibo situation and enriched the study of information credibility on social media platforms.

Keywords: social media, information credibility, need for cognition (NFC), Elaboration Likelihood Model (ELM), Eye-tracking

面孔和颜色分心物的相对显著性对注意捕获与抑制的影响——来自

ERP 的证据

张悦[1] 付世敏[1]（通讯作者）
1 广州大学教育学院心理系/脑与认知科学中心，广州，510006，
通讯作者 E-mail：fusm@gzhu.edu.cn

摘 要 注意捕获是指视野中突显的刺激会迅速且不自觉地吸引我们的注意。当前研究尚未完全阐明目标与分心刺激的相对显著性变化对注意捕获及抑制的影响。特别地，关于社会信息（如面孔）与知觉信息（如颜色）互为目标和显著分心物时，两者的相对显著性对注意捕获和抑制的影响及神经机制尚无相关研究。本研究采用奇异干扰项范式，让面孔和颜色奇异项在视觉搜索中互相竞争，以探讨相对显著性对颜色和面孔分心物注意捕获和抑制的影响及其神经机制。行为上用反应时测量注意捕获效应，ERP 上用 N2pc 和 P_D 成分分别作为注意捕获与抑制的指标。实验一结果显示，相对显著性较高的面孔分心物先诱发 N2pc，随后诱发 P_D 成分，而相对显著性较低的颜色分心物并未诱发任何成分。这说明当分心物相比于目标的相对显著性较高时，其注意捕获效应更强；反之，其注意捕获效应较弱甚至消失。实验二在实验一的基础上仅通过加粗色环提高颜色物理显著性，结果显示，对颜色、面孔分心物的注意过程都发生了变化。其中颜色分心物诱发了 P_D 成分，且其潜伏期稍晚于 N2pc 成分，这说明颜色分心物的相对显著性提高之后，对其注意过程相应增强；而相对显著性降低的面孔分心物不再诱发 P_D 成分，但仍引起较大的注意捕获效应并诱发 N2pc 成分，这可能是由于面孔分心物作为重要的社会信息具有加工特异性。实验三在实验二的基础上通过模糊化降低面孔的物理显著性，结果显示，相对显著性提高后的颜色分心物引起了更大的注意捕获效应，在 ERP 上先诱发 N2pc 成分，后诱发 P_D 成分，说明相对显著性的提高进一步增强对其的注意捕获和抑制过程；而相对显著性降低后的面孔分心物不存在注意捕获效应且未诱发任何成分，说明面孔分心物的相对显著性降低，对其注意程度也随之减弱。综上所述，面孔分心物的注意捕获和抑制有其特异性；对显著分心物的注意捕获和抑制过程受到其与目标之间相对显著性的影响，分心物的相对显著性越高，对其注意捕获和抑制的程度越强；反之注意捕获和抑制程度越弱甚至不存在。

关键词 相对显著性，注意捕获，注意抑制，N2pc，P_D

Relative saliency affects attentional capture and suppression of color and face singleton distractors: evidence from event-related potential studies

Yue Zhang[1], Shimin Fu[1]*
1 Department of Psychology and Center for Brain and Cognitive Sciences, School of Education, Guangzhou University, Guangzhou 510006, China

Abstract：Attentional capture refers to the rapid and involuntary attraction of our attention by salient stimuli in the visual field. The current research has not fully elucidated the effects of changes in relative saliency between targets and distractors on attentional capture and suppression as well as the underlying neural mechanisms, specifically when social information (such as faces) and perceptual information (such as colors) serve as targets and salient distractors interchangeably. In this study, we employed the additional singleton paradigm to investigate the effects of relative salience on attentional capture (indexed by N2pc) and suppression (indexed by P_D) of color and face distractors in visual search, as well as their underlying neural mechanisms. Experiment 1 revealed that face distractors with higher relative salience elicited the N2pc followed by the P_D, while color distractors did not

elicit components. This finding suggests that when distractors have higher relative salience compared to the targets, their attentional capture effects are stronger. Conversely, when the relative salience of distractors is lower, their attentional capture effects are weaker or even absent. Experiment 2 aimed to enhance the physical salience of colors by using bold color rings based on Experiment 1. The results showed that the attentional processes toward both color and face distractors were affected. Specifically, color distractors elicited the P_D component, with a slightly delayed latency compared to the N2pc component. This finding suggests that the attentional processes toward color distractors are enhanced when their relative salience is increased. While face distractors with decreased relative salience no longer elicited the P_D component. However, they still induced a substantial attentional capture effect and elicited the N2pc component. This may be attributed to the fact that face distractors, as important social information, have specific processing characteristics. Experiment 3 utilized blurring techniques to decrease the physical salience of face distractors based on Experiment 2. The results revealed that color distractors with increased relative salience induced a larger attentional capture effect. In terms of ERP components, the N2pc component was observed first, followed by the P_D component. This finding indicates that the enhancement of relative salience further strengthens the attentional capture and suppression processes toward color distractors. While the face distractors with decreased relative salience did not elicit any attentional capture effects and did not induce any observable components. This suggests that the decrease in relative salience of face distractors reduces the level of attention toward them. In conclusion, attentional capture and suppression of face distractors exhibit specificity; The attentional capture and suppression processes toward salient distractors are influenced by their relative salience compared to the targets. The higher the relative salience of the distractors, the stronger the attentional capture and suppression. Conversely, when the relative salience is lower, the attentional capture and suppression effects are weaker or even non-existent.

Keywords：Relative saliency, attentional capture, attentional suppression, N2pc, P_D

公正世界信念与无辜受害者责备：未来取向的调节作用

蒋紫卉[1]，施霞[2]

1 天津职业技术师范大学职业教育学院学院，天津，300222

2 天津职业技术师范大学职业教育学院学院，天津，300222，shix@tute.edu.cn

摘 要　无辜受害者责备是指人们倾向于将责任归咎于受害者，而不是施害者的一种现象。Lerner 的公正世界信念理论（Believe in a Just World，BJW）为这个现象提出了一种解释，即人们希望并且必须相信他们生活在一个公正的世界中，人们可以得到他们应得的，这样才能使人们在日常生活中对自己的未来充满信任、希望和信心。而无辜受害者的出现威胁到了人们心中普遍存在的“善有善报，恶有恶报”的公正世界信念。为了维持这一信念，人们会采取不同的策略，如责备无辜受害者。未来取向（Future Orientation）作为一种个人特质，是指个体对于未来的期望和计划，包括对于个人能力、机会和成功的信念。过去的实验多集中于通过使用不同的实验材料创建对公正世界信念造成不同威胁程度的场景，以探究人们对受害者的责备。但是对于个人特质在公正世界信念与无辜受害者责备中的作用机制的探究还相对较少。本实验以公正世界信念理论为基础，将未来取向作为一种个人特质，采用根据真实案例改编的实验材料，探究了公正世界信念、未来取向、无辜受害者责备程度三者之间的作用机制，实验共保留 119 名有效被试，结果表明：（1）公正世界信念对无辜受害者责备程度有显著正向预测作用。（2）未来取向在公正世界信念对受害者责备程度中起到显著调节作用，具体体现在：未来取向水平较低时，公正世界信念程度越高，对无辜受害者的责备程度越高，未来取向较高时，公正世界信念对无辜受害者责备无显著影响。本研究选择了基于虚拟世界的网络暴力场景作为实验材料，有较好的时代意义，且案例由真实新闻改编而成，同时采用了较为

成熟的量表进行测量，具有较高的情境性和真实性；研究结果有助于对当今国内网络暴力案例与无辜受害者责备案例进行探讨，具有一定现实意义。
关键词　公正世界信念，无辜受害者责备，未来取向，调节作用

Believe in a Just World and innocent-victim blaming: the moderating role of future orientation

JIANG Zihui[1],SHI Xia[1]

(1 Institute of Vocational Education, Tianjin University of Technology and Education，Tianjin，300222)

Abstract：Innocent victim blaming is a phenomenon in which people tend to blame the victim rather than the perpetrator. Lerner's Believe in a Just World (BJW) theory proposes an explanation for this phenomenon in which people want to, and must, believe that they live in a just world, and that people can get what they deserve, so that in order for people to have trust, hope and confidence in their future in their daily lives. The presence of innocent victims threatens the BJW that " good will be rewarded, and evil will be rewarded ", and in order to maintain this belief, people adopt different strategies, such as blaming innocent victims. Future Orientation, as a personal trait, refers to an individual's expectations and plans for the future, including beliefs about personal capabilities, opportunities, and success. Past experiments have focused on exploring victim blaming by creating scenarios with different levels of threat to BJWs using different experimental materials. However, there has been relatively little exploration of the mechanisms by which personal traits play a role in BJW and innocent victim blaming. Based on the theory of just-world beliefs and taking future orientation as a personal trait, this experiment explored the mechanism of action between just-world beliefs, future orientation, and the level of blame of innocent victims, the experimental materials was adapted from real cases. A total of 119 valid subjects were retained in the experiment, and the results showed that (1) BJW has a significant positive predictive effect on the degree of blame of innocent victims. (2) Future orientation plays a significant moderating role in the degree of victim blaming by BJW, which is reflected in the following: the higher the degree of BJW, the higher the degree of blaming of innocent victims when the level of future orientation is low, and the higher the future orientation, the BJW has no significant effect on innocent victim blaming. This study chose the virtual world-based cyber violence scene as the experimental material, which has a better significance of the times, and the case was adapted from real news, while a more mature scale was used for measurement, which has a high degree of contextuality and authenticity; the results of the study help to explore the cases of cyber violence and the cases of innocent victim blaming in today's domestic, which has a certain degree of practical significance.

Keywords：believe in a just world, innocent victim blame, future orientation, moderating effect

噪音诱发的焦虑促进了双模板搜索

于清玥　任衍具

山东师范大学心理学院，济南，250358，renyanju@163.com

摘 要　当视觉工作记忆中保持两个目标模板，而搜索任务仅需要一个目标模板时，需要进行模板切换。关于焦虑影响视觉搜索中模板切换的研究还存在争议。本研究采用 2（噪音，安静）× 2（单模板，双模板）的实验设计，要求被试搜索特定颜色的线条并对线条的朝向（水平/竖直）做反应。在单模板区块中，被试

只需要搜索某一特定颜色（如绿色）的线条，不需要进行模板切换；而在双模板区块中，被试需要搜索的线条颜色是两种可能颜色中的一种颜色（如蓝色或者绿色），需要进行模板切换。结果发现，相比于安静区块，噪音区块的搜索反应时更短，单模板的搜索反应时显著短于双模板；将双模板区块分为四种情况：前后两个试次的目标只有颜色不同、前后两个试次的目标只有方向不同、前后两个试次的目标颜色和方向都不同、前后两个试次的目标颜色和方向都相同，进一步的分析发现，无论噪音条件还是安静条件，当前后试次的目标颜色和方向都相同时，其反应速度显著快于仅颜色相同或仅方向相同的情况。通过自我报告问卷收集了被试的焦虑水平，发现在噪音区块中，被试感受到更多的焦虑和压力情绪。上述结果表明，随机出现的噪音可以诱导个体产生焦虑情绪，加快个体的反应。单模板区块中不存在噪音带来的收益，在双模板区块中存在噪音带来的收益，不仅加速了模板切换时的反应，也加速了不需要模板切换时的反应。
关键词　视觉搜索，模板切换，工作记忆，焦虑

Noise-induced anxiety improves dual-template search

Qingyue YU, Yanju REN
School of Psychology, Shandong Normal University, Jinan

Abstract：When two target templates are maintained in visual working memory and only one template is required for search task, template switching becomes necessary. There are still some controversies regarding the impacts of anxiety on template switching during visual search. A two (noise, quiet) by two (single template, dual template) experimental design was adopted in the present study and participants were asked to search for the lines of a specific color and respond to their orientations (horizontal/vertical). In the single-template condition, participants searched for lines of a specific color (e.g., green) without the need for template switching. In the dual template condition, participants were required to search for lines of one of two possible colors (e.g., blue or green), necessitating template switching. The results showed that, compared to the quiet block, search reaction times were shorter in the noise blocks, and search reaction times were significantly shorter in the single-template condition compared to the dual-template condition. Within the dual-template blocks, we categorized trials into four types: only colors of targets of the two consecutive trials changed, only orientations changed, both color and orientation changed, and neither of them changed. The results revealed that search for the targets was significantly faster when both color and orientation changed compared to only color or orientation changed regardless of whether the blocks were quiet or noisy. Participants' anxiety levels were assessed through self-report questionnaires, and it was found that they experienced higher levels of anxiety and stress in the noise block. These findings suggest that randomly occurring noise can induce anxiety and improve individual reactions. Additionally, noise-induced benefits were observed in the dual-template condition rather than single-template condition, and it not only facilitated reaction times during template switch but also enhanced reaction times when template switch was unnecessary.
Keywords：visual search, template switching, working memory, anxiety

不同情绪调节策略对高自我相关负性社会反馈遗忘的影响

成欣[1]　范梦瑶[1]　黄志超[1]　刘鹏[1]（通讯作者）
1　山西师范大学教育科学学院，太原，030031，shk1985@126.com

摘　要　负性社会反馈会引发社会疼痛，难以忘记的负性社会反馈会给人带来持久的精神压力，从而增加

精神疾病的风险。因此合理调节负性社会反馈带来的负性情绪和记忆、保护人们心理健康非常重要。以往研究都是以陌生人对被试的“第一印象评价”作为负性社会反馈发送给被试，在生态效度和自我相关性方面还有待提高。相较于陌生人，个体可能会更在意熟人对他们的评价，来自熟人的负性社会反馈引起的负面情绪可能更强烈更难遗忘。因此，本研究旨在探讨熟人发送的社会反馈会引发更强烈的负性情绪且更难以忘记，在此基础上进一步研究认知重评对陌生人发送的负性社会反馈的调节效果更好，而分心对熟人发送的负性社会反馈的调节效果更好。本研究采用社会评价范式，以具有高自我相关性的被试自传体记忆作为实验材料，通过两个实验进行研究。实验一采用单因素两水平（发送者：熟人 vs 陌生人）被试内设计，考察当社会反馈发送者不同时，引发的负性情绪反应和记忆的差别。实验二采用 3（情绪调节策略：认知重评 vs 分心 vs 观看）×2（发送者：熟人 vs 陌生人）被试内设计，考察不同的情绪调节策略对陌生人和熟人发送的负性社会反馈的调节作用。同时结合脑电指标，事件相关电位(event-related potential, ERP)中的晚正电位(late positive potential, LPP)作为情绪调节效果的神经指标，在神经层面考察不同情绪调节策略分别对熟人和陌生人发送的负性社会反馈的情绪反应和记忆的潜在益处和神经机制。结果显示：（1）熟人发送的负性社会反馈引发的情绪反应更强烈，更难忘记；（2）认知重评对陌生人发送的负性社会反馈调节效果更好；（3）分心对熟人发送的负性社会反馈调节效果更好。研究结果表明，针对不同的社会反馈发送者，人们需要采取不同的情绪调节策略更高效地缓解负面情绪，应对精神压力，保障心理健康。
关键词　情绪调节，负性社会反馈，高自我相关，遗忘

Effects of different emotion regulation strategies on high self-related negative social feedback forgetting

Cheng Xin, Fan Mengyao,Huang Zhichao,Liu Peng (corresponding author)
College of Educational Sciences, Shanxi Normal University, Taiyuan，030031

Abstract：Negative social feedback can cause social pain, and unforgettable negative social feedback can bring lasting mental stress to people, thereby increasing the risk of mental illness. Therefore, it is very important to reasonably regulate the negative emotions and memories brought by negative social feedback and protect people's mental health. Previous studies have used strangers' "first impression ratings" as negative social feedback sent to subjects, which could be improved in terms of ecological validity and self-relevance.Compared with strangers, individuals may be more concerned about the evaluation of their acquaintances, and the negative emotions caused by negative social feedback from acquaintances may be stronger and harder to forget. Therefore, the purpose of this study is to explore social feedback sent by acquaintances will lead to stronger negative emotions and more difficult to forget, on this basis, it was further investigated that cognitive reappraisal moderated negative social feedback sent by strangers better, while distraction moderated negative social feedback sent by acquaintances better. In this study, the social evaluation paradigm was used, and the autobiographical memory of subjects with high self correlation was used as the experimental material in two experiments. Experiment 1 utilized a one-way two-level (sender: acquaintance vs. stranger) within-subjects design to examine the differences in negative emotional responses and memories triggered when social feedback senders were different. Experiment 2 used a 3 (emotion regulation strategy: cognitive reappraisal vs. distraction vs. viewing) × 2 (sender: acquaintance vs. stranger) within-subjects design to examine the moderating effects of different emotion regulation strategies on negative social feedback sent by strangers and acquaintances.We also combined with EEG indicators,late positive potential (LPP) in event-related potential (ERP), as a neural indicator of emotion regulation effect,to investigate the potential benefits and neural mechanisms of different emotion regulation strategies on emotional response and memory of negative social feedback sent by acquaintances and strangers at the neural level. The results showed

that: (1) The emotional response caused by negative social feedback sent by acquaintances was stronger and harder to forget; (2) Cognitive reappraisal has a better moderating effect on negative social feedback sent by strangers; (3) Distraction has a better moderating effect on negative social feedback sent by acquaintances. The findings suggest that for different social feedback senders, people need to adopt different emotion regulation strategies to more efficiently alleviate negative emotions, cope with mental stress, and safeguard mental health.

Keywords：emotion regulation, negative social feedback, high self correlation, forgetting

父母婚姻高冲突个体对婚姻刺激的注意偏向研究

李云[1] 来思奇[1] 吴文峰[2]

1 贵州师范大学心理学院,贵阳,550025

2 贵州师范大学心理学院,贵阳,550025,wwfhsd@aliyun.com

摘 要　未婚群体婚姻相关研究是近年研究的热点，已有研究表明父母婚姻冲突是导致个体产生婚姻恐惧的重要影响因素。然而，尽管有研究发现父母婚姻冲突会使得个体降低婚恋意愿，但是尚不清楚父母婚姻冲突是如何影响个体的认知加工过程的。因此，本研究随机选取 700 名大学生为研究对象采用《子女感知父母冲突量表》筛选出 33 名父母婚姻高冲突个体，并以 33 名父母婚姻低冲突个体为对照组进行实验。实验采用 2（被试类型：父母婚姻高冲突个体、父母婚姻低冲突个体)x2(刺激类型：婚姻积极-中性、婚姻消极-中性)x2（探测位置：一致、不一致)三因素混合实验，被试间变量是被试类型，被试内变量是刺激类型和探测位置，通过点探测范式探索父母婚姻高冲突个体对婚姻刺激的注意偏向情况。对实验数据采用传统注意偏向分数计算法结合基于注意过程动态变化的 TL-BS 法进行计算，结果如下：(1)传统指标显示：父母婚姻高冲突组对消极刺激的注意偏向分数达到显著 $t(32)=-2.52, p<0.05$，说明父母婚姻高冲突组对婚姻消极刺激存在注意偏向，其余均未达到显著。(2)动态指标显示：在平均朝向分数上，被试类型与刺激类型交互作用显著，$F(1,64)=6.76, p=0.012, \eta^2 p= 0.096$。简单效应分析显示，父母婚姻高冲突组对不同刺激类型反应时存在显著差异，对积极婚姻刺激的反应时显著高于消极刺激($p<0.05$)，其余效应皆不显著。结论：父母婚姻高冲突个体对婚姻消极刺激存在注意偏向。

关键词　父母冲突，婚姻，点探测范式，注意偏向

A Study on Attention Bias of Individuals with High Conflict in Parental Marriage towards Marriage Stimulus

Li,Y., Lai,S.,Wu,W.

Guizhou Normal University,Guiyang City

Abstract:The attitude of unmarried individuals towards marriage has been a hot topic of research in recent years, and studies have shown that parental marital conflict is an important influencing factor that leads to individual fear of marriage. However, although some studies have found that parental marital conflict can reduce individuals' willingness to engage in marriage, it is still unclear how parental marital conflict affects individuals' cognitive processing. Therefore, this study randomly selected 700 college students as the research subjects and used the "Children Perceived Parental Conflict Scale" to screen out 33 individuals with high parental marital conflict, and conducted the experiment with 33 individuals with low parental marital conflict as the control group. The experiment used a three factor mixed experiment of 2 (subject type: high conflict individuals in parental marriage, low conflict individuals in parental marriage) x2 (stimulus type: positive neutral in marriage, negative neutral in

marriage) x2 (detection position: consistent or inconsistent). The inter subject variable was the subject type, and the intra subject variable was the stimulus type and detection position. The point detection paradigm was used to explore the attention bias of high conflict individuals in parental marriage towards marriage stimuli. The experimental data was calculated using the traditional attention bias score calculation method combined with the TL-BS method based on dynamic changes in the attention process. The results are as follows: (1) Traditional indicators show that the attention bias score of the high conflict group of parents' marriage towards negative stimuli is significant $t(32)=-2.52$, $p<0.05$,It indicates that the high conflict group of parents' marriage has a attentional bias towards negative marital stimuli. The rest did not reach significant levels. (2) Dynamic indicators show that in terms of average orientation score, the interaction between subject type and stimulus type is significant,$F(1,64)=6.76$,$p=0.012$,$\eta^2p = 0.096$ 。 Simple effect analysis showed that there were significant differences in the response time of the high conflict group in parental marriage to different types of stimuli, and the response time to positive marital stimuli was significantly higher than that to negative stimuli ($p<0.05$). The other effects are not significant. Conclusion: Individuals with high levels of parental marital conflict tend to pay attention to negative marital stimuli.

***Keywords*:**Parent conflict, marriage, point detection paradigm, attention bias

内外源线索对工作记忆中情绪记忆增强效应的调控作用

范梦瑶 [1] 成欣 [1] 黄志超 [1] 刘鹏 [1]

1 山西师范大学教育科学学院，太原，030031，shk1985@126.com

摘 要 以往研究在工作记忆任务中发现情绪记忆增强效应，即与工作记忆任务无关的情绪性图片的记忆效果更差。基于“记忆增强效应”和认知资源理论，情绪性信息优先得到注意进行加工，进而阻碍工作记忆表现，而不同的线索会引导个体做出不同的注意选择，减弱负性情绪对工作记忆的阻碍效应。目前从线索的角度探讨负性情绪对工作记忆影响的研究较少，因此，本研究拟探讨不同类型的线索对工作记忆中情绪记忆增强效应的调控作用。本研究分成两个部分，第一部分采用 N-back 范式进行 2（记忆负荷：0vs2）×2（面孔效价:中性 vs 负性）的实验，验证工作记忆中的情绪记忆增强效应；第二部分采用延迟再认任务在第一部分的基础上进行 2（记忆负荷：0vs2）×2（面孔效价:中性 vs 负性）×2（提示类型：图片 vs 语义）的实验，并结合事件相关电位验证不同类型的线索是否会影响工作记忆中的情绪记忆增强效应。结果显示，1)低记忆负荷下，被试对负性面孔的记忆效果和反应速度均优于中性面孔，高记忆负荷下，被试对中性面孔的记忆效果优于负性面孔，但反应速度比负性面孔较差；2)低记忆负荷下，对于负性面孔的识别，被试在图片线索提示下的反应速度和记忆效果均优于语义线索提示，而对于中性面孔，两种线索提示下的反应速度和记忆效果没有显著差异。高记忆负荷下，相比于语义线索提示，图片线索提示下被试对负性面孔的记忆效果和反应时均较低，而对中性面孔，这种差异不显著；3)无论负性还是中性面孔的识别，高记忆负荷下会诱发更大的 CDA 波幅。不同记忆负荷下，对于负性面孔的识别，不同类型线索诱发的 N2pc 波幅有显著差异，而对于中性面孔的识别，不同线索诱发的 N2pc 波幅差异不显著。以上结果揭示了相比语义线索，图片线索对工作记忆中情绪记忆增强效应的削弱效果更明显。本研究从线索这一新颖的角度探讨了其对工作记忆中情绪记忆增强效应的调控效果，丰富了负性情绪对工作记忆影响的相关研究。

关键词 负性情绪，工作记忆，线索，情绪记忆增强效应

The regulatory effect of endogenous and exogenous cues on the enhancement of emotional memory in working memory

Fan Mengyao, Cheng Xin, Huang Zhichao, Liu Peng
College of Educational Sciences, Shanxi Normal University, Taiyuan,030031

***Abstract*:** Previous studies have found that emotional memory enhancement effect in working memory tasks, That is, emotional images that are not related to working memory tasks are worse remembered. Based on the "memory enhancement effect" and cognitive resources theory, emotional information is preferentially processed for attention, thus hindering the performance of working memory, while different cues will guide individuals to make different attention choices, weakening the hindering effect of negative emotions on working memory. So far, there are few researches on the influence of negative emotions on working memory from the perspective of cues, therefore, this study aims to explore the regulatory effects of different types of cues on the enhancement of emotional memory in working memory.

This study is divided into two parts, in the first part, the experiment of 2 (memory load: 0vs2) ×2 (face valence: neutral vs negative) was conducted using N-back paradigm to verify the enhancement effect of emotional memory in working memory. In the second part, on the basis of the first part, a 2 (memory load: 0vs2) ×2 (face valence: neutral vs negative) ×2 (cue type: picture vs semantic) experiment was conducted using the delayed recognition task, and the event-related potentials were combined to verify whether different types of cues would affect the enhancement effect of emotional memory in working memory.

It was found that, under low memory load, the memory effect and reaction speed of negative faces were better than that of neutral faces, and under high memory load, the memory effect of neutral faces was better than that of negative faces, but the reaction speed was worse than that of negative faces. It was showed that in experiment two, under low memory load, for the recognition of negative faces, the response speed and memory effect of the picture cue were better than those of the semantic cue, while for the neutral face, the response speed and memory effect were not significantly different under the two cues. And under high memory load, compared with semantic cue, the memory effect and reaction time of negative faces were lower under picture cue, but the difference was not significant for neutral faces. Besides, regardless of negative or neutral face recognition, high memory load induced greater CDA amplitude. Under different memory loads, the N2pc amplitude induced by different types of cues was significantly different for negative face recognition, while the N2pc amplitude induced by different cues was not significantly different for neutral face recognition.

These results suggest that picture cues have a more significant weakening effect on emotion enhancement in working memory than semantic cues. In this study, the regulation effect of cue on the enhancement of emotional memory in working memory was explored from the novel perspective of cue, which enriches the relevant research on the influence of negative emotion on working memory.

***Keywords*:** negative emotion, working memory, cue, emotional memory enhancement effect

自闭症谱系障碍对人类与非人类面孔的情绪识别

陆梦楠　邓欢（通讯作者）
淮北师范大学教育学院，淮北，235025，zxl0847@126.com

摘 要　社会沟通与交往障碍是自闭症谱系障碍（Autism spectrum disorder，ASD）的常见特征。梳理相关研究发现，人类面孔对于 ASD 个体似乎有着不一样的意义。有研究报告称，与正常发展（Typically developing，TD）组相比，ASD 组在人类面孔情绪识别方面存在缺陷；但对非人类面孔的情绪识别，两组并无显著差异。这是因为 ASD 在处理情绪面孔时，采用的是不同于 TD 个体的“特异性”策略，即非典型面部处理策略。它

的“特异性”就在于 ASD 只有处理人类情绪面孔时才会使用。目前解释 ASD 对人类面孔的“特异性”的理论主要包括杏仁核理论和社会动机理论。

这种策略主要表现为 ASD 采用的非典型眼神注视模式。有研究结果显示，与 TD 组相比，ASD 组对人类面孔的眼睛关注较少；而对于非人类情绪面孔的眼睛，两组并无显著差异。针对眼神注视减少这一现象有两个假说：凝视厌恶与凝视冷漠。也有研究者从自闭症的杏仁核理论延伸，提出了杏仁核的两种唤醒模型，杏仁核的低激活模型与过度唤醒模型。

目前研究对于 ASD 处理人类面孔的内在机制并没有一个明确的解释。有关干预 ASD 面部情绪问题大多都是借助非人类面孔来进行，这并不能从根本上解决人类面孔对于 ASD 的难题。未来研究可在综合考虑人类面孔与非人类面孔之间的联系及任务类型的基础上，进一步探究其加工特征，明确其内在机制并对其做出更适宜的干预措施。

关键词　自闭症，面孔情绪识别，非典型处理策略，眼神回避

Emotion recognition toward human and nonhuman faces in individuals with autism spectrum disorder

Lu Mengnan，Deng huan

Faculty of Education，Huaibei Normal University；Huaibei 23502

Abstract：Social communication and interaction disorder is a common feature of Autism spectrum disorder (ASD). According to relevant research, human faces seem to be differently meaningful for individuals with ASD. Researches found that compared to the Typically Developing (TD) group, ASD group has deficiencies in human facial emotion recognition. However, there was no significant difference in the emotional recognition of nonhuman faces between the two groups. This is because ASD uses a "specific" strategy different from TD individuals when dealing with emotional faces, which is an atypical facial processing strategy. Its specificity lies in the fact that ASD is only used during dealing with human emotional faces. The current theories explaining the "specificity" of ASD to human faces mainly include the amygdala theory and social motivation theory.

This strategy is mainly manifested in the atypical eye gaze pattern adopted by ASD. Researches showed that compared to the TD group, the ASD group pays less attention to the eyes of human faces. For the eyes of nonhuman emotional faces, there was no significant difference between the two groups. There are two hypotheses regarding the phenomenon of reduced eye gaze: gaze aversion and gaze indifference. Some authors also extended the theory of amygdala of autism and proposed two arousal models of Amygdala, low activation model and excessive arousal model of amygdala.

There is no clear explanation for the intrinsic mechanism of ASD processing human faces in research. Most interventions related to facial emotional issues in ASD are carried out utilizing nonhuman faces, which cannot fundamentally solve the problem of human faces facing ASD. Future research can further explore the processing characteristics of human and nonhuman faces, clarify their underlying mechanisms, and make more appropriate interventions based on a comprehensive consideration of the connection between human and nonhuman faces and task types.

Keywords：autism, facial emotion recognition, atypical processing strategy, eye avoidance

汉语阅读中词类信息对情绪负载词加工影响的眼动研究

李秦宇　李 烨　李世菊　吴汶君　仝 文（通讯作者）

山西师范大学教育科学学院心理系，太原，030031
E-mail：twaaa@126.com

摘 要　情绪负载词是指不直接表达或描述情绪状态，而是通过其情感内涵间接表达或唤起个体情绪反应的一种情绪词，如“礼物”为积极情绪负载词，“眼泪”为消极情绪负载词。词类信息指词的用法和功能，主要包括动词、名词、形容词等。以往一系列研究表明，相比中性词，情绪负载词存在加工优势，但有关情绪负载词加工机制及其影响因素的研究仍处在初级探索阶段，词类信息影响情绪负载词加工的特点尚不清楚。本研究采用眼动追踪技术，以情绪负载词为研究材料，探讨汉语阅读中词类信息对情绪负载词加工的影响模式随时间进程的变化特点，从而探索汉语阅读中情绪负载词的加工规律，实验一采用 2（目标词情绪性：积极情绪负载词、消极情绪负载词）×3（目标词词类：名词、动词、形容词）的两因素被试内设计，考察不同词类信息情绪负载词在自然阅读中的加工特点。实验二包括两项子实验，目标词分别为积极/消极情绪负载词，利用消失文本范式，采用 2（目标词消失时间：40ms、80ms、120ms、不消失）×3（词类：名词、动词、形容词）的两因素被试内设计，通过比较不同消失时间下不同词类情绪负载词的加工差异，来考察词类信息对情绪负载词加工的影响特点。结果发现：在自然阅读中，在积极情绪负载词条件下，名词在凝视时间和总注视时间上显著小于动词和形容词，而在消极情绪负载词中不存在这一现象；积极、消极情绪负载词在 40ms 消失条件下，形容词在首次注视时间和凝视时间上显著小于名词和动词；而总注视时间上名词表现出更大优势，这种优势在 80ms 的消失条件下依然存在；在不消失的条件下，仅形容词积极情绪负载词在首次注视时间和凝视时间上表现出加工优势。实验结果说明词类信息会影响情绪负载词的加工，且这种影响随时间进程变化，并受到情绪效价调节。实验结果能帮助我们深入了解汉语阅读过程中词类信息对情绪负载词加工影响的眼动特点，更好地考察认知和情绪加工共同作用的机制。
关键词　汉语阅读，词类信息，情绪负载词，眼动

The influence of word class information on emotion-laden words processing in Chinese reading: An eye movement study

Qinyu Li　Ye Li　Shiju Li　Wenjun Wu　Wen Tong
Department of Psychology, Shanxi Normal University, Taiyuan, 030031
E-mail：twaaa@126.com

Abstract：Emotion-laden words refer to a type of emotional word that indirectly expresses or evokes individual emotional responses through their emotional connotations, rather than directly stating or describing emotional states. For example, "gift" is a positive emotion-laden word, while "tears" is a negative emotion-laden word. Word class information refers to the usage and function of words, including verbs, nouns, adjectives, etc. Previous studies have shown that emotion-laden words have processing advantages compared to neutral words. However, research on the processing mechanisms and influencing factors of emotion-laden words is still in its early stages, and the characteristics of how word class information affects the processing of emotion-laden words are not yet clear.This study used eye-tracking technology and emotion-laden words as research materials to explore the changing patterns of the influence of word class information on the processing of emotion-laden words during Chinese reading. The aim was to investigate the processing patterns of emotion-laden words in Chinese reading. Experiment 1 adopted a 2 (Emotionality of target word: positive emotion-laden words,negative emotion-laden words,) × 3 (Word class of target word: noun, verb, adjective) within-subject design to examine the processing

characteristics of emotion-laden words with different parts of speech during natural reading.Experiment 2 also comprised two sub-experiments with target words being positive/negative emotion-laden words. Using the disappearing text paradigm, it employed a 2 (Disappearance time of target word: 40ms, 80ms, 120ms, non-disappearing) × 3 (Word class: noun, verb, adjective) within-subject design to compare the processing differences of emotion-laden words with different word class under various disappearance times and investigate the characteristics of word class information's influence on emotion-laden word processing.The results revealed that for natural reading， under positive emotion-laden words conditions, nouns had significantly shorter gaze duration and total fixation duration than verbs and adjectives, but no such phenomenon was observed for negative emotion-laden words. For positive and negative emotion-laden words under the 40ms disappearance condition, adjectives had significantly shorter first fixation duration and gaze duration than nouns and verbs. However, nouns exhibited greater advantages in total fixation duration, which persisted even under the 80ms disappearance condition. Under the non-disappearance condition, only positive emotion-laden adjectives demonstrated processing advantages in first fixation duration and gaze duration. The experimental results indicated that word class information influences emotion-laden word processing and this influence varies over time, being modulated by emotional valence. The findings can help us gain a deeper understanding of the eye movement characteristics of word class information's influence on emotion-laden word processing during Chinese reading process, and better investigate the joint mechanisms of cognition and emotional processing.
Keywords：Chinese Reading,Word class information,Emotion-laden words,Eye movement

短视频过度使用与大学生认知控制能力关系——走神的中介作用

谭佳英 吴国来（通讯作者）
天津师范大学心理学部，天津，300382，wuguolai@tjnu.edu.cn

摘 要　随着移动互联网技术的发展，移动短视频越来越受大众欢迎，特别是喜爱追赶潮流的大学生，但是短视频过度使用会带来一系列的负面影响，相关研究发现短视频过度使用显著降低了大学生的主观幸福感，还导致了成绩降低、注意力分散以及时间管理不善等问题。认知控制（Cognitive Control）指的是一系列具有挑战性的自上而下的心理过程。认知控制有三个主要组成部分，分别为抑制控制、工作记忆和认知灵活性。但以往研究却未探讨短视频过度使用与认知控制的关系及其作用机制。为了更全面地了解短视频过度使用对大学生认知控制功能的影响及其作用机制，本研究探讨短视频过度使用与认知控制的关系，以及在两者关系中走神的中介作用。走神（Mind Wandering，MW）是指注意从当前任务或者外部事件转移到内部自发思维和情感的一种现象。研究中采用了短视频过度使用量表、执行控制自评量表以及白日梦量表对 180 名在校大学生进行调查，研究结果表明：（1）短视频过度使用与认知控制之间存在显著相关，短视频使用越频繁，认知控制能力越差。（2）短视频过度使用与认知控制的三个子成分，抑制控制、工作记忆以及认知灵活性也存在显著正相关。（3）走神在短视频过度使用与认知控制之间起部分中介作用。本研究证实了过度使用短视频的确对大学生的认知控制能力有负面影响，有利于让用户合理安排短视频使用时间，防止沉迷。也能够为短视频应用防沉迷体系的后续优化措施提供新的思路，同时对网络监管部门规范短视频平台的运行提供一定的依据。
关键词　短视频使用，认知控制，走神

The Relationship Between Excessive Use of Short-form Video and College Students' Cognitive Control Ability-The Mediating Role of Mind wandering

Tan Jiaying Wu Guolai
Tianjin Normal University, Tianjin, 300381, wuguolai@tjnu.edu.cn

Abstract：With the development of mobile Internet technology, mobile Short-form Video are becoming more and more popular with the public, especially college students who like to catch up with the trend, but the excessive use of Short-form Video will bring a series of negative effects, and relevant studies have found that excessive use of Short-form Video significantly reduces the subjective well-being of college students, and also leads to problems such as reduced grades, distraction and poor time management. Cognitive control refers to a series of challenging top-down mental processes. Cognitive control has three main components, namely inhibitory control, working memory, and cognitive flexibility. However, previous studies have not explored the relationship between Short-form Video overuse and cognitive control and its mechanism. In order to understand the impact of Short-form Video overuse on college students' cognitive control function, this study explores the relationship between Short-form Video overuse and cognitive control, and the mediating role of mind wandering in the relationship between the two. Mind Wandering (MW) refers to a phenomenon in which attention shifts from the current task or external event to internal spontaneous thinking and emotion. In this study, the Short-form Video overuse scale and the executive control self-rating scale were used to survey 180 college students, and the results showed that: (1) there was a significant correlation between Short-form Video overuse and cognitive control, and the more frequent the use of Short-form Video, the worse the cognitive control ability. (2) There was also a significant positive correlation between the overuse of Short-form Video and the three subcomponents of cognitive control, inhibition control, working memory and cognitive flexibility. (3) Mind wandering plays a partial mediating role between overuse of Short-form Video and cognitive control. This study confirms that excessive use of Short-form Videos does have a negative impact on the cognitive control ability of college students, which is conducive to allowing users to reasonably arrange the use of Short-form Video and prevent addiction. It can also provide new ideas for the subsequent optimization measures of the anti-addiction system for Short-form Video applications, and provide a certain basis for network regulatory authorities to standardize the operation of Short-form Video platforms.

Keywords：Short-form Video Use, Cognitive Control, Mind Wandering

婴幼儿的大脑偏侧化

王庭栋[1] 于文汶[2] 张丹丹[1,2]
1 四川师范大学脑与心理科学研究院，成都，610066
2 深圳大学心理学院，深圳，518060，zhangdd05@gmail.com

摘 要　在大多数神经系统健康的成年人中，都存在大脑功能偏侧化的现象。其实早从胎儿时期开始，大脑的结构和功能就开始展现出偏侧化的趋势。偏侧化涉及到婴幼儿语言和情绪的加工与学习，对一个人的成长至关重要。而且当大脑出现非正常偏侧化时，婴幼儿还会患上自闭症、强迫症等神经或精神障碍疾病。本文主从婴幼儿大脑的结构及静息态研究、语言加工、情绪加工几个方面，论述了婴幼儿大脑偏侧化的认

知神经科学研究进展，希望能对大脑偏侧化产生和发展提供汇聚性的证据。目前发现，就婴幼儿大脑结构来说，一些脑区体积、皮层厚度、皮层面积、皮层褶皱均存在不对称的现象。静息态研究也发现了左右半球功能网络效率存在偏侧化。学者们对于婴幼儿语言加工偏侧化的研究结果较为一致，普遍认为是左偏化。相反，对于情绪加工的偏侧化则有着很多不一样的理论与研究结果同时存在，但如果将所有的情绪种类综合起来看，大多数实验结果仍旧支持情绪加工右偏化这一观点。另外，言语加工和情绪加工是两个非常复杂的认知功能，婴幼儿可能在多种情况下同时进行了言语加工和情绪加工，它们之间的发展可能存在着相互影响。未来也可以从语言和情绪加工的相互作用上入手，来探讨大脑的偏侧化以及大脑整体的发育和发展。
关键词　神经学证据，婴幼儿，偏侧化，语言，情绪

Infant and young children's brain lateralization

Tingdong Wang[1] Wenwen Yu[2] Dandan Zhang[1,2]
1 Institute of Brain and Psychological Science, Sichuan Normal University, Chengdu, 610066
2 School of Psychology, Shenzhen University, Shenzhen,518060, zhangdd05@gmail.com

Abstract：In most neurologically healthy adults, there exists a phenomenon of brain lateralization, which actually begins to manifest during the fetal stage. Lateralization not only involves the development of crucial cognitive abilities such as language and emotions in infants and young children but also plays a role in the occurrence of neurological or psychiatric disorders when abnormal lateralization occurs in the brain. Studies focusing on the brain structure and resting state of infants and young children have paid close attention to certain brain regions responsible for dominant functional lateralization. Regarding the brain structure of infants and young children, various brain regions exhibit asymmetry in terms of volume, cortical thickness, cortical area, and cortical folding. Resting state studies have also found lateralization in the efficiency of functional networks between the left and right hemispheres. Research results regarding the lateralization of language processing in infants and young children are quite consistent, consistently favoring left lateralization. Conversely, there are various theories and research results regarding the lateralization of emotion processing, but when considering all emotion types together, most experimental findings still support the view of right lateralization in emotion processing. This article focuses on several aspects of infant brain development, including structural and resting-state studies, language processing, and emotion processing. It discusses the progress in cognitive neuroscience research on infant brain lateralization, aiming to provide comprehensive evidence for the emergence and development of brain lateralization. Moreover, language processing and emotion processing are two highly complex cognitive functions, and infants and young children may engage in both language and emotion processing simultaneously under various circumstances. There could be mutual influences between these processes during their development. In the future, exploring the interaction between language and emotion processing could provide insights into brain lateralization and the overall development of the brain.
Keywords：neurological evidence，infants and young children，lateralization，language，emotion

奖赏加工对问题性手机使用的影响：压力的中介作用

宋迪[1]　罗扬眉[1]（通讯作者）
1 陕西师范大学心理学院，西安，710061，通讯作者 Email: yangmeiluo@snnu.edu.cn

摘 要　随着移动通信设备的快速发展，智能手机已经成为人们生活中不可或缺的一部分，人们不仅利用它维持日常活动，还会使用它进行娱乐活动或缓解压力。然而，花费太多时间使用智能手机可能会产生一系列负面影响，这可能伴随着意志控制感的减弱，并诱发持续的智能手机使用行为，甚至会导致问题性手机使用。人-情感-认知-执行模型认为互联网使用障碍是诱发因素（如神经生物学和心理特征）、中介因素（例如对情境触发因素的情感和认知反应，以及执行功能下降）之间相互作用的结果。奖赏加工的异常可能会引发个体对外界压力过度敏感，从而促使个体更多地使用手机来缓解消极情绪，进而增加成瘾的风险。以往研究主要从单一维度探究问题性手机使用的产生机制，而本研究将神经指标与测量相结合，关注问题性手机使用潜在的神经生物学机制和外界影响因素，以对手机成瘾的形成原因有更加深刻的了解。

本研究招募 106 名健康大学生完成金钱激励延迟任务，采用事件相关电位技术来探究线索提示和结果反馈阶段对奖赏的神经反应。同时，使用压力知觉量表、智能手机成瘾量表对被试的特质进行测量，并根据 I-PACE 模型构建一个中介模型来研究奖赏相关的神经指标影响问题性手机使用的作用机制。预期结果为：（1）在线索呈现阶段，奖赏条件下的反应时显著低于无奖赏条件的反应时，且诱发更大的 N2、cue-P3；（2）在结果反馈阶段，与无奖赏条件相比，得到金钱和损失金钱时诱发更大的 RewP。（3）奖赏敏感性（以 RewP 为指标）可以正向预测问题性手机使用的严重程度，以感知到的压力为中介因素。本研究不仅有助于拓宽对问题性手机使用形成机制方面研究的理论意义，而且能为改善手机成瘾问题使用提供指导，充满现实意义。

关键词　奖赏敏感性，压力，问题性手机使用，ERPs，RewP

The impact of reward processing on problematic smartphone use: the mediating effect of stress

Song Di，Luo Yangmei
Shaanxi Normal University, Xi’an, 710062

***Abstract*：** With the rapid development of mobile communication devices, smartphones have become an indispensable part of people's lives. People not only use them to maintain daily activities, but also for entertainment activities or relieve stress. However, spending too much time using smartphones may have a series of negative effects, which may be accompanied by a decrease in willpower control and trigger sustained smartphone usage behavior, and even lead to problematic smartphone use (PSU). The Interaction of Person-Affect-Cognition-Execution(I-PACE) model suggests that internet use disorders are the result of the interaction between triggering factors (such as neurobiological and psychological characteristics), mediating factors (such as emotional and cognitive responses to situational triggers, and decreased executive function). Abnormalities in reward processing may trigger individuals to be overly sensitive to external pressure, prompting them to use mobile phones more to alleviate negative emotions, thereby increasing the risk of addiction. Previous studies mainly explored the mechanism of problematic mobile phone use from a single dimension, while this study combines neural indicators with measurements to focus on the potential neurobiological mechanisms and external influencing factors of problematic mobile phone use, in order to gain a deeper understanding of the causes of smartphone addiction.

In this study, 106 healthy college students were recruited to complete the monetary incentive delay task, and event-related potentials (ERPs) was recorded to explore the neural response to reward in the cue and feedback stages. At the same time, the Chinese perceived stress scale, smartphone addiction scale were used to measure the characteristics of the participants, and an intermediary model was constructed based on the I-PACE model to study the impact mechanism of reward-related neural indicators on PSU. The expected results are: (1) In the cue

presentation stage, the reaction time under reward condition is significantly lower than that no-reward condition, and larger N2 and cue-P3 are induced; (2) In the feedback stage, compared to the no-reward condition, receiving money and losing money induce greater RewP; (3) Reward sensitivity (measured by RewP) can positively predict the severity of PSU, with perceived stress as a mediating factor. This study not only helps to broaden the theoretical significance of studying the formation mechanism of PSU, but also provides guidance for improving the use of mobile phone addiction, full of practical significance.
Keywords：stress，RewP，problematic smartphone use(PSU)，ERPs，reward

甜味体验对于女性亲密关系感知的影响：一项 ERP 研究

郑家兴　陈亚楠（通讯作者）
河南大学教育学部，开封，475000，chenyn@henu.edu.cn

摘 要　已有研究表明，甜味体验可能会影响到女性对亲密关系的感知与判断。尽管现有研究已经从行为层面上证明了甜味体验可以影响女性对亲密关系的感知。然而，现有的研究主要是关注女性在第一人称视角下对自身及他人关系的感知与评价，较少有研究去关注甜味是否会影响女性在第三方视角下对他人的亲密关系的感知与评价。因此，本研究拟以正常女性大学生为被试，来研究甜味体验是否以及如何对女大学生群体的亲密关系感知的行为及电生理反应产生影响。为了做到这一点，我们对被试的味觉进行了操纵，对被试施加甜味及无味两种味觉条件，并将图片评分任务和事件相关电位（ERP）技术相结合，来探讨甜味是否以及如何会对两种类型的亲密关系感知（异性情侣关系、同性同伴关系）产生不同的影响。

在本实验中，被试经历了甜味及无味两种味觉体验，在此期间，他们需要观看两种类型的亲密关系图片，并被要求对两种图片的愉悦度和唤醒度维度进行评分。行为结果显示，甜味体验显著提高了被试对两种关系类型图片的愉悦度及唤醒度评分。脑电结果显示，被试在甜味条件下的观看情侣关系图片时诱发的 N2 成分显著高于同伴关系图片。同时，在观看情侣关系图片的过程中，甜味体验下的被试诱发的 P3 成分显著高于无味体验。此外，在无味条件下，情侣关系图片比同伴关系图片诱发了更大的 LPP 振幅，而在甜味体验下，两种类型图片的 LPP 不存在显著差异。当前结果表明，甜味可以跨模态地影响女性对于亲密关系的感知。这一发现为甜味体验影响女性的亲密关系感知提供了生理层面的证据，也为相关研究者开展后续的研究提供了新的思路。
关键词　味觉，甜味体验，亲密关系，事件相关电位

The effect of sweet taste on women's perception of intimacy: an ERP study

Zheng Jiaxing　Chen Yanan
Henan University, Department of Education, Kaifeng City

Abstract：Research has shown that sweet experiences may affect women's perception and judgment of intimacy. This is despite the fact that existing research has demonstrated at a behavioral level that sweet experiences can affect women's perception of intimacy. However, existing studies mainly focus on women's perception and evaluation of the relationship between themselves and others from the first-person perspective, and few studies focus on whether sweetness affects women's perception and evaluation of the intimate relationship between others from the third-party perspective. Therefore, this study intends to take normal female college students as subjects to

study whether and how sweet taste has an impact on the behavior and electrophysiological response of female college students' intimate relationship perception. To do this, we manipulated the taste of our subjects by subjuring them to both sweet and tasteless taste conditions, and combined the picture scoring task with event related potential (ERP) technology to explore whether and how sweetness affects the perception of two types of intimate relationships (heterosexual couple and same-sex partner) differently.

In this experiment, participants had both sweet and tasteless taste experiences, during which they viewed two types of intimate relationship pictures and were asked to rate the pleasantness and arousal dimensions of both images. The behavioral results showed that sweet taste significantly improved the pleasure and arousal ratings of the two relationship types. ERP results showed that N2 was significantly higher in the heterosexual couple pictures than in the same-sex partner pictures. At the same time, in the process of viewing the relationship pictures, the participants in the sweet experience induced significantly higher P3 composition than the tasteless experience. In addition, in the tasteless condition, the heterosexual couple pictures induced a larger LPP amplitude than the same-sex partner pictures, while in the sweet experience, there was no significant difference in the LPP of the two types of pictures. The current results suggest that sweetness can affect women's perception of intimacy across modes. This finding provides physiological evidence for the effect of sweet taste on women's intimate relationship perception, and also provides new ideas for relevant researchers to carry out follow-up research.
Keywords：Taste,Sweet experience,Intimacy,ERP

社会和情绪反馈对第三方惩罚的影响

杜创一[1] 李泽清[2] 李琳[1] 伍珍[1]（通讯作者）

1 清华大学心理学系，北京，100084

2 清华大学交叉信息研究院，北京，100084，通讯作者 E-maill: zhen-wu@mail.tsinghua.edu.cn

摘 要 个体会作为自身利益没有受损的旁观者，对一系列不公平行为做出惩罚，这就是第三方惩罚(TPP)。作为一种亲社会行为，TPP 对社会个体间的合作与秩序的维护十分重要。为探讨这一行为是否会受到社会反馈和情绪自我强化的影响，本研究利用经济决策范式对大学生样本($N = 90$)进行了测试。实验为被试间设计，参与者被平均随机分配到三种情景(社会鼓励惩罚，社会态度模糊和无社会观察)，观看分配者对接受者实施的不公平分配，然后决定是否对分配者进行有代价的 TPP。我们共记录 15 轮决策，并使用强化学习建模描述特定社会情境下的参与者在其中对个人情绪反馈的学习率和探索率，并采用人际敏感性量表和倾向性道德敏感性量表从特质方面解释可能结果。

研究发现：1）行为结果表明，当受到社会鼓励时，被试更倾向于做出 TPP 行为；当社会态度模糊时，其约束效力反而较之无社会观察更差，被试更少做出 TPP 行为。并且更消极更强烈的初始情绪(得知不公平方案时的情绪)，以及更强烈的真实情绪(做出决策之后的情绪)显著正向预测 TPP 行为；从量表特质来看，被试的人际敏感性越高，倾向性道德敏感性越强，越有可能做出 TPP 行为，这从侧面印证了道德情景和人际感知方面的特质对 TPP 的影响。2）强化学习结果表明，对 TPP 决策的学习和组别的交互作用显著，具体而言，当存在社会观察时，相较于“社会态度模糊”，在“社会鼓励惩罚”情景下的被试对情绪的学习率和探索率更低；另外，相较于“社会态度模糊”的情景，被试在无社会观察时探索率更低，惩罚行为更稳定，受情绪影响更小(时间维度上近期情绪影响更大，学习率更高)。

研究结果支持负面情绪是促使有代价惩罚的主要原因；明确的社会认同有助于个体清晰的价值判断，并且其对 TPP 的促进作用来源于长期的社会化学习，被试也会在社会压力小时进一步依据短时情绪刺激更新 TPP 决策。这揭示了社会和情绪反馈对于 TPP 行为复杂的强化作用，提示我们可以从认知干预和社会政策方面促进 TPP 这一亲社会行为。

关键词 第三方惩罚，社会情景，情绪反馈，强化学习

The Effect of Social and Emotional Feedback on Third-party Punishment

Chuangyi Du, Zeqing Li, Lin Li, Zhen Wu
Department of Psychology, Tsinghua University, Beijing, 100084
Institute for Interdisciplinary Information Sciences, Tsinghua University, Beijing, 100084

***Abstract*:** As a bystander whose own interests are not harmed, individuals will punish a series of unfair behaviors, which is third-party punishment (TPP). As a pro-social behavior, TPP is of great importance to the cooperation between individuals and the maintenance of social order. To explore whether this behavior is influenced by social feedback and emotional self-reinforcement, this study tested a sample of college students (N = 90) using an economic decision-making paradigm. The experiment was a between-subjects design. Participants were randomly assigned to three groups (social encouragement of punishment, social attitude ambiguity, and no social observation), watched the unfair distribution of the distributor to the recipient, and then decided whether to carry out the TPP at own cost. A total of 15 trials were recorded, and reinforcement learning was used to describe the learning rate and exploration rate of individual emotional feedback in specific social scenarios, and Interpersonal Sensitivity Measure (IPSM) and Dispositional Moral Sensitivity Questionnaires (DMSQ) were used to explain potential outcomes from a trait perspective.

The study found that: 1) Behavioral outcomes indicated that participants were more inclined to engage in TPP when they received social encouragement. However, in situations with social attitude ambiguity, the constraining effect was weaker compared to situations with no social observation, leading to fewer TPP actions of the participants. Moreover, more negative and intense initial emotions (emotions upon learning about the unfair distribution) and stronger real emotions (emotions after making decisions) significantly positively predicted TPP behavior. From the perspective of traits, higher levels of interpersonal sensitivity and dispositional moral sensitivity were associated with a higher likelihood of engaging in TPP. This indirectly confirms the impact of moral scenarios and interpersonal perception traits on TPP. 2)The reinforcement learning results revealed significant interactions between the learning of TPP decisions and the group conditions. Specifically, when social observation was present, participants in the "social encouragement of punishment" scenario exhibited lower learning rates and exploration rates of emotions compared to those in the "social attitude ambiguity" scenario. Furthermore, in the absence of social observation, participants showed lower exploration rates and more stable punishment behavior, and were less influenced by emotions (with recent emotions having a greater impact over time, leading to higher learning rates) compared to the "social attitude ambiguity" scenario.

The results of the study support that negative emotions are the primary driver behind costly punishment. Clear social encouragement aids individuals in making decisive value judgments, and its promoting effect on TPP comes from long-term social learning. Moreover, participants also update their TPP decisions based on short-term emotional stimuli, particularly when social pressure is reduced. This highlights the complex reinforcing effects of social and emotional feedback on TPP behavior, suggesting that cognitive interventions and social policies can promote this prosocial behavior.

***Keywords*:** Third-party punishment, Social scenario, Emotional feedback, Reinforcement learning

无聊倾向与时间态度的关系：基于神经振荡的证据

陈蕾　张明明（通讯作者）
辽宁师范大学脑与认知神经科学研究中心，大连，116029
通讯作者 E-mail：zmm1001psy@lnnu.edu.cn

摘 要　无聊是一种常见的认知-情感体验，几乎影响着生活的所有领域。而时间态度（time attitude）是指个人对过去、现在和未来的态度或情绪体验。神经振荡则是一种可以被 EEG 记录的神经元活动的普遍特征，已经被发现是时间感知的潜在机制。本研究将考察时间态度与无聊倾向的关系，并使用静息态脑电技术，探索其背后的脑机制。从一所大学中招募了 38 名（24 名女性）右利手学生作为有偿志愿者，平均年龄为 21.7 岁。实验收集了他们的五分钟闭眼静息态 EEG，并施测了大学生无聊倾向问卷和时间态度量表。静息态数据用 EEGLAB 预处理，然后使用 RECOR 工具箱计算每个脑区的神经振荡，最后用 SPSS 对数据进行皮尔逊相关分析和 PROCESS 对中介效应进行检验。用 Bootstrap 法计算结果发现，中央区 Delta 对现在消极的总路径系数 c (β = 0.35，p = 0.018)显著，中央区 Delta 显著正向预测外部刺激 (β = 0.38，p = 0.022)，外部刺激显著正向预测现在消极 (β = 0.37，p = 0.011)，但 c’ (β = 0.21，p = 0.144) 不显著，其 95%的 Bootstrap 置信区间为[0.005，0.387]；中央区 Delta 对未来积极的总路径系数 c (β = -0.35，p = 0.035)显著，中央区 Delta 显著正向预测外部刺激 (β = 0.38，p = 0.022)，外部刺激显著负向预测未来积极 (β = -0.35，p = 0.036)，但 c’ (β = -0.22，p = 0.191) 不显著，其 95%的 Bootstrap 置信区间为[-0.386，-0.002]；枕叶 Gamma 对过去消极的总路径系数 c (β = 0.38，p = 0.037)显著，枕叶 Gamma 显著正向预测外部刺激 (β = 0.39，p =0.032)，外部刺激显著正向预测过去消极 (β = 0.38，p = 0.022)，但 c’ (β = 0.23，p = 0.195) 不显著，其 95%的 Bootstrap 置信区间为[0.006，0.376]，说明个体对于外部刺激的无聊感在中央区 Delta 振荡和现在消极、中央区 Delta 振荡和未来积极，以及枕叶 Gamma 振荡和过去消极的关系中发挥了完全中介作用。结果表明，个体无聊倾向越高，其时间态度越消极；并且，中央区 Delta 振荡和枕叶 Gamma 振荡在不同的时间指向上发挥了重要作用。

关键词　无聊倾向，时间态度，神经振荡，静息态

The relationship between boredom proneness and time attitude: evidence based on neural oscillations

Chen Lei　Zhang Mingming
Research Center of Brain and Cognitive Neuroscience, Liaoning Normal University, Dalian, Liaoning, 116029

Abstract : Boredom is a common cognitive-emotional experience that affects almost all areas of life. Time attitude refers to an individual's attitude or emotional experience of the past, present, and future. Neural oscillations, a universal feature of neuronal activity that can be recorded by EEG, have been identified as an underlying mechanism of time perception. This study will examine the relationship between time attitude and boredom proneness, and use resting-state EEG technology to explore the brain mechanisms behind it. Thirty-eight (24 females) right-handed students were recruited from a university as paid volunteers, with an average age of 21.7 years. The five-minute resting-state EEG with closed eyes was collected, and the Boredom Proneness Scale and the Adolescent Time Attitude Inventory were tested. The resting-state data were preprocessed with EEGLAB, and then the RECOR toolbox was used to calculate the neural oscillations in each brain region. Finally, Pearson correlation analysis was performed on the data with SPSS and the PROCESS was used to test the mediating effect. Bootstrap method was used to calculate the results. the total path coefficient c (β = 0.35, p = 0.018) of central Delta

was significant for present negative, the central Delta significantly positively predicted external stimulation (β = 0.38, p = 0.022). External stimulation significantly positively predicted present negative (β = 0.37, p = 0.011), but c '(β = 0.21, p = 0.144) was not significant, and its 95% Bootstrap confidence interval was [0.005, 0.387]. The total path coefficient c (β = -0.35, p = 0.035) of central Delta was significant for future positive, the central Delta was significantly positive in predicting external stimulus (β = 0.38, p = 0.022), and external stimulus was significantly negative in predicting future positive (β = -0.35, P = 0.035). p = 0.036), but c '(β = -0.22, p = 0.191) was not significant, and the 95% Bootstrap confidence interval was [-0.386, -0.002]. The total path coefficient c (β = 0.38, p = 0.037) of occipital Gamma for past negative was significant. Occipital Gamma was significantly positive in predicting external stimulus (β = 0.39, p =0.032), and external stimulus was significantly positive in predicting past negative (β = 0.38, p = 0.022). However, c '(β = 0.23, p = 0.195) was not significant, and its 95% Bootstrap confidence interval is [0.006, 0.376]. It shows that the external stimuli of individual boredom play a complete mediating role in the relationship between central Delta oscillation and present negative, central Delta oscillation and future positive, and occipital Gamma oscillation and past negative. The results show that the higher the boredom proneness, the more negative the time attitude; Moreover, the central Delta oscillation and occipital Gamma oscillation play an important role in the different time orientation.
Keywords：boredom proneness, time attitude, neural oscillation, resting-state

个体特质趋近动机对决策的影响——性别的调节作用

李晓毅[1]　何清华[2]（通讯作者）

1 西南大学心理学部，重庆，400015

2 西南大学心理学部，重庆，400015，heqinghua@swu.edu.cn

摘 要　特质趋近动机反映了个体对奖励刺激的敏感程度或接近倾向。先前的研究已经发现，特质趋近动机对个体决策水平有着显著影响。高特质趋近动机的个体往往有着较高的奖励敏感性并表现出更多趋近奖励的风险行为。然而，目前的研究结果并不一致，且大部分研究未考虑性别差异的影响。爱荷华赌博任务是用于评估个体决策能力的常用任务，可以将其看作由模糊决策阶段（前 40 个试次）和风险决策阶段（后 60 个试次）组成的任务。本研究旨在应用爱荷华赌博任务和静息态功能磁共振成像（rs-fMRI）技术，探索不同水平特质趋近动机的个体在决策任务中表现出的性别差异，以及可能与之相关的神经底物。最终共 325 人纳入分析（229 名女性），采用 2（性别：男，女） * 2（特质动机水平：高组，低组）的被试间设计，所有参与者均完成了 8 分钟睁眼静息态扫描。研究结果显示：不同特质趋近动机水平的男性和女性在 IGT 任务中的表现存在差异，且存在与行为相关的神经影像结果。具体结果显示：特质趋近动机水平对 IGT 表现的影响仅存在于男性参与者中。相较于特质趋近动机水平较低的男生，高趋近动机水平的男生在不确定决策，尤其是风险决策阶段表现的更差。在 IGT 任务中，高特质趋近动机的男性更倾向于选择坏牌，这最终会导致更大的损失。同样，静息态功能连接结果显示，与奖励和抑制控制相关的左侧腹外侧前额叶皮层（VLPFC）和左侧枕上回（SOG）之间的功能连接强度与男性在 IGT 中的表现，尤其是 IGT 风险决策阶段的表现呈正相关。我们的研究结果暗示着性别可能在特质趋近动机对决策行为的影响方面扮演着重要的调节角色，并为理解个体决策水平的差异提供了行为和神经方面的支持证据。
关键词　特质趋近动机，爱荷华赌博任务，性别差异

The Effect of Trait Approach Motivation on Decision-making: The Moderating Role of Sex

Xiaoyi Li, Qinghua He
Faculty of Psychology, Southwest University, Chongqing, China, 400015

Abstract: Trait approach motivation reflects an individual's sensitivity or tendency to approach rewarding stimuli. Previous research has discovered that trait approach motivation has a significant impact on a person's capacity for decision-making. Individuals with high trait approach motivation tend to have higher reward sensitivity and exhibit more reward-approaching behaviors. However, the results of the current studies are inconsistent, and most of them do not consider the impact of sex. The Iowa Gambling Task is a common task used to test an individual's decision-making ability. It is divided into two stages: decision-making under ambiguity (the first 40 trials) and decision-making under risk (the last 60 trials). The aim of this study was to investigate sex differences among individuals with different level of trait approach motivation in decision-making tasks, utilizing the Iowa Gambling Task and resting-state functional magnetic resonance imaging (rs-fMRI). Additionally, we also aimed to explore potential neural substrates. 325 adults (229 females) were examined, and all participants underwent an 8-minute eyes-open resting-state scan. Results show that males and females with different level of trait approach motivation perform differently on the IGT. Specifically, the results revealed that trait approach motivation level has a significant impact on IGT performance only in males. Compared to males with lower approach motivation, those with higher approach motivation performed poorer in IGT, especially during the last 60 trials. In the IGT task, males with higher trait approach motivation tend to favor more disadvantageous decks, leading to larger losses. Moreover, the resting-state functional connectivity analysis showed that the strength of functional connectivity between the left ventrolateral prefrontal cortex (VLPFC) and the left supraoccipital gyrus (SOG) was positively correlated with the performance of the males in IGT, especially during the last 60 trials. Our results suggest that sex may play a significant moderating role in the influence of trait approach motivation on decision-making behavior.

Keywords: Trait approach motivation, Iowa gambling task, Sex difference

时间背景调节跨模态主观标准时间表征的电生理证据

庞舒方[1]　丁劭凡[1]　陈有国[1]（通讯作者）
1 西南大学心理学部，重庆，400715
1 西南大学心理学部，重庆，400715，cyg1001@swu.edu.cn

摘 要　人类能够从不同感觉通道中提取时间信息，进行整合形成新的主观标准时间，并作为后续决策的依据，个体这种整合多感觉通道时间信息的能力是人们日常生活中各种学习、决策等活动的基础，也是各种计时模型如经典标量计时模型跨通道属性与贝叶斯推理超模态表征的重要表现，但其神经机制尚不清楚。本研究采用时距比较任务，结合时间背景效应，被试需要比较一个恒定的听觉标准刺激（1.1s）和两种背景下（短时间背景：0.6s,0.8s,1s,1.2s 和长时间背景：1s,1.2s,1.4s,1.6s）的视觉比较刺激，判断哪一时间间隔更长并按键作出反应，同时记录脑电数据。行为结果显示，长背景下的主观相等点和标准差都大于短背景。脑电方面，我们重点考察了重叠区域 1s 和 1.2s 的 CNV 的动态变化过程，结果表明，时间背景并没有对听觉标准时距阶段的 CNV 产生影响，但在视觉比较时距阶段，短背景下的 CNV 在发展的中间阶段时间窗内（1s：550ms-750ms 和 1.2s：550ms-850ms）负于长背景。此外，在比较刺激呈现阶段，长背景下的 CNV 比短背景更晚出现下降趋势。具体来说，在短背景条件下，标准听觉间隔会和比较视觉间隔混合，恒定的听觉时间与较短的视觉时间的平均值等统计信息整合，形成一个新的较短的主观标准时间，当刺激呈现超过这一阈值时，CNV 会出现下降趋势；在长背景条件下，同样的听觉时间会与较长的视觉时间进行整合，形成一个更长的主观标准时间，进而导致 CNV 下降的时间点晚于短背景。该结果表明人类具有跨通道提取

刺激环境统计信息并进行整合的能力，能够结合视觉和听觉的时间信息形成新的主观时间表征，以此为依据作出决策。我们的研究为这种跨通道时间信息的整合提供了电生理方面的证据，也为增强各种时间加工理论模型的跨通道解释力提供了一定支持。
关键词　时间背景，感觉通道，主观标准时间，时间决策，CNV

Electrophysiological evidence for the temporal context modulation of subjective standard time representations across sensory modality

Shufang Pang[1]　Shaofan Ding[1]　Youguo Chen[1] (Corresponding Author)
1 Faculty of Psychology, Southwest University, Chongqing 400715
1 Faculty of Psychology, Southwest University, Chongqing 400715, cyg1001@swu.edu.cn

Abstract：Humans are able to extract time information from different sensory channels, integrate it to form a new subjective standard time, and use it as the basis for subsequent decision-making. This ability of individuals to integrate information from multiple sensory channels is also the basis for various learning and decision-making activities in people's daily life, and is also an important manifestation of the cross-channel attributes of various timing models such as the classical scalar timing models and the supramodal representation of Bayesian inference, but the neural mechanism of which is still not clear. In the present study, we used a temporal comparison task combined with the temporal context effect, in which subjects were required to compare a constant auditory standard stimulus (1.1s) with a visual comparison stimulus in two contexts (short time context: 0.6s,0.8s,1s,1.2s and long time context: 1s,1.2s,1.4s,1.6s), judge which time interval was longer and respond by pressing a key, and simultaneously record the electroencephalogram(EEG). Behavioral results showed that point of subjective equality (PSE) and standard deviations(SD) were greater in the long context than in the short context. For EEG, we focused on the dynamic process of CNV in the overlap regions for 1s and 1.2s, and the results showed that the temporal context did not affect CNV in the auditory standard interval phase, but in the visual comparison interval phase, CNV in the short context in the intermediate time windows (1s: 550ms-750ms and 1.2s: 550ms-850ms) was more negative than the long background. In addition, CNV in the long background showed a downward trend later than in the short background during the comparative stimulus presentation phase. Specifically, in the short background condition, the standard auditory interval would be mixed with the comparative visual interval, and statistical information such as the average of the constant auditory time and the shorter visual time would be integrated to form a new shorter subjective standard time, and when the stimulus presentation exceeded this threshold, the CNV would show a decreasing trend; in the long background condition, the same auditory time would be integrated with the longer visual time to form a longer subjective criterion time, which in turn leads to a later time point of CNV decline than the short background. These results suggest that humans have the ability to extract and integrate statistical information about the stimulus environment across channels, and are able to combine visual and auditory temporal information to form new subjective temporal representations on which to base decisions. Our study provides electrophysiological evidence for this integration of cross-channel temporal information and provides some support for enhancing the cross-channel explanatory power of various theoretical models of temporal processing.

Keywords：temporal context, sensory modality, subjective standard time, temporal decision making, CNV

COVID-19 期间医护人员创伤后应激障碍影响因素的 Meta 分析

张敏[1]，王慧欣[1]，孔令玲[1]，周春姐[2]，张振兴[2]，范文翼[1]（通讯作者）

1 滨州医学院人文与社会科学学院，烟台市，264003，通讯作者 E-mail：fanwenyi163@163.com

2 鲁东大学，烟台市，264025

摘 要 **目的** 通过研究 COVID-19 期间医护人员创伤后应激障碍患病率及其影响因素，为探索改善此类心理状况的干预方法提供科学的理论依据。**方法** 系统检索 PubMed、EMBase、Web of Science、Medline、中国知网、万方及维普网等数据库，获取关于 COVID-19 期间医护人员创伤后应激障碍的患病率及影响因素的横断面研究，检索时限为 2019 年至 2023 年 2 月。由两名研究者独立筛选文献、提取资料并依据美国卫生保健和研究机构的评估标准进行文献质量评价。采用 Stata 14.0 软件进行数据分析。**结果** 共纳入 22 项研究，其中文献质量均为中高等。Meta 分析结果显示，COVID-19 大流行期间医护人员 PTSD 的总体患病率为 33.8%〔95% CI（22.2%，46.6%）〕，其中女性〔OR=1.71，95%CI（1.58，1.95）〕、年龄>40〔OR=1.74，95%CI（1.19，2.56）〕、护士〔OR=2.25，95%CI（1.62，3.11）〕、已婚〔OR=1.49，95%CI（1.23，1.80）〕、有子女〔OR=1.41，95%CI（1.07，1.84）〕、一线工作〔OR=2.17，95%CI（1.58，2.98）〕、慢性疾病病史〔OR=1.54，95%CI（1.32，1.81）〕、精神障碍史〔OR=2.37，95%CI（1.35，4.18）〕、COVID-19 感染史〔OR=1.98，95%CI（1.71，2.28）〕、担心将感染传给他人〔OR=2.34，95%CI（1.33，4.11）〕、个人防护设备问题〔OR=1.63，95%CI（1.33，2.00）〕、对 COVID-19 的恐惧〔OR=3.39，95%CI（1.52，7.57）〕是 COVID-19 期间医护人员 PTSD 的危险因素（P<0.05）;社会支持〔OR=0.41，95%CI（0.31，0.54）〕是 COVID-19 期间医护人员 PTSD 的保护因素（P<0.05）。敏感性分析结果显示，除社会支持外，其他因素均提示分析结果稳健可靠。**结论** COVID-19 期间医护人员中的创伤后应激障碍的患病率较高，且其与多种影响因素有关，女性、年龄>40、护士、已婚、有子女、一线工作、慢性疾病病史、精神障碍史、COVID-19 感染史、担心将感染传给他人、个人防护设备问题、对 COVID-19 的恐惧更易引发医护人员的 PTSD。

关键词 创伤后应激障碍，COVID-19，医护人员，影响因素，Meta 分析

Factors influencing Post-traumatic Stress Disorder in Health Care Workers during the COVID-19 epidemic：A Meta-analysis

Zhang Min[1]，Wang Huixin[1]，Kong Lingling[1]，Zhou Chunjie[2]，Zhang Zhenxing[2],Fan Wenyi[1]

1. Binzhou Medical University College Of Humanities And Social Science，Yantai city

2. Ludong University，Yantai city

***Abstract*：Objective** By studying the prevalence of post-traumatic stress disorder among healthcare workers during COVID-19 and the factors affecting it, we provide a scientific and theoretical basis for exploring intervention methods to improve such psychological conditions. **Methods** A systematic search of PubMed, EMBase, Web of Science, Medline, China Knowledge Network, Wanfang and Vipshop databases was conducted to screen cross-sectional studies on the prevalence and factors influencing post-traumatic stress disorder among healthcare workers during COVID-19, searched from 2019 to February 2023.Literature quality was evaluated based on the American Institutes for Health Care and Research assessment criteria were used to evaluate the quality of the literature.Meta-analysis was performed using Stata 14.0 software. **Results** Finally, 22 papers were included, all of medium to high quality. meta-analysis results showed that the overall prevalence of PTSD among health care workers during the COVID-19 pandemic was 33.8% 〔95% CI（22.2%，46.6%）〕, female〔OR=1.71，

95%CI（1.58，1.95）〕、age >40 〔OR=1.74，95%CI（1.19，2.56）〕、nurse〔OR=2.25，95%CI（1.62，3.11）〕、married 〔OR=1.49，95%CI（1.23，1.80）〕、with children 〔OR=1.41，95%CI（1.07，1.84）〕、 first-line work 〔OR=2.17，95%CI（1.58，2.98）〕、history of chronic illness 〔OR=1.54，95%CI（1.32，1.81）〕、history of mental disorder 〔OR=2.37，95%CI（1.35，4.18）〕、history of COVID-19 infection 〔OR=1.98，95%CI（1.71，2.28）〕、fear of passing infection to others 〔OR=2.34，95%CI（1.33，4.11）〕、problems with personal protective equipment〔OR=1.63，95%CI（1.33，2.00）〕、and fear of COVID-19〔OR=3.39，95%CI（1.52，7.57）〕were risk factors for PTSD among health care workers during COVID-19 (P<0.05); social support〔OR=0.41，95%CI（0.31，0.54）〕was a protective factor for PTSD in healthcare workers during COVID-19 (P<0.05). The results of the sensitivity analysis showed that all factors, except social support, suggested that the analysis was robust and reliable. **Conclusion** The prevalence of PTSD among healthcare workers is higher during COVID-19 and it is associated with a variety of influencing factors. Women, age >40, nurses, married, having children, front-line work, history of chronic illness, history of mental disorders, history of COVID-19 infection, fear of passing the infection to others, PPE issues, and fear of COVID-19 are more likely to trigger PTSD in healthcare workers.

Keywords：Post-traumatic stress disorder, COVID-19, Health care workers, Influencing factors, Meta-analysis

儿童期虐待与忽视、拒绝敏感性、网络约会暴力受害的关系：主-客体互倚模型分析

张雪　徐伟（通讯作者）　吴柔　张敏

滨州医学院人文与社会科学学院，烟台，264003，通讯作者 E-mail：xuwei1379@163.com

摘 要　基于主-客体互倚模型探究大学生情侣的儿童期虐待与忽视和网络约会暴力受害的关系，以及拒绝敏感性在其中所起到的中介作用。采用中文版儿童期虐待问卷（CTQ-SF）、拒绝敏感性量表（RSQ）、数字亲密伴侣暴力问卷（DIPVQ）对 405 对（910 人）异性恋情侣进行问卷调查，恋爱时长为 13.975±14.617 月，有 29.4%的情侣处于异地恋状态。结果表明：①男女双方的儿童期虐待与忽视、拒绝敏感性、网络约会暴力受害两两之间呈显著正相关(r=0.183~0.527, P<0.001)；②无论是男生还是女生，儿童期虐待与忽视能够显著正向预测自身（主体效应。$\beta_{男}$=0.489，P<0.001； $\beta_{女}$=0.363，P<0.001）及对方（客体效应。$\beta_{男}$=0.169，P<0.01； $\beta_{女}$=0.102，P<0.05）网络约会暴力受害；③中介效应检验中，拒绝敏感性在男生的主体效应和客体效应中均起到中介作用，即无论是男生还是女生的拒绝敏感性不仅在男生的儿童期虐待与忽视和男生的网络约会暴力受害的关系中起到中介作用，而且还在女生的儿童期虐待与忽视和男生的网络约会暴力受害的关系中起到中介作用；但拒绝敏感性在女生的主体效应和客体效应中部分起中介作用，即女生的儿童期虐待与忽视通过自身的拒绝敏感性对影响自身的网络约会暴力受害，男生的儿童期虐待与忽视也通过女生的拒绝敏感性影响女生的网络约会暴力受害。研究结果有助于从成对数据视角出发理解大学生情侣间的相互作用，对今后的网络约会暴力受害的相关研究提供理论和实践指导。

关键词　儿童期虐待与忽视，拒绝敏感性，网络约会暴力受害，主-客体互倚模型，大学生

The relation between Child Abuse and Neglect、Rejection Sensitivity and Cyber Dating Violence Victimization: The Actor-Partner Interdependence Model

Zhang Xue, Xu Wei, Wu Rou, Zhang Min
School of Humanity and Social Science, Binzhou Medical University, Yantai, 264003

***Abstract*:** Based on the actor-partner interdependence model, the relationship between child abuse and neglect and cyber dating violence victimization in college couples was explored, and the mediating role of rejection sensitivity. The Chinese version of the Childhood Trauma Questionnaire (CTQ-SF), Rejection Sensitivity Questionnaire (RSQ), and Digital Intimate Partner Violence Questionnaire (DIPVQ) were used to survey 405 pairs (910 people) of heterosexual couples with a relationship duration of 13.975±14.617 months, and 29.4% of couples were in long-distance relationship. The results showed that: ① There were significant positive associations between child abuse and neglect, rejection sensitivity, and cyber dating violence victimization between males and females (r=0.183~0.527, P<0.001); ② Whether males or females, child abuse and neglect can positively predict themselves (actor effect. β_{males}=0.489, P<0.001; $\beta_{females}$=0.363, P<0.001) and the other party (partner effect. β_{males}=0.169, P<0.01; $\beta_{females}$=0.102, P<0.05) cyber dating violence victimization; ③ In the test for mediation effects, rejection sensitivity plays a mediating role in both actor and partner effect of males, in other words, the rejection sensitivity of both males and females is not only mediating the relationship between child abuse and neglect and cyber dating violence victimization in males; It also plays mediating role in the relationship between child abuse and neglect in females and cyber dating violence victimization in males; But rejection sensitivity partially mediated the partner effect and actor effect of females, in other words, females' child abuse and neglect can affect the cyber dating violence victimization through their own rejection sensitivity, males' child abuse and neglect can affect the females' cyber dating violence victimization through females' rejection sensitivity. The results of the study are helpful to understand the interaction between college couples from the perspective of dyadic data, and provide theoretical and practical guidance for future research on cyber dating violence victimization.

***Keywords*:** child abuse and neglect, rejection sensitivity, cyber dating violence victimization, actor-partner interdependence, college students

中文版持续性思维问卷在新兵中的信效度检验和最佳界值研究

陈功金[1] 彭李[1] 许辰[1] 赵爱军[2] 李敏[1*]
1 陆军军医大学医学心理系，重庆，400038
2 95275 部队，广西柳州，545000
* 通信作者，limin52267@tmmu.edu.cn

摘 要 重复性消极思维（Repetitive Negative Thinking，RNT）是一种跨诊断的精神病理风险因素，与焦虑和抑郁症状显著相关。持续性思维问卷（the Perseverative Thinking Questionnaire，PTQ）是德国学者开发用来测量与疾病内容无关的 RNT 的工具。最近有中国学者在两个网络样本中翻译并验证了 PTQ 的中文版本，但是当前中文版 PTQ 还未在我国新兵中进行验证，并且通过 PTQ 评分预测抑郁和焦虑症状还缺乏界值标准。因此，本研究旨在验证中文版 PTQ 在新兵群体的信度和效度，并探讨其最佳界值。采用自编的人口统计学调查问卷、持续性思维问卷（PTQ）、反刍反应量表简版（RRS-10）、宾州担忧问卷（PSWQ）、抑郁自评量表（SDS）、焦虑自评量表（SAS）对某训练基地 2023 年春季入伍新兵进行调查，回收有效问卷 1675 份。采用 SPSS26.0 和 Amos26.0 软件分析中文版 PTQ 的信度和效度，应用受试者工作特征曲线（Receiver operating characteristic curve，ROC）确定 PTQ 预测抑郁和焦虑症状的最佳界值。结果发现中文版 PTQ 及其子量表的 Cronbach'α系数在 0.742~0.935；分半系数在 0.632~0.940；重测系数在 0.605~0.720（P

＜0.01）。中文版 PTQ 总分和子量表分数与反刍（*r*=0.442~0.549, *P*＜0.001）、担忧（*r*=0.568~0.678, *P*＜0.001）、抑郁（*r*=0.530~0.612, *P*＜0.001）、焦虑（*r*=0.547~0.632, *P*＜0.001）均呈正相关。验证性因素分析支持 PTQ 的二阶单因子模型(RMSEA=0.087,CFI=0.922，TLI=0.905,GFI=0.900,NFI=0.916)。此外，中文版 PTQ 预测抑郁和焦虑症状的最佳界值均为 15 分，此时 ROC 曲线下面积分别为 0.800、0.836（*P*＜0.01，*P*＜0.01），敏感度分别为 76.2%、85.3%，特异度分别为 71.7%、68.0%.研究结果说明中文版 PTQ 在我国新兵中具有较好的信效度，可用作新兵 RNT 的跨诊断测量工具，PTQ 预测抑郁和焦虑症状的推荐最佳界值为 15 分，提示我们在给新兵做心理筛查时应重视对 RNT 的测量，并及时对高 RNT（PTQ≥15 分）新兵进行针对性干预，进而降低心理问题的发生率。

关键词　持续性思维问卷，重复性消极思维，临界值，焦虑，抑郁

Psychometric Evaluation of the Chinese version of the Perseverative Thinking Questionnaire among New Recruits

CHEN Gongjin[1]　PENG Li[1]　XU Chen[1]　ZHAO Aijun[2]　LI Min[1]

[1]Faculty of Medical Psychology, Army Medical University, Chongqing

[2]Troop 95275, Liuzhou, Guangxi Province

***Abstract*：** Repetitive negative thinking (RNT) is a transdiagnostic psychopathological risk factor that has a significant impact on anxiety and depression. The *Perseverative Thinking Questionnaire* (PTQ) is a content-independent self-report questionnaire to measure RNT. Recently, Chinese scholars have translated and verified the Chinese version of PTQ in two online samples. However, the current Chinese version of PTQ has not been verified in Chinese recruits, and there is still a lack of critical value standards for predicting depression and anxiety symptoms through PTQ scores. Therefore, this study aims to verify the reliability and validity of the Chinese version of PTQ among new recruits, and explore its optimal critical value. The self-designed Demographics questionnaire, PTQ, Ruminative Response Scale-10 (RRS-10), Penn State Worry Questionnaire (PSWQ), Self-Rating Depression Scale (SDS), Self-Rating Anxiety Scale (SAS), were used to investigate the recruits from a new training institution who joined the air force in the spring of 2023, and 1675 valid questionnaires were recovered. The reliability and validity of the Chinese version of PTQ were analyzed using SPSS 26.0 and Amos 26.0 software, and the receiver operating characteristic curve (ROC) was used to determine the optimal critical value for predicting depression and anxiety symptoms using PTQ. The results showed that the Cronbach'α coefficients of the Chinese version of PTQ and its subscales ranged from 0.742 to 0.935; the split-half coefficients ranged from 0.632 to 0.940; the test-retest coefficient ranged from 0.605 to 0.720 (*P*<0.01). The total score and subscale scores of the Chinese version of PTQ were positively correlated with rumination (*r*=0.442~0.549, *P*<0.001), worry (*r*=0.568~0.678, *P*<0.001), depression (*r*=0.530~0.612, *P*<0.001), and anxiety (r=0.547~0.632, P<0.001). Confirmatory factor analysis supports the second-order single-factor model with three lower-order factors of PTQ (RMSEA=0.087, CFI=0.922, TLI=0.905, GFI=0.900, NFI=0.916). In addition, the best cut-off value of the Chinese version of PTQ for predicting depression and anxiety symptoms is 15, the area under the ROC is 0.800, 0.836 (*P*<0.01, *P*<0.01), the sensitivity is 76.2%, 85.3%, and the specificity is 71.7%, 68.0%, respectively. The results indicate that the Chinese version of PTQ shows good reliability and validity among new recruits in China, and can be used as a transdiagnostic measure for RNT in new recruits. The recommended optimal critical value for predicting depression and anxiety symptoms with PTQ is 15 points. This suggests that we should pay attention to measuring RNT when conducting psychological screening for new recruits, and promptly intervene in high RNT (PTQ ≥ 15 points) recruits to reduce the incidence of psychological problems.

Keywords：perseverative thinking questionnaire, repetitive negative thinking, critical value, anxiety, depression

青少年短视频使用与物质主义：角色认同与沉浸感的中介作用

王思懿 王玉慧（通讯作者）
北京工业大学文法学部，北京，100124，yuhui2020@bjut.edu.cn

摘 要 随着互联网技术、移动手持设备的迅速发展和广泛应用，短视频使用在青少年群体中已经成为一种非常常见的现象。短视频的应用和普及让许多研究者开始关注短视频使用对青少年群体的影响，但目前关于短视频使用与青少年物质主义之间关系的研究相对缺乏。因此，本研究的首要目的是探讨短视频使用与青少年物质主义的关系及内在机制。此外，研究将考察角色认同和沉浸感在短视频使用与物质主义之间的中介作用。研究采用问卷法调查了 626 名中学生（平均年龄 14.62 ± 0.93 岁）的短视频使用强度、角色认同、沉浸感和物质主义。结果发现：①短视频使用与物质主义之间呈现显著正相关；②采用偏差矫正百分位的 bootstrap 法分析中介效应结果表明，角色认同在短视频使用与物质主义之间的中介效应不显著 (indirect effect = -.02, SE = .03, 95%CI = [-.078, .033])，沉浸感在短视频使用与物质主义之间的中介效应显著 (indirect effect = .10, SE = .03, 95%CI = [.053, .160])；③序列中介效应分析表明，短视频使用能够通过角色认同和沉浸感的序列中介作用间接导致物质主义的提升 (indirect effect = .05, SE = .01, 95% CI =[.025, .072])。研究结果有助于揭示青少年短视频使用对物质主义的影响及作用机制，为短视频使用和物质主义之间的关系提供了新的见解。同时，本研究对引导青少年正确进行短视频使用，减少数字时代青少年短视频使用的负面影响具有重要意义。

关键词 青少年，短视频，角色认同，沉浸感，物质主义

Short Video Use and Materialism among Adolescents: The Mediating Roles of Character Identification and Flow Experience

Siyi Wang Yuhui Wang (corresponding author)
Faculty of Humanities and Social Sciences, Beijing University of Technology, Beijing, 100124, yuhui2020@bjut.edu.cn

Abstract: With the rapid development and widespread use of Internet technology and mobile handheld devices, short video use has become a very common phenomenon among the adolescent population. The application and popularity of short videos has led many researchers to focus on the impact of short video use on the adolescent population. However, there is a relative lack of research on the relationship between short video use and adolescent materialism. Therefore, the primary aim of this study is to explore the relationship between short video use and adolescent materialism and the underlying mechanisms. In addition, the study will examine the mediating role of character identification and flow experience in the relationship between short video use and materialism. The study used a questionnaire to investigate the intensity of short video use, character identification, flow experience and materialism among 626 secondary school students (mean age = 14.62 years, *SD* = 0.93). The results found that ① there was a significant positive correlation between short video use and materialism. ② The results of the mediation effect analysis using the bootstrap method with bias correction percentile showed a significant mediation effect of flow experience between short video use and materialism (indirect effect = .10, SE = .03,

95%CI = [.053, .160]) and the character identification between short video use and materialism was not significant (indirect effect = -.02, SE = .03, 95%CI = [-.078, .033]). ③ The analysis of serial mediating effects indicated that short video use could indirectly lead to materialism through the serial mediating effects of character identification and flow experience (indirect effect = .05, SE = .01, 95% CI = [.025, .072]). The findings of the study will help to reveal the effects and mechanisms of adolescent short video use on materialism and provide a new insight into the relationship between short video use and materialism. It also has important implications for guiding adolescents to use short videos properly and for reducing the negative effects of adolescent use of short videos in this digital age.
Keywords**:** adolescents, short video use, character identification, flow experience, materialism

青少年网络真实自我呈现与社交外表焦虑的关系：同伴外貌嘲笑与外表拒绝敏感性的链式中介作用

刘恒[1]　周天梅[2]（通讯作者）　周朝林[3]

1 四川师范大学心理学院，成都，610068

2 四川师范大学心理学院，成都，610068，zhtm6566@sicnu.edu.cn

3　四川天府新区教育科学研究院，成都 610225

摘 要　青春期身体上的迅速发育、心理上的自我意识高涨，使得青少年的关注对象从外部世界转向自己，并且对自己的身体发育、外貌特征非常关心(林崇德，李庆安，2005)。加之未成熟的价值观，青少年极易受外界不良外表信息的影响，造成社交外表焦虑。社外表焦虑会导致饮食失调症、躯体变形障碍、社交不适、注意力不集中、外观安全检查行为（如反复照镜子）等问题(Alcaraz-Ibáñez et al., 2020; Mastro et al., 2016; 甘海英 等, 2020)，所以了解青少年社交外表焦虑的影响因素和形成机制十分必要。研究普遍发现网络真实自我呈现能够增加有益于心理健康的品质，如积极反馈(崔曦曦 等, 2016)。却从未探讨过网络真实自我呈现能否减少不良心理症状的影响，如缓解青少年的社交外表焦虑。并且，同伴在青少年生活中的影响日益重要，如学者发现同伴外貌嘲笑是导致青少年外表拒绝敏感性升高的重要因素(Webb et al., 2017)，且进一步还可能导致社交外表焦虑(Hawes et al., 2020)。而相关研究显示，网络真实自我呈现能够减少人际困扰问题(覃江霞，姜永志，2020; 严番 等， 2021)，降低个体的拒绝敏感性(Hance et al., 2018)。因此，为了探讨青少年网络真实自我呈现能否通过减少同伴外貌嘲笑与降低外表拒绝敏感性来缓解社交外表焦虑。采用量表与回忆启动法对 1200 名青少年（*M*=16.51,*SD*=2.73）进行调查，PROCESS 和结构方程的结果均表明：网络真实自我呈现不仅能直接负向预测青少年的社交外表焦虑，还能分别通过同伴外貌嘲笑、外表拒绝敏感性以及二者的链式中介作用影响社交外表焦虑。即网络真实自我呈现可通过减少同伴外貌嘲笑，从而降低外表拒绝敏感性，进而缓解青少年的社交外表焦虑。
关键词　网络真实自我呈现，同伴外貌嘲笑，外表拒绝敏感性，社交外表焦虑，青少年

The relationship between adolescents' online honest self-presentation and social appearance anxiety: peer appearance teasing Chain mediating effects with appearance-based rejection sensitivity

LIU Heng[1]　ZHOU Tianmei[2]　ZHOU Chaolin[3]

（1 *Sichuan Normal University, Chengdu , 610068*）

（*2 Sichuan Normal University, Chengdu , 610068,* zhtm6566@sicnu.edu.cn）

（3 *Sichuan Tianfu New District Educational Science Research Institute, Chengdu 610225*）

Abstract： The rapid physical development and high psychological self-awareness during adolescence make adolescents' objects of concern shift from the external world to themselves, and they are very concerned about their physical development and appearance characteristics (Chongde Lin, Qingan Li, 2005). Coupled with immature values, adolescents are highly susceptible to the influence of adverse external appearance information, resulting in social appearance anxiety. Social appearance anxiety can lead to problems such as eating disorders, somatoform disorders, social discomfort, inattention, and appearance safety-checking behaviors (eg: repeatedly looking in the mirror) (Alcaraz-Ibáñez et al., 2020; Mastro et al., 2016; Gan, H. et al., 2020), so understanding the influencing factors and formation mechanisms of social appearance anxiety in adolescents it is essential to understand the factor and mechanisms that influence adolescents' social appearance anxiety. Research has generally found that online honest self-presentation can increase beneficial mental health qualities, such as positive feedback (Xixi Cui et al., 2016). However, it has never been explore whether online honest self-presentation can reduce the effects of adverse psychological symptoms, such as social appearance anxiety . Moreover, the influence of peers in adolescents' lives is becoming increasingly important, as scholars have found that peer appearance teasing is an important factor contributing to adolescents' heightened susceptibility to appearance-based rejection sensitivity (Webb et al., 2017) and may further contribute to social appearance anxiety (Hawes et al., 2020). In contrast, related studies have shown that online honest self-presentation can reduce interpersonal distress problems (Jiangxia Qin, Yongzhi Jiang, 2020; Fan Yan et al., 2021) and decrease individuals' rejection sensitivity (Hance et al., 2018). Therefore, to explore whether adolescents' online honest self-presentation can alleviate social appearance anxiety by reducing peer appearance teasing and decreasing appearance-based rejection sensitivity. Using a scale and recall priming method with 1200 adolescents (M=16.51, SD=2.73), the results of both PROCESS and structural equations indicated that online honest self-presentation not only directly and negatively predicted adolescents' social appearance anxiety, but also influenced social appearance anxiety through peer appearance teasing, appearance-based rejection sensitivity, and the chain-mediated effects of both, respectively. That is, online honest self-presentation can reduce appearance-based rejection sensitivity by decreasing peer appearance teasing, which reduces adolescents' social appearance anxiety.

Keywords：online honest self-presentation, peer appearance teasing, appearance-based rejection sensitivity, social appearance anxiety, adolescents

社交媒体使用与自尊的关系：关系亲密度感知的调节作用

汉洋[1]　杨峰[2]（通讯作者）

1 北京体育大学心理学院，北京，100084

2 泰山学院教师教育学院，泰安，271000，sdnuyangfeng@hotmail.com

摘 要　社交媒体是对一类允许用户自主创作并发布内容的网络平台或者手机软件的统称（如微信、QQ）。有研究发现，社交媒体使用会诱发个体的上行社会比较，从而损害个体自尊；也有研究发现，社交媒体能够使个体更容易获得社会支持，从而保护个体自尊。为了给上述不一致的研究结果提供一个可行的解释，本研究提出社交媒体使用与自尊的关系可能受到关系亲密度感知（relational-closeness）的调节。为检验该假设，我们开展了两个子研究。研究 1 是一个准实验研究，我们采用问卷调查的方式，依次让被试报告抖音（低亲密度感知条件）或者微信（高亲密度感知条件）的使用频率、社会支持感知、上行社会比较以及

状态自尊。结果发现，与假设一致，低亲密度感知条件下社交媒体使用频率与个体自尊存在显著负相关，β = -0.34, p < 0.001，但高亲密度感知条件下社交媒体使用频率与个体自尊存在显著正相关，β = 0.36, p < 0.001。进一步的分析发现，在低亲密度感知的条件下，上行社会比较在社交媒体使用与自尊之间起中介作用，95% CI [-0.18, -0.06]；在高亲密度感知的条件下，上行社会比较和社会支持感知均在二者之间起中介作用，95% CI [-0.09, -0.01], [0.06, 0.21]，但社会支持在中介效应中起主导作用。研究 2 是一个真实验设计，我们在实验室给被试呈现一段考研经验分享的文字材料，然后告诉他们想象自己在 Bilibili（低亲密度感知条件）或者 QQ（高亲密度感知条件）上看到了这个经验分享，随后让他们报告上行社会比较、社会支持感知和自尊水平。结果发现，即使呈现相同的文字材料，高亲密度感知条件下的被试仍然报告了更高水平的自尊和社会支持，t(180) = 7.57, p < 0.001，t(180) = 4.45, p < 0.001，但两种条件下社会比较水平不存在显著差异，t(180) = 0.58, p = 0.56。两个子研究的结果一致表明，社交媒体使用对自尊的影响受到关系亲密度感知的调节：使用低亲密度感知的社交媒体会使个体频繁经历上行社会比较，从而损害个体自尊，但使用高亲密度感知的社交媒体能使个体感受到较多的社会支持，从而抵消上行社会比较带来的消极影响，保护个体的自尊。

关键词　社交媒体使用，自尊，关系亲密度，社会支持，媒体心理学

Will using social media benefit or harm users' self-esteem? It depends on perceived relational-closeness

Yang Han[1], Feng Yang[2] (Corresponding author)
1 Department of Psychology, Beijing Sport University
2 Department of Teacher Education, Taishan University

Abstract: Social media refers to any websites or cellphone applications that allow users to autonomously create and publish their content (e.g., WeChat, QQ), which has a profound impact on individuals' physical and mental health. Prior literature suggests that social media will make users engage in upward social comparison, thus harming self-esteem, whereas other research reveals that social media makes users readily perceive social support, resulting in elevating self-esteem. For such mixed findings, the current research hypothesized that perceived relational-closeness would moderate the relationship between social media use and self-esteem, which was tested in two studies. In Study 1, a quasi-experimental study, by using a questionnaire survey, we asked participants to report their TikTok (weak relational-closeness condition) or WeChat (strong relational-closeness condition) use intensity, perceived social support, upward social comparison, and state self-esteem. The results showed that, consistent with our prediction, there was a significantly negative correlation between social media use and self-esteem in the weak relational-closeness condition, β = -0.34, p < 0.001, while there was a significantly positive correlation between social media use and self-esteem in the strong relational-closeness condition, β = 0.36, p < 0.001. Further analyses showed that upward social comparison partially mediated the relationship between social media use and self-esteem in the weak relational-closeness condition, 95% CI [-0.18, -0.06], and upward social comparison and perceived social support both mediated the relationship between social media use and self-esteem, 95% CI [-0.09, -0.01], [0.06, 0.21], but the latter played a dominant role in the mediating effects. In Study 2, an utterly experimental design, we presented the same examination experiences-sharing for all participants, then we asked participants to imagine that they read this content on Bilibili (weak relational-closeness condition) or QQ (strong relational-closeness condition). Following that, participants successively reported their upward social comparison, perceived social support, and state self-esteem. The results showed that despite the same content exposure, participants in the strong relational-closeness condition still reported higher social support

perception and self-esteem than participants in the weak relational-closeness condition, $t(180) = 7.57$, $p < 0.001$, $t(180) = 4.45$, $p < 0.001$, but there were no significant differences for upward social comparison between the two conditions, $t(180) = 0.58$, $p = 0.56$. The results of two studies consistently demonstrated that perceived relational-closeness moderated the relationship between social media use and self-esteem. When individuals use social media with weak relational-closeness perception, they will engage in upward social comparison, thus harming their self-esteem; in contrast, when using social media with strong relational-closeness, they will readily perceive social support on social media, resulting in counteracting the negative consequences of upward social comparison and protecting their self-esteem.

Keywords：social media use, self-esteem, perceived relational-closeness, social support, media psychology

短视频过度使用对大学生睡眠质量的影响：就寝延迟和自我控制的作用

崔爱琳　张珊珊（通讯作者）　王泓懿

1 沈阳师范大学，沈阳，110034

2 沈阳师范大学教育科学学院，沈阳，110034，　zhangxiaobai2@163.com

摘 要　睡眠问题一直是全球共同关注的公共卫生问题，近年来，睡眠质量下滑俨然成为威胁大学生心理健康的重要问题之一。然而睡眠质量不仅影响着大学生的学业发展，而且还与其身心健康发展密切相联。因此，有必要揭示大学生睡眠质量产生的影响及其内在作用机制，便于帮助大学生有效地缓解因睡眠问题而带来的负面后效，以期为改善该群体睡眠质量提供一定的理论依据与实践指导。本研究采用匹兹堡睡眠质量指数问卷、大学生手机短视频过度使用行为影响因素研究量表、就寝延迟量表和自我控制量表对 1020 名大学生进行问卷调查。运用 SPSS 27.0 和 AMOS 24.0 软件对收集到的数据进行统计处理及分析。研究得出，（1）短视频过度使用与大学生睡眠质量呈显著正相关（r=0.20，P＜0.01），与就寝延迟呈显著正相关（r=0.25，P＜0.01），而与自我控制呈显著负相关（r=-0.35，P＜0.01）；（2）就寝延迟在短视频过度使用和睡眠质量之间起中介作用；（3）自我控制在模型的前半段路径起调节作用。研究结果表明，短视频过度使用是导致大学生出现睡眠质量问题的关键风险因素，不仅对大学生睡眠质量产生直接的影响，还可以通过就寝延迟这一中介因素和自我控制这一调节因素间接影响睡眠质量。所以对于提升大学生的睡眠质量，一方面，要有意识地引导大学生科学、合理及适度地使用手机短视频，避免因过度沉迷于短视频使用而造成有损于身心健康的行为发生；另一方面，提示高校心理健康工作者在对大学生引导合理利用网络的同时，主动发掘大学生的积极心理资源，可以通过主题辅导活动有意识地提高大学生的自我控制力，增加他们应对各类风险的自身抵御能力。

关键词　短视频过度使用，睡眠质量，就寝延迟，自我控制

The effect of short video overuse on college student's sleep quality: The role of bedtime delay and self-control

CUI Ailin , ZHANG Shanshan, WAGN Hongyi

1 College of Education Science, Shenyang Normal University, Shenyang, 110034

2 College of Education Science, Shenyang Normal University, Shenyang, 110034

Abstract：Sleep problem has always been a public health problem of global concern. In recent years, the decline in sleep quality has become one of the important problems that threaten the mental health of college students. However, sleep quality not only affects the academic development of college students, but also is closely related to their physical and mental health development. Therefore, it is necessary to reveal the influence of college students ' sleep quality and its internal mechanism, so as to help college students effectively alleviate the negative aftereffect caused by sleep problems, so as to provide certain theoretical basis and practical guidance for improving the sleep quality of this group. In this study, 1020 college students were investigated by Pittsburgh sleep quality index questionnaire, college student's mobile phone short video overuse behavior influencing factors scale, bedtime delay scale and self-control scale. SPSS 27.0 and AMOS 24.0 software were used to process and analyze the collected data. The results showed that: (1) There was a significant positive correlation between short video overuse and sleep quality of college students ($r = 0.20$, $P < 0.01$), a significant positive correlation with bedtime delay ($r = 0.25$, $P < 0.01$), and a significant negative correlation with self-control ($r = -0.35$, $P < 0.01$). (2) Bedtime delay plays a mediating role between short video overuse and sleep quality. (3) Self-control plays a moderating role in the first half of the model. The results show that short video overuse is a key risk factor for college students ' sleep quality problems. It not only has a direct impact on college student's sleep quality, but also indirectly affects sleep quality through the mediating factor of bedtime delay and the moderating factor of self-control. Therefore, in order to improve the sleep quality of college students, on the one hand, we should consciously guide college students to use mobile phone short video scientifically, reasonably and moderately, so as to avoid the occurrence of behaviors that are detrimental to physical and mental health due to excessive addiction to short video use. On the other hand, it is suggested that mental health workers in colleges and universities should actively explore the positive psychological resources of college students while guiding college students to make rational use of the network. They can consciously improve the self-control of college students through thematic counseling activities and increase their self-resistance to various risks.

Keywords：Short video overuse, sleep quality, bedtime delay, self-control

马基雅维利主义与公正敏感性：静息态神经活动的证据

谢宜骏[1] 杨忠静[1] 杨潇[1] 吴燕[2]（通讯作者）

1 杭州师范大学心理学系，杭州市，311121

2 杭州师范大学心理学系，杭州市，311121,20100054@hznu.edu.cn

摘 要 马基雅维利主义源于16世纪意大利政治论著作《君主论》，该著作主张君主应该具备对现实利益与风险的敏感性、非自我中心的思考、公正等特点。而当前研究则更聚焦于马基雅维利主义的暗黑属性，忽略了其积极意义。本研究招募74名健康被试（年龄为22.23±2.54岁，男性36人，女性41人），采用马氏人格量表（Mach-IV Scale）和公正敏感性量表（Justice Sensitivity Scale），考察了马氏人格和公正敏感性四个不同维度（受害者敏感性、观察者敏感性、得益者敏感性和犯过者敏感性）之间的关系。同时，采用静息态功能磁共振成像技术（resting-state fMRI），以低频振荡振幅（Amplitude of Low Frequency Fluctuation，ALFF）作为指标探讨了马氏人格的神经基础。量表数据结果显示，马氏人格与受害者敏感性显著正相关，与得益者敏感性、犯过者敏感性显著负相关；脑影像数据和量表数据的相关结果显示，马氏人格与眶额回、额极的神经自发活动强度（ALFF值）显著正相关；回归分析结果显示，眶额回、额极的神经自发活动强度（ALFF值）均能显著地预测马基雅维利主义人格特质，并受到公正敏感性的部分中介。本研究揭示了马基雅维利主义人格可能与非自我中心的思考有关，体现了马氏人格的积极方面，丰富了马基雅维利主义的内涵，为更加客观、全面地评价马基雅维利主义在实践中的作用提供了启示。

关键词 马基雅维利主义，公正敏感性，静息态功能磁共振成像，非自我中心的思考

Machiavellianism and Justice Sensitivity: A resting-state fMRI study

Yijun Xie[1] Zhongjing Yang[1] Yan Wu[2] Xiao Yang[1]
1,2 Department of Psychology,College of Education,Hangzhou Normal University,Hangzhou,China.

Abstract：Machiavellianism originates from the 16th century Italian political theory work "Monarchy", which advocates that monarchs should have characteristics such as sensitivity to benefits and risks, non-egocentric thinking, and justice. Previous research paid more attention on the dark attributes of Machiavellism, ignoring its positive facets. The present study used the Mach-IV Scale and the Justice Sensitivity Scale to investigate the relationship between Machiavellian personality and four different dimensions of justice sensitivity (victim sensitivity, observer sensitivity, beneficiary sensitivity, and perpetrator sensitivity) on 74 healthy participants (mean age 22.23±2.54 years old, 36 males and 41 females). by using .The Amplitude of Low Frequency Fluctuation (ALFF) as an index in resting-state fMRI (rs-fMRI) was used to identify brain regions correlated with individual differences in Machiavellianism. Results showed that Machiavellian personality was positively correlated with victim sensitivity, and negatively correlated with beneficiary sensitivity and perpetrator sensitivity. The brain imaging data showed that Machiavellian personality was positively correlated with the intensity of neural spontaneous activity (ALFF values) in the orbitofrontal cortex (OFC) and frontal pole. Regression analysis confirmed that the intrinsic brain activity in the orbitofrontal cortex and frontal pole both significantly predicted Machiavellian personality scores. This prediction was partially mediated by scores on justice sensitivity. The present study suggested that Machiavellian personality may be related to non-egocentric thinking, providing insight for the positive aspects of Machiavellianism.

Keywords：Machiavellianism, Justice Sensitivity, resting-state fMRI, non-egocentric thinking

歧视知觉对青少年孤独感的影响——一个有调节的中介作用

蒋凌玮[1] 王挺[1](通讯作者) E-mail：125323611@qq.com

1. 江西中医药大学人文学院，南昌， 330031

摘 要 青少年正处于身心成长和发展的关键时期。孤独感是衡量青少年社会适应能力的一个重要指标，歧视作为一种慢性压力源，其长期存在会使个体处于一种应激状态并损耗其心理社会资源，容易体验到孤独等消极情绪，产生不适应性反应,进而危害青少年身心健康。本研究拟构建一个创新性有调节的中介模型，以检验青少年的歧视感知和孤独感现状，校园受欺凌和自杀自伤意念在其中的链式中介作用，以及师生关系的调节作用。本研究对江西省 1732 名初中生采用青少年歧视知觉量表、孤独感量表（UCLA）、校园受欺凌问卷、自杀自伤意念问卷和师生关系量表进行调查。结果表明：①歧视知觉与孤独感（β=0.797，p＜0.001）呈正相关。校园受欺凌在歧视知觉与孤独感（β=0.115，95%CI[0.031 0.195]）之间起部分中介作用，自杀自伤意念在歧视知觉与孤独感（β=0.044，95%CI[0.011 0.076]）之间起部分中介作用；②校园欺凌和自杀自伤意念在歧视知觉与孤独感（β=0.009，95% CI[0.002 0.018]）之间起链式中介作用；③师生关系通过自杀自伤意念（β=-0.003，t=-8.280，p＜0.001）调节了歧视知觉对孤独感影响的前半段。本研究发现歧视知觉对青少年孤独感有负向作用，且校园受欺凌和自杀自伤意念会增加青少年的心理负担，积极的师生关系可以起到保护作用，未来的研究可以帮助心理健康教育工作实践中通过发挥人民教师的优良风范，以及

提升青少年自身生命意义感、自我效能感、坚毅等积极心理品质以促进其身心健康发展。

关键词 歧视知觉，孤独感，校园受欺凌，自杀自伤意念，师生关系

The Relationship Between Discrimination Perception and Loneliness in Chinese Adolescents——A Moderated Mediating Role

Jiang Lingwei [1] Wang Ting [1](corresponding author)E-mail：125323611@qq.com

1. School of Humanities, Jiangxi University of Traditional Chinese Medicine, Nanchang, city, China, 330031

***Abstract*:** Adolescents are in a critical period of physical and mental growth and development. Loneliness is an important indicator to measure the social adaptability of adolescents. As a chronic source of stress, the long-term existence of discrimination will put individuals in a state of stress and deplete their psychosocial resources. It is easy to experience negative emotions such as loneliness, produce maladaptive reactions, and then endanger the physical and mental health of adolescents. This study intends to construct an innovative moderated mediation model to test the status quo of discrimination perception and loneliness of adolescents, the chain mediating role of school bullying and suicidal self-injury, and the moderating role of teacher-student relationship. In this study, a total of 1732 junior high school students in Jiangxi Province were surveyed using the Adolescent Discrimination Perception Scale, the Loneliness Scale (UCLA), the School Bullying Questionnaire, the Suicide Self-injury Ideation Questionnaire, and the Teacher-student Relationship Scale. The results showed that: ①Discrimination perception was positively correlated with loneliness (β= 0.797, p< 0.001). School bullying played a partial mediating role between discrimination perception and loneliness (β= 0.115, 95 % CI [0.031 0.195]), and suicide self-injury ideation played a partial mediating role between discrimination perception and loneliness (β= 0.044, 95 % CI [0.011 0.076]). ②School bullying and suicide self-injury ideation played a chain mediating role between perceived discrimination and loneliness (β= 0.009, 95 % CI [0.002,0.018]). ③Teacher-student relationship moderated the first half of the effect of perceived discrimination on loneliness through suicide self-injury ideation (β= -0.003, t = -8.280, p< 0.001). This study found that discrimination perception has a negative effect on adolescent loneliness, school bullying and suicide self-injury ideation will increase the psychological burden of adolescents. Positive teacher-student relationships can play a protective role. Future research can help the practice of mental health education work by giving full play to the fine style of the people 's teachers, and enhance the positive psychological quality of young people 's sense of meaning in life, self-efficacy, perseverance and so on to promote their physical and mental health development.

***Keywords*:** discrimination perception, loneliness, school bullying, suicide self-injury ideation, teacher-student relationship

正念干预缓解心理困扰的机制：认知灵活性的中介作用

彭玉霞 [1] 刘玟汐 [1] 张彬 [1] 窦楚敏 [1] 邹颖敏 [1]（通讯作者）

1 中山大学心理学系，广州，510006，zouym7@mail.sysu.edu.cn

摘 要 大量研究表明，正念干预能够有效缓解心理困扰，然而，其背后的起效机制尚未明确。认知灵活性是一种潜在的机制，它指的是个体在遇到压力性的生活事件时，重构适应不良的思维的能力，包括认为

当前情况是可控的，以及能够为生活事件寻找替代解释两个方面。理论上，正念干预可以促进认知灵活性，当个体能够灵活地将想法与事实区分开来，就更倾向于认为当前的情况总体可控，并愿意为压力事件找到其他可能的解释和解决方案，因此能够降低心理困扰水平。目前尚未有研究直接考察，认知灵活性是否是正念干预的起效机制。

本研究旨在探讨正念干预对心理困扰的缓解效果，并检验认知灵活性在正念干预缓解心理困扰关系中起到的中介作用。本研究招募 71 名高心理困扰成人被试，随机分配至正念干预组(n = 35)和等待对照组(n = 36)。正念干预组参加八周正念干预，等待对照组同期不接受任何干预。被试在干预前、后填写自我报告的心理困扰问卷，在干预期间，每周完成自我报告的认知灵活性问卷。

重复测量方差分析结果显示，在心理困扰水平上，发现了显著的时间主效应、组别主效应以及时间和组别交互作用。简单效应检验发现，在后测时，正念干预组的心理困扰得分显著低于等待对照组。对于认知灵活性水平，重复测量方差分析结果，发现了显著的时间主效应、组别主效应以及时间和组别交互作用。简单效应检验显示，从第 2 周到第 8 周，正念干预组在认知灵活性方面的得分，均显著高于等待对照组。中介分析结果表明，从基线到第 8 周时认知灵活性的提升，显著中介了干预类别和干预后心理困扰水平的降低，中介效应占总效应的 46.03%。

本研究揭示了认知灵活性作为正念干预的潜在机制，表明正念干预在一定程度上，是通过认知灵活性来缓解心理困扰的。正念干预既能直接提高认知灵活性，减少心理困扰，又能通过认知灵活性间接影响心理困扰。本研究为认知灵活性作为正念干预的重要机制，提供了实证证据支持，有助于丰富正念理论、进一步提高正念干预的效果。

关键词　正念干预，机制，认知灵活性，心理困扰，中介分析

Mechanisms of Mindfulness Intervention on Psychological Distress: the Mediating Role of Cognitive Flexibility

PENG Yuxia, LIU Wenxi, ZHANG Bin, DOU Chumin, ZOU Yingmin
Department of Psychology, Sun Yat-sen University, Guangzhou 510006, China

***Abstract*：** A number of studies have shown that mindfulness-based intervention was effective in relieving psychological distress. However, the mechanism of mindfulness-based intervention still needs to be further explored. Cognitive flexibility, which refers to the tendency to see current situations as controllable and to find alternative explanations for life events, is a potential mechanism. Theoretically, mindfulness-based intervention may foster cognitive flexibility. When individuals are able to flexibly distinguish thoughts from facts and treat thoughts as thoughts, they are more likely to feel that the current situation is under control and find other possible explanations and solutions for stressful events, and therefore less susceptible to be affected by psychological distress. Until now, no studies have directly examined whether cognitive flexibility is a mechanism of mindfulness-based intervention.

The current study aims to explore the effect of mindfulness-based intervention on psychological distress and to test whether this effect is mediated by cognitive flexibility. We recruited 71 participants with high psychological distress and randomly allocated them to mindfulness-based intervention group (n = 35) and waitlist control group (n = 36). The mindfulness-based intervention group attended an eight-week online Mindfulness Intervention for Emotional Distress (MIED) course, and the waitlist control group received no intervention during the waiting period. During the eight-week mindfulness intervention, participants in both groups completed a self-reported assessment of cognitive flexibility on a weekly basis and finished a self-reported measurement of psychological distress before and after the intervention.

For psychological distress, mixed-model repeated-measure analysis of variance (mixed-model ANOVA) showed that there was a significant main effect of Time, a significant main effect of Group, and a significant Time-by-Group interaction. Simple effect test found that the score on psychological distress for the mindfulness intervention group was significantly lower than that for the waitlist control group at post-intervention. For cognitive flexibility, the mixed-model ANOVA results indicated that there was a significant main effect of Time, a significant main effect of Group and a significant Time-by-Group interaction. Follow-up simple effect analysis found that from week 2 to week 8, the mindfulness intervention group consistently scored higher on cognitive flexibility than the waitlist control group did. Mediation analysis results showed that increase of cognitive flexibility from baseline to week 8 significantly mediated the reduction of psychological distress from baseline to the week after intervention. This significant mediating effect accounted for 46.03 % of the total effect.

The present study revealed cognitive flexibility as a potential mechanism of mindfulness-based intervention, indicating that the effect of mindfulness-based intervention on psychological distress relief was, to a certain extent, through cognitive flexibility. Mindfulness-based intervention could not only directly improve cognitive flexibility and reduce psychological distress, but also indirectly affect psychological distress through cognitive flexibility. This study provides empirical evidences on supporting that cognitive flexibility may be an important mechanism of mindfulness-based intervention. These findings help to further improve the effect of mindfulness-based intervention.

Keywords： mindfulness-based intervention, mechanism, cognitive flexibility, psychological distress, mediation

青年护士工作绩效、感知组织公正、组织氛围以及工作嵌入之间的关系研究

郑晓嘉 [1]

1 河南大学护理与健康学院，开封，475000，Zxiaojia0326@126.com

摘 要 **目的：**作为护理队伍中的主力军，青年护士的工作绩效一直以来是学术界的研究热点。虽然以往已有学者研究感知组织公正对护士工作绩效的影响，但尚无研究探讨组织氛围、工作嵌入是如何在二者之间产生影响的。因此，为了给公众提供更好的健康服务及应对全球人口老龄化，我们必须要增强对青年护士群体工作绩效的关注。本研究旨在探究青年护士感知组织公平与工作绩效的关系，并探讨组织氛围和工作嵌入在年轻护士感知组织公平与工作绩效关系中的中介作用。**方法：**采用纵向追踪问卷调研法于 2023 年 3 月至 4 月对中国河南省的 1136 名青年护士进行调查。使用工作绩效量表、组织公平感评估量表、护理组织氛围量表以及工作嵌入量表进行数据收集，并使用 SPSS 26.0 和 AMOS 26.0 对获得数据进行分析。**结果：**研究结果显示青年护士的感知组织公正、组织氛围、工作嵌入和工作绩效两两之间存在正相关关系。不仅组织氛围和工作嵌入分别在青年护士感知组织公正和工作绩效之间起到部分中介作用，组织氛围和工作嵌入也在感知组织公正与青年护士工作绩效之间起到显著的链式中介作用，间接效应值分别为 0.123，0.020，0.062，占总效应(0.518)的 39.58%。**结论：**组织氛围和工作嵌入在感知组织公正与工作绩效间起链式中介作用，因此，医院管理者应该正视青年护士的需求，从护士的角度出发，以感知组织公正、组织氛围及工作嵌入为切入点，制定一系列有针对性的措施以提高青年护士的工作绩效。

关键词 工作绩效，感知组织公正，组织氛围，工作嵌入，青年护士

A study of the relationship between job performance, perceived

organizational justice, organizational climate, and job embeddedness among young nurses

Xiaojia Zheng
School of Nursing and Health, Henan University, Kai Feng, Zxiaojia0326@126.com

Abstract: **Objective:** As the mainstay of the nursing workforce, the job performance of young nurses has long been a hot topic of academic research. Although previous scholars have studied the impact of perceived organizational justice on nurses' job performance, no study has explored how organizational climate and job embeddedness have an impact between them. Therefore, in order to provide better health services to the public and cope with the aging of the global population, we must pay more attention to the job performance of young nurses. The purpose of this study was to explore the relationship between perceived organizational justice and job performance of young nurses, and to explore the mediating role of organizational climate and job embedment in the relationship between perceived organizational justice and job performance of young nurses. **Methods:** A longitudinal follow-up questionnaire research method was used to survey 1136 young nurses in Henan Province, China, from March to April 2023. Data were collected using the Job Performance Scale, the Sense of Organizational Fairness Assessment Scale, the Nursing Organizational Climate Scale, and the Job Embeddedness Scale, and the obtained data were analyzed using SPSS 26.0 and AMOS 26.0. **Results:** The results of the study revealed a positive correlation between perceived organizational justice, organizational climate, job embeddedness, and job performance among young nurses. Not only did organizational climate and job embeddedness partially mediate the relationship between young nurse's perceived organizational justice and job performance, respectively, but organizational climate and job embeddedness also played significant chain mediating roles between perceived organizational justice and young nurses' job performance, with indirect effect values of 0.123, 0.020, and 0.062, respectively, accounting for 39.58% of the total effect (0.518). **Conclusion:** Organizational climate and job embeddedness play a chain mediating role between perceived organizational justice and job performance. Therefore, hospital administrators should face up to the needs of young nurses and develop a series of targeted measures to improve the job performance of young nurses from the nurses' perspectives, using perceived organizational justice, organizational climate, and job embeddedness as an entry point.

Keywords: Job performance, Perceived organizational justice, Organizational climate, Job embeddedness, Young nurses

新入职护士职业认同、心理资本、员工幸福感与工作绩效的关系研究

宋佳美[1]（通讯作者）
1 河南大学护理学院，开封，475000，sjm_990619@126.com

摘 要 **目的:**护理人力资源的严重短缺和高流动率是全球医疗保健系统面临的一个重大挑战，新入职护士由于社会角色的改变，在面对复杂工作情境时，容易因为临床经验不足，心理耐力差等原因造成工作绩效不佳，产生负面情绪，从而增加潜在的离职率和高流动率，因此，调动新入职护士工作积极性，提高其工作绩效十分重要。为了探讨职业认同与新入职护士工作绩效的关系,分析这种关联背后的潜在机制,本研究检验了心理资本和员工幸福感在两者之间的中介作用。**方法：**采用职业认同量表、心理资本量表、员工幸福感量表和工作绩效量表于2023年3月至5月对来自河南省5所三级甲等医院的520名新入职护士进行调查。采用皮尔逊相关分析、结构方程模型和描述性统计对数据对数据进行分析，探讨新入职护士职业认同、心

理资本、员工幸福感和工作绩效之间的关系。**结果：**职业认同与员工幸福感（r = 0.374，p< 0.01）、心理资本（r = 0.327，p< 0.01）和工作绩效（r = 0.678，p< 0.01）呈显著正相关。心理资本与员工幸福感（r = 0.564，p< 0.01）和工作绩效（r = 0.496，p< 0.01）呈显著正相关。此外，员工幸福感与工作绩效之间存在显著正相关关系（r = 0.574，p< 0.01）。职业认同对新入职护士工作绩效的总效应为 0.529，心理资本和员工幸福感的总间接中介效应为 0.126，占总效应的 23.82%。新入职护士的职业认同对工作绩效有正向预测作用。心理资本和员工幸福感都是新入职护士职业认同与工作绩效的中介变量，心理资本和员工幸福感在新入职护士的职业认同和工作绩效之间起到连锁中介作用。**结论：**这一结果为护理管理者激励新入职护士的工作绩效提供了新的研究视角和实证支持，对进一步提高护理工作绩效，确保护理团队的稳定性具有重要意义。
关键词　新入职护士，职业认同，心理资本，工作绩效，幸福感

Study on the relationship between professional identity, psychological capital, well-being and job performance of new nurses

Jiamei Song[1]

[1]School of Nursing and Health, Henan University, Kaifeng, 475000，sjm_990619@126.com

Abstract: **Objective** The serious shortage and high turnover rate of nursing human resources is a major challenge facing the global healthcare system. Due to the change of social roles, new nurses are prone to poor job performance and negative emotions due to insufficient clinical experience, poor psychological endurance and other reasons in the face of complex work situations, thus increasing the potential turnover rate and high turnover rate. Therefore, it is very important to mobilize the enthusiasm of new nurses and improve their job performance. In order to explore the relationship between professional identity and job performance of new nurses, and analyze the potential mechanism behind this correlation, this study examined the mediating role of psychological capital and employee well-being between them. **Methods** 520 new nurses from 5 hospitals in Henan province were investigated by professional identity scale, psychological capital scale, employee well-being scale and job performance scale from March to May 2023. Pearson correlation analysis, structural equation model and descriptive statistics were used to analyze the data, and the relationship among professional identity, psychological capital, employee well-being and job performance of new nurses was discussed. **Results** Correlation analysis showed that professional identity was positively correlated with employee well-being (r = 0.374, p< 0.01), psychological capital (r = 0.327, p< 0.01) and job performance (r = 0.678, p< 0.01). Psychological capital was positively correlated with employee well-being (r = 0.564, p< 0.01) and job performance (r = 0.496, p< 0.01). In addition, there was a positive correlation between employee well-being and job performance (r = 0.574, p< 0.01). The total effect of professional identity on job performance of new nurses was 0.529, and the total indirect mediating effect of psychological capital and employee well-being was 0.126, accounting for 23.82% of the total effect. The professional identity of new nurses had a positive predictive effect on job performance. Both psychological capital and employee well-being are mediating variables between new nurses' professional identity and job performance. Psychological capital and employee well-being play a chain mediating role between new nurses' professional identity and job performance. **Conclusions** This result provides a new research perspective and empirical support for nursing managers to motivate the job performance of new nurses, which is of great significance for further improving nursing performance and ensuring the stability of nursing teams.

Keywords: young nurses, professional identity, psychological capital, well-being, job performance

元认知问卷（MCQ-30）在中国青少年中的效度和信度

黎帆[1] 袁丹颜[1] 高畅[1] 熊开鑫[1] 耿富磊[1] 张岚[2]
1 江西师范大学心理学院，南昌，330022
2 江西师范大学心理学院，南昌，330022，zhanglan_8194@163.com

摘 要 **背景：**元认知问卷(MCQ-30)是一种广泛用于评估元认知信念的自我报告工具。虽然中文版的MCQ-30 已在大学生中进行了修订，但其在中国青少年中的有效性尚未得到证实。本研究的目的是检验MCQ-30 在青少年样本中的心理测量特性，重点考查其因子结构在不同青少年人群中的稳定性状况。**方法：**被试是从江西省的两所初中和贵州省的一所高中里招募的 2827 名青少年（48.9%为男性；平均年龄为 14.57，年龄范围从 11 岁到 18 岁，标准差为 1.69；41.9%为少数民族)。根据年龄我们还将总样本分为了青少年早期（11-14 岁）和青少年晚期（15-18 岁）两个子样本。自我报告问卷评估被试的元认知信念、焦虑、抑郁和易激惹症状、以及积极的童年经历和生活满意度，间隔一个多月后随机选取 311 名学生进行元认知信念重测。采用 Mplus 8.3 进行验证性因子分析评估 MCQ-30 的因子结构，进一步考查不同人口统计学组和临床症状组的测量不变性；同时采用 SPSS 21.0 进行信度和效度分析。**结果：**首先，在总样本中，验证性因子分析结果支持原问卷的五因素模型，CFI=0.918, TLI=0.909, RMSEA (90%CI)=0.068(0.066-0.070)。其次，五因素模型的形态、单位和度量不变性均在不同性别（男、女）、年龄（青少年早期、青少年晚期）、民族（汉族、少数民族）、居住地（城镇、农村）、父母受教育程度（高中以下、高中及以上）、抑郁（是、否）和焦虑（是、否）状态等人群中得到支持。再次，MCQ-30 的五个子量表均表现出良好的内部一致性(Cronbach alphas > 0.75)和重测信度(intra-class correlation coefficients > 0.45)。最后，相关分析显示这五个因素与抑郁、焦虑、易怒症状呈正相关，与积极的童年经历和生活满意度呈负相关，表明 MCQ-30 在中国青少年中具有极好的效度。**结论：**MCQ-30 五因素模型适用于不同特征的青少年人群，且具有较好的信度和效度，该量表可用于评估青少年元认知信念紊乱状况。

关键词 MCQ-30,MCQ-A,元认知信念，青少年，因子结构，心理测量学

Validity and reliability of the Metacognitions Questionnaire-30 (MCQ-30) among Chinese adolescents

Fan Li, Danyan Yuan, Chang Gao, Kaixin Xiong, Fulei Geng, Lan Zhang*
School of Psychology, Jiangxi Normal University, Nanchang, China
Corresponding author: Lan Zhang, School of Psychology, Jiangxi Normal University, 99 Ziyang Ave, Nanchang, Jiangxi 330022, China

***Abstract*: Background:** The Metacognitions Questionnaire-30 (MCQ-30) is a widely used self-report instrument to assess metacognitive beliefs. Although the Chinese version of MCQ-30 has been revised in college students, the validation of the scale has yet been confirmed among Chinese adolescents. In this study, we examined the psychometric properties of the MCQ-30 in a large sample of adolescents.

Methods: Participants were 2827 adolescents (48.9% male; mean age = 14.57, SD = 1.69) recruited from Jiangxi and Guizhou provinces of China. Participants' metacognitive beliefs, symptoms of anxiety, depression, and irritability, positive childhood experiences and life satisfaction were measured by self-report questionnaires. Confirmatory factor analysis was performed to assess factor structure, as well as, measurement invariance across demographic groups and clinical symptoms.

Results: In the total sample, confirmatory factor analyses supported the original five-factor model: CFI = 0.918, TLI = 0.909, RMSEA (90%CI) = 0.068 (0.066-0.070). Furthermore, configural, metric and scalar invariance the five-factor model were supported by gender, age, ethnicity, residence, parental education level, depression and

anxiety status. Furthermore, all five subscales demonstrated good internal consistency (Cronbach alphas > 0.75) and test-retest reliability (intra-class correlation coefficients > 0.45). Finally, correlation analysis showed that the five factors were positively related to symptoms of depression, anxiety, and irritability and negatively related to positive childhood experiences and life satisfaction, indicating excellent validity.

Conclusions: The findings provide initial evidence that the MCQ-30 is a valid measure for use in Chinese adolescents.

Keywords: MCQ-30, MCQ-A, metacognitive beliefs, adolescents, factor structure, psychometrics

童年期父母教养方式与成年期失眠和攻击性的关系：基于生命全程发展视角的横断面研究

秦琴[1] 熊开鑫[1] 耿富磊[1] 张岚[2]

1 江西师范大学心理学院，南昌，330022

2 江西师范大学心理学院，南昌，330022，zhanglan_8194@163.com

摘 要 **背景：**不良的父母教养方式，如过度保护、缺乏温暖与支持等，与行为问题（如攻击行为、自杀自伤行为等）和精神障碍（如睡眠障碍、人格障碍等）的产生和发展密切相关。大量研究证实不良的父母教养方式能预测儿童青少年和成年早期人群的失眠与攻击性，但目前很少有研究从生命全程发展视角出发，探讨童年期父母教养方式对失眠和攻击性的影响是否随年龄增长而变化。父母教养方式对个体生命全程发展的影响较为复杂，在不同的理论框架下，其影响可能会随着时间的推移而下降、保持稳定或在老年阶段变得更加显著。因此，本研究旨在考察童年期父母教养方式是否与成年个体的攻击性和失眠情况有关，并进一步探究性别与年龄在三者关系中的调节作用。**方法：**被试为社区招募的 4462 名成年人（$M_{年龄}$ = 37.75 岁，SD = 7.61，年龄范围从 18 岁到 81 岁；男性占总体样本的 32.7%）。采用自我报告问卷，分别评估被试的父亲教养方式、母亲教养方式、睡眠状况和攻击行为。应用结构方程模型分别独立检验父亲不同类型教育方式、母亲不同类型教育方式对攻击性和失眠的影响，分析失眠在教养方式和攻击性的中介效应，多组比较检验教养方式影响攻击性和失眠的差异状况。**结果：**①童年期父母教养方式的情绪温暖与成年期攻击性和失眠呈显著负相关，拒绝和过度保护与攻击性和失眠呈显著正相关；②父母拒绝直接影响攻击性，失眠在父母温暖和过度保护与攻击性之间起完全中介作用；③父母教养方式与失眠和攻击性之间的关系在不同年龄和性别群组中差异不显著。**结论：**童年期父母教养方式对成年期失眠和攻击性有持久且稳定的影响，并且这种影响持续作用于个体的生命全程。

关键词 父母教养方式，生命全程发展，攻击性，失眠，成年群体

Remembered parenting styles in childhood and adulthood insomnia and aggression: A cross-sectional study across life span

Qin Qin, Kaixin Xiong, Fulei Geng, Lan Zhang*

School of Psychology, Jiangxi Normal University, Nanchang, China

Corresponding author: Lan Zhang, School of Psychology, Jiangxi Normal University, 99 Ziyang Ave, Nanchang, Jiangxi 330022, China

***Abstract*：Background:** Detrimental parenting styles with overprotection, lack of warmth and support have been demonstrated to positively associate with conduct problems (such as aggressive behaviors, and suicide and

self-injurious behaviors) and mental disorders (like personality disorders and sleep disorders). Such detrimental parenting styles in childhood predict aggression and bad sleep quality in childhood and early adulthood. Several recent studies suggest that childhood parenting also plays important roles in adulthood mental health. However, studies using life-span design to examine the changes of parenting influences with age are scarce. Theatrically, the effects of childhood parenting may be decline, persistent and stable, or particularly high in later stage of life. This study aimed to test whether childhood parenting styles were associated with insomnia and aggressive behaviors in a sample of Chinese community-dwelling adults and further explore the moderations of age and sex. **Methods:** Data are from a cohort study of intergenerational transmission of psychopathology. Participants were 4462 adults (mean age = 37.75 years, SD = 7.61, range from 18 to 81) who completed self-report questionnaires that measuring maternal and paternal parenting styles, insomnia and aggressive behaviors. Among them, there were 1460 male and 3002 female which occupied 32.7% and 67.3% of the total sample separately. Structural equation model (SEM) was performed to examine our hypothesis. **Results:** Correlation analyses showed that parental warmth were negatively related to aggression and insomnia, and that parental rejection and overprotection were positively related to aggression and insomnia. When different parental styles were modeled together, SEMs found that parental rejection have direct influence on aggression but not insomnia and that the effects of parental warmth and overprotection on aggression were totally mediated by insomnia. Multi-group comparisons suggested that the relationships of parenting styles, insomnia, and aggression were similar across age and sex groups. **Conclusions:** Childhood parenting styles have persistent and stable influences on adulthood insomnia and aggressive behaviors across the whole life stages, but the effects may somewhat vary in different parenting styles. It indicates that early detection of detrimental parenting practices and then appropriately intervening can significantly help children foster good behaviors and sleep habits, finally altering the trajectories of their lives. This study reinforces the importance of parenting styles in improving population health and well-being.

Keywords: parenting styles, life span, aggression, insomnia, adult group

道德故事促进幼儿诚实行为的实证研究

唐叶青[1] 王沈沁怡[1] 章小燕[2] 赛李阳[3]（通讯作者）

1 杭州师范大学，杭州，311121

2 嵊州吾爱幼儿园，嵊州，312400

3 杭州师范大学心理系，杭州，邮编 311121，通讯作者 E-mail:liyangsai@hznu.edu.cn

摘 要 诚实守信是中华民族的传统美德，也是现行道德教育体系的核心内容之一，因此探寻如何促进儿童的诚实行为具有重要的意义。讲道德故事是被大众广泛应用、教导儿童诚实途径之一，但目前关于道德故事是否能够有效促进幼儿的诚实行为的实证证据较少，并且已有的研究结果也存在不一致。针对这一问题，本研究拟通过两个实验研究考察道德故事对幼儿诚实行为的影响。

实验 1 选取 108 名学前儿童参与实验（M = 5.82 岁 , range = 4.96-6.73 岁），采取抵制诱惑范式测量儿童的诚实行为。结果发现，积极的道德故事（例如主人公诚实并得到表扬）相比控制条件能显著促进儿童的诚实行为，而消极道德故事（例如主人公说谎并受到惩罚）不能有效地促进儿童的诚实行为。实验 1 表明了积极的道德故事能有效地促进儿童的诚实行为。实验 2 在实验 1 的基础上继续考察道德故事促进幼儿诚实行为的长期效应。选取四个中班的小朋友 74 名（M = 5.52 岁 , range = 4.93-6.53 岁）随机分配到积极道德故事组和控制组。其中积极道德故事组实施为期 3 周每周一节的积极道德故事课程，而控制组的被试参加其他故事课程。同样采用抵制诱惑范式来测量儿童的诚实水平。结果发现，积极道德故事组的儿童相

比控制组的诚实水平显著上升。这些研究结果表明给幼儿讲积极道德故事对其诚实水平的促进具有即时和长期的效应。

关键词　积极道德故事，消极道德故事，诚实行为，抵制诱惑范式

An Empirical Study on Moral Stories Promoting Honest Behavior in Children

Yeqing Tang[1]　Shenqiyi Wang[1]　Xiaoyan Zhang[2]　Liyang Sai[3]

1 Hangzhou Normal University, Hangzhou, 311121

2 Shengzhou Wu'ai Kindergarten, Shengzhou, 312400

3 Hangzhou Normal University, Hangzhou, 311121, E-mail：liyangsai@hznu.edu.cn

Abstract：Honesty and trustworthiness are traditional virtues of the Chinese nation and one of the core contents of the current moral education system. Therefore, exploring how to promote children's honest behavior is of great significance. Telling moral stories is one of the widely used ways to teach children honesty, but there is currently limited empirical evidence on whether moral stories can effectively promote children's honest behavior, and existing research results are inconsistent. In response to this issue, this study aims to investigate the impact of moral stories on children's honest behavior through two experimental studies.

Experiment 1 selected 108 preschool children (M=5.82 years old, range=4.96-6.73 years old) to participate in the experiment, and used the anti temptation paradigm to measure children's honest behavior. The results showed that positive moral stories (such as the protagonist being honest and praised) significantly promoted children's honest behavior compared to control conditions, while negative moral stories (such as the protagonist lying and being punished) did not effectively promote children's honest behavior. Experiment 1 shows that positive moral stories can effectively promote children's honest behavior. On the basis of Experiment 1, Experiment 2 continued to examine the long-term effect of moral stories on promoting honest behavior in young children. 74 children from four middle classes (M=5.52 years old, range=4.93-6.53 years old) were randomly assigned to the positive moral story group and the control group. The positive moral story group implemented a 3-week weekly positive moral story course, while the control group participants participated in other story courses. Similarly, the anti temptation paradigm is used to measure children's level of honesty. The results showed that the children in the positive moral story group had a significant increase in their level of honesty compared to the control group. These research results indicate that telling positive moral stories to young children has both immediate and long-term effects on their level of honesty.

Keywords：Positive moral stories, negative moral stories, honest behavior, resisting temptation paradigms

探索基于智能手机的酒精使用数字干预小程序在解决中国本土饮酒者戒酒困难中的作用：一项混合方法研究

唐瑀蓁[1]　杜江[1]（通讯作者）　张大鹏[2]　吴萧俊[1]　龙艳[1]　张蕾[1]　陈天真[1]

1 上海交通大学医学院附属精神卫生中心，上海，200030，Dujiangdou@163.com

2 安徽医科大学精神卫生与心理学系，安徽合肥，230032

摘 要 **背景：**第三次科技革命后，融合数字技术与心理疾病的研究在近年来逐渐成为热点，国外的随机对照试验已证实数字干预能有效减少问题性饮酒。中国有着特殊的“酒文化”，影响人们对酒的态度，相关研究较少。本研究则旨在探索酒精使用数字干预本土化小程序应具备的主要特征，以解决本地饮酒者戒酒的困难，进而为酒精使用障碍患者的长期康复管理提供一种有前景的手段。本研究采用混合方法在中国文化背景下探讨：(a)本土饮酒者在戒酒过程中可能会遇到哪些困难，哪些困难的影响更大；(b)一个酒精使用数字干预小程序应该具有哪些功能，哪些功能更有必要；(c)哪些因素可能影响饮酒者使用小程序。**方法：**自评定量问卷招募了三组参与者，89 名饮酒者，67 名饮酒者亲属和 30 名成瘾领域医务人员，调查收集包括人口学特征、戒酒经历、戒酒态度以及对数字干预酒精使用小程序的态度。焦点小组质性访谈调查了 36 名参与者对两个核心主题的看法，即(a)在戒酒过程中可能遇到的困难以及(b)对数字饮酒干预小程序功能的期望，包括 21 名饮酒者，4 名饮酒者亲属，以及成瘾领域医务人员 11 名。**结果：**结合定量研究和定性研究的结果，本地饮酒者在戒酒过程中最大的困难是：(a)来自内部的强烈渴求，(b)环境的影响，(c)心理健康状态。相应地，最期望酒精使用数字干预小程序具备的主要功能是：(a)每日跟踪饮酒情况和渴求程度，(b)可以与他人分享的定期反馈报告，(c)情绪改善训练。此外，影响本土饮酒者使用工具意愿的首要因素是：(a)工具是否有效，(b)使用体验是否良好，(c)工具能否补充目前酒精治疗的不足。**讨论：**未来的工作需要平衡患者的需求和外界他人的期望，以便中国文化背景下的潜在用户能更多地从数字干预工具中获益。
关键词 酒精使用障碍，酒精使用，数字心理健康干预，混合方法研究

Exploring the functions of a smartphone-based digital alcohol consumption intervention mini-program to address the difficulties of abstinence for native drinkers in China: a mixed methods approach

TANG Yuzhen[1], DU Jiang[1]*, ZHANG Dapeng[2], WU Xiaojun[1], LONG Yan[1], ZHANG Lei[1], CHEN Tianzhen[1]

(1. Shanghai Mental Health Center, Shanghai Jiao Tong University School of Medicine, Shanghai, 200030, China, Dujiangdou@163.com; 2. Department of Mental Health and Psychological Science, Anhui Medical University, Hefei, 230032, China)

***Abstract*：** **Background:** Integrating digital technology into mental diseases has become a hot research topic in recent years with the third revolution of science and technology. Digital interventions for reducing problematic drinking have been proven to be effective by randomized controlled trials (RCTs). Chinese Wine Culture influences people’s attitudes toward alcohol, and less research has been done there in China. The current study focuses on exploring the main features of a localized digital alcohol consumption intervention mini-program to address the difficulties of abstinence for native drinkers, as a promising way for long-term management of rehabilitation from alcohol use disorder. The research uses mixed methods to explore in the context of Chinese culture, (a) what difficulties a drinker might encounter during abstinence, which ones have bigger impacts, (b) what functions a digital alcohol consumption intervention mini-program should have, which ones are more necessary, and (c) what factors might influence drinkers’ use of the mini-program, how do they determine the details of the design. **Methods:** Three groups of participants (89 drinkers, 67 relatives of drinkers, and 30 addiction healthcare professionals) were recruited using a self-rating quantitative questionnaire. The quantitative study investigated demographic characteristics, previous abstinence experience, perspectives on abstinence, and perspectives on digital alcohol consumption intervention mini-program. The focus group qualitative interview

inspected 36 participants' perspectives on the core topics, including 21 drinkers, 4 drinkers' relatives, and 11 medical staff. The interview covered seven open questions around two core topics: (a) the difficulties one might have during abstinence and (b) the expectations for functions of digital alcohol consumption intervention mini-program. **Results:** Combining the results from the quantitative study and qualitative study, the top difficulties of abstinence for native drinkers are (a) the strong craving from the inside, (b) the environmental influence, and (c) the psychological states. Correspondingly, the most desired main features in an alcohol consumption digital intervention tool are (a) the daily track of drinking conditions and craving level, (b) periodic feedback reports that can share with others, and (c) mood improvement training. Moreover, the top factors that influence participants' intention to use/recommend the tool are (a) whether the tool is effective, (b) whether the user experience is good, and (c) whether the tool can replenish the deficiency of the current alcohol treatment. **Discussion:** Future work needs to balance what patients want and what the world expects so that potential users can benefit best from the digital intervention tool in the context of Chinese culture.

Keywords：alcohol use disorders, alcohol consumption, digital mental health intervention, mixed methods

丧子中老年人抑郁现状及影响因素的性别差异研究

王越[1]　陈晴[1]　刘鲁蓉[2]（通讯作者）

1 成都中医药大学管理学院，成都，611137

2 成都中医药大学基础医学院，成都，611137，liulurong68@163.com

摘 要　背景：中国传统文化中，子女在家庭扮演着重要的角色，为父母提供情感与物质上的支持，履行赡养义务。由于我国人口基数大，虽仅有少数人群经历过丧子，但其数量仍是巨大的，预计到 2035 年我国将有 1000 万个丧子家庭。丧子会引发负面情绪反应，从而影响个体心理健康，丧子女性抑郁的发生率普遍高于男性，但是尚缺乏对抑郁性别差异特征及差异影响因素的进一步探究，且目前国内关于丧子中老年人抑郁的相关研究较少。目的：分析我国丧子中老年人的抑郁现状及其影响因素，并进行性别差异比较，为降低丧子中老年人抑郁发生率和促进健康老龄化提供参考依据。方法：采用 2018 年中国健康与养老追踪调查（China Health and Retirement Longitudinal Study，CHARLS）数据，剔除非丧子者以及变量有缺失值的数据，纳入 1032 名丧子中老年人作为研究对象，运用χ^2 检验和二元 logistic 回归分析不同性别丧子中老年人抑郁状况及影响因素的差异。结果：（1）丧子中老年人抑郁发生率较高（49.1%），相较于男性，女性丧子中老年人抑郁发生率更高（39.7%vs56.7%，χ^2=29.656，P<0.001）；（2）自评健康状况不好、躯体生活自理能力（Basic Activities of Daily Living，BADL）受损、睡眠时间过短是男女丧子中老年人抑郁的共同危险因素；（3）工具性日常生活活动能力（Instrumental Activities of Daily Living，IADL）受损（OR=1.696，95%CI：1.120~2.569）是女性丧子中老年人抑郁特有的危险因素，年龄≥75 岁（OR=0.286，95%CI：0.161~0.507）是女性丧子中老年人抑郁特有的保护因素。结论：我国丧子中老年人的抑郁发生率较高，抑郁发生率及影响因素存在着明显的性别差异，女性丧子中老年人的抑郁发生率更高，且影响因素更复杂，应为不同性别的丧子中老年人提供有针对性的和可持续的心理和社会支持服务。

关键词　心理健康，抑郁，丧子，中老年人，性别差异

Gender difference of depression status and influencing factors among middle-aged and elderly people of child bereavement

Wang Yue[1], Chen Qing[1], LIU Lurong[2]（corresponding author）

1 School of Management, Chengdu University of Traditional Chinese Medicine, Chengdu, 611137
2 School of Basic Medical Sciences, Chengdu University of Traditional Chinese Medicine, Chengdu,611137

Abstract：Background: In traditional Chinese culture, children play an important role in the family, providing emotional and material support to parents and fulfilling their obligations of support. Due to the large population base in China, although only a small number of people have experienced bereavement, the number is still huge, and it is expected that by 2035, there will be 10 million bereaved families in China. Childlessness can trigger negative emotional reactions, thereby affecting individual mental health. The incidence of depression in women with childlessness is generally higher than that in men. However, there is still a lack of further exploration of gender differences in the characteristics and influencing factors of depression, and there is currently little research on depression in middle-aged and elderly people with childlessness in China. Objective: To analyze the current situation and influencing factors of depression among middle-aged and elderly people who have lost their children in China, and compare gender differences, in order to provide reference for reducing the incidence of depression among middle-aged and elderly people who have lost their children and promoting healthy aging. Method: Using the 2018 China Health and Retirement Longitudinal Study (CHARLS) data, excluding non bereaved individuals and data with missing variables, 1032 middle-aged and elderly bereaved individuals were included as the study subjects χ^2-test and binary logistic regression analysis were used to investigate the differences in depression status and influencing factors among middle-aged and elderly people who lost their children of different genders. Result: (1) The incidence of depression in middle-aged and elderly people who have lost their children is higher (49.1%), and compared to men, the incidence of depression in middle-aged and elderly people who have lost their children in women is higher (39.7%vs56.7%, χ^2=29.656, P<0.001); (2) Poor self rated health status, impaired BADL, and short sleep time are common risk factors for depression in middle-aged and elderly men and women who have lost their children; (3) Impaired IADL (OR=1.696, 95%CI: 1.120~2.569) is a unique risk factor for depression in middle-aged and elderly women who have lost their children, and age ≥ 75 years old (OR=0.286, 95%CI: 0.161~0.507) is a unique protective factor for depression in middle-aged and elderly women who have lost their children. Conclusion: The incidence of depression among middle-aged and elderly people who have lost their children in China is relatively high, and there are significant gender differences in the incidence and influencing factors of depression. Female middle-aged and elderly people who have lost their children have a higher incidence of depression, and the influencing factors are more complex. Targeted and sustainable psychological and social support services should be provided for middle-aged and elderly people who have lost their children of different genders.

Keywords：Mental health, Depression, Child bereavement, Middle-aged and elderly people, Gender difference

同伴依恋对高中生性适应的影响：学校归属感与自尊的链式中介作用

兰婷[1]　王挺[1]　（通讯作者）
1 江西中医药大学，南昌，330031，
2 江西中医药大学人文学院，南昌，330031，125323611@qq.com

摘 要　目的：考察同伴依恋、学校归属感、自尊与高中生性适应之间的关系，并探讨学校归属感与自尊在同伴依恋与性适应间的中介作用。方法：采用方便取样的方法，使用青少年同伴依恋量表、性适应量表、学校归属感量表以及自尊量表作为测量工具对 1492 名高中生进行数据调查，通过 SPSS27.0 和

PROCESS4.1 插件对数据进行处理和分析。结果：（1）同伴依恋与性适应、学校归属感和自尊均呈显著正相关（r=0.27、0.44、0.41，p＜0.001）;性适应与学校归属感和自尊均呈显著正相关（r=0.30、0.30，p＜0.001）;学校归属感和自尊呈显著正相关（r=0.49，p＜0.001）。（2）同伴依恋正向预测性适应。（3）学校归属感在同伴依恋与性适应之间起中介作用（95%CI=[0.019,0.046],中介作用显著，中介效应值 0.033）；自尊在同伴依恋与性适应之间起中介作用（95%CI=[0.010,0.026],中介作用显著，中介效应值 0.017）。（4）学校归属感和自尊在同伴依恋与性适应之间起链式中介作用（95%CI=[0.007,0.018],中介作用显著，中介效应值 0.012）。结论：同伴依恋对性适应具有正向预测作用;同伴依恋分别通过学校归属感和自尊的单独中介作用预测高中生性适应能力，也能通过学校归属感和自尊的链式中介作用间接预测高中生性适应能力。
关键词　同伴依恋，性适应，学校归属感，自尊，高中生

The effect of peer attachment on sexual adjustment in high school: the chain mediating role of school belonging and self-esteem

LAN Ting　WANG Ting
Jiangxi University of Traditional Chinese Medicine，Nanchang，330031
School of Humanities, Jiangxi University of Chinese Medicine，Nanchang，330031

Abstract：Objective: To investigate the relationship between peer attachment, school belonging, self-esteem and sexual adjustment in high school, and to explore the mediating effect of school belonging and self-esteem on peer attachment and sexual adjustment. Methods: The data of 1492 high school students were investigated by using adolescent peer attachment scale, Sexual adjustment Scale, school belonging scale and self-esteem scale as measuring tools. The data were processed and analyzed by SPSS27.0 and PROCESS4.1. Results: (1) Peer attachment was positively correlated with sexual adaptation, school belonging and self-esteem (r=0.27, 0.44, 0.41, p < 0.001)；Sexual adaptation was positively correlated with school belonging and self-esteem (r=0.30, 0.30, p < 0.001)；There was a significant positive correlation between school belonging and self-esteem (r=0.49, p < 0.001). (2) Positive predictive adaptation of peer attachment. (3) School belonging played a mediating role between peer attachment and sexual adaptation (95%CI=[0.019,0.046], significant mediating role, mediating effect size 0.033);Self-esteem played a mediating role between peer attachment and sexual adaptation (95%CI=[0.010,0.026], significant mediating role, mediating effect size 0.017). (4) School belonging and self-esteem played a chain mediating role between peer attachment and sexual adaptation (95%CI=[0.007,0.018], significant mediating role, mediating effect size 0.012). Conclusion: Peer attachment has positive predictive effect on sexual adaptation；Peer attachment can predict high school adaptive ability through the mediating effects of school belonging and self-esteem separately, and can also predict high school adaptive ability indirectly through the mediating effects of school belonging and self-esteem.

Keywords：Peer attachment，Sexual adaptation，School belonging，self-respect，Senior high school student

网络使用动机对青少年网络成瘾的影响：同伴关系及家庭教育模式研究

杜青雨 [1]　王挺 [1] (通讯作者) E-mail：125323611@qq.com

1. 江西中医药大学人文学院，南昌， 330031

摘 要　网络成瘾会对中学生的生理、心理及社会适应问题产生严重影响，随着移动互联网技术的快速发展，多媒体工具和对网络的使用同样影响着中学生的日常学习和生活。然而，网络使用动机对网络成瘾的影响机制还有待深入探究。目的：本研究拟构建一个多重中介模型，以检验父母教养方式与同伴关系在网络使用动机与网络成瘾之间的中介作用。方法：采用网络使用动机问卷、网络成瘾量表、同伴关系量表及简式父母教养方式量表进行测试，以 340 名中学生为被试，通过 SPSS25.0 和 PROCESS4.0 插件对数据进行处理和分析，考察网络使用动机与网络成瘾的关系。结果表明：（1）193 名（56.8%）中学生最常使用沟通交流类的网络社群，其次是学习类 83 名（24.4%），休闲娱乐类 40 名（11.8%）；（2）网络使用动机可以显著正向预测网络成瘾，同伴关系和父母消极教养方式可以显著正向预测网络成瘾，父母积极教养方式可以显著负向预测网络成瘾；（3）同伴关系在网络使用动机对网络成瘾的影响间起中介作用，父母积极教养方式在网络使用动机对网络成瘾的影响间起中介作用，父母消极教养方式在网络使用动机对网络成瘾的影响间起中介作用；（4）父母消极教养方式和同伴关系在网络使用动机对网络成瘾的影响间起链式中介作用。结论：研究启示家庭教育中父母应采用积极的教养方式，建立温暖的家庭氛围，引导孩子积极正向的网络使用动机以及正确的同伴交往，对预防网络成瘾具有一定干预作用。
关键词　网络社群，网络使用动机，父母教养方式，同伴关系，网络成瘾

The influence of Internet use motivation on adolescent Internet addiction: a study of peer relationship and family education model

Du QingYu [1]　　Wang Ting [1](corresponding author)E-mail：125323611@qq.com

1. School of Humanities, Jiangxi University of Traditional Chinese Medicine, Nanchang, city, China, 330031

Abstract：Internet addiction will have a serious impact on the physiological, psychological and social adaptation problems of middle school students. With the rapid development of mobile Internet technology, multimedia tools and the use of the Internet also affect the daily learning and life of middle school students.However, the mechanism of the influence of Internet use motivation on Internet addiction remains to be further explored.Objective: This study aims to construct a multi-mediating model to examine the mediating role of parenting style and peer relationship between Internet use motivation and Internet addiction.Methods: Using the questionnaire of Internet use motivation, Internet addiction Scale, peer relationship scale and simplified parenting style scale, 340 middle school students were taken as subjects, and the data were processed and analyzed by SPSS25.0 and PROCESS4.0 plug-ins to investigate the relationship between Internet use motivation and Internet addiction.The results showed that: (1) 193 middle school students (56.8%) most often used communication online community, followed by 83 students (24.4%) in learning, 40 students (11.8%) in leisure and entertainment;(2) Internet use motivation can significantly positively predict Internet addiction, peer relationship and negative parenting style can significantly positively predict Internet addiction, and positive parenting style can significantly negatively predict Internet addiction;(3) Peer relationship plays a mediating role in the influence of Internet use motivation on Internet addiction, positive parenting style plays a mediating role in the influence of Internet use motivation on Internet addiction, and negative parenting style plays a mediating role in the influence of Internet use motivation on Internet addiction;(4) Parents' negative parenting style and peer relationship play a chain mediating role in the influence of Internet use motivation on Internet addiction.Conclusion: The study suggests that parents should adopt positive parenting style, establish warm family atmosphere, guide children's positive motivation of using the Internet and correct peer communication in family education, which has a certain intervention effect on the prevention of Internet addiction.

Keywords：Internet community,Internet use motivation,Parenting style,Peer Relationship,Internet Addiction

工作重塑与乡村教师工作投入的关系：有调节的链式中介模型

安伯森[1]　孙思玉[1]（通讯作者）
1 天津职业技术师范大学职业教育学院，天津，300222

摘 要　工作投入是一种积极的情感和被激励的状态, 即个体充满能量、高度奉献、并且沉浸于工作中。工作投入不仅会影响工作行为的稳定性，而且对职业认同和职业生涯发展有着重要的意义。高工作投入的个体总是全力以赴地投入工作，进而提升组织的整体效能和影响力。工作重塑、工作获得感、工作满意度和职业使命感是工作投入的重要影响因素，然而在乡村教师群体中，这五者关系尚不明确。为了探究工作重塑对乡村教师工作投入的作用机制，本研究结合了有调节的链式中介模型统计分析方法，采用问卷法对657 名乡村教师的工作重塑、工作获得感、工作满意度和职业使命感以及工作投入进行研究。结果发现: (1) 工作重塑对工作投入具有显著的正向预测作用; (2) 工作获得感和工作满意度在工作重塑和工作投入间起独立中介作用，工作获得感和工作满意度在其间发挥链式中介作用; (3) 职业使命感能够调节工作重塑对工作投入的影响，职业使命感能够调节工作获得感对工作满意度的影响，同时，对具有高职业使命感的乡村教师而言，工作获得感和工作满意度的链式中介作用更强。本研究揭示了乡村教师工作投入的产生机制，可以通过增强工作重塑、工作获得感和工作满意度的方式来提升乡村教师的工作投入水平，同时较高的职业使命感，也有利于提高乡村教师的工作投入水平。
关键词　工作重塑，工作获得感，工作满意度，工作投入，职业使命感

The relationship between job reshaping and rural teachers' work engagement: a moderated chain mediation model

An Bosen[1]　Sun Siyu[1]
Tianjin University of Technology and Education, Tianjin, 300222

Abstract：Work engagement is a positive emotional and motivational state in which an individual is energized, highly committed, and immersed in his or her job engagement not only affects the stability of work behavior, but also has important implications for professional identity and career development. Individuals who are highly engaged in their work are always fully committed to their work, which in turn enhances the overall effectiveness and impact of the organization. Job reshaping, job acquisition, job satisfaction and sense of professional mission are important influences on job engagement, however, the relationship between these five is not clear in the rural teacher group. In order to investigate the mechanism of job remodeling on rural teachers' work engagement, this study combined the statistical analysis method of moderated chain mediation model and used the questionnaire method to study 657 rural teachers' job remodeling, job access, job satisfaction and sense of professional mission, as well as work engagement. The results found that: (1) job remodeling has a significant positive predictive effect on job engagement; (2) the sense of job acquisition and job satisfaction play independent mediating roles between job remodeling and job engagement, and the sense of job acquisition and job satisfaction play chain mediating roles between them; (3) the sense of vocational mission can modulate the effect of job remodeling on job engagement, and the sense of vocational mission can modulate the effect of the sense of job acquisition on job satisfaction; at the same time, the sense of job acquisition can modulate the effect of the sense of job satisfaction on job engagement for rural teachers with a high level of job satisfaction. Meanwhile, for rural teachers with a high

sense of professional mission, the chain mediating role of job acquisition and job satisfaction is stronger. This study reveals the generating mechanism of rural teachers' work engagement, which can enhance the level of rural teachers' work engagement through the enhancement of job remodeling, job acquisition and job satisfaction, while a higher sense of professional mission is also conducive to the enhancement of rural teachers' work engagement.
Keywords Job reshaping, sense of gain at work, job satisfaction, sense of professional mission, work engagement

24h 动作行为对学龄前儿童社会情感能力影响的等时替代效益研究

徐秦豫[1] 张士臣[1] 朱昭红[2] （通讯作者）毛俊茜[1] 陈圆圆[1]
1 西安体育学院研究生部，西安，710000
2 西安体育学院运动与健康科学学院，西安，710000，1341680896@qq.com

摘 要 社会情感能力是个体适应社会的一个重要指标，前人研究证明 24h 动作行为中身体活动，久坐行为和睡眠均是影响社会情感能力的重要因素。然而 24h 动作行为对社会情感能力的综合效应如何在学龄前阶段发生发展，目前尚不明晰。本研究使用问卷测量探究学龄前儿童 24h 动作行为对社会情感能力的影响。研究 1 翻译并修订适合我国学龄前儿童社会情感能力的问卷。选取 Howard 等人（2016）编制的学龄前儿童社会情感能力问卷进行翻译，回译并进行文化调适后发放 820 份问卷，采用 SPSS26.0 和 AMOS26.0 软件分析数据，进行信效度检验。结果：修订后的学龄前儿童社会情感能力问卷具有良好的信效度，可适用于我国学龄前儿童的社会情感能力的测量，并可用于本研究的后续分析。研究 2 采用修订后的问卷测量学龄前儿童（n=80）社会情感能力，采用学龄前儿童体力活动特征及影响因素调查问卷和儿童休闲活动调整问卷测量学龄前儿童的 24h 动作行为情况。结果发现：（1）相关分析结果表明，中等强度身体活动（moderate physical activity，MPA）、高等强度身体活动（vigorous physical activity，VPA）和睡眠（sleep duration，SLP）与人际交往技能，自我调节呈正相关，低等强度身体活动（light physical activity，LPA）和久坐行为（sedentary behavior，SB）与人际交往技能,自我调节呈负相关；SB 与情绪认知,外化问题呈正相关，LPA 与情绪认知,外化问题呈负相关；LPA 与社会适应维度呈负相关;（2）在 10 分钟的等时替代模型中，用 MPA 和 VPA 替代 SB 能使人际交往技能显著增加 0.24-0.35 个单位，用 LPA 替代 SLP 能使人际交往技能显著降低 0.08 个单位，用 MPA 和 VPA 替代 SLP 能使人际交往技能显著增加 0.20-0.31 个单位；用 LPA 和 VPA 替代 SB 能使情绪认知显著降低 0.14-0.18 个单位，用 LPA 替代 SLP 能使情绪认知显著降低 0.08 个单位；用 LPA,MPA,VPA 和 SLP 替代 SB 能使外化问题显著降低 0.39-0.70 个单位，用 LPA 替代 SLP 能使外化问题显著降低 0.31 个单位，用 SB 替代 SLP 能使外化问题显著增加 0.39 个单位。结论：在学龄前阶段，社会情感能力受到 24h 动作行为的影响，且这一影响因动作行为的不同组合而产生不同。
关键词 社会情感能力，24h 动作行为，等时替代分析，学龄前儿童

Isochronous substitution effect of 24h movement behavior on preschool children's social-emotional ability

Xu Qinyu[1]Zhang Shichen[1] Zhu Zhaohong[2]（Correspondence author）Mao Junxi[1] Chen Yuanyuan[1]
1 Graduate School, Xi'an Physical Education University, Xi'an, 710000
2 School of Exercise and Health Sciences, Xi'an Physical Education University, Xi'an, 710000

Abstract： Social-emotional ability serves as a crucial indicator of social adaptation. Prior investigations have established the significant impact of physical activity, sedentary behavior, and sleep on the 24-hour movement patterns, influencing social-emotional ability. However, the developmental trajectory of how the combined effects

of 24-hour movement behavior influence social-emotional ability during the preschool years remains unclear. To address this gap, the present study employed a questionnaire to assess the impact of 24-hour movement behavior on social-emotional ability in preschool children. In study 1 involved the translation and refinement of a questionnaire suitable for assessing the social-emotional ability of Chinese preschoolers. The questionnaire compiled by Howard et al. (2016) pertaining to the social-emotional ability of preschool children was selected for translation. Following the translation and cultural adaptation process, 820 questionnaires were distributed. Results: The refined questionnaire demonstrated favorable reliability and validity, enabling its utilization in assessing the social-emotional ability of preschool children in China, and for subsequent analysis in this study. In study 2, the revised questionnaire was employed to measure the social-emotional ability of a sample of preschool children (n=80), while the physical activity characteristics, factors influencing preschool children, and the Adjusted Leisure Activities Questionnaire were utilized to evaluate the 24-hour movement behavior of the preschoolers. The findings indicated the following: (1) Correlation analyses revealed that moderate physical activity (MPA), vigorous physical activity (VPA), and sleep duration (SLP) exhibited positive associations with interpersonal skills and self-regulation. Conversely, light physical activity (LPA) and sedentary behavior (SB) displayed negative associations with interpersonal skills and self-regulation. Furthermore, SB demonstrated positive associations with emotional cognition and externalization problems, whereas LPA displayed negative associations with emotional cognition and externalization problems. Lastly, LPA exhibited negative associations with the Social adaptation dimension.(2) Within the 10-minute isochronous substitution model, the replacement of sedentary behavior (SB) with moderate physical activity (MPA) and vigorous physical activity (VPA) yields a notable increase in interpersonal skills, ranging from 0.24 to 0.35 units. Conversely, substituting sleep duration (SLP) with light physical activity (LPA) leads to a significant decrease in interpersonal skills by 0.08 units. Replacing SLP with MPA and VPA results in a substantial improvement in interpersonal skills, ranging from 0.20 to 0.31 units. Moreover, the substitution of SB with LPA and VPA significantly reduces emotional cognitionby 0.14 to 0.18 units, while replacing SLP with LPA leads to a significant reduction of 0.08 units in emotional cognition. Substituting SB with LPA, MPA, VPA, and SLP leads to a considerable decrease in externalization problems by 0.39 to 0.70 units, and replacing SLP with LPA results in a reduction of 0.31 units in externalization problems. Conversely, replacing SLP with SB significantly increases externalization problems by 0.39 units. In conclusion, during the preschool years, social-emotional ability is influenced by 24-hour motor behavior, with the specific effects varying based on different combinations of motor behavior.

Keywords：Social-emotional Ability，24-hour Movement Behavior，Isotemporal substitution Analysis，preschool children

错失恐惧对大学生社交网络成瘾倾向的影响

刘珂彤[1] 张士臣[1] 李靖[2]（通讯作者）

1 西安体育学院研究生部，西安，710000

2 西安体育学院运动与健康科学学院，西安，710000，870073988@qq.com

摘 要 随着互联网的发展，越来越多的大学生在日常学习生活中通过 QQ、微信、微博等社交网络软件进行交流，丰富、便利了生活和学习，但是一部分大学生也会出现过度使用社交网络的情况，引发社交网络成瘾倾向等问题，并在一定程度上影响其心理健康和学业成绩。根据认知－行为模型，个体的非适应性认知是影响物质成瘾的核心因素。而作为一种非适应性认知，错失恐惧是指个体因担心错失他人的新奇经历或正性事件而产生的一种弥散性焦虑，容易导致个体在特定情况中出现偏差行为。因此本研究采用错失恐惧量表、大学生社交网络成瘾倾向量表，对 538 名大学生进行调查，拟考察错失恐惧与大学生社交网站

成瘾之间的关系。结果表明：（1）男生的错失恐惧和社交网络成瘾倾向显著低于女生，高年级学生的错失恐惧显著高于低年级学生的错失恐惧，且随着每天使用社交软件时长的增加，大学生的错失恐惧和社交网络成瘾倾向也在显著增加；（2）大学生的错失恐惧与其社交网络成瘾倾向呈显著正相关；（3）在控制性别、年级、使用社交软件时长等协变量之后，错失恐惧能够显著正向的预测大学生的社交网络成瘾倾向。结论：本研究证实了错失恐惧能够导致大学生社交网络成瘾倾向的产生，同时检验了错失恐惧和社交网络成瘾倾向在性别、年级和社交软件使用时长等人口学变量上的差异，为对社交网络成瘾倾向易感群体进行有效的预防和控制提供了理论和实践启示。
关键词　错失恐惧，社交网络成瘾倾向，大学生

The influence of fear of missing out on college students' social network addiction tendency

Liu Ketong[1] Zhang Shichen[1] Li Jing[2]（Correspondence author）
1 Graduate School, Xi'an Physical Education University, Xi'an, 710000
2 School of Exercise and Health Sciences, Xi'an Physical Education University, Xi'an, 710000

Abstract：With the development of the Internet, more and more college students use social network software such as QQ, wechat and Weibo to communicate with each other in their daily study and life, enriching and facilitating their life and study. However, some college students may overuse social networks, leading to problems such as social network addiction, and affecting their mental health and academic performance to a certain extent. According to the cognitive-behavior model, the non-adaptive cognition of individuals is the core factor affecting substance addiction. As a kind of non-adaptive cognition, the fear of missing out is a kind of diffuse anxiety caused by the fear of missing the novel experience or positive event of others, which can easily lead to deviant behaviors in specific situations. Therefore, this study used the Fear of Missing out scale and the social network Addiction Tendency Scale of college students to investigate the relationship between fear of missing out and addiction of college students to social network websites. The results show that: (1) Male students have significantly lower fear of missing out and social network addiction tendency than female students, senior students have significantly higher fear of missing out than junior students, and with the increase of daily use of social software, college students' fear of missing out and social network addiction tendency also increase significantly; (2) There is a significant positive correlation between college students' fear of missing out and their tendency of social network addiction; (3) After controlling for covariates such as gender, grade and duration of using social software, the fear of missing out can significantly and positively predict college students' tendency of social network addiction. Conclusion: This study confirmed that the fear of missing out can lead to the emergence of college students' social network addiction tendency, and examined the differences between the fear of missing out and social network addiction tendency in demographic variables such as gender, grade and social software use time, providing theoretical and practical enlightenment for effective prevention and control of social network addiction tendency susceptible groups.
Keywords：fear of missing out, social network addiction tendency, college student

儿童期情感忽视对冰毒依赖女性复吸倾向的影响
—冲动性和生活质量的链式中介作用

侯思敏[1] 何伊柔[1] 景璐石[1] 代彤[2] 吴昱锡[2]
[1]成都医学院心理学院，四川成都，610500
[2]四川省女子强制隔离戒毒所，四川德阳，618000
通讯作者：景璐石 fengjingqianhui@163.com

摘 要 目的:探讨儿童期情感忽视对冰毒依赖女性复吸倾向的影响以及冲动性和生命质量在其中的链式中介作用。方法：在四川省某女子强制隔离戒毒所选取冰毒依赖青年女性 160 名，采用儿童期虐待量表、巴瑞特冲动性量表 BIS-11 中文版问卷、药物成瘾者生命质量测定量表、复吸倾向问卷进行横断面调查。运用 SPSS21.0 进行共同方法偏差检验、Pearson 相关分析,采用 PROCESS 3.4 宏程序进行中介效应检验。结果：（1）冰毒依赖女性儿童期情感忽视、冲动性、生命质量和复吸倾向两两之间存在显著相关，儿童期情感忽视与复吸倾向（r= 0.174,P<0. 05）、冲动性（ r=0.223,P<0. 01）均呈正相关，与生命质量（r=-0.208,P<0.01）呈负相关；冲动性与生命质量（r=-0.519，p<0.01）呈负相关,冲动性与复吸倾向（r=0.396，p<0.01）呈正相关；生命质量与复吸倾向（r=-0.362，p<0.01）呈负相关。（2）冲动性在冰毒依赖女性儿童期情感忽视与复吸倾向间起部分中介作用，效应值 0.094（95%CI＝0.028~0.189），生命质量在冰毒依赖女性儿童期情感忽视和复吸倾向之间中介效应不显著；冲动性和生命质量在儿童期情感忽视与复吸倾向间起链式中介作用，效应值为 0. 031（95%CI=-0.014~0.095），分别占总间接效应（效应值= 0.160）的 58.75%、19.37%。结论：儿童期情感忽视可以正向预测冰毒依赖女性的复吸倾向,也可以通过冲动性与生命质量的链式中介作用间接影响其复吸倾向。

关键词 情感忽视；复吸倾向；生命质量；冲动性；中介作用

The effect of childhood emotional neglect on the propensity to relapse in methamphetamine-dependent women

-Chain mediation of impulsivity and quality of life

Hou Simin[1] He Yirou[1] Jing Lushi[1] Dai Tong[2] Wu Yuxi[2]
[1]School of Psychology, Chengdu Medical College, Chengdu, Sichuan 610500, China
[2]Sichuan Women's Compulsory Isolation Drug Rehabilitation Centre, Deyang, Sichuan 618000, China
Corresponding author:Jing Lushi,fengjingqianhui@163.com

Abstract: Objective:To explore the effects of childhood emotional neglect on methamphetamine-dependent women's tendency to relapse and the chain-mediated roles of impulsivity and quality of life in this context. Methods:160 methamphetamine-dependent young women were selected from a women's compulsory isolation drug rehabilitation centre in Sichuan province, and a cross-sectional survey was conducted using the Childhood Abuse Scale, the Chinese version of the Barrett Impulsivity Scale BIS-11 questionnaire, the Quality of Life Measurement Scale for Drug Addicts, and the Questionnaire on the Propensity to Relapse to Drug Abuse. Common method bias test and Pearson correlation analysis were conducted using SPSS 21.0, and mediation effect test was conducted using PROCESS 3.4 macro program. Results: (1) There were significant correlations between childhood emotional neglect, impulsivity, quality of life and relapse tendency in methamphetamine-dependent females. Childhood emotional neglect was positively correlated with relapse tendency (r= 0.174,P<0. 05) and impulsivity (r=0.223,P<0. 01), and negatively correlated with quality of life (r= -0.208,P<0.01). quality of life (r=-0.519,p<0.01) were negatively correlated, impulsivity was positively correlated with the tendency to relapse

(r=0.396,p<0.01); quality of life was negatively correlated with the tendency to relapse (r=-0.362,p<0.01). (2) Impulsivity partially mediated the relationship between emotional neglect in childhood and relapse propensity in methamphetamine-dependent females, with an effect value of 0.094 (95% CI = 0.028-0.189), and quality of life had a non-significant mediating effect between emotional neglect in childhood and relapse propensity in methamphetamine-dependent females; impulsivity and quality of life chained mediating the relationship between emotional neglect in childhood and relapse propensity, with an effect value of 0 . 031 (95% CI = -0.014 to 0.095), accounting for 58.75% and 19.37% of the total indirect effect (effect value = 0.160), respectively. Conclusion: Emotional neglect in childhood positively predicts relapse tendency among methamphetamine-dependent females, and also indirectly affects their relapse tendency through the chain-mediated effects of impulsivity and quality of life.

Keywords: emotional neglect; relapse tendency; quality of life; impulsivity; mediating effect

个体心理训练对军校大学生情绪、睡眠及生理的干预效果

张芫蓓[1]　蒲昭君[1]　杨梦圆[1]（武圣君[1]　方鹏[1]）

1 空军军医大学军事医学心理学系,西安，710032

2 空军军医大学军事医学心理学系,西安，710032，wushj@fmmu.edu.cn

空军军医大学军事医学心理学系,西安，710032，fangpeng@fmmu.edu.cn

摘 要　目的：探讨个体心理训练对军校大学生情绪、睡眠及生理的干预效果。方法：选取军校大学生 56 人，采用随机数表法分为干预组和空白对照组，每组 28 人。干预组采取笔者设计的个体 5-5 呼吸训练法进行训练，训练时长每次 12 分钟，做三天休息一天，共训练 4 周，训练时需要录制视频确保完成。空白对照组在 4 周内不做任何干预。比较两组人员干预前后的焦虑自评量表(GAD-7)、抑郁自评量表（PHQ-9）、睡眠指数量表（ISI）、压力知觉量表（CPSS-14）的得分。同时采用美国 biopac 多导（16 道）电生理仪对干预组和空白对照组人员的心率指数、皮温及心率变异性等数值在干预前后进行对比分析。结果：干预 4 周后，干预组焦虑自评量表(GAD-7)、抑郁自评量表（PHQ-9）、睡眠指数量表（ISI）、压力知觉量表（CPSS-14）的得分分别为（0.897±0.433）分、（1.966±0.462）分、（1.345±0.612）分及（27.97±7.858）分，显著低于空白对照组的（2.143±0.440）分、（1.966±0.462）分、（1.345±0.612）分及（30.82±7.958）分，差异均具有统计学意义（P<0.05）。同时，干预组在干预后心率最大值为（87.081±10.650）次/分，显著低于空白对照组（98.416±23.591）次/分；低频高频比 LF/HF 比值为（1.176±1.520），显著低于空白对照组（2.084±2.607），差异均具有统计学意义（P<0.05）。皮温最大值为（91.325±5.286）°F，高于空白对照组皮温最大值为（89.284±2.269）°F，差异边缘显著（P=0.058）。结论：设计的个体 5-5 呼吸训练法简单易行，对于对军校大学生的心理健康有较好的调节作用，在有效降低军校大学生的焦虑、抑郁指数，提升军校大学生睡眠质量，改善压力知觉等方面具有积极意义。

关键词　军校大学生，心理训练，呼吸训练，情绪，心率变异性

The Intervention Effect of Individual Psychological Training on Emotion, Sleep, and Physiology of Military College Students

ZHANG Yuanbei[1]　PU Zhaojun[1]　YANG Mengyuan[1]　（WU Shengjun[1]　FANG Peng[1]）

[1]Department of Military Medical Psychology, Air Force Medical University, Xi’an 710032

Abstract: Objective: To explore the intervention effect of individual psychological training on emotions, sleep,

and physiology of military college students. Method: 56 military college students were selected and randomly divided into an intervention group and a blank control group using a random number table method, with 28 people in each group. The intervention group adopted the individual 5-5 breathing training method designed by the author for training, with a duration of 12 minutes each time and a three-day rest for a total of 4 weeks. During the training, video recordings are required to ensure completion. The blank control group did not receive any intervention within 4 weeks. Compare the scores of the Self Rating Anxiety Scale (GAD-7), Self Rating Depression Scale (PHQ-9), Sleep Index Scale (ISI), and Stress Perception Scale (CPSS-14) before and after intervention between two groups of personnel. At the same time, the American Biopac multi-channel (16 channel) electrophysiological instrument was used to compare and analyze the values of heart rate index, skin temperature, and heart rate variability between the intervention group and the blank control group before and after the intervention. Result: After 4 weeks of intervention, the scores of GAD-7, PHQ-9, ISI, and CPSS-14 in the intervention group were (0.897 ± 0.433), (1.966 ± 0.462), (1.345 ± 0.612), and (27.97 ± 7.858), respectively, significantly lower than those in the blank control group (2.143 ± 0.440), (1.966 ± 0.462), (1.345 ± 0.612), and (30.82 ± 7.958), The differences were statistically significant (P<0.05). Meanwhile, the maximum heart rate of the intervention group after intervention was (87.081 ± 10.650) beats/min, significantly lower than that of the blank control group (98.416 ± 23.591) beats/min; The LF/HF ratio was (1.176 ± 1.520), significantly lower than the blank control group (2.084 ± 2.607), and the differences were statistically significant (P<0.05). The maximum skin temperature was (91.325 ± 5.286) °F, which was higher than the maximum skin temperature of the blank control group (89.284 ± 2.269) °F, with a significant margin of difference (P=0.058). Conclusion: The designed individual 5-5 breathing training method is simple and feasible, and has a good regulatory effect on the psychological health of military college students. It has positive significance in effectively reducing anxiety and depression index, improving sleep quality, and improving stress perception among military college students.

Keywords：military college students, psychological training, respiratory training, emotions，heart rate variability

优势使用对高校教师工作幸福感的影响：基本需求满足的中介作用

魏仓丕 苏佳合 赵晶晶 孔风（通讯作者）

陕西师范大学心理学院，西安，710062，kongfeng87@126.com

摘 要 教师的工作幸福感是衡量教师心理健康的一个重要指标，高的工作幸福感有利于教师更好的投入教学生活。优势使用是积极心理学的一个重要概念，是指人们在工作生活中通过发挥自己的优势来获得成功经验，带来愉快的体验。已经有很多的研究证实优势使用对于工作幸福感的提升具有显著的预测作用，然而，很少有研究探讨教师的优势使用和工作幸福感之间的关系及其潜在的心理机制。自我决定理论认为，基本需求满足是影响幸福感的重要因素，并常被认为是潜在的中介变量。因此本研究旨在探讨教师的优势使用和工作幸福感之间的关系，以及基本需求满足的中介作用。我们招募了 374 名大学教师，请他们填写了一系列问卷，包括优势使用量表、工作中基本需求满足量表、享乐论幸福感量表和实现论幸福感量表。对数据进行描述性统计之后，通过测量模型和结构模型的两步法对得到的数据进行进一步的分析。结果显示，优势使用分别与工作幸福感幸的两个维度（即享乐论幸福感与实现论幸福感）之间存在着正相关。此外，基本需求的满足在优势使用和工作幸福感之间起着中介作用。因此，学校应注重提高教师的优势使用水平，创造优势使用的氛围，让教师更好的发挥自己工作中的优势，以此改善教师的工作幸福感，让教师能够更好的开展教学工作。最后，我们讨论了本研究的局限性和未来研究的前景。

关键词 优势使用，工作幸福感，基本需求满足，教师

Strengths use and well-being at work among teachers: The mediating role of basic needs satisfaction

Cangpi Wei [1],Jiahe Su [1], Jingjing Zhao [1] and Feng Kong [1]
1 School of Psychology, Shaanxi Normal University, China
School of Psychology, Shaanxi Normal University, Xi'an, 710062, kongfeng87@126.com

Abstract： Teachers' well-being at work is an important indicator of teachers' psychological health, and high well-being at work is conducive to teachers' better engagement in teaching life. Strengths use is an important conception in positive psychology, which refers to the fact that people gain successful experiences and bring pleasant experiences by utilizing their strengths in their working life. There have been many studies confirming the significant predictive effect that strengths use on the enhancement of well-being at work. However, few studies have explored the relationship between teachers' strengths use and well-being at work and its underlying psychological mechanisms. The self-determination theory believed that basic needs satisfaction was an important factor to affect well-being, is often considered as a potential mediating variable. Therefore, this study aimed to explore the relationship between teachers' strengths use and well-being at work and the mediating role of basic needs satisfaction. A total of 374 university teachers were assembled and asked to complete a series of questionnaires, including the Strengths Use Scale, the Basic Needs Satisfaction at Work Scale, the hedonic well-being Scale, and the eudaimonic well-being Scale. After descriptive statistics were performed on the data, the data obtained were further analyzed using a two-step method of measurement model and structural model. The results showed that there was a positive correlation between strengths use and hedonic well-being and eudaimonic well-being, respectively. In addition, the satisfaction of basic needs mediates the relationship between strengths use and well-being at work. Therefore, schools should focus on improving teachers' strengths use and creating an atmosphere of strengths use, so that teachers can better utilize their strengths at work, and in this way, improve their well-being at work, so that they can better carry out their teaching work. Finally, we discuss the limitations of this study and the prospects for future research.

Keywords： Strengths use, well-being at work, basic needs satisfaction, teachers

当代男性气质"脆弱"的条件以及新发展方向

景冰洁
四川师范大学心理学院，成都市，610066

摘 要　男性气质具有不稳定性和脆弱性。在感知到的性别认同威胁下，男性更有可能做出某些与刻板印象一致的反应，如攻击，以维持自己的性别地位。然而，人们对男性在性别认同威胁下的个体差异反应知之甚少，即男性气质"脆弱"的心理条件。我们结合自我差异理论和自我决定理论提出了一个新的男性气质模型：对于男性气质规范的期望会在自我内部产生差异，这种僵化的规范被内化为义务型（实际与应该的差异）和愿望型（实际与理想的差异），这分别预测了减少这些差异的外在动机和内在动机。因此，在性别认同威胁下，外在动机预测外化反应（如攻击），而内在动机引发内化反应（如焦虑、羞耻、自残）。我们还考虑了男性气质不"脆弱"的条件——在期望不强烈或者拒绝遵守男性气质规范的情况下，有利于减轻与男性气质威胁相关的不良影响。最后，我们提出在数字化时代下，重建（试图修改或创造）更多亲社会意义的男性气质的重要性。新型男性气质通过围绕养育子女（居家度），真实度，整体关注度，对男性

传统规范的质疑度和对男性特权的敏感度建立新的规范，使男性性别社会化的过程不再是创伤性或强制性的，从而减少性别角色压力，努力使男性气质规范与现代社会经济和社会主义文化价值观相一致。从更广泛的角度来看，男性气质的变化对于心理健康有着启发性的意义，为未来的发展提供方向。

关键词　男性气质，差异，动机，威胁，新型男性气质

The conditions for the "fragility" of contemporary masculinity and new developments

Bingjie Jing

Sichuan Normal University, No. 5, Jing'an Road, Shishan Street, Jinjiang District

Abstract：Masculinity is unstable and fragile. When perceived threats of gender identity, men are more likely to make certain responses consistent with stereotypes, such as aggression, in order to maintain their gender status. However, little is known about men's individual differential responses to the threat of gender identity, the psychological condition in which masculinity is "fragile." We combine the theory of self-difference and the theory of self-determination to propose a new model of masculinity: expectations of masculinity norms produce differences within the self, and this rigid norm is internalized as obligatory (the difference between actual and should) and expectation (the difference between actual and ideal), which predicts extrinsic and intrinsic motivation to reduce these differences, respectively. Thus, under the threat of gender identity, extrinsic motivation predicts externalized responses (e.g., aggression), while intrinsic motivation triggers internalized responses (e.g., anxiety, shame, self-harm). We also considered the condition that masculinity is not "fragile" – that it is beneficial to mitigate the adverse effects associated with the threat of masculinity when expectations are not strong or there is a refusal to comply with masculinity norms. Finally, we raise the importance of reconstructing (trying to modify or create) more prosocial masculinity in the digital age. The new masculinity reduces gender role pressures by establishing new norms around parenting (at-home), authenticity, overall attention, questioning of traditional male norms and sensitivity to male privileges, thereby reducing gender role pressures and striving to bring masculinity norms into line with modern economy and socialist cultural values. More broadly, changes in masculinity are illuminating for mental health, providing direction for future developments.

Keywords：Masculinity, differences, motivation, threats, new masculinity

整合编码可以减少提取前应激对联结记忆的损害

全美容[1] 薛玲玲[1] 刘贵雄[1,2]（通讯作者）

1 新疆师范大学心智发展与学习科学重点实验室，乌鲁木齐，830017

2 新疆师范大学心理学院，乌鲁木齐，830017，lgx_2001@126.com

摘　要　“一朝被蛇咬，十年怕井绳”，应激会引发项目和背景的错误联结，个体错误地将“井绳”与之前的应激背景联结进而错误地预测当前安全情境是危险的，如何减少这种错误联结一直是联结记忆研究领域的热点。以往研究结果表明，当两个或两个以上项目被加工成一个新的整体表征时（整合编码），熟悉性能够支持并促进联结再认。本研究旨在探明整合编码能否减少提取前应激对联结记忆的损害，以望为减缓应激下的记忆受损提供新的途径和认知神经科学依据。实验包括编码、休息（2 小时）和提取三个阶段。在编码阶段，应激组和控制组被试均学习混合呈现的不同整合程度的图片。在提取阶段，应激组先完成马斯特里赫特急性应激测试(MAST)，被试依次进行 5 轮冰水任务和 4 轮心算任务，然后判断“旧”、“重组”和“新”图

片；控制组依次进行 5 轮温水任务和 4 轮数数任务后完成“旧”、“重组”和“新”图片判断。结果显示，在高整合条件下应激组和控制组在正确率、反应时无显著差异，而在低整合条件下，应激组的正确率低于控制组。此外，在两组被试中高整合图片的正确率高于低整合图片，反应时比低整合图片快。上述结果表明，提取前应激引发了基于熟悉性的项目和背景错误联结，而整合编码可以促进熟悉性支持联结再认，减少提取前应激对项目和背景的错误联结。
关键词　应激，整合编码，联结记忆，熟悉性，回想

Unitization can reduce the adverse effect of associative memory caused by preretrieval stress

Meirong Quan, Lingling Xue, Guixiong Liu
Department of Psychology, Xinjiang Normal University, The Key Laboratory of Mental Development and Learning Science, Xinjiang Normal University, Urumqi, China

Abstract：“Once bitten by a snake, twice afraid of the well rope", as stress can lead to a wrong connection between the item and the context, people who were bitten by a snake will mistakenly connect the "well rope" with the previous stress context and then wrongly predict the current safe situation is dangerous. How to reduce this wrong connection has been a hot topic in the field of associative memory research. Previous findings have shown that when two or more items are processed into a new integral representation (unitization), familiarity can support and promote associative recognition. The purpose of this study is to investigate whether unitization can reduce the damage of associative memory caused by preretrieval stress, in order to provide a new approach and cognitive neuroscience basis for alleviating memory impairment under stress. The experiment consisted of three phases: coding, rest (2 hours) and retrieval. During the coding phase, both the stress group and the control group learned the pictures with different levels of unitization mixly. During the retrieval phase, the stress group firstly completed the Maastricht Acute Stress Test (MAST)which needs the subjects successively perform 5 rounds of ice-water task and 4 rounds of mental arithmetic task, after the MAST, the subjects judged the "old", "rearrangement" and "new" pictures; for the control group, the subjects successively performed 5 rounds of warm water task and 4 rounds of counting task, and then completed the judgment of "old", "rearrangement" and "new" pictures. The results showed that there was no significant difference between the stress group and the control group in accuracy and reaction time under high-unitized condition, while the stress group's accuracy was lower than the control group under low-unitized condition. In addition, in the two groups of subjects, the accuracy of the high-unitized picture was higher than the low-unitized picture’s, and the reaction time was faster than the low-unitized picture’s. The above results show that preretrieval stress induces familiarity based item and context misassociation, and unitization can promote association recognition that supported by familiarity and reduce the misassociation of preretrieval stress to item and context.

Keywords：Stress, Unitization, Associative memory, Familiarity, Recollection

广告偏向与记忆的年龄差异：产品类型的作用

陈婉莹[1]　张蕾[1]　杨思雨[1]　沈紫絮[1]　谢芳[1]（通讯作者）
1 浙江师范大学心理学院，金华，321000，通讯作者 E-mail：xftjsf@126.com

摘 要　人口老龄化是一个全球性现象。繁杂的广告信息影响老年消费者的态度与行为。研究指出除了认知资源与成熟经验，与年龄相关的目标差异也会影响老年人对广告信息的偏向与处理。社会情绪选择理论(SST)认为，随着个体年龄增长，老年人会优先考虑追求情感有意义的目标,而不是与知识相关的目标。以往基于 SST 的广告研究将与年龄相关的目标操纵为情感有意义和与知识相关两种广告类型，结果发现老年人比青年人更喜爱和倾向回忆情感有意义的广告。然而，这一问题的研究结果仍存在争议且需要更多跨文化研究证据。以往广告研究还发现，无论产品类型如何，老年人都表现出情感有意义的广告偏向与记忆。随着人们健康意识的加强以及对健康产品需求的增加，有益的保健食品是否影响中国老年人的广告偏向与记忆还有待进一步探讨。因此，本研究考察了产品类型对广告偏向与记忆的年龄差异影响。实验采用 2（年龄：青年人、老年人）× 2（广告类型：情感有意义广告、与知识相关广告）× 2（产品类型：保健食品、普通食品）的混合设计。实验要求 115 名青年人（平均年龄 21.94±1.63 岁）和 113 名老年人（平均年龄 69.75±6.45 岁）观看 16 个广告并回答产品购买意愿、广告喜爱程度以及自由回忆等问题。结果发现：年龄、广告类型与产品类型的三向交互作用在所有测量指标上均显著，表现为对于保健食品，老年人与青年人都更喜爱、更愿意购买以及更多回忆与知识相关的广告，而对于普通食品，老年人比青年人更喜爱、更愿意购买以及更偏向回忆情感有意义的广告。结果表明，产品类型会影响广告偏向与记忆的年龄差异，老年人对普通食品表现出情感有意义偏向，对保健食品表现出与知识相关偏向，即前者支持 SST，而后者与 SST 的观点相反。

关键词　年龄差异，保健食品，情感有意义广告，与知识相关广告，社会情绪选择理论

Age Differences in Preference and Memory for Advertisements: The Role of Product Type

Wanying Chen[1], Lei Zhang[1], Siyu Yang[1], Zixu Shen[1], Fang Xie[1]

1 School of Psychology, Zhejiang Normal University, Jinhua, E-mail: xftjsf@126.com

Abstract：Population aging is a world-wide phenomenon. Complicated advertisements affect older consumers' attitude and behavior. Researches have revealed that in addition to age-related cognitive resources and mature experiences, age-related differences in goals influence the preference and information processing of ads for the elderly. Socioemotional selectivity theory (SST) suggests that as people age, older adults attach greater importance to goals that are emotionally-meaningful relative to knowledge-related. Prior studies based on SST manipulated the ad type (emotionally-meaningful ad, knowledge-related ad) to examine the influence of age-related differences in goals, and found that older consumers did favor and recall emotionally-meaningful ads than younger counterparts. However, this issue is still controversial and needed much more cross-cultural evidences. Additionally, some studies showed that older adults preferred and recalled emotionally-meaningful ads regardless of product type. Due to the increasing health consciousness and growing demand for health products, whether beneficial health food products affect advertising preference and memory for elderly people in Chinese context deserves to be further explored. Accordingly, the current study investigated that the influence of product type on age differences in preference and memory for advertisements. This experiment was a 2 (age group: younger adult, older adult) × 2 (ad type: emotionally-meaningful ad, knowledge-related ad) × 2 (product type: health food product, general food product) mixed design. Specifically, 115 young adults (M_{age} = 21.94±1.63 years) and 113 older adults (M_{age} = 69.75±6.45 years) were asked to read 16 ads and answer questions about product purchase intention, ad liking and recall. The results found a significant three-way interaction effect between age group, ad type and product type on all measurement indicators, showing that both age groups increased liking, purchase intentions and recall of knowledge-related ads for health food products, while older adults were more likely to prefer, buy and

remember emotionally-meaningful ads of general food products than younger adults. Findings indicated that age differences in preference and memory for ads were influenced by product type. The elderly showed emotionally-meaningful preference for general food product, which did support SST. However, older adults showed knowledge-related preference for health food product that challenged SST.
Keywords：Age differences, Health food product, Emotionally-meaningful ads, Knowledge-related ads, SST

供精人工授精女性患者病耻感对心理困扰的影响：社会支持的调节效应

申晓娜[1] 何旭东[1] 赵迪[1] 贾冬梅[2] 王清[1] 厉萍[1]（通讯作者）
1 山东大学护理与康复学院，济南，250012，pingli12@sdu.edu.cn
2 山东大学附属生殖医院，济南，250021

摘 要 **目的** 探讨接受供精人工授精（artificial insemination by donor, AID）治疗的女性患者社会支持、病耻感和心理困扰的关系，并分析社会支持在病耻感与心理困扰之间的调节效应。**方法** 采用方便抽样，于2023 年 1 月至 2023 年 7 月在山东省某生殖中心选取接受 AID 治疗的 198 例女性患者作为研究对象。采用一般资料调查表、病耻感量表、领悟社会支持量表、凯斯勒心理困扰量表进行调查。采用 SPSS26.0 进行数据分析，主要统计方法包括单因素分析、线性回归分析、二元 Logistic 回归分析、简单斜率分析和 Johnson-Neyman 分析。**结果** 本研究纳入的 198 名接受 AID 治疗的女性患者中无或轻度心理困扰 164 名，中重度心理困扰 34 名，分别占比 82.8%和 17.2%。两组女性患者在一般人口学和疾病资料上差异均无统计学意义（均 $P>0.05$），中重度心理困扰组病耻感得分高于无或轻度心理困扰组，社会支持得分低于无或轻度心理困扰组（均 $P<0.001$）。使用 Logistic 回归探索病耻感和社会支持与心理困扰的关系，分析显示，病耻感是心理困扰的危险因素(OR=1.158)；社会支持是其保护因素（OR=0.887）。使用分层回归和简单斜率分析探究社会支持的调节效应，分析显示，社会支持及家庭支持和朋友支持分维度在病耻感与心理困扰之间起调节作用。进一步通过 Johnson-Neyman 分析发现，社会支持及家庭支持和朋友支持分维度在病耻感与心理困扰之间的调节作用存在截断值。 **结论** 接受 AID 治疗的女性患者 17.2%存在中重度心理困扰，社会支持作为其保护因素，在病耻感与心理困扰之间具有调节作用，可缓冲病耻感对心理困扰的不良影响，本结果为改善接受 AID 治疗的女性患者心理困扰提供理论依据。
关键词 供精人工授精，病耻感，心理困扰，社会支持，调节效应

Effects of stigma on psychological distress in women undergoing artificial insemination by donor: the moderating effect of social support

SHEN Xiaona[1] HE Xudong[1] ZHAO Di[1] JIA Dongmei[2] WANG Qing[1] LI Ping[1]
1. School of Nursing and Rehabilitation, Shandong University, Jinan, 250012，pingli12@sdu.edu.cn
2. Hospital for Reproductive Medicine Affiliated to Shandong University, Jinan, 250021

***Abstract*：Objective** To analyse the moderating effect of social support on stigma and psychological distress in female patients receiving artificial insemination by donor (AID). **Methods** Convenience sampling was used to select 198 female patients receiving AID treatment in a reproductive center in Shandong Province from January to July 2021. The investigation was carried out with the General Information Questionnaire, Stigma Scale, Perceived Social Support Scale and Kessler Psychological Distress Scale. Data were described and analyzed using SPSS26.0 and Johnson-Neyman analysis. **Results** Among 198 female patients receiving AID included in this study, 164 had no or mild psychological distress and 34 had moderate or severe psychological distress. The stigma score of moderate to severe psychological distress group was higher than that of no or mild psychological distress group, and the social support score was lower than that of no or mild psychological distress group (all $P < 0.001$). Stigma was a risk factor for psychological distress ($OR = 1.16$), and social support was a protective factor ($OR = 0.89$). Social support, family support and friend support played a moderating role in the relationship between stigma and psychological distress, and the moderating role had a cut-off value. **Conclusion** Social support plays a moderating role in the relationship between stigma and psychological distress, and can cushion the negative impact of stigma on psychological distress. This result provides a theoretical basis for improving the psychological distress of female patients receiving AID treatment.

***Keywords*：** Artificial insemination with donor, Stigma, Psychological distress, Social support, Moderating effect

群体身份和年龄对儿童公平规范执行的影响：认知控制的作用

苏涵丽　刘启云　蔡霞　张振（通讯作者）

河南师范大学，新乡，453000，zhangzhenpsy@126.com

摘 要　为明确第二方规范执行中内群体偏爱的发生发展规律，本研究将分析儿童公平规范执行中存在的年龄差异和影响机制，并构建中介效应模型，考察认知控制的中介效应。研究采用最后通牒博弈范式、Go/Nogo 实验范式，在 6～8 岁、10～12 岁和 14～16 岁三个年龄段分别选取 30 名中小学生进行施测。结果发现：(1) 提议类型的主效应显著，$F(4, 348) = 219.83$，$p < 0.001$，$\eta^2 = 0.72$，儿童对高度不公平提议的接受率要显著低于模糊不公平提议的接受率。群体身份的主效应显著，$F(1, 87) = 12.11$，$p < 0.001$，$\eta^2 = 0.12$，在面对内群体时的接受率要显著高于与外群体互动的接受率；(2) 提议类型和年龄的交互效应显著，$F(8, 348) = 3.74$，$p < 0.001$，$\eta^2 = 0.08$，在高度不公平提议的情景下，6～8 岁比其他年龄组表现出更高的接受率，而在模糊不公平提议下，年龄组之间并无显著差异；(3) 提议类型与群体身份的交互效应显著，$F(4, 348) = 6.39$，$p < 0.001$，$\eta^2 = 0.07$，只有在面对模糊不公平提议时，儿童更倾向于接受内群体成员提出的不公平方案，而在高度不公平的情景下，内外群体之间的接受率并无显著差异；(4) 以 6～8 岁为控制组，认知控制部分中介了年龄和内群体偏爱的关系。这表明儿童的公平规范执行随年龄增长表现出明显的不公平厌恶和内群体偏爱现象，同时也证实了儿童年龄发展与内群体偏爱之间认知控制的中介效应，为培养儿童的公平意识提供了一定参考价值。

关键词　群体身份，公平规范执行，内群体偏爱，认知控制

The Effect of Group Identity and Age on Fair Norm Enforcement for Children: The Role of Cognitive Control

Hanli Su, Qiyun Liu, Xia Cai, Zhen Zhang

Henan Normal University, Xinxiang, 453000, zhangzhenpsy@126.com

Abstract：To clarify the second-party norms used to implement domestic group preferences development laws, the study will analyze the age differences and influence mechanisms that exist in the implementation of children's fair norm enforcement, build an intermediary effect model, and investigate the intermediary effects of cognitive control. The study used the Ultimate Game paradigm and the Go/Nogo experiment paradigm to select 30 primary and secondary students from the age groups of 6-8, 10-12 and 14-16. Result found: (1) The main effect of the proposed type is significant, F (4, 348) = 219.83, p < 0.001, η^2 = 0.72, and children accept highly unfair proposals at significantly lower rates than ambiguous unfair offers. The main effect of group identity is significant, F (1, 87) = 12.11, p < 0.001, η^2 = 0.12, the acceptance rate in the face of the internal group background is significantly higher than the reception rate of the external group interaction; (2) The interaction effect of proposed type and age is significant, F (8, 348) = 3.74, p < 0.001, η^2 = 0.08, in the situation of highly unfair proposed, 6 to 8 years of age than other age groups show higher acceptance rates, but there was no significant difference between age groups for vaguely unfair proposals; (3) The interaction of proposed type and group identity is significant, F (4, 348) = 6.39, p < 0.001, η^2 = 0.07, only in the case of highly unfair proposed, 6 to 8 years of age than other age groups show higher acceptance rates, whereas in highly unfair situations, there is no significant difference in acceptance between groups within and outside the group; (4) In the 6-8 year old control group, the cognitive control part mediates the effect of age and introspective preferences. This demonstrates that the implementation of fair norm enforcement for domestic children with age demonstrates a clear phenomenon of unfair aversion and preference within the group, confirms the mediation effect of cognitive control in the process of implementing the fair norm enforcement for children, and provides a certain reference value for the cultivation of the child's sense of fairness.

Keywords：Group identity, Fairness norm enforcement, Ingroup favoritism, Cognitive control

食物热量判断的大小隐喻效应：来自内隐和外显测量的证据

曹彤彤[1]　陈欧童[1*]

1 青岛大学心理系，青岛，266071，1269822125@qq.com

摘 要　目前肥胖成为影响人们身体健康的影响因素之一，随着民众相关意识的提升，减肥也越来越成为当下追求健康的迫切需要。减肥在于“管住嘴”与“迈开腿”的结合，在“管住嘴”的环节，个体在饮食前要先对食物所含热量进行判断。本研究采用 3 个实验，在概念隐喻理论视角下探讨食物热量判断与食物体积大小这一物理属性之间的关系。实验一采用内隐联想测验（Implicit Association Test，IAT），测量食物热量与食物体积大小的联结程度。实验一为单因素被试内设计，自变量为 IAT 的试次类型（相容/不相容），因变量为被试的反应时以及利用反应时计算的内隐效应值。实验二采用内隐关系评估程序（Implicit Relational Assessment Procedure, IRAP)来测量二者的关系。结果显示，被试在高热量食物与大方块匹配，低热量食物与小方块匹配这一类任务中的反应时要显著短于被试在高热量食物与小方块匹配，低热量食物与大方块匹配这一类任务上的反应时。同时，被试的内隐效应值与 0 存在显著差异，说明在内隐层面，食物热量判断存在大小隐喻效应。实验三采用 2×2 的两因素被试内设计，在外显层面测量食物热量判断的大小隐喻效应，自变量为食物图片的大小和食物图片所代表食物的热量高低，因变量为被试对食物图片所代表食物的热量评分。结果显示两因素存在交互作用，即：高热量食物使用大尺寸图片呈现时被试对其热量的主观评分较高，同时低热量食物用小尺寸图片呈现时被试对其热量判断主观评分显著较低。综合 3 个实验的结果，本研究揭示了食物热量判断过程中的大小隐喻效应，并且这种效应在内隐和外显水平上都存在。研究结果有助于辅助肥胖患者调整饮食，学会合理饮食，培养健康饮食习惯，从而保持身体健康。

关键词　食物热量判断，体积大小，概念隐喻

The size metaphorical effect of food calorie estimation: evidence from implicit and explicit measurements

Cao Tongtong[1] Chen Outong[1*]
1 Department of Psychology,Normal College,Qingdao University,Qingdao,266071

Abstract: At present, obesity has become one of the factors affecting people's health. With the improvement of people's awareness, losing weight has become more and more urgent need for the pursuit of health. Weight loss lies in the combination of "controlling the mouth" and "stepping on the leg", in the "controlling the mouth" link, the individual must first judge the calories contained in the food before eating. In this study, three experiments were conducted to explore the relationship between food caloric estimation and food size from the perspective of conceptual metaphor theory. In the first experiment, the Implicit Association Test (IAT) was used to measure the degree of connection between the calories of food and the size of food. Experiment 1 was a single-factor in-subject design, the independent variable was the type of IAT trial (compatible/incompatible), and the dependent variable was the subject's response time and the implicit effect value calculated by using the response time. In experiment 2, Implicit Relational Assessment Procedure (IRAP) was used to measure the relationship between the two. The results showed that the participants' reaction time was significantly shorter in tasks such as matching high-calorie food with large squares and low-calorie food with small squares than in tasks such as matching high-calorie food with small squares and low-calorie food with large squares. At the same time, the implicit effect value of the subjects was significantly different from 0, indicating that there was a size metaphor effect in the judgment of food calories at the implicit level. In experiment 3, a 2×2 two-factor in-subject design was used to measure the size metaphor effect of food calorie judgment at the exo-level. The independent variable was the size of the food picture and the level of the food calorie represented by the food picture, and the dependent variable was the subjects' caloric score of the food represented by the food picture. The results showed that there was an interaction between the two factors, that is, when the high-calorie food was presented with large-size pictures, the subjects had a higher subjective score on their calories, while when the low-calorie food was presented with small-size pictures, the subjects' subjective score on their calories was significantly lower. Combining the results of the three experiments, this study reveals the size metaphor effect in the process of judging food calories, and this effect exists at both implicit and explicit levels. The results of the study are helpful to assist obese patients to adjust their diet, learn to eat rationally, and cultivate healthy eating habits, so as to maintain good health.

Keywords: food calorie estimation, volume size, conceptual metaphor

城乡老年人社会支持对抑郁的影响：心理弹性的中介作用

陈鹏[1] 李彦章[2]（通讯作者）
1 成都医学院心理学院，成都，610000
2 成都医学院四川应用心理研究中心，成都，610000，lyz@cmc.edu.cn

摘 要 社会支持对老年人抑郁影响的研究多将老年人看作一个整体进行讨论，忽视了城乡因素等老年人本身存在的差异。基于积极老龄化的视角，探讨城乡老年人社会支持对抑郁的影响，同时考察心理弹性在这关系中的作用。采用问卷法对城乡老年人进行调查，共收取数据 745 份。结果显示：（1）城乡老年人在社会支持、心理弹性、抑郁等方面均存在差异（p<0.01），城市老年人在社会支持、心理弹性、抑郁三个方面（38.33、86.67、2.97）均优于农村老年人（36.26、82.57、3.82）；（2）社会支持与抑郁呈负相关(-0.223,

p<0.01)，与心理弹性呈正相关(0.334, p<0.01)，心理弹性与抑郁之间呈负相关(-0.355, p<0.01)；（3）城市老年人的社会支持对于抑郁水平的预测结果均显著（t=-4.195，p＜0.01），加入心理弹性这个中介变量之后预测结果依然显著（t=-5.157，p＜0.01），且社会支持对抑郁的直接效应显著（t=-2.364，p＜0.05），心理弹性在其中起部分中介作用；（4）农村老年人的社会支持对于抑郁水平的预测结果均显著（t=-3.197，p＜0.01），加入心理弹性这个中介变量之后预测结果任显著（t=-4.970，p＜0.01），但社会支持对抑郁的直接效应不显著，心理弹性起完全中介作用。结论： 城市老年人在社会支持、心理弹性、抑郁上均优于农村，社会支持能有效负向预测抑郁水平，心理弹性在其中起缓冲作用，但作用机制不同，在城市组中起部分中介作用，农村组则为完全中介。希望能够引起对老年人，特别是农村老人心理健康的重视，并且针对城乡之间不同的中介模型，采取不同的干预方式，为积极老龄化的实践与科研提供一定的理论参考。
关键词　积极老龄化，城乡差异，社会支持，抑郁，心理弹性

The effect of social support on depression in urban and rural elderly: the mediating role of Psychological resilience

ChenPeng[1]　LiYanZhang[2]
1 School of Psychology, Chengdu Medical College，Chengdu
2 Sichuan Applied psychology Research Middle School，Chengdu

abstract ：Research on the impact of social support on depression in the elderly often considers the elderly as a whole and ignores the differences in urban and rural factors among the elderly themselves. Based on the perspective of active aging, this paper explores the impact of social support on depression in urban and rural elderly, and examines the role of Psychological resilience in this relationship. A questionnaire survey was conducted on elderly people in urban and rural areas, with a total of 745 data collected. The results showed that: (1) there were differences in social support, Psychological resilience and depression between urban and rural elderly (p<0.01). Urban elderly were better than rural elderly in social support, Psychological resilience and depression (38.33, 86.67, 2.97) (82.57, 82.57, 3.82); (2) Social support was negatively correlated with depression (-0.223, p<0.01), positively correlated with Psychological resilience (0.334, p<0.01), and negatively correlated with Psychological resilience and depression (-0.355, p<0.01); (3) The social support of the urban elderly predicted the level of depression significantly (t=-4.195, p<0.01), and after adding Psychological resilience as the intermediary variable, the prediction result was still significant (t=-2.364, p<0.01). At the same time, the direct effect of social support on depression was significant (t=-2.364, p<0.05), and Psychological resilience played a partial mediating role in it; (4) The social support of the elderly in rural areas predicted the level of depression significantly (t=-3.197, p<0.01). When Psychological resilience was added, the prediction was still significant (t=-4.970, p<0.01). The direct effect of social support on depression was not significant, and Psychological resilience played a completely mediating role. Conclusion: The urban elderly are better than the rural elderly in social support, Psychological resilience and depression. Social support can effectively predict the level of depression negatively. Psychological resilience plays a buffering role in it, but the mechanism is different. It plays a partial mediating role in the urban group and a complete mediating role in the rural group. I hope to draw attention to the mental health of the elderly, especially those in rural areas, and adopt different intervention methods based on different mediation models between urban and rural areas, providing a certain theoretical reference for the practice and research of active aging.

Keywords ：Active aging, urban-rural differences, social support, depression, Psychological resilience

未完成的事务与丧亲高校学生的延长哀伤症状：持续性联结与意义建构的中介作用

黄晶菁[1] 钱文丽[1] 蒋宛月[1] 于心怡[1] 唐任之慧[1] 符仲芳[2] 王建平[1*]（通讯作者）

1 北京师范大学心理学部，应用实验心理北京市重点实验室，心理学国家级实验教学示范中心（北京师范大学），北京，100875，wjphh@bnu.edu.cn

2 北京大学心理与认知科学学院，行为与心理健康北京市重点实验室，北京，100871

摘 要 丧失关系亲密之人（简称“丧亲”）对个体来说是一种负性生活事件。受生理、心理和环境特点的影响，高校学生可能会感到难以适应丧亲后的生活。延长哀伤症状是适应不良的丧亲者典型的消极心理反应之一，而未完成的事务可能是丧亲高校学生出现延长哀伤症状的一种重要风险因素，但目前少有研究关注未完成的事务对延长哀伤症状影响的内在机制。基于预测丧亲后果的综合风险因素框架，本研究构建了一个链式中介模型，旨在考察未完成的事务与丧亲高校学生延长哀伤症状的关系，并进一步探究持续性联结和意义建构的中介作用。采用基本信息调查表、丧亲中未完成的事务量表(UBBS)、持续性联结量表(CBS)、压力生活体验整合量表(ISLES)和延长哀伤问卷修订版(PG-13-R)，对丧亲时长超过 6 个月(M_{month}=18.42，SD=7.35)的 364 名丧亲高校学生(M_{age}=21.32，SD=1.65，男性 172 人)进行线上调查。结果表明：控制人口学和丧亲相关变量后，（1）未完成的事务对丧亲高校学生的延长哀伤症状有直接正向预测作用；（2）未完成的事务可以分别通过内化联结和外化联结正向预测延长哀伤症状；（3）未完成的事务可以通过降低意义建构水平，从而正向预测延长哀伤症状；（4）未完成的事务还可以通过内化联结-意义建构、外化联结-意义建构的两条链式中介正向预测延长哀伤症状。本研究结果进一步揭示了未完成的事务对延长哀伤症状影响的心理机制，验证和扩展了预测丧亲后果的综合风险因素框架。此外，本研究还可以为高校心理健康工作者发展对丧亲高校学生的心理干预方案提供依据，以便帮助该群体获得良好的丧亲后适应。

关键词 丧亲；未完成的事务；持续性联结；意义建构；高校学生

Unfinished business and prolonged grief symptoms among bereaved college students: The Mediating Role of Continuing bonds and Meaning making

Jingjing Huang[1] Wenli Qian[1] Wanyue Jiang[1] Xinyi Yu[1] Renzhihui Tang[1]

Zhongfang Fu[2] Jianping Wang[1]

1 Beijing Key Laboratory of Applied Experimental Psychology, National Demonstration Center for Experimental Psychology Education (Beijing Normal University), Faculty of Psychology, Beijing Normal University, Beijing 100875, China

2 School of Psychological and Cognitive Sciences and Beijing Key Laboratory of Behavior and Mental Health, Peking University, Beijing 100871, China

Abstract: The loss of a close relationship (abbreviated as “bereavement”) is a kind of negative life events for any one. Affected by physiological, psychological, and environmental characteristics, college students may find it difficult to adapt to their life after bereavement. Prolonged grief symptoms are one of the typical negative psychological reactions of maladaptive bereaved individuals, and unfinished business may be an important risk factor for prolonged grief symptoms among bereaved college students. However, few studies have focused on the

internal mechanism of the impact of unfinished business on prolonged grief symptoms. Based on the integrative risk factor framework for the prediction of bereavement outcome, this study constructed a chain mediated model to examine the relationship between unfinished business and prolonged grief symptoms among bereaved college students, and further explore the mediating role of continuing bonds and meaning making. An online survey was conducted on 364 bereaved college students (M_{age}=21.32, SD=1.65, 172 males) who had been bereaved for more than 6 months (M_{month}=18.42, SD=7.35) using the basic information questionnaire, Unfinished Business in Bereavement Scale (UBBS), Continuing Bonds Scale (CBS), Integration of Stressful Life Experiences Scale (ISLES), and Prolonged Grief Questionnaire-13-Revised (PG-13-R). The results showed that: after controlling demographic and bereavement related variables, (1) unfinished business had a direct and positive predictive effect on the prolonged grief symptoms of bereaved college students; (2) unfinished business positively predicted prolong grief symptoms through internalized and externalized connections, respectively; (3) unfinished business positively predicted prolong grief symptoms by reducing the level of meaning making; (4) unfinished business also positively predicted prolong grief symptoms through the two chain mediation of internalized continuing bonds and meaning making, and externalized continuing bonds and meaning making. These findings further reveal the psychological mechanism by which unfinished business affects the prolonged grief symptoms, validate and expand the integrative risk factor framework for the prediction of bereavement outcome. In addition, the current study can also provide a basis for university mental health workers to develop psychological intervention plans for bereaved university students, in order to help this group achieve good post bereavement adaptation.

Keywords：bereavement, unfinished business; continuing bonds; meaning making; college student

特定乐器训练对音色识别和多感觉整合的影响

刘恬恬[1]　刘文彬[2]　方乐乐[3]

1 辽宁师范大学心理学院，大连，116029

2 大连工业大学艺术与信息工程学院，大连，116034

3 辽宁师范大学心理学院，大连，116029，lilianfang367@163.com

摘 要　近年来，音乐训练对个体在多感觉整合上的影响越来越受到广泛关注。本研究主要探究特定的乐器训练对视听整合的影响。实验 1 选取中西方具有代表性的乐器，通过强制选择性的音色辨别任务测量钢琴训练者与非音乐训练者在识别乐器听觉感知上的阈限，探究特定的乐器训练对音色识别能力的影响。实验 2 采用声音诱发闪光错觉实验，考察非错觉条件下钢琴训练者与非音乐训练者的闪光个数辨别能力。实验 3 在前两个实验的基础上，探究钢琴训练者与非音乐训练者在闪光错觉效应上产生的差异，并进一步探究声音刺激不同时，特定乐器学习者在声音诱发闪光错觉的特异性。结果发现：(1)钢琴训练者在识别钢琴音色上的阈值与其他乐器相比最低，且显著低于非音乐训练者；(2)在视听刺激个数一致情况下，钢琴训练者与非音乐训练者的正确率均较高且在各个 SOA 下都无显著差异，但钢琴训练者的反应时小于非音乐训练者，差异不显著；(3)在裂变错觉中，25ms 条件下，钢琴训练者在两种听觉刺激下的正确率均小于非音乐训练者；75ms 条件下，钢琴训练者与非音乐训练者相比在两种听觉刺激下的正确率更高；125ms 条件下，钢琴训练者在钢琴音为听觉刺激时的正确率高于非音乐训练者；非音乐训练者在钢琴音作为听觉刺激时的正确率低于普通纯音为听觉刺激时的正确率；在所有 SOA 条件下，钢琴训练者在钢琴音为听觉刺激时的正确率小于普通纯音为听觉刺激时的正确率；(4)融合错觉中，SOA 与听觉刺激类型都对闪光错觉有影响。25ms 条件下，钢琴训练者的正确率大于非音乐训练者，钢琴音作为听觉刺激时的正确率更低；75ms 条件下，钢琴音为听觉刺激时的正确率低于普通纯音下的正确率；125ms 条件下，钢琴训练者的正确率小于非音乐训练者，钢琴音作为听觉刺激时正确率更高。上述结果表明，钢琴训练者的钢琴音色识别能力优于非音乐训练者，

说明特定乐器训练会使对应乐器的音色识别能力更强。特定的乐器训练会影响乐器音色感知，进而对音乐家在多感觉整合方面有一定的影响。
关键词　音乐训练，音色感知，声音诱发闪光错觉，多感觉整合

Effects of instrument-specific training on timbre recognition and multisensory integration

Tiantian Liu[1] Wenbin Liu[2] Lele Fang[3]
1 School of Psychology, Liaoning Normal University, Dalian, China
2 School of Arts and Information Engineering, Dalian Polytechnic University, Dalian, China
3 School of Psychology, Liaoning Normal University, Dalian, China, lilianfang367@163.com

Abstract： In recent years, the impact of music training on individual multi-sensory integration has received increasing attention. The purpose of this study was to explore the effects of specific musical instrument training on audiovisual integration. Experiment 1 selected representative musical instruments from both China and the West, and measured the threshold of auditory perception of piano trainers and non-music trainers in identifying musical instruments through mandatory and selective timbre recognition tasks, exploring the impact of specific instrument training on timbre recognition ability. Experiment 2 used the sound induced flash illusion experiment to investigate the ability of piano trainers and non-music trainers to distinguish the number of flashes under non illusion conditions. On the basis of the first two experiments, Experiment 3 explores the differences in the flash illusion effect between piano trainers and non-music trainers, and further explores the specificity of specific instrument learners in sound induced flash illusion under different sound stimuli. The results showed that: (1) Piano trainers had the lowest threshold for recognizing piano timbre compared with other instruments and significantly lower than non-music trainers; (2) Under the condition of the same number of audiovisual stimuli, the correct rates of both piano trainers and non-music trainers are higher and there is no significant difference in each SOA, but the response time of piano trainers is less than that of non-music trainers, the difference is not significant; (3) In the fission illusion, under 25ms condition, the pianist's accuracy under the two kinds of auditory stimulus was smaller than that of non-music trainers. Under 75ms condition, piano trainers were more accurate than non-music trainers in both auditory stimuli. Under 125ms condition, the pianist's accuracy rate was higher than that of non-music trainers when the piano sound was the auditory stimulus. The accuracy of non-music trainers when piano tone is used as auditory stimulus is lower than that when ordinary pure tone is used as auditory stimulus. Under all SOA conditions, the accuracy of piano tone as auditory stimulus is less than that of ordinary pure tone as auditory stimulus. (4) In the fusion illusion, both SOA and the type of auditory stimulus had an effect on the illusion of flashing light. Under 25ms condition, the pianist's accuracy was higher than that of non-music trainers, and the accuracy of piano sound as auditory stimulus was lower. Under the condition of 75ms, the accuracy of piano tone as auditory stimulus is lower than that of ordinary pure tone. Under 125ms condition, the accuracy of pianist was lower than that of non-musician, and the accuracy of piano sound was higher when it was used as auditory stimulus. The above results show that the piano timbre recognition ability of piano trainers is better than that of non-music trainers, indicating that specific instrument training will make the timbre recognition ability of corresponding instruments stronger. Specific instrument training affects instrument timbre perception, which in turn has an impact on musicians' multisensory integration.

Keywords： Music training, Timbre perception, Sound-induced flash illusion, Multisensory integration

高海拔作业人员职业压力对失眠的影响：亲子疏离的中介作用与情绪调策略的调节作用

周巧宁，代宗佩，侯丽，戴琴（通讯作者）
陆军军医大学医学心理系，重庆，400038，daiqin101@hotmail.com

摘 要

目的：探讨亲子疏离在高海拔作业人员职业压力与失眠关系中的潜在中介作用，并分析情绪调节在上述过程中是否存在调节作用。**方法：**选取平均海拔 4200 米左右的 2 个单位 2065 名作业人员，采用自编一般情况调查表、高原人群职业压力源量表、失眠严重程度指数量表（ISI）、亲子疏离感问卷（IAP）、Gross 编制的情绪调节量表进行问卷调查。采用 SPSS 26.0 进行数据分析，用 Pearson 进行各变量间的相关性分析，纳入人口学变量对亲子疏离和失眠严重程度的预测因素进行分层线性回归分析，用 PROCESS 插件检验高海拔作业人员亲子疏离在职业压力与失眠关系中的中介作用，以及情绪调节策略在其中的调节作用，并绘制简单斜率图。**结果：**高海拔作业人员职业压力得分为(3.16±7.251)分、ISI 得分为(1.95±3.392)分、IAP 得分为(24.46±8.449)分。相关性分析显示，职业压力与亲子疏离($r = 0.393$，$p < 0.001$)、失眠($r = 0.576$，$p < 0.01$)均成正相关，此外，亲子疏离也与失眠成正相关($r = 0.312$，$p < 0.01$)；多元线性回归分析发现，职业压力($\beta = 0.485$，$p < 0.001$)、亲子疏离($\beta = 0.092$，$p < 0.001$)是失眠的显著正向预测因子；结构方程模型表明亲子疏离在职业压力正向预测失眠的过程中起到部分中介作用($\beta = 0.019$，$p < 0.001$，图 1)，表达抑制在职业压力与亲子疏离关系中存在显著的正向调节作用（$\beta = 0.110$，$p < 0.001$)，在职业压力与失眠关系中存在显著的负向调节作用（$\beta = 0.073$，$p < 0.001$)；认知重评在职业压力与亲子疏离关系中存在显著的正向调节作用（$\beta = 0.035$，$p < 0.001$)，在职业压力与失眠关系中存在显著的负向调节作用（$\beta = -0.002$，$p < 0.001$)（图 2-3）。**结论：**职业压力与亲子疏离和失眠呈正相关；亲子疏离和失眠也呈正相关。此外，职业压力不仅直接预测失眠，亲子疏离还在职业压力正向预测失眠的过程中起到部分中介作用，同时，认知重评对职业压力和亲子疏离之间的关系有积极贡献，但在职业压力和失眠之间的关系中可以被视为负面因素。另一方面，情绪抑制对职业压力和亲子疏离之间的关系有负面影响，它也可以被视为职业压力和失眠之间的正向因素。这些结论凸显了在改善失眠时考虑职业压力、亲子关系和情绪调节策略的重要性，为后续深入研究和建立干预机制提供了理论支持。

关键词 亲子疏离，职业压力，失眠，高海拔作业人员，情绪调节策略

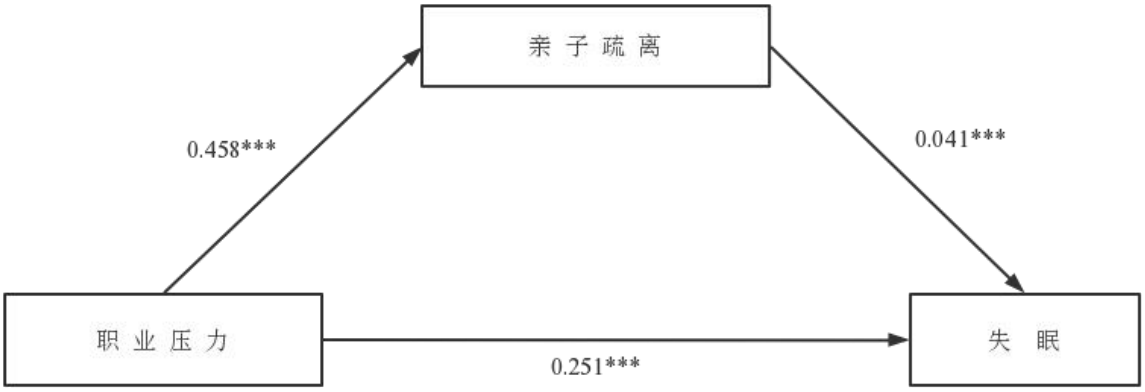


图 1 亲子疏离在职业压力与失眠间的中介作用

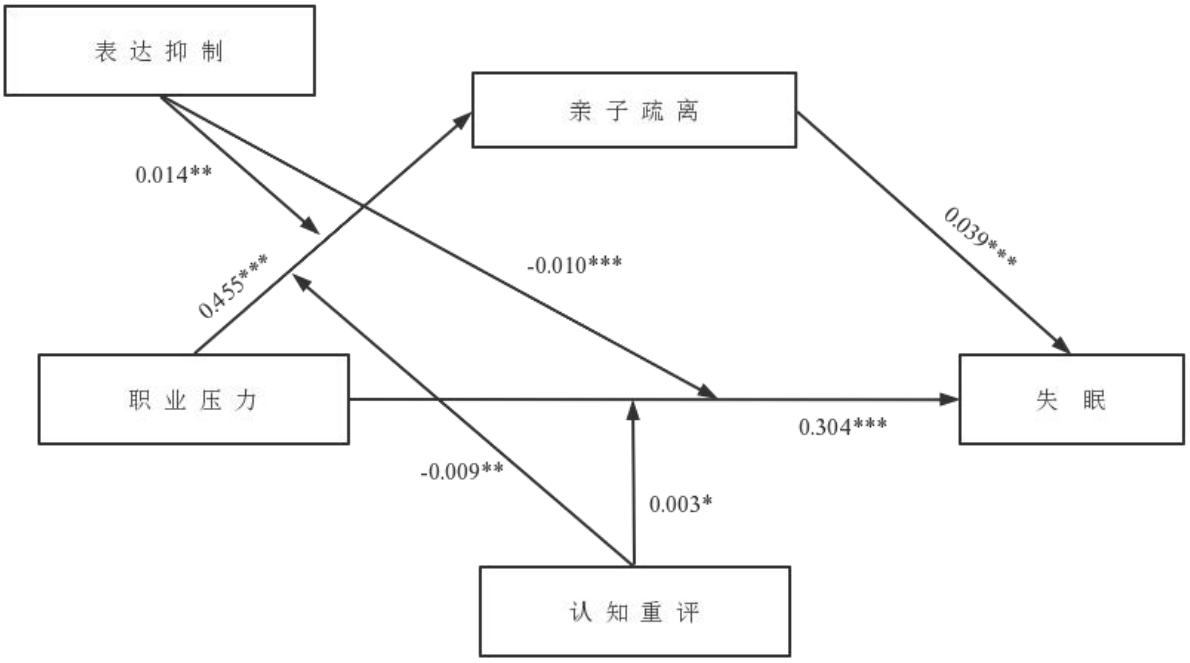


图 2 认知重评和表达抑制在职业压力和亲子疏离及失眠关系中的调节作用

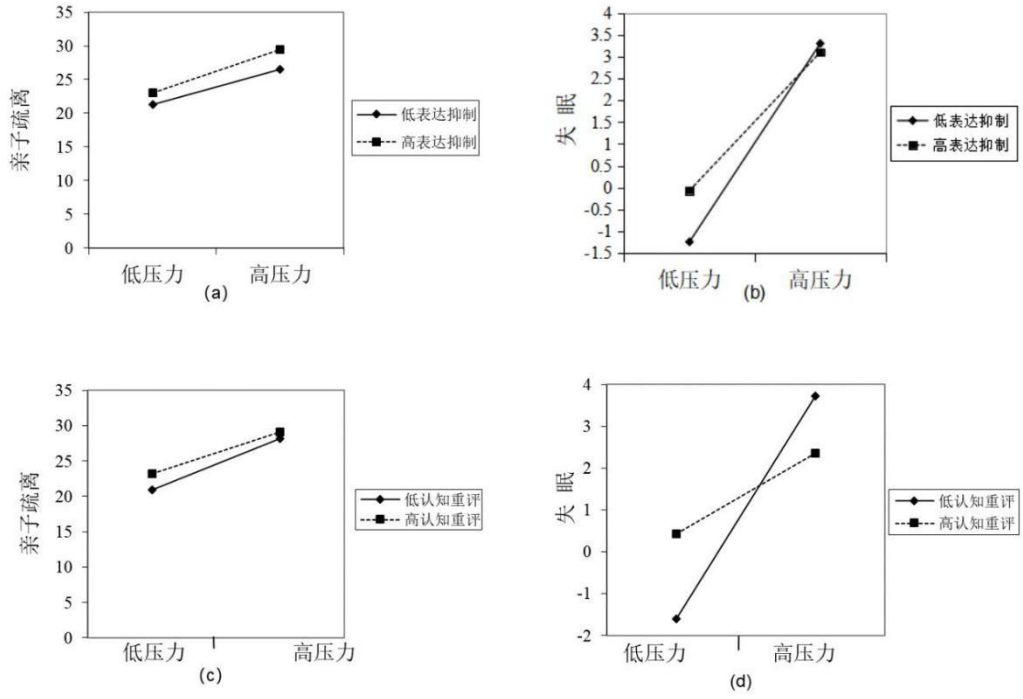


图 3 简单效应分析:(a)表达抑制在职业压力与亲子疏离关系中的调节作用;(b)表达抑制在职业压力与失眠关系中的调节作用;(c)认知重评对职业压力与亲子疏离关系的调节作用;(d)认知重评在职业压力与失眠关系中的调节作用。

The Impact of Occupational Stress on Insomnia among Plateau Workers: The Mediating Role of Alienation towards Parents and the Moderating Role of Emotion Regulation Strategies

Qiaoning Zhou, Zongpei Dai, Li Hou, Qin Dai (corresponding author)
Department of Medical Psychology, Army Medical University, Chongqing, 400038, China

Abstract: **Objective** This study investigates the mediating role of alienation towards parents in the relationship between occupational stress and insomnia among plateau workers. It also examines whether emotion regulation moderates this process. **Methods** The study includes 2065 workers from two units with an average altitude of around 4200 meters. Data was collected using self-developed questionnaires, including the General Information Questionnaire, Occupational Stressors Scale for Plateau Population, Insomnia Severity Index (ISI), Inventory of Parent and Peer Attachment (IAP), and Gross' Emotion Regulation Questionnaire. Data analysis was performed using SPSS 26.0, including Pearson correlation analysis, hierarchical linear regression analysis, and the PROCESS plug-in to test mediation and moderation effects. **Results** The occupational stress score of plateau workers was (3.16 ± 7.251) points, ISI was (1.95 ± 3.392) points, and IAP was (24.46 ± 8.449) points. Correlation analysis showed positive relationships between occupational stress and alienation towards parents (r = 0.393, p < 0.001), occupational stress and insomnia (r = 0.576, p < 0.01), as well as alienation towards parents and insomnia (r = 0.312, p < 0.01). Multiple linear regression analysis revealed that occupational stress (β = 0.485, p < 0.001) and alienation towards parents (β = 0.092, p < 0.001) significantly predicted insomnia. Structural equation modeling indicated that alienation towards parents partially mediated the relationship between occupational stress and insomnia (β = 0.019, p < 0.001, Fig.1). Expressive suppression had a positive moderating effect on the relationship between occupational stress and alienation towards parents (β = 0.110, p < 0.001), as well as a negative moderating effect on the relationship between occupational stress and insomnia (β = 0.073, p < 0.001). Cognitive reappraisal showed a positive moderating effect on the relationship between occupational stress and alienation towards parents (β = 0.035, p < 0.001), as well as a negative moderating effect on the relationship between occupational stress and insomnia (β = -0.002, p < 0.001)(Fig.2-3). **Conclusion** Occupational stress is positively correlated with alienation towards parents and insomnia. Alienation towards parents partially mediates the relationship between occupational stress and insomnia. Expressive suppression and cognitive reappraisal have distinct effects on the relationships between occupational stress, alienation towards parents, and insomnia. These findings emphasize the importance of considering occupational stress, alienation towards parents, and emotion regulation strategies in addressing insomnia among plateau workers.

Keywords**:** Alienation towards Parents, Occupational Stress, Insomnia, Plateau workers, Emotion regulation strategies

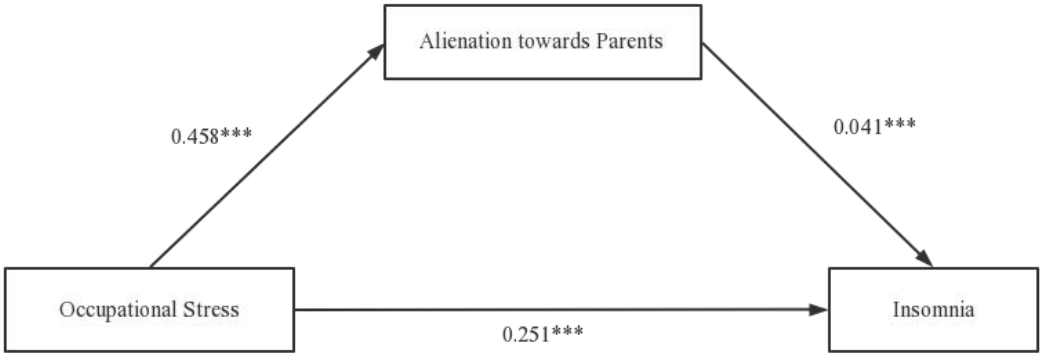


Fig.1 The mediating effect ofalienation towards parents on the relationship between occupational stress andinsomnia

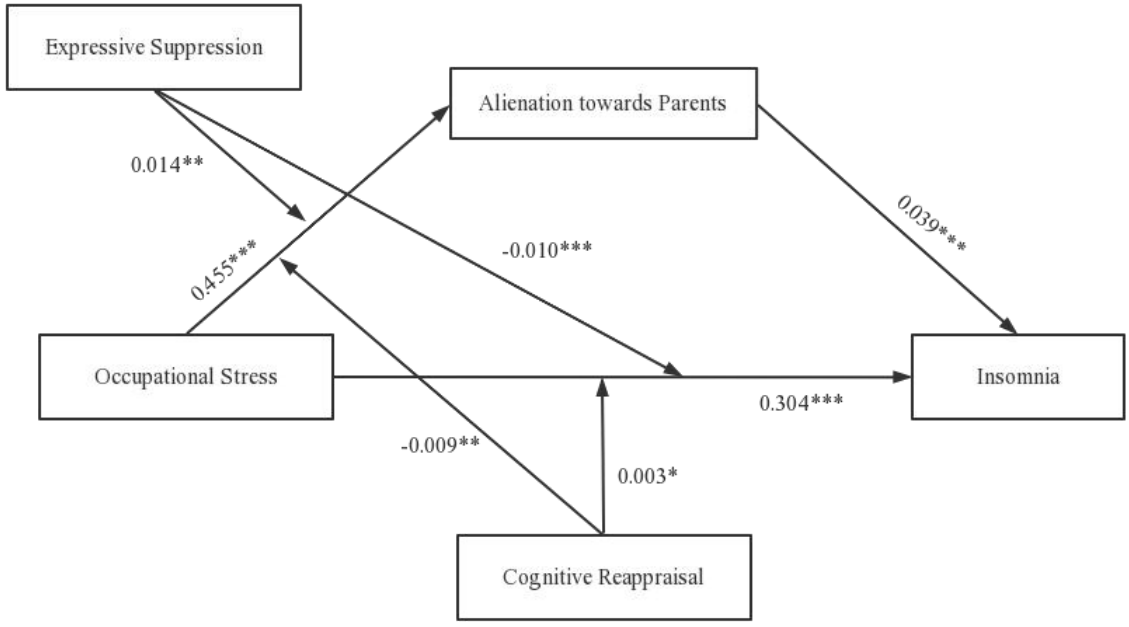


Fig.2 The moderating effects of cognitive reappraisal and expressive suppression in the association between occupational stress andalienation towards parents and insomnia

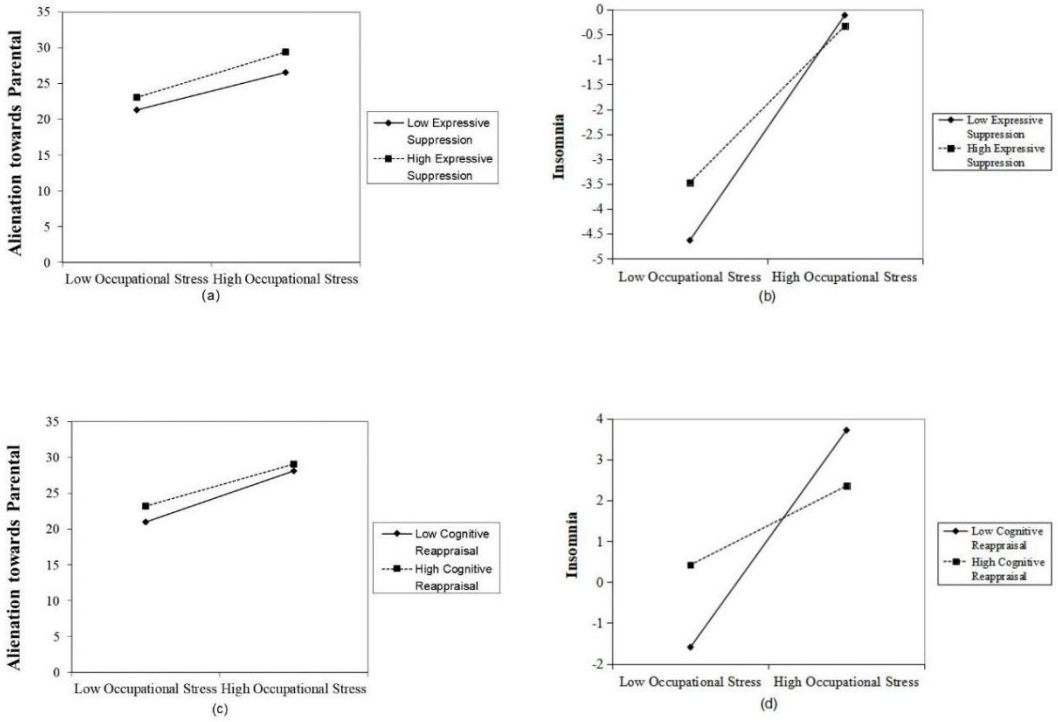


Fig. 3 Simple effect analysis: (a) The moderating effect of expressive suppression on the relationship between occupational stress and alienation towards parents; (b) The moderating effect of expressive suppression on the relationship between occupational stress and insomnia; (c) The moderating effect of cognitive reappraisal on the relationship between occupational stress and alienation towards parents; (d) The moderating effect of cognitive reappraisal on the relationship between occupational stress and insomnia.

提议意图和年龄对公平规范执行的影响：一个有调节的链式中介

刘启云　苏涵丽　张增彤　张振（通讯作者）
河南师范大学，新乡，453000，zhangzhenpsy@126.com

摘 要　为研究提议意图对公平规范执行的影响和内在作用机制，引入公平感知和愤怒情绪作为中介变量，年龄组作为调节变量，构建一个有调节的链式中介效应模型。研究采用最后通牒博弈范式，呈现 2 种分配情境：匿名者和计算机分配情境来操纵有无提议意图，在 6～8 岁、10～12 岁和 14～16 岁三个年龄段共选取 237 名中小学生进行施测。结果发现：(1) 分配情境的主效应显著，$F(1, 231)=31.50, p < 0.001$，对匿名者分配情境的拒绝程度远高于计算机分配情境。年龄组的主效应显著，$F(2, 231)=9.68, p < 0.001$，年长儿童(10～12 岁)和青少年(14～16 岁)会比年幼儿童(6～8 岁)更频繁地拒绝不公平方案；(2) 分配情境通过公平感知和愤怒情绪的中介作用对公平规范执行产生影响，且中介作用包含以下三条路径，公平感知的独立中介，$\beta = 0.31$, 95%CI = [0.16, 0.50]，愤怒情绪的独立中介，$\beta = 0.13$, 95%CI = [0.03, 0.26]，公平感知→愤怒情绪的链式中介，$\beta = 0.22$, 95%CI = [0.13, 0.34]；(3)年龄组调节了分配情境和公平感知之间的关系，在匿名情境下，年长儿童和青少年的不公平感知显著高于年幼儿童，$\beta = 0.80, p < 0.001$，在计算机情境下的公平感知与年幼儿童没有显著差异。结果表明：意图对公平规范执行的重要性随年龄增加呈线性发展，分配情境可以

通过公平感知和愤怒情绪的中介作用及其链式中介作用影响公平规范执行，且年龄组在链式中介路径中起调节作用，为引导和培养中小学生的公平感知和正义行为提供理论依据。
关键词　公平规范执行，意图，公平感知，愤怒情绪，年龄

The Effect of Proposed Intention and Age on Fairness Norm Enforcement: A Moderated Chain Mediation Model

Qiyun Liu, Hanli Su, Zengtong Zhang, Zhen Zhang
Henan Normal University, Xinxiang, 453000,zhangzhenpsy@126.com

Abstract: The study proposes the intention to influence the implementation of fair norms and the intrinsic mechanism of action, introducing fair perception and anger as intermediate variables, age groups as regulating variables and building a regulated chain intermediate effect model. The study used the ultimate general game paradigm, presenting two distribution scenarios: anonymous and computer assigned scenarios to manipulate the unintentional, and selected a total of 237 primary and secondary students in the age groups 6-8, 10-12 and 14-16. Result found: (1) The main effect of allocation scenario is significant, $F(1, 231) = 31.50$, $p < 0.001$, and the degree of rejection of the anonymous allocation situation was much higher than that of computer allocation.The main effects of age group were notable, $F(2, 231) = 9.68$, $p < 0.001$, with older children (10-12) and adolescents (14-16) rejecting unfair schemes more frequently than younger children (6-8); (2)The distribution situation influences the implementation of fairness norms through the mediating role of fairness perception and anger emotions, and the mediation involves the following three pathways, the independent mediator of fair perception, $\beta = 0.31$, 95%CI = [0.16, 0.50], the independent mediator of anger emotions, $\beta = 0.13$, 95%CI = [0.03, 0.26], the chain mediator of fairness perceptions to anger emotions, $\beta = 0.22$, 95%CI = [0.13, 0.34]; (3) The age group moderated the relationship between distribution situation and fairness perception, with older children and adolescents having significantly higher unfairness perception than young children in an anonymous situation, $\beta = 0.80$, $p < 0.001$, and the fairness perception in computer situations with young children did not differ significantly. The results showed that the importance of the intention to implement fairness norms devolved linearly with age, and confirmed the chain mediating role of fairness perception and anger between distributional situations and the implementation of fairness norms, as well as the regulatory role of age development in distributional situations and fairness perceptions, providing a theoretical basis for guiding and nurturing the sense of justice and justice behaviour in primary and secondary school students.
Keywords： Fairness norm enforcement, Intention, Fiarness perception, Anger emotions, Age

同伴类型对信任的影响：一个有调节的中介模型

马欣宇　邓文庆　王玉新　张振（通讯作者）
河南师范大学，新乡，453000，zhangzhenpsy@126.com

摘 要　信任通常指在不能确定互动对方的信息和意图的情景下，自愿承担风险，预期他人积极互动的行为，是人类交往的重要桥梁。在数智时代，所有形式的社会互动都涉及信任。为探讨互动同伴类型对信任的影响，以信任的三个指标(可信度、情感信任和信任行为)为结果变量，构建了一个有调节的中介模型，旨在考察拟人化在互动同伴和信任之间的中介作用以及接受度的调节作用。实验 1 采用拟人化量表及购物

情境下的建议接受任务，招募 187 名大学生，实验 2 采用招聘情景下的建议接受任务，招募 159 名大学生，考察三种同伴类型(人工智能、随机机器和人类伙伴)下的信任差异。结果发现：(1) 互动同伴类型的主效应显著，相比随机机器，参与者认为人类伙伴和人工智能的可信度更高，且更愿意表现出信任行为；(2) 在互动同伴类型对信任的影响中，拟人化具有部分中介作用；(3) 接受度在互动同伴类型和拟人化之间起调节作用，在接受度较高的参与者中，人工智能和人类伙伴的拟人化都高于随机机器，但是在接受度较低的参与者中，只有人类伙伴的拟人化高于随机机器。这些结果从多种社会互动的视角，揭示了互动类型和信任之间的复杂关系，强调了拟人化和接受度的作用机制，为数智时代提高人类的信任行为提供一定的理论依据。
关键词　信任，人工智能，拟人化，接受度，建议接受任务

Companion Types' Effects on Trust: A Moderated Mediating Model

Xinyu Ma, Wenqing Deng, Yuxin Wang, Zhen Zhang
Henan Normal University, Xinxiang, 453000, zhangzhenpsy@126.com

Abstract：An essential component of human interaction is trust, which can be defined as the act of willingly taking risks and expecting others to engage in active communication in circumstances where the knowledge and intentions of the other party are unknown. Every type of social interaction today requires trust in the age of mathematics. A regulated intermediate model was developed to investigate the function of personification in mediating and regulating the degree of acceptance between interacting peer and trust, using the three indicators of trust (trustworthiness, emotional trust, and trust behavior) as the result variables. In Experiment 1, 187 college students were recruited using a customized scale and suggested tasks in a shopping environment. In Experiment 2, 159 college students were recruited using a recruitment scenario for a proposed task, and the confidence levels of three different types of partners (artificial intelligence, random machines, and human partners) were compared. The findings revealed that: (1) Participants felt that human partners and artificial intelligence were more credible and more willing to display trust behavior when compared to random machines; the main effects of the interactive companion type were significant; (2) In the influence of interactive fellow types on trust, anthropomorphism played a partial intermediary role; (3) Acceptance plays a regulatory role between the type of interactive companion and the personification, with AI and human partners being more personified than random machines among participants with higher acceptance rates, but with lower acceptance, only human partners are more personalized than random machinery. These findings, which highlight the mechanisms of anthropomorphism and acceptance, illustrate the complicated relationship between interaction kinds and trust from the perspective of various social encounters. They also offer a theoretical foundation for increasing human trust behavior in the age of mathematics.
Keywords：Trust, Artificial intelligence, Anthropomorphism, Acceptance, Adcice-taking

生育动机与孕妇主观幸福感、母胎依恋的关系：基于潜在类别分析

张新涵[1]　陈新霞[1]（通讯作者）
1 山东大学齐鲁医学院护理与康复学院，济南，250012，chenxxsdu@163.com

摘 要　良好的母胎依恋关系有利于提高妊娠质量并促进子代远期身心健康。生育动机是影响亲子依恋的重要因素，但其潜在类别及在妊娠期间的作用仍鲜有报道。根据母胎关系模型，孕妇的心理健康状态正向预

测母胎依恋，而更自主的动机可以提升幸福感。基于此，我们推测生育动机可能通过孕妇主观幸福感影响母胎依恋，且根据动机类型可能有所不同。本研究运用母胎依恋关系量表、总体幸福感量表和生育动机量表对 413 名妊娠中晚期孕妇进行调查，分析孕妇生育动机潜在类别，并探讨生育动机与母胎依恋的关系以及主观幸福感的中介作用，为提高母胎依恋水平提供依据。结果发现：（1）孕妇的生育动机可以分为双导向型生育动机（26.5%）、内化型生育动机（23.8%）、外化型生育动机（24.2%）和消极型生育动机（25.5%）4 个潜在类别。（2）生育动机、主观幸福感和母胎依恋间两两显著相关（r=0.128-0.414，均 p＜0.01），且主观幸福感与母胎依恋在不同类型生育动机上的得分有显著差异（均 p＜0.001）。（3）多分类中介效应分析发现，与消极型生育动机组相比，双导向型生育动机组（β=0.788，p＜0.001）和内化型生育动机组（β=0.612，p＜0.001）对母胎依恋的相对直接效应显著，主观幸福感的相对间接效应也显著（双导向型生育动机组：β=0.045，p＜0.05；内化型生育动机组：β=0.094，p＜0.001），而在外化型生育动机组，相对直接效应（β=0.093，p=0.460）和主观幸福感的相对间接效应（β=-0.018，p=0.332）均不显著。结论：妊娠中晚期孕妇生育动机具有明显的分类特征，可以显著预测母胎依恋，主观幸福感在生育动机和母胎依恋关系中起到了中介作用。应针对不同人群进行精准干预。

关键词　孕妇，生育动机，主观幸福感，母胎依恋，潜在类别分析

Relationship between fertility motivation, women's subjective well-being and maternal-fetal attachment: A Latent Class Analysis

Zhang Xinhan[1], Chen Xinxia[1] (Corresponding author)
1 School of Nursing and Rehabilitation, Shandong University, Jinan 250012, chenxxsdu@163.com ）

Abstract： Healthy maternal-fetal attachment facilitates the quality of pregnancy and promotes the offspring's physical and mental health in the long term. Fertility motivation is an important factor influencing parent-child attachment, but its categories and effects during pregnancy have rarely been reported. According to the maternal-fetal relationship model, maternal mental health positively predicts mother-child attachment, whereas more autonomous motivation enhances subjective well-being among mothers. Based on this, we speculated that fertility motivation may influence maternal subjective well-being, which in turn influences maternal-fetal attachment, and this association might vary between types of motivation. In this study, a survey was conducted in 413 pregnant women during the mid-to-late second trimester using the Maternal-Fetal Attachment Scale, the General Well-Being Scale, and the Fertility Motivation Scale. We investigated the potential categories of fertility motivations of pregnant women and examined the relationship between fertility motivations and maternal-fetal attachment, as well as the mediating role of subjective well-being. The results found that (1) the motivations of pregnant women can be divided into four potential categories: autonomous-controlled (26.5%), autonomous (23.8%), controlled (24.2%) and unconscious fertility motivation (25.5%). (2) Significant correlations were found between fertility motivation, subjective well-being and maternal-fetal attachment (r = 0.128-0.414, all p < 0.01). There were significant differences between scores of the subjective well-being and maternal-fetal attachment scores between women with different types of fertility motivation (p < 0.001). (3) Using the group of unconscious pregnancy as the reference, mediation analysis revealed that there were significant relative direct effects of autonomous-controlled motivation (β= 0.788, p < 0.001), and autonomous motivation (β= 0.612, p < 0.001) on maternal-fetal attachment, and significant relative mediating effects of subjective well-being in this association (autonomous-controlled motivation: β= 0.045, p < 0.05; autonomous motivation: β= 0.094, p < 0.001). In contrast, for controlled motivation the relative direct effects (β=0.093, p=0.460) on maternal-fetal attachment, as well as the

mediating effects of subjective well-being in this association were not statistically significant (β=-0.018, p=0.332). In conclusion, four distinct latent categories were revealed for fertility motivation among pregnant women. Autonomous-controlled, and autonomous fertility motivation could significantly predict maternal-fetal attachment, with subjective well-being playing a mediating role in this relationship, while for controlled fertility motivation either the direct effects or the mediating effects were non-significant. These findings provide evidence on factors influencing maternal-fetal attachment and have implications for precise interventions.

Keywords： pregnant women, fertility motivation, subjective well-being, maternal-fetal attachment, latent class analysis

持枪民警心理选拔的理论与应用研究

杨金辉

中国人民警察大学公安政治学院， 廊坊 065000

E-mail：1587812501@qq.com

摘 要 [目的]探究持枪民警心理素质影响维度，拟编制持枪民警心理选拔量表。[意义]心理素质的强弱对持枪民警能否顺利完成射击任务有着一定的影响，持枪民警在开枪射击目标时应保持良好稳定的心理状态，才能将平时的射击技能训练、战术训练等充分发挥，在持枪证考核中加入心理选拔方面的考核，既是完善持枪证考核制度的需要，也是提高持枪民警整体射击能力的紧迫需要，有着重要的研究意义。[研究方法]总结国内外持枪民警心理选拔现状，参考其他领域已成熟应用的心理量表，确定影响持枪民警的一级心理维度即情绪稳定性、积极态度、注意焦点、射击自信、注意疲劳和恐惧，在一级维度中划分二级维度并从二级维度中编选 30 道题目作为条目池形成初测问卷，采用分层整群随机抽样方法，对 991 名 A 省持枪民警进行初测问卷调查已检验初测问卷信效度。[结论]一级维度中情绪稳定性、积极态度、注意焦点、射击自信、注意疲劳、恐惧，Cronbach's Alpha 分别为 0.843、0.861、0.814、0.829、0.805、0.887，Cronbach's Alpha 系数符合大于 0.7 的基本标准,此初测问卷具有良好信度；调查数据的 KMO 检验值为 0.923，大于 0.70，说明该问卷适合进行因子分析。Bartlett 球度检验结果显示，近似卡方值为 15525.837，显著性概率为 0.000（P<0.01），因此拒绝 Bartlett 球度检验的零假设，认为量表适合做因子分析，效度结构较好；在因子分析过程中，采用主成分分析法（Principal Factor Analysis），抽取 6 个特征值大于 1 的公因子，结果发现 6 个因子的总方差解释率为 63.606%，大于 60%，所以认为量表的效度良好；以最大方差法正交旋转进行因子旋转，可将 30 个问题选项归类为 6 类因子，每个测量题项的负荷均高于 0.5，且不存在双重因子负荷均高的情况，且每个维度下的测量题项均按照理论分布聚合到一起，说明该问卷有很好的内容效度；将每个题项中的平均差异性进行独立样本 t 检验，经临界比项目分析可得 A26、A30 题项的 P 值均＞0.05，不存在显著的差异性，可从问卷中予以删除；其余题项 P 值均＜0.05，说明存在显著的差异性，小于临界值，可予以保留。

关键词 持枪；民警；心理选拔

Theoretical and applied research on psychological selection of gun-bearing police

Yang Jinhui

Police Political College, China People’s Police University

Abstract: [Objective]To explore the influence dimension of the psychological quality of armed police, and to compile a psychological selection scale for armed police. [Significance] The strength of psychological quality has a certain impact on whether the gun-bearing police can successfully complete the shooting task, and the gun-bearing police should maintain a good and stable psychological state when shooting at the target, in order to give full play to the usual shooting skills training and tactical training, and add psychological selection assessment to the assessment of the gun license, which is not only the need to improve the gun license assessment system, but also the urgent need to improve the overall shooting ability of the gun-bearing police, which has important research significance. [Research Methods] Summarize the current situation of psychological selection of gun-bearing police at home and abroad, refer to the psychological scales that have been maturely applied in other fields, determine the first-level psychological dimensions that affect gun-bearing police, namely emotional stability, positive attitude, attention focus, shooting confidence, attention fatigue and fear, divide the second-level dimension in the first-level dimension and compile 30 questions from the second-level dimension as the entry pool to form a preliminary test questionnaire, and use the hierarchical cluster random sampling method to conduct a preliminary test questionnaire survey on 991 gun-bearing police officers in Province A to test the reliability and validity of the preliminary test questionnaire. [Conclusion] Cronbach's alpha in the primary dimension of emotional stability, positive attitude, attention focus, shooting confidence, attention fatigue and fear, Cronbach's alpha was 0.843, 0.861, 0.814, 0.829, 0.805 and 0.887, respectively, and Cronbach's alpha coefficient met the basic criteria greater than 0.7, and this preliminary questionnaire had good reliability. The KMO test value of the survey data is 0.923, which is greater than 0.70, indicating that the questionnaire is suitable for factor analysis. The results of the Bartlett sphericity test show that the approximate chi-square value is 15525.837, and the significance probability is 0.000 (P<0.01), so the null hypothesis of the Bartlett sphericity test is rejected, and the scale is suitable for factor analysis and has a good validity structure. In the process of factor analysis, the principal component analysis method was used to extract six common factors with characteristic values greater than 1, and it was found that the total variance interpretation rate of the six factors was 63.606%, which was greater than 60%, so the validity of the scale was considered to be good. Factor rotation by orthogonal rotation of the maximum variance method can classify 30 question options into 6 types of factors, the load of each measurement item is higher than 0.5, and there is no situation where the double factor load is high, and the measurement items in each dimension are aggregated together according to the theoretical distribution, indicating that the questionnaire has good content validity; the average difference in each question item is tested for independent sample t, and A26 can be obtained by critical ratio item analysis. The P value of A30 items > 0.05, and there is no significant difference, which can be deleted from the questionnaire; the P value of the remaining questions < 0.05, indicating that there is a significant difference, which is less than the critical value and can be retained.

Keywords: Armed; Police; Psychological selection

汉语阅读障碍儿童对不同心理旋转材料的加工特点

赵峰[1]　买合甫来提·坎吉[1]（通讯作者）

1 新疆师范大学心理学院，乌鲁木齐，830017，mkanji@163.com

摘 要　多项研究表明,阅读障碍儿童由于存在视空间认知能力上的缺陷,导致无法使用有效的视觉加工策略,从而表现为阅读上的困难。视空间认知能力可以从可视化、方向和心理旋转(MR)三个方面考察,其中,心

理旋转与阅读障碍的关系以及阅读障碍儿童在不同材料上的心理旋转特点是以往研究关注不多且存在争议的问题。因此,本研究采用标准瑞文智力测验、识字量测验和注意缺陷多动障碍 SNAP-IV 教师评估量表,从新疆乌鲁木齐四所小学三、四、五年级 1680 名小学生中筛选出了阅读障碍组儿童(检出率为 3.9%)和年龄匹配组儿童,并比较两组儿童在字母、汉字、图形三种不同材料上的心理旋转特点,以此考察汉语阅读障碍儿童在不同材料上的心理旋转特点。

研究为三个部分:

研究一考察了汉语阅读障碍儿童在字母材料上心理旋转的特点及加工策略。结果表明,旋转角度为 0°、60°和 120°时,阅读障碍组和对照组均呈现整体加工条件下的反应时小于局部加工条件下的反应时,即两组儿童都出现了整体加工优势。在整体加工条件下,旋转角度为 0°、60°、120°时,阅读障碍组和对照组的反应时随着旋转角度的增加而增大,即两组儿童在整体加工条件下都出现了心理旋转效应,但阅读障碍组的反应时明显比对照组长。在局部加工条件下,阅读障碍组和对照组的反应时随着旋转角度的增加没有产生明显的差异,两组儿童的反应时在各旋转角度下也没有明显差异。此外,180°旋转角度整体加工条件下对照组的反应时长于局部加工条件下的反应时,即出现了局部加工优势。而两种加工条件下阅读障碍组的反应时无明显差别。在正确率方面,组别的主效应显著,阅读障碍组的正确率明显低于对照组。

研究二考察了阅读障碍儿童在汉字材料上心理旋转的特点及加工策略。结果表明,在反应时方面,在汉字条件下,旋转角度为 0°、60°、180°时,阅读障碍组和对照组整体旋转的反应时显著小于局部旋转的反应时,出现了整体加工优势。在整体旋转条件下,阅读障碍组和对照组都表现为旋转角度为 0°、60°的反应时均显著小于 120°、180°,两组儿童在整体加工条件下都出现了心理旋转效应,且旋转角度为 0°、180°时,阅读障碍组的反应时显著小于对照组。在局部旋转条件下,无论何种旋转角度,阅读障碍组和对照组的反应时随各旋转角度的增加无显著差异,且阅读障碍组的反应时显著小于对照组。在正确率方面,阅读障碍组的正确率显著低于对照组。

研究三考察了阅读障碍儿童在图形材料上心理旋转的特点及加工策略。结果表明,在反应时上,图形材料整体旋转的反应时随着旋转角度的增加而显著增加,图形材料局部旋转在旋转角度上无显著差异;对照组整体加工的反应时小于局部加工的反应时,即出现整体加工优势,而阅读障碍组的整体加工的反应时与局部加工的反应时没有显著差异。在正确率上,旋转角度、旋转类型和组别的交互作用显著。在旋转角度为 0°、60°的条件下,对照组和阅读障碍组儿童都表现出整体旋转的正确率显著大于局部旋转的正确率,出现了整体加工优势,但是阅读障碍组在旋转角度为 180°条件下,表现为整体旋转的正确率显著小于局部旋转的正确率。在整体旋转条件下,当旋转角度为 0°、60°、120°、180°时,两组儿童的正确率也随旋转角度的增加而降低,即出现了心理旋转效应,且阅读障碍组的正确率均显著低于对照组。在局部旋转条件下,当旋转角度为 0°、60°、120°、180°时,旋转角度的正确率不随旋转角度的增加而变化,且无论哪个旋转角度,阅读障碍组的正确率均显著低于对照组。

根据上述实验结果,可得出以下结论:(1)汉语阅读障碍儿童在字母、汉字、图形中都表现出心理旋转加工的落后,而且这种落后在知觉编码阶段时就存在。(2)汉语阅读障碍儿童心理旋转的落后在不同文字材料上也表现出了一定的差异,即在更依赖于字形加工的表意文字——汉字中表现为整体加工和局部加工都落后;更加依赖于语音加工的拼音文字——字母中仅表现为整体加工上的落后。(3)汉语阅读障碍儿童在图形心理旋转时与正常儿童一样,对字母、汉字和图形三种材料中都出现了整体加工优先效应,并且在整体加工时,产生了心理旋转效应,即:对表象进行了操作。在局部加工时,没有产生心理旋转效应,即没有对表象进行操作。

关键词　汉语阅读障碍，视空间认知能力，心理旋转

Study on the Mental Rotation Characteristics of Children with Chinese Dyslexia in Different Materials

ZhaoFeng　Maihefulaiti·Kanji (Corresponding author)

School of Psychology, Xinjiang Normal University, Urumqi,830017, mkanji@163.com

***Abstract*:** Several studies have indicated that children with dyslexia have so far failed to develop effective visual processing strategies, and that some dyslexia are associated with visual-spatial deficits. Some dyslexia are associated with deficits of visual-spatial ability. Visual-spatial ability is divided into three main aspects: visualization, orientation and mental rotation (MR). However, the relationship between visual-spatial ability and reading ability is still a controversial issue. In this study, we selected children with Chinese dyslexia (n=66， the detection rate was 3.9%) and children with the age matching group (n=73) from 1680 primary school students in grade 3, grade 4 and grade 5 in four primary schools in Urumqi, Xinjiang. Using the standard Ruiwen Intelligence Test, Literacy Test and The Attention Deficit Hyperactivity Disorder (ADHD) SNAP-IV Teacher Assessment Scale. We carried out the mental rotation tests of letters, Chinese characters and graphics to investigate the visual spatial cognitive ability of children with Chinese dyslexia and Normal children.

The research is divided into three parts:

The first study investigated on the characteristics and processing strategies of mental rotation of dyslexic children in alphabetic materials. These results indicated that the interaction of rotation angle, rotation type and group is remarkable. When the rotation angles were，， and , both the dyslexia group and the control group showed that the speed of the global processing condition was faster than that the speed of the local processing condition, that is, the global processing advantage appeared. Under the global processing condition, when the rotation Angle was,, and ，the speed of the dyslexia group and the control group decreased with the increase of the rotation Angle, that is, both groups showed mental rotation effect under the global processing condition, but the responses of the dyslexia group were significantly longer than those of the control group.Under the condition of local processing, there was no found significant difference in the response of the dyslexia group and the control group with the increase of rotation Angle, and there was no significant difference in the response of the children in the two groups with the increase of rotation Angle.In addition, the speed of the control group on the global processing condition of ,was slower than the local processing, that is, the local processing advantage appeared. However, there was no significant difference in the response of the dyslexia group under the two processing conditions. In terms of accuracy, the main effect of the group was significant, and the accuracy of the dyslexia group was significantly lower than that of the control group.

The second study investigated on the characteristics and processing strategies of mental rotation of dyslexic children in Chinese character materials. The results presented that the interaction between angle of rotation and group was remarkable in terms of speed time,and Angle×group interaction was found.when the rotation Angle was ,and, the speed of global rotation of two groups were significantly faster than that of local rotation, showing global processing advantage.3Under the global rotation condition, both the dyslexia group and the control group showed that the rotation Angle of 0° and 60° were significantly less than and,and both groups showed mental rotation effect under the condition of overall processing. Moreover, when the rotation Angle wasand, the response time of the dyslexia group was significantly lower than that of the control group.Under the condition of local rotation, no matter what rotation Angle, the response time of the dyslexia group and the control group showed no significant difference with the increase of each rotation Angle , and the speed of the dyslexia group was significantly lower than that of the control group. In terms of accuracy, the main effect of the group was significant, and the accuracy of the dyslexia group was significantly lower than that of the control group.

The third study investigated on the characteristics and processing strategies of mental rotation of dyslexic children in graphic materials. The results revealed that the main effect of rotation Angle was significant in dyslexic children. The main effect of rotation type was significant. The interaction between rotation Angle and rotation type was significant. The simple effect test found that the global rotation of the graphic material increased significantly

with the increase of the rotation Angle, while the local rotation of the graphic material showed no significant difference in the rotation Angle. The interaction between groups and rotation types has significant edges. The simple effect test found that the response time of global processing in the control group was less than that of local processing, that is, the global processing advantage appeared, while the response time of global processing in the dyslexia group was not significantly different from that of local processing.The main effect of the group was not significant , while other interactions were not significant . In terms of accuracy, the interaction between rotation Angle, rotation type and group was significant. When the rotation Angle wasand, both groups showed that the accuracy rate of global rotation was significantly higher than that of local rotation, showing the advantage of overall processing. However, When the rotation Angle was 180°, the accuracy rate of global rotation in the dyslexic group was significantly lower than that of local rotation. Under the global rotation condition, when the rotation Angle was、、、and , the accuracy rate of children in the two groups also decreased with the increase of the rotation Angle, that is, the mental rotation effect appeared, and the accuracy rate of the dyslexia group was significantly lower than that of the control group. Under the condition of local rotation, when the rotation Angle is、、、and, the accuracy of the rotation Angle does not change with the increase of the rotation Angle, and no matter which rotation Angle, the accuracy of the dyslexia group is significantly lower than that of the control group.

According to the above experimental results, the conclusions can be drawn: (1) Chinese dyslexic children show a general lag in visuospatial cognition in all mental rotation of materials, which occurs in the perceptual coding stage and is not affected by mental rotation.(2) Chinese dyslexic children generally have backwarded mental rotation in all materials, but they have certain specificity in different writing materials. The ideographic characters, Chinese characters, which put more emphasis on the processing of glyphs, are the most backward. The second is more dependent on phonetic processing of pinyin characters - letters, only in the global processing there is backward.(3)Chinese dyslexic children, like normal children, have the global processing priority effect on the three materials of letters, Chinese characters and graphics, and the mental rotation effect is generated during the global processing, that is, the image is operated. In the local processing, there is no mental rotation effect, that is, there is no operation on the image.

Keywords：Chinese dyslexia, Visual spatial ability, Mental rotation

贫困经历对青少年经济冒险行为的影响：COMT 基因多态性的作用

叶婉玉[1]　　窦凯[1]（通讯作者）　　陈丽羽[1]

1 广州大学教育学院青少年心理与行为研究中心， 广州， 510006

摘 要　贫困经历是指个体在成长过程中与贫困相关的不良生活经历。虽然全国脱贫攻坚任务已取得全面胜利，但我们仍然需要警惕脱贫人口再度返贫，并关注贫困经历对个体身心发展所带来的不利影响。本研究旨在探讨贫困经历是否以及为何影响青少年的经济冒险行为。经济冒险行为指个体在涉及货币风险时产生的偏好或行为。然而，贫困经历导致个体风险寻求还是规避尚未得出一致结论。研究 1a 采用中国综合社会调查(CGSS)数据库初步检验家庭经济状况与风险偏好的关系，结果表明贫困经历水平越高，个体风险寻求水平越低。此外，研究 1b 基于冷、热系统的视角，通过行为实验考察高、低贫困经历者（各 26 名大学生）在哥伦比亚卡片任务中的经济冒险行为。采用 2 (贫困经历：高、低) ×2 (决策环境：冷、热)的混合实验设计，其中决策环境为组内变量。在哥伦比亚卡牌任务的“热”版本中，被试选择纸牌后立即得到反馈，以诱发情绪加工过程；而在“冷”版本中，被试在任务结束前不会收到反馈，以避免情绪加工并激活理性分析过程。将被试在两个任务版本中翻牌的平均次数作为风险偏好的指标。结果显示：贫困经历与决策环境之间交互作用显著，在“热”版本中，高贫困经历者更倾向于风险寻求；而在“冷”版本中两组被试的风险决策无显著性差异。研究 2 从“基因×环境”交互视角，通过对 648 名青少年进行三次纵向追踪（间隔 6 个月）并采

集唾液进行基因检测，探讨贫困经历与COMT基因rs4680多态性交互影响青少年经济冒险行为的内在机制。结果显示：贫困经历通过削弱自我控制间接影响经济冒险行为；在携带 A 等位基因和 GG 基因的个体中，贫困经历均能显著预测自我控制，但携带 A 等位基因的青少年更容易受到贫困经历的影响。在高贫困经历下，携带 A 等位基因的个体自我控制能力较低，从而导致经济冒险行为增加。本研究有助于认识贫困经历对青少年经济冒险行为的影响及 COMT 基因 rs4680 多态性的调节作用，并为助推贫困个体的理性决策提供了理论和实践指导。
关键词　贫困经历，经济冒险行为，COMT 基因，rs4680 多态性，自我控制

The impact of poverty experience on adolescent economic risk-taking behavior: The role of COMT gene polymorphism

Wanyu Ye[1]　Kai Dou[1]　Liyu Chen[1]

1 Research Center of Adolescent Psychology and Behavior, School of Education, Guangzhou University, Guangzhou, 510006

***Abstract*：** Poverty experience refers to adverse life experiences related to poverty that individuals encounter during their developmental years. Despite achieving comprehensive victory in the national poverty alleviation campaign, there remains a need to remain vigilant against poverty relapse among formerly impoverished individuals and to address the detrimental effects of poverty experiences on individual psychosocial development. This research aims to explore whether and why poverty experiences influence economic risk-taking behavior in adolescents. Economic risk-taking behavior refers to an individual's preference or behavior concerning monetary risks. However, there is still no consensus on whether poverty experiences lead individuals to seek or avoid risks. In Study 1a, the relationship between family economic status and risk preference was preliminarily examined using data from the China General Social Survey (CGSS) database, and the results showed that higher levels of poverty experiences were associated with lower levels of risk-seeking behavior in individuals. Additionally, Study 1b, based on the perspective of the dual-process theory, conducted a behavioral experiment involving 26 university students with high and low poverty experiences each, to investigate their economic risk-taking behavior in the Columbia Card Task. A 2 (poverty experience: high, low) × 2 (decision context: hot, cold) mixed experimental design was utilized, with the decision context as a within-subject variable. In the "hot" version of the Columbia Card Task, participants received immediate feedback after choosing a card to induce emotional processing. In contrast, in the "cold" version, participants did not receive feedback until the end of the task to avoid emotional processing and activate rational analysis. The average number of card selections in both task versions served as an indicator of risk preference. The results indicated a significant interaction between poverty experience and decision context. In the "hot" version, individuals with high poverty experiences showed a greater tendency toward risk-seeking behavior, whereas there was no significant difference in risk decision-making between the two groups in the "cold" version. Study 2, adopting a gene-environment interaction perspective, conducted three longitudinal follow-ups (with a 6-month interval) on 648 adolescents and collected saliva samples for genetic testing to explore the underlying mechanism through which poverty experiences and the COMT gene rs4680 polymorphism interactively influence economic risk-taking behavior in adolescents. The results revealed that poverty experiences indirectly impacted economic risk-taking behavior by weakening self-control. Among individuals carrying the A

allele and the GG genotype, poverty experiences significantly predicted self-control, but adolescents with the A allele were more susceptible to the influence of poverty experiences. Under conditions of high poverty experiences, individuals with the A allele displayed lower self-control, leading to increased economic risk-taking behavior. This research contributes to the understanding of how poverty experiences affect economic risk-taking behavior in adolescents and the moderating effect of the COMT gene rs4680 polymorphism, providing theoretical and practical guidance to promote rational decision-making for individuals living in poverty.

Keywords：poverty experience, economic risk-taking behavior, COMT gene, rs4680 polymorphism, self-control

成人 ADHD 症状与短视频问题使用的关系:结构方程模型分析

徐楚闲[1]　　庄乾[2]（通讯作者）

1 杭州师范大学认知与脑疾病研究中心，杭州，310000

2 杭州师范大学认知与脑疾病研究中心，杭州，310000，zq19910362@126.com

摘要　成人注意缺陷/多动障碍（ADHD）个体通常伴随严重的情绪失调，且其与个体的焦虑、抑郁等内化症状以及问题行为等外化症状密切相关。同时，大量的研究发现个体的 ADHD 症状水平和网络成瘾密切相关，其中，短视频的问题使用正在引发越来越多的关注。虽然已有的成瘾 I-PACE（the Interaction of Person-Affect-Cognition-Execution）模型提出,个体的病理性特质水平会影响情绪和认知反应，进而影响成瘾行为的发展，但是情绪失调及其相关的内化症状是否可以解释个体的 ADHD 症状水平和短视频问题使用之间的关系，目前尚不清楚。因此，本研究基于成瘾的 I-PACE 模型，纳入认知重评、情绪困扰(包括抑郁和焦虑)和无聊倾向等相关因素，运用结构方程模型来考察成人的 ADHD 症状和短视频使用之间的关系。我们通过在线调查平台招募了 563 名中国大学生（Male=283；Mean±SD=19.85±1.56），对他们的成人 ADHD 症状、情绪调节能力、情绪困扰、无聊倾向和短视频问题使用进行了评估。结果发现，个体的 ADHD 症状水平可以显著正向预测短视频问题使用(β=0.34,p=0.000)。并且，认知重评、情绪困扰和无聊倾向在个体的 ADHD 症状水平和短视频问题使用之间存在显著的链式中介作用(Estimate=0.005,95%CI=[0.001, 0.014])（图 1）。另外，我们分别以 ADHD 症状的两个分维度（多动-冲动和注意缺陷）为自变量进行探索性分析，发现认知重评、情绪困扰和无聊倾向仅在个体的多动-冲动水平和短视频的问题使用之间存在显著的链式中介效应(Estimate=0.009,95%CI=[0.004,0.020])（图 2）；但是，这一效应在个体的注意缺陷程度和短视频问题使用之间不显著(Estimate=0.003,95%CI=[-0.001,0.010])（图 3）。综上，该研究表明，成人的 ADHD 症状水平，尤其是多重-冲动维度，可以通过影响认知重评、情绪困扰和无聊进而影响短视频问题使用。本研究不仅有助于理解个体的 ADHD 症状水平与短视频问题使用之间的关系，而且对于临床上 ADHD 个体短视频成瘾的干预和治疗有着非常重要的意义。

关键词　注意缺陷/多动障碍，短视频问题使用，I-PACE 模型，情绪失调，结构方程模型

Adult ADHD Symptoms and Short-video Problematic Use: a Structural Equation Modeling Analysis

Chuxian Xu[1],　Qian Zhuang[*]

Cognitive Center of Brain Disease, Hangzhou Normal University, Hangzhou, China

Abstract: Adult attention deficit/hyperactivity disorder (ADHD) is usually accompanied by severe emotion dysregulation, which is closely related to the internalizing symptoms such as anxiety and depression and external

symptoms such as behavior problem. At the same time, a large number of studies found that ADHD symptoms are linked to internet addiction, among which short-video problematic use is attracting more and more attention. The I-PACE(The Interaction of Person-Affect-Cognition-Execution) model proposes that individual's psychopathology symptoms will affect the emotional and cognitive responses, thus affecting the development of addictive behaviors. However, it is so far unclear whether emotion dysregulation and the associated internalizing symptoms can explain the relationship between ADHD symptoms and short-video problematic use. This study use structural equation modeling to examine the associations between adult ADHD symptoms and problematic short-video use through cognitive reappraisal, emotion distress (consisted of depression and anxiety) and boredom proneness. We recruited 563 college students from China through online survey platform and assessed their adult ADHD symptoms, emotion regulation, emotion distress, boredom tendency and problematic short-video use. Results showed that adult ADHD symptoms positively predicted short-video problematic use (β= 0.34, p= 0.000) and revealed a serial mediating effect of cognitive reappraisal, emotion distress and boredom proneness (Estimate=0.005, 95%CI=[0.001, 0.014])(Figure1). In the further exploratory analysis, we took sub-dimensions of ADHD symptoms (hyperactivity-impulsivity and inattention) as independent variables respectively and found that the serial mediating effect of cognitive reappraisal, emotional distress and boredom proneness only existed between hyperactivity-impulsivity and short-video problematic (Estimate=0.005, 95%CI=[0.001, 0.014])(Figure2). The effect was not significant between inattention and short-video problematic use (Estimate=0.003, 95%CI=[-0.001,0.010])(Figure3). Together these findings suggest that ADHD symptoms, especially hyperactivity-impulsivity, are associated with low cognitive reappraisal, high emotion distress and boredom proneness, and thus contribute to the development of short-video problematic. This study not only helps to understand the relationship between the adult ADHD symptoms and the problematic use of short-video, but also has important influence on the intervention and treatment of short-video addiction in ADHD individuals.

Keywords **：** attention-deficit/hyperactivity disorder, short-video problematic use, I-PACE model, emotion dysregulation, structural equation model

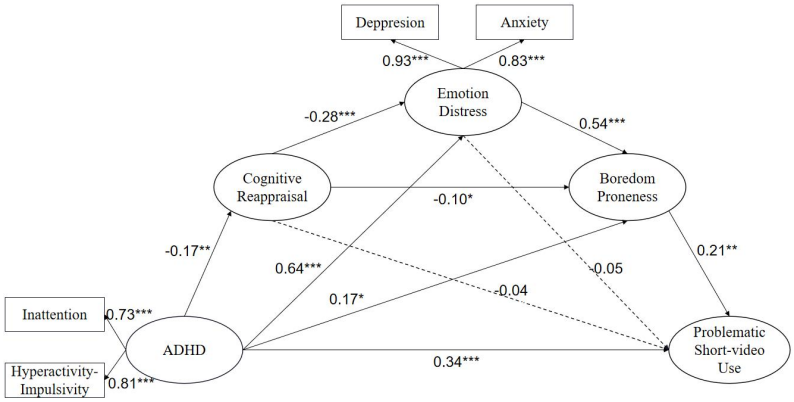


图 1.成人 ADHD 症状与短视频问题使用的链式中介结构方程模型图。图中呈现标准化回归系数。圆圈代表潜变量，方形代表显变量。虚线代表不显著路径；实线代表显著路径。*p<0.05, **p<0.01, ***p<0.001。ADHD：注意缺陷/多动障碍，Inattention：注意缺陷维度，Hyperactivity-Impulsivity：多动-冲动维度，Cognitive Reappraisal：认知重评，Emotion Distress：情绪困扰，Depression：抑郁，Anxiety：焦虑，Boredom Proneness：无聊倾向，Problematic Short-video Use：短视频问题使用。

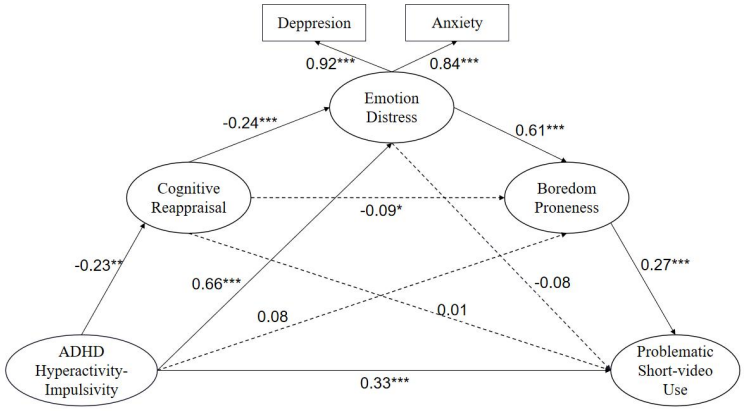


图 2. ADHD 多动-冲动维度与短视频问题使用的链式中介结构方程模型图。图中呈现标准化回归系数。圆圈代表潜变量，方形代表显变量。虚线代表不显著路径；实线代表显著路径。*p<0.05, **p<0.01, ***p<0.001。各变量名称同图 1。

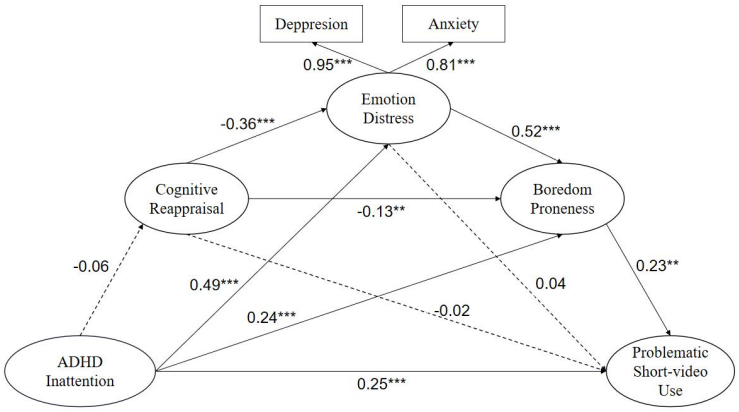


图 3. ADHD 注意缺陷维度与短视频问题使用的链式中介结构方程模型图。图中呈现标准化回归系数。圆圈代表潜变量，方形代表显变量。虚线代表不显著路径；实线代表显著路径。*p<0.05, **p<0.01, ***p<0.001。各变量名称同图 1。

解释水平对他人记忆再认的影响：行为学与 fNIRS 的证据

何潇雯[1] 田紫晴[1] 张雅婷[1] 马伟军[2]（通讯作者）

1 华东师范大学心理与认知科学学院，上海，200062

2 华东师范大学心理系，上海，200062，wjma@psy.ecnu.edu.cn

摘 要 解释水平指个体对认知对象的心理表征的抽象程度。按照解释水平理论，不同解释水平引起的表征差异会影响记忆再认。本研究预测解释水平越低，个体对他人的加工则越具体，加工难度小因而大脑额叶激活更小，记忆再认效果更好。但以往研究缺少相关的行为学证据以及对其中神经机制的探讨。本研究旨在分别通过两个实验以直接和间接两种方式操纵解释水平，利用行为学和 fNIRS 手段探讨解释水平对他人相关记忆的影响机制。

实验一通过社会距离直接操纵解释水平，采用自变量为社会距离远近（亲友、生人）的单因素被试内设计，以语义参照为对照。要求被试完成自我参照效应的行为学实验。在学习阶段向被试呈现不同参照条件下的形容词，同时使用 fNIRS 记录额叶皮层血氧水平变化数据。再认阶段被试对学习阶段出现过的形容

词进行再认。结果表明：相较于社会距离较远的生人参照（高解释水平），社会距离较近的亲友参照（低解释水平）条件下，记忆再认效果更好，同时背外侧前额叶皮层激活更低，且左侧背外侧前额叶区域的差异更显著。

实验二则采用 How/Why 任务间接操纵解释水平，采用 2（解释水平：高、低）×2（参照条件：鲁迅、语义）的双因素混合设计，其中，解释水平为被试间变量，参照条件为被试内变量。首先通过 How/Why 任务分别启动两组被试自身的解释水平为高或低。行为学实验和 fNIRS 记录流程与实验一相同。结果表明：相较于 Why 任务条件（高解释水平），How 任务（低解释水平）条件下记忆再认效果更好，同时背外侧前额叶皮层激活更低、且左侧差异更显著。

总体而言，本研究发现通过直接和间接方法均可操纵解释水平来影响个体对他人的记忆效果,且效果一致。相比于高解释水平，当个体处于低解释水平时，倾向于采用更加具体化的表征方式、进行更精细化加工，认知加工难度较低，记忆效果更好，神经层面则表现在背外侧前额叶皮层的激活程度较低（特别是左侧背外侧前额叶），该结果也提示左侧背外侧前额叶的激活与解释水平对他人认知加工的影响有关。
关键词　解释水平，记忆再认，近红外光谱成像技术

The Effect of Construal Level on Others' Memory Recognition: Evidence from Behavioral and fNIRS

Xiaowen He[1] Ziqing Tian[1] Yating Zhang[1] Weijun Ma[2]
College of Psychology and Cognitive Science, East China Normal University, Shanghai

***Abstract*:** The construal level(CL) refers to the degree of abstraction of an individual's mental representation of objects, and different levels of representation of others may affect an individual's memory recollection of others. In this study, we hypothesized that the lower the CL, the more concrete the individual's processing of the other person is, and the less difficult it is to process the others-reference information, and thus the frontal lobe is less activated, resulting in a better memory recollection. However, there is a lack of behavioural evidence and exploration of the neural mechanisms involved. Therefore, the present study aimed to manipulate the CL both directly and indirectly, and to explore the mechanism of CL on others' memory from behavioural and fNIRS evidence.

Experiment 1 directly manipulated the CL by setting different social distances. It adopted a within-subjects design in which the independent variable was social distance (relatives and friends, strangers) and added a semantic reference condition as control. Participants were required to complete the self-reference effect paradigm's behavioural experiment in which adjectives in different reference conditions were presented in the learning phase and appeared to be recognized in the next; data on changes in prefrontal cortex (PFC) blood oxygen levels during the learning phase were also recorded using fNIRS. The results showed that dorsolateral prefrontal cortex(dlPFC) activation was lower (the difference was more significant in the left dorsolateral prefrontal region) and memory recognition was better under the condition of friends and relatives (low CL) than strangers (high CL).

Experiment 2 indirectly manipulated the CL using the How/Why task. It adopted a 2 (CL: high, low) × 2 (reference condition: Lun Xun, semantics) mixed design, in which the CL was a between-subjects variable and the reference condition was a within-subjects variable. The How task was used to control the CL of one group of participants to be high, and the Why task was used to control the CL of the other group to be low. Behavioural experiments and fNIRS recording procedures were the same as in Experiment 1. The results showed that memory recapture was better in the How task (low CL) condition compared to the Why task condition (high CL), while dlPFC activation was lower and the left side difference was more significant.

In conclusion, the present study found that the experimental results obtained by directly and indirectly

manipulating the CL were consistent: compared to the high CL, when individuals are at low CL, they tended to adopt a more specific representation, to fine-tune the processing of others' associative information, which resulted in a lower difficulty in processing and a better memory effect, while at the neural level, the activation of the dlPFC was lower, especially in the left dlPFC, suggesting the relation between this functional brain area and the effect of CL on the cognitive processing of others.

Keywords： construal level, memory recognition, fNIRS

同伴侵害与青少年自伤行为：心理痛苦的中介作用和情绪调节自我效能感的调节作用

李明远 鲁婷（通讯作者）柯美灵

湖北大学心理学系，武汉，430062，tinglu@hubu.edu.cn

摘 要 非自杀性自伤(non-suicidal self-injury，简称“自伤”)是指个体在没有自杀意图的情况下，故意对自己的身体组织造成伤害或疼痛的行为，青少年自伤行为在各国都已经成为了严重的公共卫生问题。由于同伴群体是青少年成长环境中的重要组成部分，而来自同伴的侵害又是导致青少年自伤的重要风险因素，因此，本研究将聚焦于同伴侵害对青少年自伤行为的影响作用。根据社会疼痛理论的观点，被同伴侵害的个体会感知到来自同伴群体的贬低与排斥，会使个体体验到一种由心理需要受阻而引起的被羞辱、内疚、愤怒等包围的精神痛苦状态（即心理痛苦）。而情绪调节是自伤的主要功能，个体可以通过自伤来减轻自己无法排解的愤怒、焦虑和感知到自己被同伴侵害引起的心理痛苦。此外，根据自伤的认知-情感模型，自我效能预期会影响个体的自伤行为，个体在低水平情绪调节自我效能感的情况下，很难抵制使用自伤手段来缓解负性情绪，即情绪调节自我效能感可能对青少年自伤行为有保护作用，可以调节心理痛苦与自伤行为之间的关系。本研究在社会痛苦理论和自伤的认知-情感模型的指导下，构建一个有调节的中介模型，检验心理痛苦在同伴侵害和青少年自伤行为之间的中介作用，以及情绪调节自我效能感对中介路径的调节作用。采用多维同伴侵害量表、心理痛苦量表、情绪调节自我效能感量表和青少年自我伤害行为量表对 528 名青少年进行调查,探讨同伴侵害对青少年自伤行为的影响及作用机制。结果表明:(1)同伴侵害可以显著正向预测青少年的自伤行为,心理痛苦在二者的关系中起中介作用;(2)情绪调节自我效能感调节了心理痛苦在同伴侵害和自伤行为之间的中介效应,调节作用在中介效应的后半段路径“心理痛苦→青少年自伤行为”中起调节作用,情绪调节自我效能感水平较高时,心理痛苦对自伤行为的正向预测作用有所减弱，本研究的结果为青少年自伤行为的预防和干预提供了理论依据，即提升青少年的情绪调节自我效能感，能有效减少其自伤行为的发生。

关键词 同伴侵害，心理痛苦，情绪调节自我效能感，自伤行为

Peer victimization and adolescent non-suicidal self-injury behavior: the mediating role of psychache and the moderating role of emotion regulation self-efficacy

Li Mingyuan, Lu Ting*, Ke Meiling

Faculty of Education, Hubei University, Wuhan

Abstract: Non-suicidal self-injury (NSSI) refers to the intentional act of causing harm or pain to

one's own body tissue without suicidal intent. Adolescent NSSI behavior has become a serious public health issue in many countries. As peer groups are an important part of the adolescent developmental environment, and peer victimization is a significant risk factor for adolescent NSSI, this study focuses on the impact of peer victimization on adolescent NSSI behavior. According to the perspective of the social pain theory, individuals who experience peer victimization perceive derogation and rejection from their peer group, leading to a state of psychological distress characterized by feelings of humiliation, guilt, anger, and other negative emotions resulting from thwarted psychological needs (i.e., psychache). Emotion regulation serves as the primary function of NSSI, as individuals can engage in NSSI to alleviate the anger, anxiety, and perceived psychological pain caused by peer victimization that cannot be resolved. Additionally, according to the cognitive-affective model of NSSI, self-efficacy expectations can influence an individual's NSSI behavior. When individuals have low levels of self-efficacy in emotion regulation, it becomes difficult for them to resist using NSSI as a means to alleviate negative emotions. The emotional regulation self-efficacy may potentially serve as a protective factor on adolescent self-harm behavior, as it can modulate the relationship between psychache and NSSI behavior. Guided by the cognitive-affective model of NSSI and the theory of social pain, this study constructs a moderated mediation model to examine the mediating role of psychache in the relationship between peer victimization and adolescent NSSI behavior, as well as the moderating role of emotion regulation self-efficacy in the mediating pathway. A survey was conducted with 528 adolescents using the Multidimensional Peer Victimization Scale, the Psychache Scale, the Emotion Regulation Self-Efficacy Scale, and the Adolescent NSSI Behavior Scale, to explore the impact of peer victimization on adolescent NSSI behavior and its underlying mechanisms. Results show that: (1) Peer victimization significantly positively predicts adolescent NSSI behavior, and psychache plays a mediating role in their relationship; (2) Emotion regulation self-efficacy moderates the mediating effect of psychache between peer victimization and NSSI behavior. The moderating effect is observed in the second half of the mediation path " psychache → adolescent NSSI behavior". When emotion regulation self-efficacy is higher, the positive predictive effect of psychache on NSSI behavior is weakened. The results of this study provide a theoretical basis for the prevention and intervention of adolescent NSSI behavior, suggesting that enhancing adolescent emotion regulation self-efficacy can effectively reduce the occurrence of NSSI behavior.

Keywords: Peer victimization, psychache, emotion regulation self-efficacy, non-suicidal self-injury behavior

海洛因使用者在金钱结果评估中的处理异常：来自反馈相关负波的证据

陈至辰[1]，杨玲[1]，张铭飞[1]，杨寒冰[1]，漆丽娟[1]，张炀[2]（通讯作者）

1 甘肃省行为与心理健康重点实验室西北师范大学心理学院物质成瘾与康复研究所

2 河南师范大学教育学院，河南省新乡市，453007

摘 要　金钱奖赏加工系统的改变已被证实在药物成瘾的发展和维持中起着至关重要的作用。然而，聚焦海洛因使用者在金钱奖赏反馈加工的电生理机制研究还相对匮乏。为填补该空缺，本研究旨在探讨海洛因使用者在金钱奖赏反馈加工的电生理机制上是否存在异常。为此，本研究共招募了 57 名参与者（包括 29 名海洛因戒断者和 28 名健康对照组）。我们采用了 MIDT 任务结合 ERP 技术，以探讨海洛因使用者和健

康对照组在金钱奖赏反馈处理上的电生理差异。结果发现，与本研究的假设相反，所有参与者在奖赏任务上的反应速度和准确性都优于非奖赏任务。电生理结果则与实验预期一致。对反馈相关负波（FRN）的分析显示，在健康对照组中，金钱损失条件下诱发的 FRN 波幅更大，而在金钱获得条件下没有显著差异。然而，在海洛因使用者组中，金钱获得和损失条件下诱发的 FRN 波幅均没有显著差异。本研究结果表明，海洛因使用者的金钱奖赏反馈加工存在异常，具体表现为对金钱损失的敏感性降低。这种敏感性下降可能致使海洛因使用者忽略物质使用引发的消极结果而一味地沉湎于海洛因带来的奖赏体验。此外，金钱获得和损失结果引发的 FRN 异常可能源自前扣带回皮质(ACC)功能异常，未来研究可以结合功能性磁共振成像来考察海洛因使用者在金钱奖赏加工反馈中 ACC 的激活状况是否正常，从而进一步的揭示海洛因戒断者金钱损失敏感性降低的脑神经机制。
关键词　海洛因使用者，物质滥用和依赖，奖赏系统，事件相关电位，反馈负波

Processing abnormalities in monetary outcome evaluations among heroin users: Evidence from feedback-related negativity

ZhiChen Chen[1], Ling Yang[1], MingFei Zhang[1], HanBing Yang[1], LiJuan Qi[1],Yang Zhang[2] (corresponding author)
1Key Laboratory of Behavior and Mental Health, Institute of Substance Addiction and Recovery, School of Psychology, Northwest Normal University, Gansu Province
2School of Education, Henan Normal University, Xinxiang City, Henan Province, 453007

Abstract: This study aimed to investigate the electrophysiological mechanisms underlying the processing of monetary reward feedback among individuals experiencing heroin withdrawal. Previous research has shown the importance of alterations in the monetary reward system in drug addiction, but there is a lack of research specifically focusing on heroin users. To address this gap, we conducted a study with 57 participants, including 29 male inpatients currently abstinent from heroin addiction and 28 healthy controls. We utilized the MIDT task along with ERP technology to examine any differences in electrophysiological responses to monetary reward feedback between the two groups. Contrary to our initial hypothesis, all participants performed faster and more accurately in the reward task compared to the non-reward task. The electrophysiological findings aligned with our expectations, as analysis of feedback-related negativity (FRN) showed that the healthy control group exhibited a significantly more negative amplitude of FRN in response to monetary loss outcomes, with no significant difference in response to monetary gain conditions. However, the heroin user group displayed no significant differences in FRN amplitudes for monetary gain and loss outcomes. These results suggest that heroin users have abnormalities in processing feedback related to monetary rewards, resulting in reduced sensitivity to monetary loss. This diminished sensitivity may lead heroin users to overlook the negative consequences of substance use and become excessively indulged in the rewarding experience brought by heroin. Moreover, the abnormal FRN triggered by monetary gain and loss outcomes may originate from functional abnormalities in the ACC region. Future research could incorporate fMRI technology to examine whether the activation status in heroin users during monetary reward processing feedback is normal. This would provide a deeper understanding of the neural mechanisms underlying the reduced sensitivity to monetary loss in individuals undergoing heroin withdrawal.
Keywords: Heroin users, abuse and dependenc, Reward system, ERP, feedback-related negativity

城中村居民典型梦与心理健康的关系

李宇航[1]、邹学[2]、解缤[1]（通讯作者）
1 西安体育学院，陕西西安，710068，xiebin0320@163.com
2 西安国际医学中心，陕西西安，710119

摘 要　精神分析理论认为梦是研究个体潜意识的最直接材料，而意识与潜意识的是否存在冲突是影响着个体心理健康水平的重要因素。Lamis 等人发现，噩梦造成的损害与抑郁呈显著的正相关关系。城中村居民由于其特殊的生活环境，使得这一样本的研究具有特殊意义。本论文通过对城中村居民典型梦与心理健康的调查，旨在探索梦与心理健康之间的关系，并为进一步探查心理健康的内在潜意识机制以及更好地为城中村居民提供心理服务提供理论依据。

方法：采用典型梦的问卷中文版和 SCL-90 自评量表，通过随机取样的方式对西安市 1190 名城中村居民的心理健康状况和典型梦的主题进行了调查，采用 t 检验、相关分析和 Logistic 回归分析。

结果：（1）城中村居民出现频率最高的五个梦的主题是“坠落”48.10%，“学校、老师、学习”46.40%，“被追赶但是身体没有受伤”44.39%，“享用美食”41.08%，“反复尝试做某事”40.34% 。（2）SCL-90 中的人际关系敏感、强迫症状因子和总分为阴性的时候，出现频率最高的梦为“学校、老师、学习”；而这两个因子阳性情况下出现概率最高的梦为“坠落”。“坠落”代表恐惧情绪。（3）城中村居民 SCL-90 总分与主题为“享用美食”不存在显著性相关（r=0.044，p>0.05），与“被追赶”、“被攻击”“反复做某事”“被锁起来”存在显著正相关（r=0.350,r=0.387,r=0.380,r=0.405，p<0.01），这些主题的梦象征外界伤害，说明 SCL-90 总分与被伤害的潜意识情绪相关。（4）以 SCL-90 各因子为自变量，典型梦的主题为因变量做回归分析发现，强迫因子对“坠落”主题存在预测作用（b=0.827,p=0.002<0.01），即强迫因子可以预测潜意识中的恐惧情绪；偏执因子对“飞翔”主题存在预测(b=0.698,p=0.004<0.01)，即偏执因子可以预测潜意识中的自恋情结，；抑郁因子对“学校、老师”主题存在预测(b=-0.669,p=0.039<0.05)，即抑郁因子可以预测被教育和被限制的情绪；躯体化因子对“考试失败”主题存在预测（b=0.557,p=0.029<0.05）即躯体化因子可以预测挫败无助的情绪。

结论：SCL-90 各个因子及总分与不同主题典型梦存在着显著性相关。SCL-90 中强迫、偏执、躯体化等因子可以预测主题带有恐惧、自恋、被教育、挫败的梦。

关键词　典型梦，心理健康，SCL-90，城中村居民

The Relationship between Typical Dreams and Mental Health of Residents in Village-in-city

LI Yuhang[1], ZOU Xue[2], XIE Bin[1] (corresponding author)
1 Xi'an Institute of Physical Education, Xi'an, Shaanxi, 710068, xiebin0320@163.com
2 Xi'an International Medical Center, Xi'an, Shaanxi, 710119

Abstract:

Psychoanalytic theory believes that dreams are the most direct material for studying an individual's subconscious, and whether there is a conflict between consciousness and subconscious is an important factor affecting the individual's mental health. Lamis et al. found that the damage caused by nightmares was significantly positively correlated with depression. The study of this sample is of special significance due to the special living environment of urban village residents. By investigating the typical dreams and mental health of urban village residents, this paper aims to explore the relationship between dreams and mental health, and provide a theoretical basis for

further exploring the inner subconscious mechanism of mental health and better providing psychological services for urban village residents.

Aim: Following the relatively small number of studies on the dreams of urban village residents, this study hopes to understand the content of typical dreams of urban village residents, and explore the relationship between typical dreams of urban village residents and mental health, so as to help them later.

Methods: This study used the Chinese version of the Typical Dreams Questionnaire and Symptom Checklist 90 (SCL-90) to investigate the mental health status and typical dream themes of 1,190 residents in a village-in-city in Xi'an recruited by random sampling. Correlation analysis, t-test, and binary regression analysis were performed on the data using SPSS 24.0.

Results: (1) The themes of the five dreams that occur most frequently among urban village residents are "falling" 48.10%, "school, teachers, study" 46.40%, "being chased but not physically injured" 44.39%, "enjoying food" 41.08%, and "repeatedly trying to do something" 40.34%. (2) When the interpersonal sensitivity, obsessive-compulsive symptom factor and total score in SCL-90 were negative, the dream with the highest frequency was "school, teacher, study"; The dream with the highest probability of occurrence when these two factors are positive is "falling". "Falling" represents fear. (3) The total score of SCL-90 for urban village residents was not significantly correlated with the theme of "enjoying food" ($r=0.044$, $p>0.05$).There was a significant positive correlation with "being chased", "attacked", "doing something repeatedly", and "locked up" ($r=0.350$, $r=0.387$, $r=0.380$, $r=0.405$, $p<0.01$), and the dreams of these themes symbolized external damage, indicating that the total score of SCL-90 was related to the injured subconscious emotions. (4) Taking the SCL-90 factors as the independent variables and the theme of typical dreams as the dependent variable, regression analysis showed that the obsessive-compulsive factors had a predictive effect on the "falling" theme ($b=0.827$, $p=0.002<0.01$), that is, the obsessive-compulsive factors could predict the fear in the subconscious; The paranoid factor predicted the theme of "flying" ($b=0.698$, $p=0.004<0.01$), that is, the paranoid factor could predict the narcissistic complex in the subconscious. Depressive factors predicted the theme of "school, teacher" ($b=-0.669$, $p=0.039<0.05$), that is, depressive factors could predict the mood of education and limitation; Somatization factors predict the topic of "exam failure" ($b=0.557$, $p=0.029<0.05$), that is, somatization factors can predict frustration and helplessness.

Conclusion: The SCL-90 factors and total scores were significantly correlated with typical dreams of different themes. Factors such as obsessive-compulsive, paranoid, and somatization in SCL-90 can predict dreams with fearful emotions.

Keywords: Typical dreams, Mental Health, SCL-90, Residents of urban villages

同源词与同形异义词在汉日二语者阅读中的激活

郭紫璐　刘道一　王永胜

天津师范大学心理学部，天津，300387，wangyongsheng@tjnu.edu.cn

摘 要　二语者在识别二语词汇时，母语词汇的意义和二语词汇的意义是否会被同时激活是研究者关注的一个焦点问题。以往有研究者以双语同源词和同形异义词为实验材料对该问题进行了探讨。发现了二语者在识别二语词汇时，词汇的母语意义与二语意义均被非选择性激活，既表现出同源词效应和同形异义词效应，但有研究发现了同源词的促进效应，而有研究则发现了同源词的干扰效应，研究结果并不一致。这可能与不同研究所采用的研究任务不同所造成。为此，我们首先在实验一采用词汇判断任务，由 30 名汉日二语者判断呈现的汉-日同源词、汉-日同形异义词、日语词是否为日语词汇，结果发现汉-日同源词、汉-日同形异义词词汇判断的正确率低于日语词，且汉-日同源词的反应时相较于日语单词更长，表现为同源词干扰效应。为进一步探讨二语词汇意义的激活是否受语境的影响，实验二将汉-日同源词、汉-日同形异义词和汉语词

嵌入汉语句子中，使用眼动仪记录 25 名汉日二语者的阅读过程。结果并未发现显著的同源词效应或同形异义词效应，没有证据表明在阅读汉语句子时，目标词的二语意义得到了激活。实验三将汉-日同源词、汉-日同形异义词和日语词嵌入到日语句子中，使用眼动仪记录他们的阅读过程。结果发现汉-日同源词的首次注视时间、凝视时间、回视路径时间和总注视时间均显著短于日语词汇，跳读率显著高于日语词汇，在总注视时间上显著短于同形异义词，既表现出了同源词促进效应；同形异义词的凝视时间和回视路径时间显著短于日语词汇，既表现出了同形异义词促进效应。

本研究结果表明，汉日二语者在识别汉日同源词和同形异义词时表现出语言非选择性激活，即识别正字法相同的词汇时，母语词汇知识与二语词汇知识均激活，符合 BIA+模型的预期。
关键词　同源词，同形异义词，非选择性激活，眼动

Activation of Cognates and Interlingual Homographs in the Reading of Chinese-Japanese Bilinguals

Guo Zilu[1]; Liu Daoyi[1]; Wang Yongsheng[1]
(1 Faculty of Psychology, Tianjin Normal University, Tianjin, 300387)
E-mail: wangyongsheng@tjnu.edu.cn

Abstract: In the recognition of second language vocabulary, whether the meanings of native language words and second language words are simultaneously activated has been a focal point of investigation for researchers. Researchers have previously investigated this issue using bilingual cognates and interlingual homographs as experimental materials. It has been found that second language learners exhibit non-selective activation of both native language lexical meanings and second language lexical meanings during the recognition of second language words, showing both cognate effects and interlingual homograph effects. However, research findings have been inconsistent, with some studies demonstrating a facilitation effect of cognates while others revealing interference effects. This variation in results could be attributed to the different research tasks employed in various studies. To address this, we initially utilized a lexical decision task in Experiment 1, where 30 Chinese-Japanese bilinguals were asked to determine whether presented Chinese-Japanese cognates, Chinese-Japanese interlingual homographs, and Japanese words were actual L2 vocabulary. The results revealed that the accuracy of Chinese-Japanese cognates and Chinese-Japanese interlingual homographs was lower compared to L2 words, and the reaction time for Chinese-Japanese cognates was longer than that for L2 words, indicating the presence of a cognate interference effect.

To further explore whether the activation of second language lexical meanings is influenced by context, Experiment 2 involved embedding Chinese-Japanese cognates, Chinese-Japanese interlingual homographs, and L1 words within L1 sentences, and eye-tracking technology was used to record the reading processes of 25 Chinese-Japanese bilinguals. The results did not reveal significant cognate effects or interlingual homograph effects, providing no evidence that the second language meanings of target words were activated during the reading of Chinese sentences. In Experiment 3, Chinese-Japanese cognates, Chinese-Japanese interlingual homographs, and L2 words were embedded within L2 sentences, and eye-tracking technology was employed to record bilinguals' reading processes. The results indicated that the first fixation duration, gaze duration, regression path duration, and total fixation duration on Chinese-Japanese cognates were significantly shorter compared to L2 words, and the skipping rate was significantly higher than that for L2 words. Additionally, the total fixation duration was significantly shorter compared to interlingual homographs, demonstrating the presence of a cognate facilitation effect. The gaze duration and regression path duration on interlingual homographs were significantly

shorter compared to L2 words, thus demonstrating the presence of interlingual homograph facilitation effect.

The findings of this study suggest that Chinese-Japanese bilinguals exhibit language non-selective activation during the recognition of Chinese-Japanese cognates and interlingual homographs. This means that both L1 and L2 lexical knowledge are activated when identifying words that share the same orthography, consistent with the predictions of the Bilingual Interactive Activation Plus (BIA+) model.

Keywords：cognates, interlingual homographs, non-selective activation, eye-tracking

阈上和阈下情感性启动对运动情感反应的影响

邵韵如[1]　郭璐[2]（通讯作者）

1 北京体育大学心理学院，北京，100084

2 北京体育大学心理学院，北京，100084，guol@bsu.edu.cn

摘 要　背景：对运动的情感反应是后续身体活动的预测因素之一，通过情感性启动改善对运动的情感反应是促进身体活动的有效方法。运动强度影响对运动的情感反应，在不同强度的运动中，阈上和阈下启动可能产生不同的效果。本研究基于双过程模型，探讨情感性启动对中等和高强度运动的情感反应的影响。方法：49 名无锻炼习惯的大学生(女：40 人)参与了本研究。采用 2 (组间因素为运动强度：中等强度，高强度) × 4 (组内因素为启动类型：阈上启动，阈下启动，分心对照，空白对照)的混合实验设计。启动任务为改编后的词汇决定范式，参与者在跑步的同时完成包括 3 个 block 的启动任务，每个 block 结束时测量其情感效价及唤醒程度，在运动结束后测量参与者回忆及预期的愉悦感，并且在运动前后分别测量瞬时心境状态。中等和高强度运动中参与者的平均心率分别为 149.27 ± 5.43 次/分钟和 166.14 ± 6.47 次/分钟。结果：1) 测量时间点和启动类型对运动中情感效价的交互作用显著($F(9, 45) = 3.56$, $p < .001$, 偏$\eta^2 = 0.19$)，在 block3 结束时，阈上和阈下启动组的情感效价高于分心对照组，其他时间点无显著差异。测量时间点和启动类型对运动中唤醒程度的主效应及交互作用不显著。 2) 强度和启动类型对回忆愉悦感的主效应和交互作用不显著，二者对预期愉悦感的交互作用显著($F(3, 45)= 5.07$, $p = 0.004$, 偏$\eta^2 = 0.25$)，中等强度运动中，阈上启动组的预期愉悦感显著高于空白对照组；高强度的运动中，阈下启动组的预期愉悦感显著高于分心和空白对照组。3) 强度、测量时间点和启动类型对瞬时心境状态的愉悦感维度的交互作用边缘显著($F(3, 45) = 2.523$, $p = .070$, 偏$\eta^2 = 0.14$)，中等强度运动中，阈上启动组运动后的愉悦感显著高于运动前；在高强度运动中，仅阈下启动组在运动后的愉悦感高于运动前(边缘显著)。结论：1) 阈上和阈下启动有效提升了对中等和高强度运动的情感效价。2) 中等强度的运动中，阈上启动对于提升预期愉悦感、改善心境状态更有效；在高强度运动中，阈下启动对于提升预期愉悦感、改善心境状态的作用更大。

关键词　双过程模型，情感性启动，锻炼，情感反应，运动强度

The effect of supraliminal and subliminal affective priming on affective responses to exercise

SHAO YunRu, GUO Lu

School of Psychology, Beijing Sport University, Beijing 100084, China

Abstract：Background: Affective responses to exercise is a key predictor of future exercise, and improving affective responses to exercise through affective priming is an effective way to increase exercise. Intensity is another important variable affecting the affective response to exercise, and in different intensity of exercise, supraliminal and subliminal priming may have different effects. The current study was based on the dual-process

model to investigate the effects of affective priming on affective responses to exercise of moderate and high intensity. Methods: Participants in the current study were 49 undergraduates with no exercise habits. A mixed experimental design of 2 (exercise intensity: moderate intensity, high intensity) × 4 (affective priming type: supraliminal priming, subliminal priming, distraction control, blank control) was adopted, with exercise intensity as the within-subject factor and affective priming type as the between-subject factor. The modified lexical decision task was used as the priming task. Participants were asked to complete the priming task while running. The priming task consisted of three blocks and affect valence and feeling arousal were measured at the end of each block. Moreover, recalled and anticipated pleasure were measured at the end of the exercise. And momentary mood states were measured before and after the exercise. The average heart rate of during moderate- and high-intensity exercise was 149.27 ± 5.43 beats/min and 166.14 ± 6.47 beats/min, respectively. Results: 1) The interaction of measured time point and priming type on affective valence during exercise was significant (F(9, 45) = 3.56, p <.001, partial η^2 = 0.19). At the end of block3, the affective valence of supraliminal and subliminal priming groups was higher than that of the distracted control group, but there was no significant difference at other time points. There was no significant difference in feeling arousal among different groups. 2) Intensity and group had no significant interaction or main effect on recalled pleasure (F(3, 45)= 1.36, p = 0.267), but had a significant interaction on anticipated pleasure (F(3, 45)= 5.07, p = 0.004, partial η^2 = 0.25). The anticipated pleasure of supraliminal priming group was significantly higher than that of blank control group, and the anticipated pleasure of subliminal priming group was significantly higher than that of the distracted and blank control group during high-intensity exercise. 3) Intensity, measured time point and group had a marginally significant interaction on the pleasure dimension of instantaneous mood state (F(3, 45) = 2.52, p =.070, partial η^2 = 0.14). In moderate-intensity exercise, the pleasure measured after exercise was significantly higher compared with before exercise in supraliminal priming group. In high-intensity exercise, only the subliminal priming group showed higher pleasure after exercise (marginally significant). Conclusions: 1) Supraliminal and subliminal priming can improve the affect valence during moderate- and high-intensity running. 2) In moderate-intensity exercise, supraliminal priming is more effective in improving anticipated pleasure and mood states, while in high-intensity exercise, subliminal priming is more effective in improving anticipated pleasure and mood states.

Keywords：dual process model, supraliminal and subliminal affective priming, exercise, exercise intensity

青少年创伤后应激障碍和抑郁症贸然定论状况及心理机制研究

陈晓丽[1] 曹亚维[1] 黎亚琳[1] 耿富磊[2]

1 江西师范大学心理学院，南昌，330022

2 江西师范大学心理学院，南昌，330022，fl-geng@163.com

摘 要 **背景：**大量研究报道创伤后应激障碍（PTSD）和抑郁症个体存在注意、记忆、执行功能等认知加工的异常，但是有关其推理加工状况的研究较少。基于贝叶斯理论模型，本研究采用两个版本的珠子任务评估青少年 PTSD 个体和抑郁个体贸然定论状况、探讨贸然定论产生的可能心理机制，进一步检验临床症状、工作记忆、执行功能与贸然定论的关系。**方法：**采用简明国际神经精神访谈（MINI 6.0）筛查入组 23 名青少年 PTSD 个体、30 名青少年抑郁个体和 32 名健康对照组，选取经典珠子任务范式和带有情绪效价的珠子范式的变式评估贸然定论，字符数字广度和计算机版本 Stroop 测验评估工作记忆和执行功能，创伤后应激障碍筛查量表、抑郁-焦虑-压力量表和容忍不确定性问卷测量临床症状和不确定容忍性。**结果：**首先，PTSD 组、抑郁组和对照组被试贸然定论比例分别约为 26%、28%和 18%,无显著性差异，同时三组被试抽取信息的次数无显著差异。其次，决策的确定性水平分析表明，在情绪珠子任务的低难度水平上 PTSD 组和抑郁组的平均决策阈限显著高于对照组，同时在所有版本任务和所有难度水平上，对照组决策前的确定

性水平均高于其余两组，但统计学上不显著。第三，反应时分析结果表明，经典珠子任务低难度水平上，PTSD 组和抑郁症组反应时显著高于对照组。再有，抑郁组中抽取信息次数与各种临床症状显著负相关，决策前的确定性水平与临床症状和无法容忍不确定性负相关，PTSD 组中决策前的确定水平与 PTSD 症状显著负相关；最后，所有结果在控制了工作记忆和执行功能后均无显著变化。**结论：**独立于工作记忆和执行功能状况，青少年中 PTSD 个体和抑郁个体决策阈限较低。尽管 PTSD 和抑郁贸然定论比例无明显升高，但贸然定论与临床症状严重程度相关。无法容忍不确定性和较低的决策阈限可能是情感障碍个体贸然定论的机制。未来的研究需要大样本被试用维度的测试方法重复验证 PTSD 和抑郁贸然定论状况。
关键词 青少年，PTSD，抑郁，贸然定论，决策，概率推理，PTSD，无法容忍不确定性

Jumping to conclusion and its related psychological mechanisms in adolescent PTSD and Major Depressive Disorder

Xiaoli Chen, Yawei Cao, Yalin Li, Fulei Geng*

School of Psychology, Jiangxi Normal University, Nanchang, China

Corresponding author: Fulei Geng, School of Psychology, Jiangxi Normal University, 99 Ziyang Ave, Nanchang, Jiangxi 330022, China

Abstract **Background:** A large number of studies have reported abnormalities in cognitive processing such as attention, memory, and executive function in individuals with post-traumatic stress disorder and depression, but there is less research on the status of their reasoning processing. Based on Bayesian theoretical modeling, this study used two versions of the bead task to assess the status of jumping to conclusion(JTC) in adolescents in PTSD and Major Depressive Disorder(MDD), to explore possible psychological mechanisms of JTC production, and to further examine the relationship between clinical symptoms, working memory, executive function, and jumping to conclusion. **Method:** The International Neuropsychiatric Interview (MINI 6.0) was used to screen into group of 23 adolescent with PTSD, 30 adolescent with MDD, and 32 healthy controls. Then the classical bead task paradigm and a variant of the bead paradigm with emotional valence were selected to assess JTC, the Letter-Number Span Test and computerized versions of the Stroop test to evaluate working memory and executive function, and the Posttraumatic Stress Disorder Checklist for DSM-5(PCL-5) the Depression Anxiety Stress Scale, and the Intolerance of Uncertainty Scale to measure clinical symptoms and intolerance of uncertainty. **Result:** Firstly, people with JTC were present in the PTSD group (26%), the MDD group (28%), and the control group (18%), but the difference in the proportion of subjects in the three groups was not significant, while there was no significant difference in the draw to conclusion (DTD) among the three groups of participants. Secondly, the analysis of the level of certainty in decision making showed that the average decision threshold was significantly higher in the PTSD and MDD groups than in the control group at the low difficulty level of the emotional bead task, while the level of certainty prior to final decision making was higher in the control group than in the other two groups at all versions of the task and all levels of difficulty, but not statistically significant. Thirdly, the results of the analysis of the reaction time revealed that the groups of PTSD and MDD had a significantly higher reaction time than the control group at the low difficulty level of the classic bead task. Furthermore, in the MDD group, DTD was significantly negatively correlated with various clinical symptoms, the level of certainty before decision making was negatively associated with clinical symptoms and intolerance of uncertainty, and in the PTSD group, the level of certainty prior to decision making was significantly negatively related to PTSD symptoms. Finally, all results did not show significant changes after controlling for working memory and executive function. **Conclusion:** Independent of working memory and executive functioning status, adolescents with PTSD and adolescents with

MDD have lower decision-making thresholds. Although the proportion of PTSD and MDD in jumping to conclusion was not significantly increased, jumping to conclusion was associated with the severity of clinical symptoms. Intolerance of uncertainty and lower decision thresholds may be potential mechanisms for jumping to conclusions in individuals with affective disorders. It is necessary for future studies to replicate the verification of status of jumping to conclusion in PTSD and MDD with a large-sample and a method of examining by dimension.
Keyword: Teenager, PTSD, Major Depressive Disorder, jumping to conclusion,decision making, probabilistic reasoning, intolerance of uncertainty

工作感恩对工作投入的影响：基本心理需求满足的中介作用

苏佳合　魏仓丕 赵晶晶 孔风（通讯作者）
陕西师范大学心理学院，西安，710062，kongfeng87@126.com

摘 要　工作投入对幸福感有显著的预测作用，是衡量员工幸福感的重要指标。但以往关于工作投入的研究主要集中在员工的心理状态这一主题上，很少有研究在积极心理学的框架下关注积极情绪对其的影响，如工作中的感恩。而根据自我决定理论，基本心理需求的满足可以决定个人的动机状态，促进个人的幸福感（如工作满意度和工作投入）以及工作绩效。因此，本研究通过构建一个中介模型，考察员工的工作感恩对工作投入的影响以及基本心理需求满足的中介作用。研究共有 536 名中国企业员工参与，采用了感恩量表、工作投入量表(UWE-9)和工作中的基本心理需求满足量表作为测量工具。结果表明：（1）工作感恩与工作投入有显著的正向相关关系；（2）基本心理需求满足在工作感恩和工作投入之间起部分中介作用，中介效应值为 0.451(95%CI = [0.343 , 0.542])；（3）多群组分析结果表明，中介效应不存在显著的性别差异，模型稳定。本研究发现，工作中的感恩对工作投入有积极影响，且基本心理需求满足在其中起中介作用。这给我们的启示是，组织管理者可以创造一个有利于满足员工基本心理需求的环境，从而提高员工的工作投入水平。
关键词　工作感恩，工作投入，基本心理需求满足，自我决定理论

Gratitude at work and work engagement: The mediating role of basic psychological needs satisfaction

Jiahe Su [1], Cangpi Wei [1], Jingjing Zhao [1] and Feng Kong [1*]
[1] School of Psychology, Shaanxi Normal University, China
[*] School of Psychology, Shaanxi Normal University, Xi'an 710062, China. E-mail address: kongfeng87@126.com

Abstract： Work engagement is a significant predictor of well-being and an important indicator of employee happiness. Previous research on work engagement has mainly focused on the topic of employees' psychological states, but few studies are concerned about positive emotions such as gratitude at work within the framework of positive psychology. Furthermore, according to the self-determination theory, basic psychological needs satisfaction can determine an individual's motivational state and promote individual well-being (e.g. job satisfaction and work engagement) as well as high-quality performance. Therefore, by constructing a mediation model, the present study aimed to examine the impact of employees' gratitude at work on work engagement as well as the mediating role of basic psychological needs satisfaction. A total of 536 employees in China took part in the study and were asked to respond to a series of questionnaires consisting of the Gratitude Questionnaire, Utrecht

Work Engagement Scale, and Basic Need Satisfaction at Work Scale. The results show that: (1) Gratitude at work was significantly and positively associated with work engagement. (2) Basic psychological needs satisfaction partially mediated the influence of gratitude at work on work engagement with standardized effect value of 0.451 (95%CI = [0.343 , 0.542]). (3) The results of the multi-group analysis showed that there is no significant gender difference in the mediating effects and the model to be stable. The present study has discovered that gratitude at work have a positive impact on the work engagement with the mediating role of basic psychological needs satisfaction. This gave us the insight that organizational managers should create an environment conducive to meeting employees' basic psychological needs, thereby increasing their work engagement.

***Keywords*：** Gratitude at work, work engagement, basic psychological needs satisfaction, self-determination theory

动态血糖监测系统联合心理干预对 2 型糖尿病患者血糖控制、依从性及焦虑情绪的影响

平燕茹 [1]　刘科 [1]　雷静 [1]　王蒙蒙 [1]　贾竹敏 [2]（通讯作者）

1 河南科技大学护理学院，洛阳，471003

2 河南科技大学第一附属医院，洛阳，471000，E-mail:jiazhumin@163.com

摘 要　**目的** 探讨动态血糖监测系统联合心理干预对 2 型糖尿病患者血糖控制、依从及焦虑情绪的影响。**方法** 便利选取我院 2023 年 2 月至 2023 年 6 月收治的 50 例住院 2 型糖尿病患者为研究对象,按照随机数字表法将其分为对照组（n=25)和试验组（n=25)，对照组采用常规健康教育，进行自我血糖监测。试验组患者出院前 1 日，专科护士为其佩戴 14 天动态血糖监测系统（continuous glucose monitoring system,CGMS），向患者介绍 CGMS 官方 APP 界面及使用方法，指导患者 APP 内规律饮食、运动拍照打卡记录并告知患者记录的重要性及意义。佩戴 CGMS1 周后，专科护士微信联系患者，个性化为其分析血糖图谱，引导患者及时调整自身行为。分析比较试验组干预前后 14 天平均血糖目标范围时间（TIR）及变异系数（CV）、依从性用 APP 打卡率表示（每日 4 次打卡（3 餐及 1 次运动记录），1 日内 2 次未拍照记录或 14 天期间 2 天以上未记录视为未打卡）、焦虑自评量表(Self-rating anxiety scale,SAS)评分。**结果** 干预后,25 名试验组患者 14 天平均 TIR 为 96.9%、平均变异系数为 20.2%；APP 打卡率（56%的患者按时拍照打卡 14 天（n=14)，44%人 2 天以上未打卡或者日内 2 次未拍照打卡(n=11))；试验组患者 SAS 评分降低程度较干预前高,差异有统计学意义(P<0.05)。**结论** 动态血糖监测系统联合心理干预患者血糖得以有效控制，依从性高，可改善 2 型糖尿病患者焦虑水平，临床应用效果较好。

关键词　动态血糖监测系统,焦虑,2 型糖尿病,血糖控制,依从性,护理干预

Effects of dynamic blood glucose monitoring system combined with psychological intervention on blood glucose control, compliance and anxiety in patients with type 2 diabetes mellitus

Ping Yanru[1] Liu Ke[1] Lei Jing[1] Wang Meng[1] JIA Zhumin [2] (Corresponding author)

1　School of Nursing, Henan University of Science and Technology, Luoyang 471003, China

2　The First Affiliated Hospital of Henan University of Science and Technology, Luoyang 471000, China,

E-mail:jiazhumin@163.com

Abstract: Objective To investigate the effects of dynamic blood glucose monitoring system combined with psychological intervention on blood glucose control, compliance and anxiety in patients with type 2 diabetes. **Methods** Fifty patients with type 2 diabetes admitted to our hospital from February 2023 to June 2023 were conveniently selected as the study objects, and were divided into control group (n=25) and experimental group (n=25) according to random number table method. The control group was given routine health education and self-glucose monitoring. On the day before discharge, the patients of the experimental group were given 14-day continuous glucose monitoring system (CGMS) by a specialist nurse, and the official APP interface and usage methods of CGMS were introduced to the patients. Guide patients to take photos of regular diet and exercise in the APP, and inform patients of the importance and significance of the record. After wearing CGMS1 for a week, the specialist nurse contacted the patient on wechat to analyze the blood glucose profile for him and guide him to adjust his behavior in time. The mean blood glucose target range time (TIR) and coefficient of variation (CV) for 14 days before and after intervention were analyzed and compared, and the compliance was expressed by APP punching rate (punching 4 times a day (3 meals and 1 exercise record). If no photo is taken twice within 1 day or no photo is recorded for more than 2 days within 14 days, it is regarded as no cD-in and Self-rating anxiety scale (SAS) score. **Results** After intervention, the average 14-day TIR of 25 experimental group patients was 96.9% and the average coefficient of variation was 20.2%. APP clocking rate (56% of patients took photos on time and clocking for 14 days (n= 14), 44% did not clocking for more than 2 days or 2 times within a day without taking photos (n=11)); SAS score of experimental group was lower than that before intervention, and the difference was statistically significant (P<0.05). **Conclusion** The dynamic blood glucose monitoring system combined with psychological intervention can effectively control the blood glucose of patients with high compliance, improve the anxiety level of patients with type 2 diabetes, and the clinical application effect is good.

Key words: Dynamic blood glucose monitoring systems, anxiety, Type 2 diabetes, blood glucose control, compliance, nursing interventions

两种注意模式的双任务训练的有效性与迁移性

郭雅馨[1] 管丽珍[1] 范少霞[1] 张佳[1] 查垚佳[1] 张浩波[1]（通讯作者）

1 深圳大学心理学院，广东深圳，518060，haobozh@foxmail.com

摘 要 **目的：**双任务（dual task）是指个体在同一时间执行两种不同性质的任务操作，涉及到认知控制、注意分配、双任务协调等认知功能。由于认知资源的竞争，在执行双任务时会出现心理不应期(Psychological Refractory Period)现象。但经过训练，双任务的表现可以通过认知资源的分配、整合以及自动化而得到提高。以往的双任务训练多采用双 N-back 任务范式或感觉运动等双任务范式。然而，日常生活中多出现的双任务情形是，在自上而下的注意控制过程中，突然出现一个自下而上的外界刺激需要给与注意。本研究基于这两种注意模式，设计出结合了 N-back 与 Oddball 任务的双任务训练程序，两个任务分别由视觉和听觉两个通道呈现刺激，并要求被试对两个任务均做出反应。通过与主动对照组的比较，本研究期望探究两种注意模式下的双任务训练程序的有效性与迁移性。**方法：**在深圳大学招募 70 名健康大学生，采用随机匹配的方法将被试分为双任务训练组与主动对照组（每组 *N*=35）。训练前后所有被试均使用 N-back、Oddball、双任务（Dual-task）和分配注意（Divided attention）任务进行认知功能评估。两组被试在训练前的认知功能表现均无显著差异。训练组每天进行双任务训练，对照组每天进行包括健康生活的科普知识学习，共 10 天（40 min/d）。本研究使用重复测量方差分析的统计方法检验两组在训练前后的行为改变上的差异。**结果：**与对照组相比，训练组在双任务成本、双任务试次的正确率、双任务试次的反应时的训练前后改变量上均存在显著差异，表现为成本降低（F=7.143，p=0.01），正确率提高（F =16.121，p<0.001），反应时缩短（F=14.071，

p<0.001）。与对照组相比，训练组在 N-back 任务行为的训练前后改变量上存在显著差异，表现为 2-back 的反应时缩短（F=14.660，p<0.001），3-back 的正确率提高（F =11.047，p =0.002），3-back 的反应时缩短（F =7.874，p=0.007）。与对照组相比，训练组的分配注意任务的混合成本在训练前后存在显著降低（F=4.166，p=0.046）。 **结论：**与主动对照组相比，本研究的双任务训练程序能提高自上而下注意任务的行为表现、降低双任务成本，其训练效果可以迁移到分配注意中。
关键词　双任务训练，认知训练，注意模式

Training effects and transfer effects of dual-task training in two attention modes

Guo Yaxin[1], Guan Lizhen[1], Fan Shaoxia[1], Zhang Jia[1], Zha Yaojia[1], Zhang Haobo[1]*
1 School of Psychology, Shenzhen University, Shenzhen, 518060

***Abstract*：** **Purpose:**Dual task refers to an individual performing two different tasks at the same time,involving cognitive functions such as cognitive control,attention allocation,and dual-task coordination.Due to the competition for cognitive resources,the phenomenon of Psychological Refractory will appear when performing dual tasks.But with training,dual-task performance can be improved through the allocation,integration,and automation of cognitive resources.In the past,dual-task training mostly used dual-task paradigms such as dual N-back tasks or sensorimotor dual tasks.However,the dual-task situation that often occurs in daily life is that in the process of top-down attentional control,a bottom-up external stimulus suddenly appears and requires attention.Based on these two attention modes,this study designed a dual-task training program that combined N-back and Oddball tasks.The two tasks presented stimuli through the visual and auditory channels respectively,and the subjects were asked to respond to both tasks.The purpose of this study was to investigate the training effect and transfer effect of a dual-task training program in two attentional modes by comparing it with an active control group.

Methods:70 healthy college students were recruited from Shenzhen University,and they were randomly divided into a dual-task training group and an active control group (N=35 in each group). Before and after training,all subjects were evaluated with N-back,Oddball,Dual-task and Divided attention tasks.There was no significant difference in cognitive function performance between the two groups before training.The training group received dual-task training every day,and the control group received popular science knowledge learning including healthy living every day for a total of 10 days (40 min/d).This study used the statistical method of repeated-measures analysis of variance to examine the differences in behavioral changes between the two groups before and after training.

Results: Compared with the control group,there were significant differences in the dual-task cost, the accuracy rate of the dual-task trials, and the change in the response time of the dual-task trials before and after training in the training group, which showed that the cost decreased (F=7.143, p=0.01), the accuracy rate increased (F=16.121, p<0.001), and the reaction time shortened (F=14.071, p<0.001). Compared with the control group, there was a significant difference in the amount of change in the N-back task behavior before and after training in the training group, which was manifested as a shortened reaction time of 2-back (F=14.660, p<0.001), and an increase in the accuracy rate of 3-back (F=11.047, p=0.002), and the reaction time of 3-back was shortened (F=7.874, p=0.007). Compared with the control group, there was a significant reduction in the mixed cost of divided attention tasks in the training group before and after training (F=4.166, p=0.046).

Conclusions: Compared with the active control group, the dual-task training procedure of this study can improve the behavioral performance of the top-down attention task and reduce the dual-task cost, and its training effect can be transferred to the distribution of attention.

Keywords： dual task training, cognitive training, attention mode

青少年欲望思维、渴求与问题性手机使用关系的网络分析

朱晓茹[1]， 高崚峰[1]， 李伟健[2]

[1]浙江师范大学心理学院，金华，321000

[2]浙江师范大学心理学院，金华，321000，xlxh@zjnu.cn

摘 要 背景和目标：在成瘾行为的背景下，欲望思维是指一种自发的认知过程，它涉及到与目标对象有关的口头和想象的阐述，该过程包括言语坚持和表象预设两个成分。以往研究表明，欲望思维和渴求在问题性手机使用的维持中具有重要作用。然而，不同类型的渴求与欲望思维的不同成分之间的关系在问题性手机使用领域并不明确。因此，本研究采用网络分析方法，进一步探讨青少年渴求、欲望思维与问题性手机使用之间的关系。方法：本研究选取 281 名存在问题性手机使用的青少年作为研究对象。采用中文版的欲望思维量表、行为成瘾的渴求评估量表和基于智能手机应用的成瘾量表，分别评估了渴求、欲望思维和问题性手机使用。通过构建网络模型，探究不同变量网络之间的桥梁成分和连接路径。结果：网络分析结果表明，“情绪改变”在问题性手机使用网络中具有核心作用。言语坚持与问题性手机使用的复发症状存在正相关关系，舒缓性渴求和情绪改变症状存在正相关关系。言语坚持和复发症状、言语坚持和强迫性渴求、舒缓性渴求和情绪改变在欲望思维-渴求-问题手机使用网络中具有桥梁作用。网络结构和全局边线强度没有显著的性别差异。结论：问题性手机使用的核心症状是“情绪改变”。舒缓性渴求和言语坚持对问题性手机使用具有直接促进作用。欲望思维和渴求会相互促进，进而共同导致问题性手机使用。这些发现为问题性手机使用的干预带来了启发。

关键词 问题性手机使用，欲望思维，渴求，网络分析

A Network Analysis on the Relationship between Desire Thinking, Craving and Problematic Mobile Phone Use among Adolescents

Xiaoru Zhu[1], Lingfeng Gao[1], Weijian Li[2]

[1]School of psychology, Zhejiang Normal University, Jinhua, 321000

[2]School of psychology, Zhejiang Normal University, Jinhua, 321000, xlxh@zjnu.cn

Abstract Background and aims: In the context of addiction behavior, desire thinking is defined as a deliberate and conscious cognitive process involving verbal and imaginal elaboration of a desired target. This process encompasses two distinct components namely imaginal prefiguration and verbal perseveration. Previous studies have shown that desire thinking and craving play an important role in the maintenance of problematic mobile phone use. However, the relationships between different types of craving and different components of desire thinking is not clear in problematic mobile phone use field. Therefore, the present study used network analysis to further investigate the relationship between craving, desire thinking and problematic mobile phone use among

adolescent mobile phone users. Methods: A total of 281 adolescents with problematic mobile phone use participated in the study. Craving, desire thinking and problematic mobile phone use were assessed by using the Chinese version of the Desire Thinking Questionnaire, craving assessment scale for behavioral addictions and smartphone application-based addiction scale, respectively. A network analysis was performed to explore the network pathways and the “bridge” components between three communities. Results: The network analysis showed that “mood modification” in the problematic mobile phone use community. Verbal perseveration is positively associated with relapse. Relief craving is positively associated with mood modification. Edge between verbal perseveration and relapse symptom, edge between verbal perseveration and obsessive craving and edge between relief craving and mood modification bridge the desire thinking-craving-problematic mobile phone use network. There were no significant gender differences in the network structure and the global edge strength. Conclusions: The results highlighted the prominent role of relief craving and verbal perseveration in the maintenance of PMPU. Desire thinking and craving may reciprocally exacerbate each other and jointly lead to problematic behaviors like problematic mobile phone use. These findings inspire component-based intervention for problematic mobile phone use.

Keywords： problematic mobile phone use, desire thinking, craving, network analysis

工作表现的前因及预测因素的新解释

—基于工作需求-资源理论和压力交互理论视角

王镨仪 [1]

四川师范大学心理学院，成都，610000,1027624041@qq.com

摘 要　由于技术的快速发展，我们目前正在经历第四次工业革命。它正在对组织的运作方式和人们生活和工作的方式都带来了变化。因此出现了许多关于这些转变如何影响员工福祉的研究。本研究旨在讨论工作需求如何导致不良的工作表现，如工作倦怠。我们在工作需求—资源理论中整合了压力交互理论的观点，提出了一个多层次模型工作倦怠资源模型，该模型描述了工作倦怠的前因和预测因素。并且表明工作需求之所以导致不良工作表现，除了取决于个体对情境做出的直接评价外，还受到个体是否有相应的资源影响。事实上当工作需求增加，个人工作压力变得更大的情况下，稳定的资源变得更加重要。该模型认为个体在面对工作需求导致的压力增加时，可以通过启动一系列工作资源进行应对，从而将压力转换为良好的工作表现。组织资源，如人力资源实践（如在线监控系统、工作技能培训以及根据关键的个人资源选择新员工等）和领导者。再者，提高工作与家庭的平衡，从而增加家庭资源。此外，员工的个人资源也是十分重要的，个人资源是指便于选择、改变和实施其他资源的管理资源，能够更好的促进积极有效应对方式的稳定的个性特征和能力。如情绪智力，积极主动的性格，正念等。本文提出了一个整合工作需求—资源理论和压力交互模型，在预防和减少工作倦怠的发展方面起着至关重要的作用。

关键词　工作倦怠，工作需求-资源理论，压力交互模型

New explanations for the antecedents and predictors of job performance

- -Based on work demand-resource theory and pressure interaction

theory perspective

Wang Puyi[1]
School of Psychology, Sichuan Normal University, Chengdu, 610000,1027624041@qq.com

Abstract： Due to the rapid development of technology, we are currently experiencing the fourth industrial revolution. It is bringing about changes in the way organizations operate and in the way people live and work. Numerous studies have therefore emerged on how these transitions affect employee well-being. This study aims to discuss how job demands can lead to poor work performance, such as job burnout. We integrate the perspective of stress interaction theory in the job demand-resource theory to propose a multi-level model resource model of job burnout that describes the antecedents and predictors of job burnout. It also shows that the poor work performance depends not only on the individual's direct evaluation of the situation, but also is influenced by whether the individual has corresponding resources. In fact, when job demands increase and individual work pressures become greater, stable resources become more important. The model believes that individuals can respond by initiating a range of work resources to convert stress into good work performance. Organize resources such as HR practices (ie, online monitoring systems, job skills training, and selecting new employees based on key personal resources, etc.) and leaders. Moreover, improve the balance between work and family, thus increasing family resources. In addition, the personal resources of employees are also very important. Personal resources refer to the management resources that are convenient for the selection, change and implementation of other resources, which can better promote the stable personality characteristics and ability of the positive and effective response methods. Such as emotional intelligence, active personality, mindfulness, etc. This paper presents an integrated job requirements-resource theory and stress interaction model that plays a crucial role in preventing and reducing the development of job burnout.

Keywords： job burnout, job demand-resource theory, stress interaction model

不同性别视角下家庭教养方式对大学生网络成瘾的影响：生活满意度的中介作用

刘紫欣[1]　程汇[1]　官何旭[1]　杨曦[1]　陈孜[1](通讯作者)
1 成都医学院心理学院，成都，610500
通讯作者：陈孜　320613@qq.com

摘 要　目的：了解大学生网络使用行为现状并探讨不同性别大学生的家庭教养方式、生活满意度水平对网络成瘾的影响。方法：对 967 名四川省某大学的大学生进行问卷调查，主要工具包括《家庭教养方式量表》、《生活满意度量表》以及《中文网络成瘾量表》。结果：1.男女大学生在网络游戏、网络阅读以及网络购物时间上存在差异（P<0.05）；在观看视频、在线学习、浏览资讯以及沟通交流时间中不存在显著差异。2.除父亲过分干涉和父亲偏爱维度以外，其余父母双方教养方式与生活满意度水平存在显著相关（P<0.01）。除父母双方偏爱被试以外，父母双方其余教养方式维度与网络成瘾存在显著相关（P<0.05）。生活满意度水平与大学生网络成瘾总分呈负相关（P<0.01）。3.生活满意度水平在家庭教养方式对大学生网络成瘾行为中起到部分中介作用；在男大学生中，生活满意度在父亲情感温暖理解、父亲过度保护与网络成瘾中起完全

中介作用；母亲情感温暖理解直接影响男大学生网络成瘾行为。在女大学生中，生活满意度在父亲情感温暖理解、母亲过度干涉保护中起部分中介作用；父亲惩罚严厉直接影响女大学生网络成瘾行为。结论：生活满意度在大学生家庭教养方式与网络成瘾关系中存在部分中介作用。不同性别的大学生生活满意度的中介作用完全不同，父母影响维度也不同。未来对于男女大学生网络成瘾的预防与干预应该各有着重点。
关键词　家庭教养方式，大学生，网络成瘾，生活满意度，性别差异

Effect of family parenting style on college students' internet addiction from different gender perspectives: The mediating role of life satisfaction

Zixin Liu[1] Hui Cheng[1] Hexu Guan[1] Xi Yang[1] Zi Chen[1]
1 School of Psychology, the Chengdu Medical College, Chengdu

Abstract: Objective: To understand the current situation of college students' Internet use behavior and explore the influence of different gender college students' family Parenting styles and life satisfaction on Internet addiction. Methods: the Egma Minnen av Bardndosnauppfostran, the Life Satisfaction With Life Scale and the Chinese Internet Addition Scale were used to investigate 967 college students in a college in Sichuan Province. Results：1. There were significant differences in online games, online reading and online shopping time between male and female college students ($P<0.05$); There were no significant differences in time spent watching videos, online learning, browsing information, and communicating. 2. In addition to father's over-involvement and father's preference, other parents' parenting styles were significantly correlated with life satisfaction ($P<0.01$). In addition to the parents' preference, the other parenting styles dimensions of both parents were significantly correlated with internet addiction ($P<0.05$). The level of life satisfaction is negatively correlated with the total score of internet addiction among college students ($P<0.01$).3. Life satisfaction partially mediated the effect of the family parenting style on the internet addiction behavior among college students; for male college students, it completely mediated the effect of the father's emotional warmth, the father's overprotection, and the internet addiction; the mother's emotional warmth had a direct impact on the internet addiction behavior of male college students. Life satisfaction among female college students served as a partial mediating factor between father's emotional warmth, mother's interference and protection, and internet addiction. The father's punitiveness also had a direct impact on female students' internet addiction. Conclusion：This study reveals that life satisfaction partially mediated the relationship between college students' family parenting style and internet addiction, however, this mediating role completely varied by gender, and the dimensions of parental influence also had different effects. Prevention and intervention should be treated differently for male and female students.

Keywords: Parenting style, internet addiction, life satisfaction, college student, gender difference

同情恐惧对大学生睡眠质量的影响：自我认同和自尊的链式中介作用

张雨陌[1] 付利婷[1] 门瑞雪[1]（通讯作者）
1 长春中医药大学马克思主义学院，长春，130117，通讯作者 E-mail：ccmrx@163.com

摘 要　目的：睡眠质量问题在大学生群体中普遍存在，对大学生的学习生活以及身心健康造成了严重影响。本研究主要探讨同情恐惧对大学生睡眠质量的影响，以及自我认同和自尊的链式中介作用。方法：采用同情恐惧量表（Fears of Compassion Scales，FCS）、阿森斯失眠量表（Athens Insomnia Scale，AIS）、自我认同感量表、以及自尊量表（Rosenberg Self Esteem Scale，RSES）对 1002 名大学生进行问卷调查。结果：相关分析显示，（1）大学生同情恐惧水平越高（r=0.333，P<0.01），则睡眠质量越差；（2）自我认同感水平越高（r=-0.286，P<0.01），则睡眠质量越好；（3）自尊水平越高（r=-0.326，P<0.01），越有利于睡眠质量的提升。中介作用分析显示，（1）自我认同、自尊在同情恐惧与大学生睡眠质量间起部分中介作用，其中，同情恐惧→自我认同→睡眠质量的中介效应为 0.0314，占总效应（0.3328）的 9.44%，同情恐惧→自尊→睡眠质量的中介效应为 0.0300，占总效应（0.3328）的 9.01%；（2）同情恐惧可以通过自我认同和自尊的链式中介作用对大学生的睡眠质量产生影响，同情恐惧→自我认同→自尊→睡眠质量的链式中介效应为 0.0365，占总效应（0.3328）的 10.97%。结论：降低大学生同情恐惧的水平，有利于提高大学生的自我认同水平，保持高水平的自尊，进而改善大学生群体的睡眠质量。本研究揭示了同情恐惧对大学生睡眠质量的作用机制，对于改善大学生睡眠质量和提升心理健康具有一定的理论和实践意义。
关键词　同情恐惧，睡眠质量，自我认同，自尊，大学生

The effect of compassion fear on sleep quality in college students: a chain mediating role of self-identity and self-esteem

Zhang Yu-Mo[1],Fu Li-ting[1],MEN Rui-xue[1],*

1. School of Marxism, Changchun University of Traditional Chinese Medicine, Changchun

Abstract：objective: Sleep quality problems are prevalent in the college student population and have a serious impact on their academic life as well as their physical and mental health. This study focuses on the effects of fear of compassion on college students' sleep quality and the chain-mediated role of self-identity and self-esteem. METHODS: Fears of Compassion Scales (FCS), Athens Insomnia Scale (AIS), Self-Identity Scale, and Rosenberg Self Esteem Scale (RSES) were used to conduct a questionnaire survey on 1002 college students. questionnaire survey. RESULTS: Correlation analysis showed that (1) the higher the level of sympathetic fear (r=0.333, P<0.01), the worse the quality of sleep; (2) the higher the level of self-identity (r=-0.286, P<0.01), the better the quality of sleep; and (3) the higher the level of self-esteem (r=-0.326, P<0.01), the more favorable the quality of sleep. The mediating role analysis showed that (1) self-identity and self-esteem play a partial mediating role between sympathetic fear and college students' sleep quality, in which the mediating effect of sympathetic fear→self-identity→sleep quality is 0.0314, accounting for 9.44% of the total effect (0.3328), and the mediating effect of sympathetic fear→self-esteem→sleep quality is 0.0300, accounting for 9.01%; (2) sympathetic fear can have an effect on college students' sleep quality through the chain mediating effect of self-identity and self-esteem, and the chain mediating effect of sympathetic fear→self-identity→self-esteem→sleep quality is 0.0365, accounting for 10.97% of the total effect (0.3328). CONCLUSION: Reducing the level of sympathetic fear among college students is conducive to increasing the level of self-identity and maintaining a high level of self-esteem, which in turn improves the sleep quality of the college population. This study reveals the mechanism of sympathetic fear's effect on college students' sleep quality, which has certain theoretical and practical significance for improving college students' sleep quality and enhancing mental health.

Keywords：fear of compassion, sleep quality, self-identity, self-esteem, college student

乐静茹[1]　姜媛[1]（通讯作者）
1 北京体育大学心理学院，北京，100084，jiangyuan97@sina.cn

摘 要　社会排斥是指个体被某一社会团体或他人排斥，归属需求与关系需求受到阻碍的现象和过程，表现为排斥、拒绝、孤立、无视等。社会排斥会在认知、情感、健康、消费行为等多个方面对个体产生影响。以往研究发现，遭受社会排除的个体会根据自己同伴的喜好而改变消费偏好，倾向于购买象征团体会员资格的产品，并为了与社会建立更多的联系增加了奢侈品的消费；社会排斥增加了人们的身份消费需求以及对炫耀性的新奢侈产品的消费；遭遇社会排斥的个体表现出更高的冲动消费倾向，更愿意购买享乐型商品。不同性别的个体在社会需求的敏感程度上存在差异，这可能导致他们在遭受社会排斥时会产生不同的应对反应。根据消费者购买时的意图，可以将消费类型分为体验购买和实物购买。体验购买是指为了获得生活经历或经验而产生的购买行为，实物购买是指为了拥有物质类商品而进行的消费行为。本研究为探讨社会排斥对人们购买倾向的影响，采用问卷法和实验法，以《拒绝感量表》和《体验购买倾向量表》为测量工具，采用 2（排斥条件：社会排斥组、非社会排斥组）×2（性别：男性、女性）的二因素被试间设计，招募了 100 名被试，随机分为社会排斥组和非社会排斥组，采用回忆范式诱发社会排斥。结果显示：社会排斥和性别对购买倾向的影响存在交互作用，遭受社会排斥的个体更倾向体验购买，相比男性，女性遭受社会排斥后的体验购买倾向水平更高。结论：社会排斥会影响个体的体验购买倾向，并且这种影响存在性别差异。研究促进了个体对社会排斥如何影响自身购买行为倾向的理解，有助于个体树立理性的消费观。
关键词　购买倾向，体验购买，实物购买，社会排斥

Gender differences in purchasing tendency in social exclusion contexts

Jingru Le, Yuan Jiang
School of Psychology, Beijing Sport University, Beijing, 100084

Abstract：Social exclusion refers to the phenomenon and process in which an individual is excluded by a social group or others, and the needs of ownership and relationship are hindered, such as exclusion, rejection, isolation, disregard and so on. Social exclusion will affect individuals in many aspects, such as cognition, emotion, health, consumer behavior and so on. The study found that individuals subject to social exclusion will change their consumption preferences according to the preferences of their peers, tend to buy products that symbolize group membership, and increase the consumption of luxury goods in order to establish more ties with society; social exclusion increases people's consumption demand for identity and consumption of conspicuous new luxury products. Individuals who encounter social exclusion show a higher propensity to consume on impulse and are more willing to buy hedonistic goods. There are differences in the sensitivity of social needs among individuals of different genders, which may lead to different responses to social exclusion. According to the intention of consumers, the type of consumption can be divided into experiential purchases and material purchases. Experience purchase refers to the purchase behavior produced in order to gain life experience or experience, and physical purchase refers to the consumption behavior in order to own material goods. In order to explore the influence of social exclusion on people's purchase tendency, using questionnaire and experimental methods, using "rejection scale" and "experiential buying tendency scale" as measuring tools, using 2 (exclusion conditions: social exclusion group, non-social exclusion group) ×2 (gender: male, female) two-factor design, 100 subjects were randomly divided into social exclusion group and non-social exclusion group, and recall paradigm was used to induce social exclusion. The results show that there is an interaction between social exclusion and gender on purchase propensity. Individuals who suffer from social exclusion are more likely to experiential purchases. Compared with

men, women have a higher level of experience purchase tendency after social exclusion. Conclusion: social exclusion can affect people's propensity to experiential purchases, and there are gender differences in this effect. The study promotes individuals' understanding of how social exclusion affects their purchase behavior, and helps individuals to establish a rational concept of consumption.
Keywords：Purchasing tendency, Experiential purchases, Material purchases, Social exclusion

内隐学习老化的研究进展

翁誉华[1]
1 福建医科大学应用心理学系，福州，350122，1409563476@qq.com

摘 要
该文回顾和总结了内隐学习研究概况，通过不同研究中的实验设置差异，探索影响内隐学习老化研究过程的一般因素，包括内隐学习类型、研究范式、研究结构、测量方式、被试特征等。得出内隐学习是否受到年龄的影响尚不可定论，拟采用元分析的方法，系统整理所有相关主题的文献，以更准确地地考察内隐学习的年龄老化是否会受到年老化的影响及其效应大小。
关键词　内隐学习，年龄差异，老化, 影响因素, 元分析

Research progress in implicit learning aging

Yu-hua Weng[1]
1Department of Applied Psychology, School of Health, Fujian Medical University, Fuzhou, China

Abstract：This paper reviews and summarizes the general situation of implicit learning research, and explores the general factors that affect the research process of implicit learning aging, including implicit learning types, research paradigms, research structures, measurement methods, and subjects' characteristics through the differences in experimental Settings in different studies. It is still uncertain whether implicit learning is affected by age. The meta-analysis method is proposed to systematically collate all literatures on relevant topics to more accurately investigate whether the aging of implicit learning is affected by aging and its effect size.
Keywords：Implicit learning, age differences, aging, Influencing factors, meta-analysis

体育文化氛围对青少年非自杀性自伤行为的影响：体育锻炼与情绪调节灵活性的链式中介作用

胡龙飚[1]　付子豪[1]（通讯作者）
郑州大学体育学院（校本部）研究生，通讯地址：河南省郑州市西四环，450044，
Email:13213080473@163.com

摘 要　青少年非自杀性自伤行为是指青少年刻意对自己身体造成损伤，但并不是出于自杀意图的行为，这种行为问题在青少年群体中日益突出。本研究采用整群随机抽样的方法，利用体育文化氛围量表、非自杀性自伤行为量表、体育活动等级量表和情绪调节灵活性量表，对 850 名中学生开展问卷调查，回收有效问卷 791 份,有效回收率为 93.05%。采用 SPSS26.0 和 Process3.3 宏程序统计软件对数据进行处理与分析。

研究结果：1.体育文化氛围与青少年自杀性自伤行为之间存在负相关，对青少年自杀性自伤行为的直接预测作用显著（P＜0.05）；2.体育文化氛围可以正向预测体育锻炼（P＜0.05），体育锻炼可以正向预测情绪调节灵活性（P＜0.05）和青少年非自杀性自伤行为（P＜0.05），情绪调节灵活性可以正向预测青少年非自杀性自伤行为；3.体育锻炼和情绪调节灵活性在体育文化氛围与青少年自杀性自伤行为起显著的中介作用（P＜0.05）。中介效应由 3 条路径产生的间接效应组成，一是体育文化氛围通过影响体育锻炼间接影响青少年自杀性自伤行为，二是体育文化氛围能通过情绪调节灵活性间接影响青少年自杀性自伤行为，三是体育文化氛围通过体育锻炼和情绪调节灵活性的链式中介效应进一步作用于青少年自杀性自伤行为。研究结果揭示了体育文化氛围对青少年非自杀性自伤行为影响的作用机制：体育文化氛围可通过体育锻炼与情绪调节灵活性的链式中介作用来减少青少年的非自杀性自伤行为，对预防和治疗青少年非自杀性自伤行为提供一定的理论指导和实践建议。

关键词　非自杀性自伤行为, 体育文化氛围, 情绪调节灵活性, 体育锻炼

The influence of sports culture on adolescents' non-suicidal self-injury behavior: the chain mediation role of physical exercise and emotional regulation flexibility

Hu Longbiao[1]　Fu Zihao[1](corresponding author)

1. Graduate Student, School of Physical Education, Zhengzhou University, Correspondence Address: West Fourth Ring Road, Zhengzhou 450044, Henan Province, Email:13213080473@163.com.

Abstract: Adolescent non-suicidal self-injury refers to the behavior that teenagers intentionally cause damage to their own bodies, but not out of suicide intention. This behavior problem is increasingly prominent in the adolescent group. In this study, a cluster random sampling method was used to conduct a questionnaire survey on 850 middle school students using sports culture scale, non-suicidal self-injury behavior scale, physical activity rating scale and emotional regulation flexibility scale. 791 valid questionnaires were collected, with an effective recovery rate of 93.05%. SPSS26.0 and Process3.3 macro statistical software were used to process and analyze the data. The results were as follows: 1. There was a negative correlation between sports culture atmosphere and suicidal NSSI of adolescents, and the direct prediction effect on suicidal NSSI of adolescents was significant (P < 0.05); 2. Sports cultural atmosphere can positively predict physical exercise (P < 0.05), physical exercise can positively predict emotional regulation flexibility (P < 0.05) and adolescents' non-suicidal self-injury behavior (P < 0.05), and emotional regulation flexibility can positively predict adolescents' non-suicidal self-injury behavior; 3. Physical exercise and emotional regulation flexibility play a significant mediating role between sports culture atmosphere and adolescent suicidal NSSI (P < 0.05). The mediating effect is composed of indirect effects produced by three paths: first, sports culture atmosphere indirectly affects adolescents' suicidal NSSI by influencing physical exercise; second, sports culture atmosphere indirectly affects adolescents' suicidal NSSI by influencing emotional regulation flexibility. Thirdly, the physical culture atmosphere further influences the suicidal self-injury behavior of adolescents through the chain mediation effect of physical exercise and emotional regulation flexibility. The research results reveal the mechanism of the influence of sports culture atmosphere on adolescents' non-suicidal NSSI: Sports culture atmosphere can reduce adolescents' non-suicidal NSSI through the chain mediation effect of physical exercise and emotional regulation flexibility, and provide

certain theoretical guidance and practical suggestions for the prevention and treatment of adolescents' non-suicidal NSSI.

Key words: non-suicidal self-injury behavior, Sports culture atmosphere, Emotional regulation flexibility, Physical exercise

社会性体格焦虑对女大学生锻炼意向的影响：关于外表的社会文化态度的中介作用

范维　王莉（通讯作者）

北京体育大学心理学院，北京，100084，wanglili0801@163.com

摘 要　因更容易受到社会评价的影响，女大学生存在较高的社会性体格焦虑，进而可能降低她们的锻炼意向，出现锻炼回避。关于外表的社会文化态度指主要来自家庭、同伴和媒体的压力,在这些压力的共同作用下，个体会接受所谓的“社会理想外貌”——比如对女性而言需要特别瘦，对男性而言需要有肌肉。基于此，本研究旨在明确社会性体格焦虑对女大学生锻炼意向的影响，并考察了关于外表的社会文化态度在其中的中介作用。选取某高校 311 名女大学生（有效数据 310 份），采用社会性体格焦虑问卷、锻炼态度量表-锻炼行为意向分量表、关于外表的社会文化态度量表施测，将 BMI 作为协变量进行控制。结果显示：（1）社会性体格焦虑与锻炼意向之间呈负相关（r=-0.452, P<0.001），与 BMI 值、关于外表的社会文化态度之间呈正相关（r=0.296, P<0.001; r=0.238, P<0.001）。（2）社会性体格焦虑负向预测锻炼意象（B=-0.204, SE=0.023, t=-8.896, P<0.001），且当纳入对外表的社会文化态度后，其预测作用依然显著（B=-0.229, SE=0.024, t=-9.375, P<0.001）。(3)对外表的社会文化态度在社会性体格焦虑与锻炼意向之间起部分中介作用(B=0.028, SE=0.010, t=-9.375, P<0.001），中介效应占比 13.93%。这表明社会性体格焦虑不仅能够直接预测锻炼意向，而且可以通过关于外表的社会文化态度的中介作用预测锻炼意向。结论：社会性体格焦虑对锻炼意向有负向预测作用，关于外表的社会文化态度在社会性体格焦虑与锻炼意向之间起部分中介作用，后续可以此为切入点进行干预从而增加高社会性体格焦虑女大学生的锻炼意向。

关键词　社会性体格焦虑，女大学生，锻炼意向，关于外表的社会文化态度

The effect of social physical anxiety on female college students' exercise intentions: the mediating role of sociocultural attitudes about appearance

Wei Fan, Li Wang*

School of Psychology, Beijing Sport University, beijing, 100084, wanglili0801@163.com

Abstract: Due to their greater susceptibility to social evaluations, female college students have higher levels of societal body image anxiety, which in turn may reduce their intention to exercise and lead to exercise avoidance. Sociocultural attitudes about appearance refer to pressures from family, peers, and the media, which together lead individuals to accept so-called "socially desirable appearances"-e.g., thinness for women and muscularity for men. Based on this, the present study aimed to identify the effects of social anxiety on female college students' intention

to exercise, and to examine the mediating role of sociocultural attitudes toward appearance. A total of 311 female college students (310 valid data) from a university were selected and administered the Social Physical Anxiety Questionnaire, the Exercise Attitude Scale-Intention to Exercise Behavior subscale, and the Sociocultural Attitudes about Appearance Scale, with BMI as a covariate to control. The results showed that (1) there was a negative correlation between social physical anxiety and intention to exercise (r=-0.452, P<0.001) and a positive correlation with BMI and socio-cultural attitudes about appearance (r=0.296, P<0.001; r=0.238, P<0.001). (2) Social physical anxiety negatively predicted exercise imagery (B=-0.204, SE=0.023, t=-8.896, P<0.001) and remained significant when sociocultural attitudes toward appearance were included (B=-0.229, SE=0.024, t=-9.375, P<0.001). (3) Sociocultural attitudes toward appearance partially mediated the relationship between social physical anxiety and exercise intention (B=0.028, SE=0.010, t=-9.375, P<0.001), with a mediating effect of 13.93%. This suggests that social physical anxiety not only directly predicts exercise intention, but also predicts exercise intention through the mediating effect of sociocultural attitudes about appearance. CONCLUSION: Social physical anxiety negatively predicted exercise intention, and sociocultural attitudes about appearance partially mediated the relationship between social physical anxiety and exercise intention, which can be used as an entry point for subsequent interventions to increase exercise intention among female college students with high social physical anxiety.

Keywords： social physical anxiety, female college students, exercise intention, sociocultural attitudes about appearance

事件及其强度对大学生职业探索的影响

裴沁雪　余超群　裴丹丹　刘晓冰　徐碧波（通讯作者）
湖北大学心理学系，武汉，430062，185246290@qq.com

摘 要　人的一生会经历许多重要事件。事件系统理论认为，事件触发个体受控的信息处理和后续行为的程度取决于对其强度的评估，同时，事件发生的时间也会使个体对事件的心理构建产生不同。职业不安全感是个体不能确定自己未来的职业生涯能否按理想中的方式发展。未来工作自我则代表了与个体对未来工作生活的希望和愿望相关的自我概念的一个方面。根据资源保存理论，当个体的资源耗尽时更有可能出现回避行为，未来工作自我作为一种激励资源，或许缓解个体资源稀缺的不利影响，为职业探索行为提供动力，而这种动力提供机制或许会随着时间的变化继而发生改变。

基于此，本研究选用全民参与过的新冠疫情事件作为背景，探讨事件强度对大学生职业探索行为的影响机制，探寻职业不安全感在其中的中介作用、未来工作自我的调节作用以及时间在其中的调节作用。研究采用改编的新冠疫情事件强度量表、职业不安全感量表、未来工作自我量表和职业探索量表分别在 2022 年 11 月末(T1)与 2022 年 12 月末-2023 年 2 月(T2)对大三大四的大学生进行施测。结果表明：(1)事件强度与职业不安全感显著正相关，与职业探索、未来工作自我和时间显著负相关，职业不安全感与职业探索和未来工作自我显著负相关，未来工作自我与职业探索显著正相关，职业探索与时间显著正相关；(2)职业不安全感在事件强度与大学生职业探索之间起完全中介作用，显示出跨时间的一致性；(3)未来工作自我的调节作用不显著，职业不安全感、未来工作自我和时间对职业探索的三项交互作用显著。在 T1，低未来工作自我大学生的职业不安全感对他们的职业探索行为存在显著的负向影响，对于高未来工作自我的大学生，这种负向影响被削弱；在 T2，低未来工作自我大学生的职业不安全感对他们的职业探索行为则存在显著的正向影响，而高未来工作自我大学生的职业不安全感与职业探索的负向影响不显著。结果验证了时间是治愈伤痛最好的良药，重大事件的负面影响并非伴随人的一生，而是会随着时间的推移逐渐减弱。

关键词　事件强度，职业不安全感，职业探索，未来工作自我，时间

The Impact of Events and Their Strength on College

Students' Career Exploration

Pei Qinxue Yu Chaoqun Pei Dandan Xu Bibo
Department of Psychology, Hubei University, Wuhan, 430062, 185246290@qq.com

Abstract： A person's life will experience many important events. The event system theory believes that the degree to which an event triggers controlled information processing and subsequent behavior of an individual depends on the evaluation of its strength. At the same time, the timing of the event also affects the individual's psychological construction of the event. Career insecurity is the inability of individuals to determine whether their future career can develop in the desired way. The future work self represents an aspect of the self-concept related to an individual's hopes and desires for future work and life. According to the conservation of resource theory, individuals are more likely to engage in avoidance behavior when their resources are depleted, and future work selves, as a motivational resource, may alleviate the adverse effects of individual resource scarcity and provide motivation for career exploration behavior, and this mechanism of motivation may change over time.

Based on this, this study selected the COVID-19 epidemic event that all the people participated in as the background to explore the impact mechanism of event intensity on college students' career exploration behavior, and explore the mediating role of career insecurity, the moderating role of future work self, and the moderating role of time in it. The study used the adapted COVID-19 Event Strength Scale, Career Insecurity Scale, Future Work Self Scale and Career Exploration Scale to test college students in their third and fourth year of college from the end of November 2022 (T1) and December 2022 to February 2023 (T2) respectively. The results indicate that: (1) event strength is significantly positively correlated with career occupational insecurity, and is significantly negatively correlated with career exploration, future work self, and time. Career insecurity is significantly negatively correlated with career exploration and future work self. Future work self is significantly positively correlated with career exploration, and career exploration is significantly positively correlated with time. (2) Career insecurity plays a complete mediating role between event strength and college students' career exploration, showing consistency across time. (3) The moderating effect of future work self is not significant, while the three interactions of career insecurity, future work self, and time on career exploration are significant. In T1, the career insecurity of college students with low future work self has a significant negative impact on their career exploration behavior. For college students with high future work self, this negative impact is weakened. In T2, the career insecurity of college students with low future work self has a significant positive impact on their career exploration behavior, while the negative impact of career insecurity and career exploration of college students with high future work self is not significant. The results confirmed that time is the best medicine for healing pain, and the negative effects of major events do not accompany people throughout their lives, but gradually weaken over time.

Keywords： event strength, career insecurity, career exploration, future work self, time

大学生统计学焦虑、学习投入和统计学习效能感的关系：一个有调节的中介作用

陈叶[1] 黄发杰[1] 翁誉华[1] 傅芃[1] 田千峰[1] 廖美玲[2]（通讯作者）
1 福建医科大学健康学院应用心理学系，福州，350108
2 福建医科大学健康学院应用心理学系，福州，350108，Liaoml@fjmu.edu.cn

摘 要 统计学焦虑指当个人面临与统计相关的环境、任务或评估时开始，产生的一种消极的情绪状态，包括行为和认知症状，现存在很大一部分学生认为统计学课程是他们学习中最容易引起焦虑的课程，特别是心理学、社会科学等专业的学生。**目的** 本研究旨在探讨三个问题：（1）统计学焦虑和统计学习效能感之间的关系；（2）学习投入在统计学焦虑和统计学习效能感之间的中介作用；（3）性别和教师教学水平在统计学焦虑通过学习投入影响大学生统计学习效能感这一中介过程中的调节作用。**方法** 采用统计学焦虑等级量表、学习投入量表、统计学习效能量表以及自编教师教学水平问卷，以 397 名大学生为研究对象，探讨统计学焦虑对统计学习效能感的影响，检验学习投入对二者的中介作用，以及性别与教师教学水平在路径中的调节作用。**结果** （1）统计学焦虑可以负向预测统计学习效能感($r=-0.355$，$\beta=-0.112$，$p<0.001$)；（2）学习投入在统计学焦虑对统计学习效能感的影响中起中介作用（$\beta=0.307$，$p<0.01$）；（3）性别调节统计学焦虑对统计学习效能感直接作用路径（$\beta=-0.062$，$p<0.05$），教师教学水平调节统计学焦虑对学习投入的作用路径（$\beta=-0.006$，$p<0.05$）。**结论** 研究全面揭示了大学生统计学焦虑与统计学习效能感的关系机制，这为如何降低大学生统计学焦虑带来的负面影响，设置针对性的教育策略具有重要的参考价值。
关键词 统计学焦虑，统计学习效能感，学习投入，教师教学水平，性别

Relations among Statistics Anxiety, Learning Engagement and Statistics Self-efficacy: A Moderated Mediation Effect

Chen Ye, Huang Fajie, Weng Yuhua, Fu Peng, Tian Qianfeng, Liao Meiling
School of Health, Fujian Medical University,
No. 1, Xuefu North Road, University New Area, Fuzhou, Fujian

***Abstract*:** Statistical anxiety refers to a negative emotional state, including behavioral and cognitive symptoms, that arose when an individual faces an environment, task, or assessment related to statistics. Currently, a large number of students believe that statistics courses are the most anxiety inducing courses in their studies, especially those majoring in psychology, social sciences, and other fields. **Purpose** This study explores three issues: (1) the relationship between statistical anxiety and statistical learning efficacy; (2) The mediating effect of learning engagement between statistical anxiety and statistical learning efficacy; (3) The moderating role of gender and teacher teaching level in the mediating process of statistical anxiety affecting college students' statistical learning efficacy through learning engagement. **Method** Using the Statistics Anxiety Rating Scale, Utrecht Work Engagement Scale for Students, Current Statistics Self-efficacy, and a self-designed Teacher Teaching Level Questionnaire, 397 college students were selected as research subjects to explore the impact of statistical anxiety on statistical learning efficacy, examine the mediating effect of learning engagement on the two, and examine the moderating effect of gender and teacher teaching level in the pathway. **Result** (1) Statistical anxiety can negatively predict statistical learning efficacy (r=-0.355, β=- 0.112, p<0.001); (2) Learning engagement plays a mediating role in the impact of statistical anxiety on statistical learning efficacy（β= 0.307, p<0.01); (3) The direct pathway of gender regulated statistical anxiety on statistical learning efficacy（β=- 0.062, p<0.05), the role pathway of teacher teaching level in regulating statistical anxiety on learning engagement（β=- 0.006, p<0.05). C**onclusions** Study comprehensively reveals the relationship mechanism between statistical anxiety and statistical learning efficacy among college students, which has important reference value for how to reduce the negative impact of statistical anxiety among college students and establish targeted educational strategies.
Keywords: statistics anxiety; statistics self-efficacy; engagement; teachers' teaching level; gender

父母职业期望对高中生职业生涯规划能力的影响：一个有调节的中介模型

游双艳[1] 张宇雯[1] 戴艳[1]（通信作者）
1. 四川师范大学心理学院，成都，610066，通讯作者 E-mail：daiyanch@163.com

摘 要 高中阶段是个人生涯规划能力发展的关键时期，而在高中生的职业生涯规划中，家庭因素起着举足轻重的作用，探究家庭因素对高中生职业生涯规划能力的作用机制，是极具理论和现实意义的。因此，探究高中生职业生涯规划能力的影响因素，已成为当下较为关注的话题。父母职业期望作为家庭因素中的核心变量，对子女的职业生涯规划和探索具有积极作用，但是父母心理控制以及子女与父母在职业生涯上的一致性在其中起着何种作用有待探讨。本研究基于社会认知职业理论以及自我决定理论构建一个有调节的中介模型考察父母职业期望与高中生职业生涯规划能力关系的内在机制，以期能够对提高高中生职业生涯规划能力提出建设性意见。采用《父母职业期望量表》、《父母心理控制量表》、《亲子生涯一致性量表》和《高中生职业生涯规划能力问卷》。在四川省内成都市、南充市、达州市 3 个地区的 7 所高中学校进行调查，共收集 1634 份问卷，其中有效问卷 1577 份。结果表明:(1)父母职业期望、与亲子生涯一致性、高中生职业生涯规划能力呈正相关，父母心理控制与亲子生涯一致性呈负相关；(2)控制额外变量后，亲子生涯一致性是父母职业期望与高中生的职业规划能力的中介变量；(3)父母心理控制调节了亲子生涯一致性与高中生职业生涯一致性的关系，即随着父母心理控制的提高，亲子生涯一致性较低的高中生的职业生涯规划能力更低。本研究结果从父母职业期望、亲子生涯一致性、父母心理控制方面扩展了对高中生职业生涯规划能力的培养和干预提供了理论依据。

关键词 高中生，父母职业期望，亲子生涯一致性，职业生涯规划能力，父母心理控制

The Influence of Parents' Career Expectations on High School Students' Career Planning Ability: A Moderated Mediation Model

You Shuangyan[1] Zhang Yuwen[1] Dai Yan[1]
1. Sichuan Normal University, Lion Mountain Campus, Sichuan Normal University, Jing'an Road, Jinjiang District, Chengdu, Sichuan Province

Abstract: High school is a key period for the development of personal life planning ability, and in the career planning of high school students, family factors play a pivotal role, and it is of great theoretical and practical significance to explore the mechanism of family factors on high school students' career planning ability. Therefore, exploring the influencing factors of high school students' career planning ability has become a topic of great concern. As the core pivotal of family factors, parents' professional expectations have a positive effect on children's career planning and exploration, but what role parental psychological control and the consistency between children and parents in their careers play in it remains to be explored. Based on social cognitive career theory and self-determination theory, this study constructs a moderated mediation model to examine the internal mechanism of the relationship between parents' career expectations and high school students' career planning ability, in order to put forward constructive suggestions for improving high school students' career planning ability. The Parental Career Expectation Scale, Parental Psychological Control Scale, Parent-Child Career Consistency Scale and High School Students' Career Planning Ability Questionnaire were used. A total of 1634 questionnaires were collected in 7 high schools in 3 districts of Chengdu, Nanchong and Dazhou in Sichuan Province, of which

1577 were valid. The results showed that: (1) parents' career expectations were positively correlated with parent-child career consistency and high school students' career planning ability, while parents' psychological control was negatively correlated with parent-child career consistency. (2) After controlling for additional variables, parent-child career consistency was the mediating variable between parents' career expectations and high school students' career planning ability; (3) Parental psychological control modulates the relationship between parent-child career consistency and high school students' career consistency, that is, with the improvement of parental psychological control, high school students with low parent-child career consistency had lower career planning ability. The results of this study provide a theoretical basis for expanding the cultivation and intervention of high school students' career planning ability from the aspects of parents' career expectations, parent-child career consistency, and parental psychological control.

Keywords**:** high school students, parents' career expectations, parent-child career consistency, career planning ability, parental psychological control

真实场景下工作记忆表征对注意引导的效应：一项眼动研究

古力拜尔·阿力木[1]，李凌[1]（通讯作者）

1 电子科技大学生命科学与技术学院，成都，611731，liling@uestc.edu.cn

摘 要　目的：对工作记忆中项目的主动维护会使注意力偏向于环境中匹配的项目（Downing,2000），这被称为工作记忆的注意引导效应，这样的引导有时甚至会牺牲当前任务目标。记忆驱动的注意力捕获效应已经在简化且高度控制的实验室环境中得到了验证，但少有研究探讨真实场景下的视觉搜索。因此，本研究使用真实场景图为刺激材料，探究在现实场景中是否工作记忆仍然能够驱动注意进行视觉搜索，并记录视觉搜索过程中的眼动数据。

方法：本研究选取 18 名被试，每个被试都使用 Eyelink1000 眼动仪记录其眼动数据。采用 3（搜索条件：匹配；中性；不匹配）×（位置条件：左边；右边）的混合设计，被试需记忆真实物品并在记忆的保持过程中完成视觉搜索任务。为检验记忆物品是否在搜索过程中吸引注意力，对具有正确搜索和记忆反应的试次数据进行重复测量方差分析和事后检验，并根据眼动数据探究搜索场景中的注意力分配情况。

结果：行为结果表明，不同搜索条件下被试的搜索性能有差异，事后检验发现与目标匹配条件相比目标不匹配条件左（$t=4.96, p<0.001$）右（$t=4.21, p<0.001$）位置下平均反应时都明显更长；目标匹配条件下被试左（$t=2.46, p<0.05$）右（$t=4.21, p<0.001$）位置搜索正确率都显著高于目标不匹配条件，场景搜索成绩提高。平均注视时长上目标匹配条件下左（$t=10.14, p<0.001$）右（$t=9.50, p<0.001$）位置注视时长显著高于目标不匹配条件，平均注视次数下左（$t=4.52, p<0.001$）右（$t=9.125, p<0.001$）位置也显著高于目标不匹配条件的注视次数。

结论：整个研究表明在真实场景下工作记忆仍然能够驱动注意进行视觉搜索。当记忆项目与搜索目标在空间上重叠时会提高搜索性能；当记忆项与搜索目标在空间上不重叠时会损害搜索性能。眼动结果表明，在目标匹配时被试更倾向于将注意力集中在与记忆物重叠的区域上，以寻找可能的目标，导致了更长的注视时间和更多的注视次数。

关键词　工作记忆，视觉注意，真实场景，视觉搜索

实验范式：

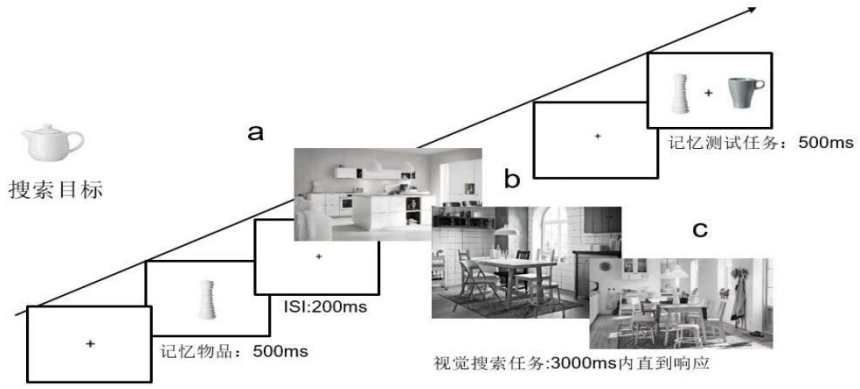


图 1-研究实验范式。每个试次中，被试都执行记忆—注意双任务，包括工作记忆任务和视觉搜索任务；被试需记忆真实物品并在记忆的保持过程中在随后的真实场景里搜索茶壶并进行按键，最后进行记忆测试。根据记忆项目与视觉搜索目标的关系可以分为三种匹配类型：当记忆项目与搜索目标在空间上重叠时，称为目标匹配条件；当记忆项与搜索目标在空间上不重叠时称为目标不匹配条件；当记忆项目不出现在搜索过程中则称为中性条件。

行为学结果：

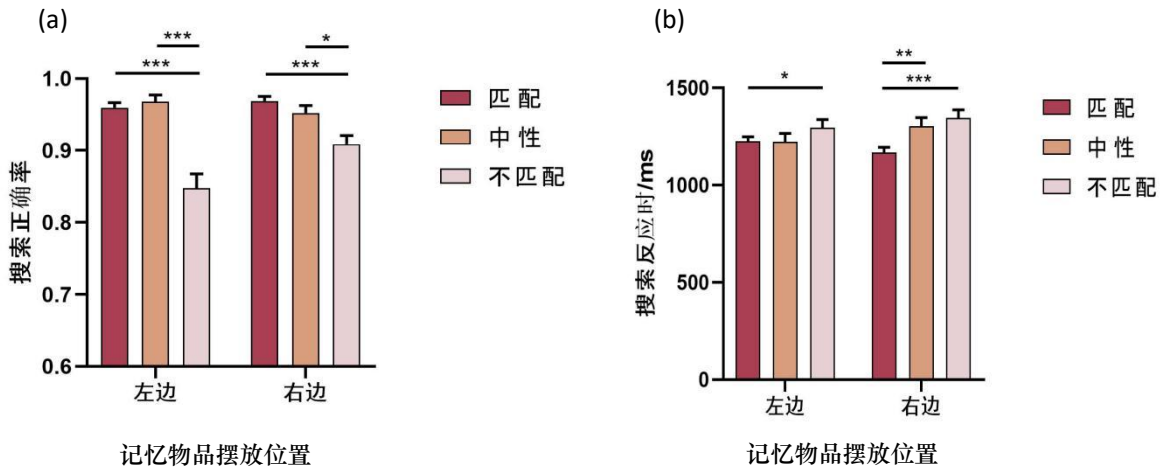


图 2-行为实验结果。（a）视觉搜索任务的准确率。（b）视觉搜索任务的反应时。（误差线为标准误， *p < .05, **p < .01, ***p < .001）

眼动结果：

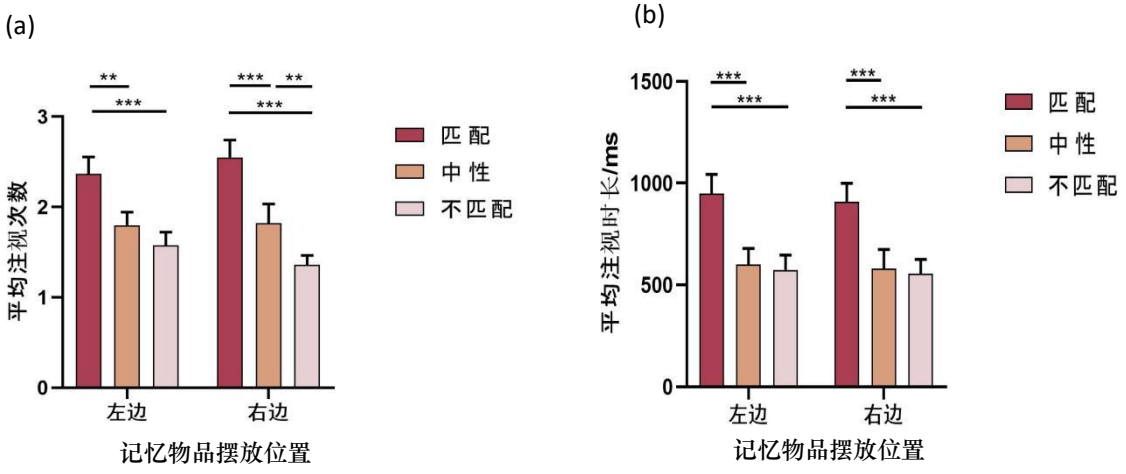


图 3-眼动实验结果。（a）视觉搜索任务平均注视次数。（b）视觉搜索任务平均注视时长。（误差线为标准误， *p < .05, **p < .01, ***p < .001）

资源受限和经济压力对父母情绪及亲子关系的影响：基于不同受教育水平家庭的比较

居婧雯　陈侃（通讯作者）
复旦大学社会发展与公共政策学院心理系，上海，200433，chenkan@fudan.edu.cn

摘 要　新冠肺炎作为近年来影响最大的突发公共卫生事件，造成的收入压力、失业、基本生活物资供应受限等生存不确定性给家庭带来了一系列挑战。父母不仅要处理个人情绪问题，还要承担起更多的养育责任。目前对于长期处于外部压力环境下的家庭关注仍较少。本研究基于家庭压力模型、情绪外溢假说和资源保存理论，旨在探究严格的封控环境下，资源受限和经济压力对父母情绪及亲子关系的影响，并检验这种影响在不同受教育水平的父母中是否存在差异。选取上海市 1210 名至少有一个 18 岁以下的孩子，且处于封控状态的父亲或母亲作为被试，采用亲子关系量表、正性负性情绪量表、资源受限和经济压力自编题项进行线上施测。结果表明：(1)封控期间，资源受限和经济压力对亲子关系无直接影响，而是通过父母情绪的完全中介作用对亲子关系产生间接影响；(2)在不同受教育水平家庭中，资源受限对父母情绪和亲子关系的影响模式无显著差异；(3)经济压力对不同受教育水平父母的情绪和亲子关系的影响模式不同。对于受教育水平较低的父母，经济压力主要通过增加负性情绪影响亲子关系；对于受教育水平较高的父母，经济压力主要通过降低正性情绪影响亲子关系；(4)对于受教育水平较低的父母，负性情绪更多地外溢至亲子关系中。本研究丰富了外部压力对家庭关系的影响机制研究，为可能发生的公共卫生事件或经济危机背景下，增强父母情绪管理、关注低社会经济地位家庭的实践工作提供依据。
关键词　资源受限，经济压力，亲子关系，父母情绪，受教育水平

Effects of Resource Limitations and Financial Constraints on Parental Affect and Parent–child Relationships: A Comparison of Families by Parental Education Level

Jingwen JU, Kan CHEN
Department of Psychology, School of Social Development and Public Policy, Fudan University, Shanghai, 200433

Abstract：COVID-19, the most influential public health emergency in recent years, created a series of challenges for families as a result of existential uncertainties such as income stress, job loss, and limited supply of basic living goods. Parents not only have to deal with personal emotional problems, but also have to take on additional parenting responsibilities. Based on the family stress model, the emotional spillover hypothesis, and conservation of resources theory, this study aimed to examine the relationships among resource limitations, financial constraints, parental affect and parent–child relationships during the quarantine and examine the differences in these relationships based on parental education level. Participants comprised 1,210 parents with at least one child under

the age of 18 during a prolonged social isolation policy in Shanghai, China. The Child–Parent Relationship Scale, Positive and Negative Affect Scale, and self-administered items of Resource Limitations and Financial Constraints were used for the online survey. Results revealed that: (1) Resource limitations and financial constraints did not directly predict parent–child relationships but did so indirectly through parental affect. (2) No significant difference based on education level was found in the pathways through which resource limitations influence parent–child relationships through parental affect. (3) Among the less educated parents, financial constraints affected parent–child relationships mainly by increasing negative affect, whereas for the parents with higher education, financial constraints affected parent–child relationships by decreasing positive affect. (4) More negative affect spilled over to the parent–child relationships of the parents with less education.

Keywords： Resource limitations, Financial constraints, Parent–child relationships, Parental affect, Education level

劳务派遣员工工作不安全感与工作投入关系：工作自我效能感和组织支持感的作用

邹雨蓓[1,2]（通讯作者） 苏春华[1] 韩宗义[1] 刘益萍[1]

1 天津师范大学，天津，300387

2 天津师范大学心理学部，天津，300387，1158575918@qq.com

摘 要 近年来，企业发展竞争日趋激烈，随时面临被淘汰的风险，为了更好地生存和发展，企业尽可能的采取措施来降低成本，由此，劳务派遣模式应运而生。随着劳务派遣员工在企业员工中所占比重日趋增大，劳务派遣员工在企业发展中发挥的作用也越来越大。但是，由于劳务派遣本身存在的“同工不同酬”、缺乏培训和晋升渠道以及随时面临被裁撤等弊端，使得劳务派遣员工的工作不安全感程度加大，而这种工作不安全感会降低员工的工作自我效能感，进而影响其工作投入，不利于影响企业发展。

工作自我效能感的高低可以有效影响员工在面对工作中的困难时的坚持程度。在当前的工作环境中，降低劳务派遣员工的工作不安全感对员工的身心健康以及企业的发展壮大有至关重要的意义，因而如何采取有效措施来降低劳务派遣员工的工作不安全感成为企业当前亟待解决的问题。组织支持感则是关注员工的福利待遇和幸福感，因此，企业采取有效措施，让劳务派遣员工拥有更高程度的组织支持感，可以有效缓解劳务派遣员工工作不安全感对工作投入的负面影响，有利于企业的发展壮大。

本研究试图研究在当前经济发展受阻和企业发展困难的大环境下，劳务派遣员工的工作自我效能感和组织的支持感如何影响劳务派遣员工的工作不安全感来对工作投入的影响，以及变量之间存在的关系，从而为企业的发展提供建设性的意见和建议。在研究过程中，选取劳务派遣员工为研究对象，利用工作不安全感量表、工作投入量表、工作自我效能感量表和组织支持感量表进行问卷调查，收到有效样本 303 份，利用 SPSS22.0 和 Mplus8.3 对数据进行分析研究。结果表明，工作不安全感对工作投入具有显著正向预测作用，工作自我效能感分别在数量性工作不安全感和质量性工作不安全感与工作投入的关系之间起到完全中介作用和部分中介作用，组织支持感调节了工作不安全感和工作自我效能感之间的关系，并调节了工作自我效能感对工作不安全感和工作投入之间关系的中介作用。

关键词 劳务派遣员工，工作不安全感，工作自我效能感，工作投入，组织支持感

社交媒介对大学生抑郁情绪的影响：上行社会比较和认知负载的链式中介作用

闫讷[1] 潘寒秋[1] 龙滢[1] 周晓斐[2] 苑会羚[3] 王莹[3]（通讯作者）
1 西安体育学院，西安，710068
2 西北大学，西安，710127
3 西安国际医学中心医院，西安，710119，fgx995@163.com

摘要　2023 年发布的《国民心理健康蓝皮书》显示，18-24 岁群体的抑郁风险检出率显著高于其他年龄段，而且这一年龄段群体在社交媒介使用群体中占比最大。社交媒介使用强度与抑郁情绪之间关系的研究结果并不一致，有研究认为社交媒介的使用有利于缓解抑郁情绪，也有研究证明社交媒介的使用会增加抑郁情绪出现的可能。社交媒介使用强度与抑郁情绪之间作用机制也尚不明确。在本研究中使用社交媒介使用强度量表，社交网站上行社会比较量表，社交网站认知负载量表，简单自测抑郁量表对 568 名大学生进行施测。探讨大学生群体中社交媒介使用强度、上行社会比较、认知负载与抑郁情绪之间的关系及其作用机制。**结果：**（1）社交媒介使用强度、社交网站上行社会比较、社交网站认知负载，抑郁情绪两两之间均呈显著正相关；（2）社交媒介的使用强度对抑郁情绪有正向的预测作用，社交网站上行社会比较和社交网站认知负载对抑郁情绪具有显著的正向预测作用；（3）社交网站上行社会比较和社交网站认知负载在社交媒介使用强度和抑郁情绪之间发挥完全中介作用。具体而言，社交媒介使用强度通过三条路径影响大学生抑郁情绪：一是上行社会比较的单独中介作用；二是认知负载的单独中介作用；三是上行社会比较→认知负载的链式中介作用。
关键词　社交媒介使用强度,上行社会比较,认知负载,抑郁情绪,大学生

The Effect of Social Media Use on College Students' Depressive Mood: The Chain Mediating Role of Upward Social Comparison and Cognitive Overload

YAN Ne[1] Pan Hanqiu[1] Long Ying[1] Zhou Xiaofei[2] Yuan Huiling[3] WANG Ying[3]
1 Xi'an Physical Education University, Xi'an, 710068
2 Northwest University, Xi'an, 710127
3 Xi'an International Medical Center Hospital, Xi'an, 710119

Abstract: The 18-24 age group has a much higher rate of depression risk than other age groups, according to the 2023 "National Mental Health Blue Book". Additionally, this age group has the highest proportion among users of mobile social media. The link between mobile social media use and depression is unclear. Some studies suggest mobile social media can help with depression, while others suggest it may worsen it. It related the precise mechanism behind how the intensity of mobile social media use to depressive mood is still not fully understood. In this research, a sample of 568 college students was recruited to complete the questionnaires about the intensity of social media use, social networking site upward social comparison, and social networking site cognitive overload. To explore the relationship among the intensity of social media use, upward social comparison, cognitive overload and depressive mood. **Results**: (1) The intensity of mobile social media use, social networking site upward social comparison, and social networking site cognitive overload are all positively correlated with depressive mood. (2) The intensity of mobile social media use has a positive predictive effect on depressive mood, and social comparison and cognitive overload have significant positive predictive effects on depressive mood. (3) Social comparison and cognitive overload play a complete mediating role between the intensity of mobile social media use and the depressive mood. In particular， the intensity of social media use affected depressive mood through

three paths: one was the mediating role of upward social comparison; the second was the mediating role of cognitive overload; the third was the chain-mediated role of both upward social comparison and cognitive overload.
Keywords: intensity of mobile social media use, upward social comparison, cognitive overload, depressive mood, undergraduates

消极情绪下不同月经周期女性对食物线索的注意偏向

顾桑田

复旦大学心理学系，上海，200433，21210730114@m.fuda.edu.cn

摘 要　情绪影响进食行为有可能进一步发展为情绪性进食。情绪性进食过量引发的超重，肥胖及心血管疾病等会给人们的健康带来隐患。情绪性进食者在消极情绪的影响下增加食物摄入量并且产生对食物线索的注意偏向，这提示了情绪性进食背后的心理机制所在。女性在月经周期的不同阶段存在情绪状态和食物渴求上的差异，但是未知处于不同月经周期的女性在消极情绪下对食物线索的注意偏向和模式。本文采用基于食物图片的点探测范式，考察消极情绪下，处于黄体晚期和卵泡早期女性对高热量食物线索的注意偏向。实验 1 选取月经周期规律的女性被试 49 名，分别在黄体晚期和卵泡早期使用音频材料结合书写的方式诱发中性或消极情绪。结果发现在诱发消极情绪状态的条件下，处于卵泡早期的被试对食物图片的注意警觉指数显著高于处于黄体期的被试。实验 2 继续选取 38 名月经规律的女性被试，同样在她们月经周期的两个阶段分别实施实验。结果发现，在诱发消极情绪的条件下，处于卵泡期的被试在工作记忆(WM)任务中对食物线索的注意偏向显著大于其在启动任务中的。研究结论如下：卵泡早期女性在消极情绪的影响下，会对食物线索产生更大的注意。且这种注意是通过自上而下的工作记忆完成的，该场景贴近现实生活中食物几乎随处可得的情境。

关键词　情绪，月经周期，食物线索，注意偏向

Attention Bias to Food Cues in Menstrual Cycle under Negative Emotion Among Females

Sangtian Gu

Fudan University, 220Handan Road, shanghai, China, 21210730114@m.fuda.edu.cn

Abstract：　Emotional influence on eating behavior may further develop into Emotional eating. Overweight, obesity and cardiovascular diseases caused by excessive Emotional eating will bring hidden dangers to people's health. Emotional eating increases food intake under the influence of negative emotions and produces attention bias to food clues, which indicates the psychological mechanism behind Emotional eating. Female have different emotional states and food cravings at different stages of the Menstrual cycle, but the attention bias and pattern of female in different Menstrual cycle to food cues under negative emotion are unknown.

This article adopts a point detection paradigm based on food images to investigate the attentional bias of women in late luteal phase and early follicular phase towards high-calorie food cues under negative emotion. In experiment 1, 49 female subjects with regular Menstrual cycle were selected to use audio materials combined with writing to induce neutral or negative emotions in the late luteal phase and early follicular phase respectively. The results showed that under the condition of inducing negative emotional state, the attention and alertness index of the subjects in the early follicular stage was significantly higher than that of the subjects in the Luteal phase. In

experiment 2, 38 female subjects with regular menstruation were selected, and the experiment was also conducted in two stages of their Menstrual cycle. The results showed that under the condition of inducing negative emotions, the Follicular phase subjects' attentional bias to food cues in Working memory (WM) tasks was significantly greater than that in priming tasks.

The research conclusion is as follows: Early follicular women tend to pay more attention to food cues under the influence of negative emotions. And this attention is achieved through top-down Working memory, which is close to the situation where food is almost available everywhere in real life.

Keywords：emotion, menstrual cycle, food cues, attention bias

基于双过程理论视角下自动情感评价和锻炼关系的研究进展

赵舒菁[1] 郭璐[2]

1 北京体育大学心理学院，北京，100084，zsjydl126.com

摘 要 背景：近年来，随着双过程理论的发展，研究者越来越重视影响健康行为的自动过程。自动情感评价(Automatic Affective Evaluation, AEE）作为影响锻炼行为的自动过程，也受到了更多的关注，AEE 与锻炼行为的研究迅速增长。因此，本研究旨在分析 2017 年以来的相关研究，基于双过程理论视角，对 AEE 与锻炼行为的关系的最新进展和未来发展方向进行述评。

研究方法：在 web of science 数据库和 CNKI、万方数据库中检索 2017-2023 年发表的 AEE 和锻炼的相关文献。检索获得中英文文献共 969 篇，排除重复、无关、不符合标准的文献后，最终纳入 17 篇文献，其中只有 1 项是随机对照实验，8 项前后测准实验，10 篇为横断调查。

研究结果：

(1) 整体而言，AEE 对锻炼行为具有预测作用。这种作用在儿童、青少年、老年人群体以及肥胖、久坐、积极锻炼群体均得到了验证。

(2) 通过改善 AEE 可以促进锻炼行为，这在唯一的随机对照研究实验中得到验证，该实验通过评价性条件反射改善参与者的自动情感评价，进而促进了当天的锻炼行为。

(3) AEE 受到锻炼类型和锻炼量的影响。个体对锻炼类型的偏好以及锻炼量都会影响整体 AEE 的测量结果，同一锻炼水平、不同偏好锻炼类型的个体间 AEE 存在差异，不同锻炼水平、同一偏好锻炼类型的个体间 AEE 也存在差异，且偏好锻炼类型的影响大于锻炼量的影响。因此具体的、个体偏好的锻炼类型的 AEE 对个体的锻炼行为可能有更好的预测作用。

(4) 另外，也有研究发现 AEE 和反思情感评价的差异与锻炼时间相关，当 AEE 小于反思情感评价时，二者差值越大，锻炼时间越短。同时，自我控制可以调节这种相关，自我控制能力越低，两种评价的差对锻炼行为的影响越消极。

AEE 在锻炼心理领域方兴未艾，现在尚不足以对 AEE 和锻炼行为的关系下结论。因此，未来对 AEE 的研究可以考虑以下 3 点：

(1) 需要更多的随机对照实验来探讨 AEE 与锻炼行为之间的因果关系。

(2) 开展更多的对 AEE 的干预研究，以寻求有效的锻炼行为促进手段。

(3) 进一步探索 AEE 和反思评价之差与锻炼行为之间的关系及其调节因素。

关键词 自动情感评价，双过程理论，体育锻炼

Research Progress On The Relationship Between Automatic Emotion Evaluation And Exercise From The Perspective Of Dual-Process

Theory

ZHAO Shujing[1], GUO Lu[2]
School Of Psychology, Beijing Sport University, Beijing 100084, China

Abstract： Background: In recent years, with the development of dual-process theory, researchers have paid more and more attention to automatic processes that affect health behavior. Automatic Affective Evaluation (AEE), as an automatic process affecting exercise behavior, has also received more attention, and the research on AEE and exercise behavior has increased rapidly. Therefore, the purpose of this study is to analyze relevant studies since 2017 and review the latest progress and future development direction of the relationship between AEE and exercise behavior based on the perspective of dual-process theory.

Methods: Literature search method was used to search the related literature on AEE and exercise published from 2017 to 2023 in the web of science database, CNKI and Wanfang database. A total of 969 Chinese and English literatures were retrieved, and 17 literatures were finally included after excluding duplicate, irrelevant and unqualified literatures. Among them, there was only 1 randomized controlled trial study, 8 pre - and post-measurement experimental studies, and the rest were cross-sectional surveys.

Results:

(1) In general, AEE could predict exercise behavior. This effect was validated in children, adolescents, and older age groups, as well as obese, sedentary, and physically active populations.

(2) Exercise behavior may be promoted by improving AEE. This was tested in the only randomized controlled trial study that improved participants' automatic emotion evaluation through EC, which in turn facilitated physical activity on the day.

(3) AEE was affected by the type and amount of exercise. There were differences in AEE among individuals with the same exercise level and different preferred types of exercise, and there were differences in AEE among individuals with different exercise levels and the same preferred type of exercise, and the effect of preferred exercise type was greater than that of exercise amount. Therefore, the AEE of specific and individual preferred exercise type may have a better predictive effect on individual exercise behavior.

(4) In addition, some studies have found that the difference of AEE and reflective emotional evaluation is related to exercise time, and the larger the negative difference, the shorter the exercise time. And self-control can moderate this correlation, the lower the self-control ability, the more negative difference of the two evaluations has on exercise behavior.

AEE in the field of physical exercise is in the ascendancy, with the present experience, it is not possible to draw conclusions about the relationship between AEE and exercise behavior. Therefore, future research on AEE can consider the following three points:

(1) More RCTS are needed to explore the causal relationship between AEE and exercise behavior.

(2) More intervention studies on AEE should be carried out to find effective ways to promote exercise behavior.

(3) explore the relationship between the difference between AEE and reflective appraisal and exercise behavior and its moderating factors.

Keywords: automatic emotion evaluation, dual-process theory, exercise

在线视频学习中教师呈现对学习者学习感受与知识建构的影响：材料难度和面孔熟悉度的作用

郑奂舟 罗覃僮欣 陈卓 徐碧波（通讯作者）
湖北大学心理学系，武汉，430062，185146290@qq.com

摘　要　在教育数字化转型的时代背景下，在线视频学习的广泛应用为学习者的自主性、个性化学习提供了有力支撑。教师呈现作为在线视频学习中的重要环境信息，对学习者的学习过程有重要的影响。基于社会存在感理论和认知负荷理论，2 项实验探讨了在线视频学习中，相比于无教师呈现，教师呈现是否以及如何影响学习者学习者的学习感受（包括认知负荷、学习满意度、学习体验、学习投入和社会存在感）与学习效果（包括保持测验成绩、迁移测验成绩和总测验成绩）。实验 1 探讨了教师呈现和材料难度的影响，采用 2（教师呈现：有教师呈现/无教师呈现）× 2（材料难度：低难度/高难度）组间设计，共 182 名大学生参与实验，结果表明，教师呈现改善了学习者的学习感受，无教师呈现条件下学习者的迁移成绩更好，并且低材料难度条件下学习者的认知负荷更低和迁移测验成绩更好。实验 2 通过操纵教师面孔熟悉度来考察影响教师呈现有效性的潜在机制，采用 2（面孔熟悉度：低面孔熟悉度/高面孔熟悉度）× 2（材料难度：低难度/高难度）组间设计，共 173 名大学生参与实验，结果表明，低面孔熟悉度条件下，学习材料难度的简单效应显著，低学习材料难度条件下学习者的认知负荷更低。同时，低面孔熟悉度条件下，学习者的迁移测验成绩更好。研究结果显示，教师呈现改善了在线视频学习中学习者的学习感受，但其促进学习效果的有效性还需要进一步的探索。本研究探讨了影响教师呈现有效性的边界条件，有助于从实践角度分析在线视频学习中教师呈现发挥效果的影响因素，为教育研究者设计和开发有效的在线视频课程提供数据支持。
关键词　教师呈现，在线视频学习，面孔熟悉度，材料难度

The effect of instructor presence on learners' perception of learning and knowledge construction in online video learning: the role of material difficulty and face familiarity

Zheng Huanzhou; Luo Qintongxin; Chen Zhuo; Xu Bibo(Corresponding Author)
Department of Psychology, Hubei University, Wuhan, 430062, 185146290@qq.com

Abstract：In the context of the era of digital transformation of education, the wide application of online video learning provides strong support for learners' independent and personalized learning. Instructor presence, as an important environmental information in online video learning, has a significant impact on learners' learning process. Based on Social Presence Theory and Cognitive Load Theory, two experiments were conducted to investigate whether and how instructor presence affects learners' learning experience (including cognitive load, learning satisfaction, learning experience, learning engagement, and social presence) and learning outcomes (including retention test scores, transfer test scores, and total test scores) compared with no instructor presence in online video learning. Experiment 1 explored the effects of instructor presence and material difficulty, using a 2 (Instructor presence: with instructor presence/without instructor presence) × 2 (material difficulty: low difficulty/high difficulty) between-groups design, with a total of 182 undergraduates participating in the experiment. The results showed that the instructor presence improved the learning experience of the learners, and the learners' transfer scores were better in the no-teacher-presentation condition, as well as their cognitive load was lower and their transfer test scores were better in the low-material-difficulty condition. lower cognitive load and better transfer test scores in the low material difficulty condition. Experiment 2 examined the potential mechanisms affecting the effectiveness of instructor presence by manipulating teacher face familiarity, using a 2 (face familiarity: low face familiarity/high face familiarity) × 2 (material difficulty: low difficulty/high difficulty)

between-groups design, with a total of 173 undergraduates participating in the experiment, and the results showed that there was a significant simplicity effect of the difficulty of the learning materials in the low-face familiarity condition, and learners' cognitive load was lower in the low material difficulty condition. Learners' cognitive load was lower. Meanwhile, learners' performance on the transfer test was better in the low face familiarity condition. The findings suggest that instructor presence improves learners' learning experience in online video learning, but its effectiveness in promoting learning outcomes needs to be further explored. This study examines the boundary conditions affecting the effectiveness of instructor presence, which helps to analyze the factors affecting the effectiveness of teacher presentation play in online video learning from a practical perspective, and provides data support for educational researchers to design and develop effective online video courses

Keywords：instructor presence, online video learning, face familiarity, material difficulty

创造性特质评估量表的汉化及其信效度检验研究

范醒宇[1]　李洁[2]　（通讯作者）

1 东北师范大学心理学院，长春，130024

2 江西师范大学心理学院，南昌，330022，598389101@qq.com

摘 要　**目的**：本研究探讨创造性特质评估量表 TCPQ-12 在中国文化背景下的因素划分是否一致，是否存在跨文化差异，并检验量表的信效度。　**方法**：先对 TCPQ-12 量表进行翻译，并选取政治技能量表-社交机敏因素和五因素人格问卷-开放性因素作为汉化 TCPQ-12 量表的校标量表，再组合编排成一套问卷。采用问卷调查法，以国内大学生为研究对象，正式测验对大学生共发放问卷 562 份，回收有效问卷 533 份。　**结果**：探索性因素分析结果表明：原量表越轨意愿维度第 10 题、接受挑战的意愿维度第 11 题因子载荷度较低，需要进一步的修改或删减，原量表探索意愿维度的各项题目在汉化量表的探索性因子分析中并未聚合；验证性因素分析结果表明原量表的三维结构在中文版中的结构效度欠佳(x^2/df=2.884, *CFI*=0.894, *TLI*=0.86, *RMSEA*=0.084, *SRMR*=0.057)；总量表及其下的越轨意愿、接受挑战的意愿、探索意愿维度内部一致性信度分别为 0.846、0.776、0.709、0.546，分半信度分别为 0.806、0.772、0.734、0.469；总量表与两效标量表的效标关联效度效度分别为 0.423、0.499，均达到显著水平。　**结论**：(1)创造性特质评估量表 TCPQ-12 的汉化版本在国内大学生群体中应用效果尚可，具有良好的信度和效标关联效度。(2)TCPQ-12 量表不具备跨文化的测量不变性，且汉化量表的结构效度不太理想，国内外对量表内部各维度的划分和维度内项目的理解上存在跨文化差异。

关键词　创造性，信度，效度，量表汉化，测量不变性

A Sinicization Stduy of TCPQ-12 and its Reliability and Validity test

FAN XINGYU[1]　LI JIE[2](Corresponding Author)

1 School of Psychology, Northeast Normal University, Changchun, 130024

2 School of Psychology, Jiangxi Normal University, Nanchang, 330022, 598389101@qq.com

Abstract：Purposes: In this study, we examined the reliability and validity of TCPQ-12 in the Chinese cultural context, and determined whether factors were consistent and whether there were cross-cultural differences. Methods: Translated the TCPQ-12 scale first, and the political skill scale - social alertness factor and the five-factor personality questionnaire - openness factor were selected as the calibration scales of the TCPQ-12 scale, and then combined them into a set of questionnaires. A total of 562 questionnaires were issued to college students

in China and 533 valid questionnaires were collected. Results: The exploratory factor analysis results showed that the factor loading degree of item 10 of the original scale's deviant intention dimension and item 11 of the original scale's willingness to accept challenges were low and needed to be further modified or deleted. The items of the original scale's exploration intention dimension did not converge in the exploratory factor analysis of the Chinese scale. The results of confirmatory factor analysis showed that the 3d structure of the original scale had poor structural validity in Chinese version (x^2/df=2.884, *CFI*=0.894, *TLI*=0.86, *RMSEA*=0.084, *SRMR*=0.057). The internal consistency reliability of total scale and deviant intention, willingness to accept challenges and willingness to explore were 0.846, 0.776, 0.709 and 0.546, and the split reliability was 0.806, 0.772, 0.734 and 0.469. The scale correlation validity of the total scale and the two-scale scale were 0.423 and 0.499, respectively, which were both significant. Conclusion: The Chinese version of TCPQ-12 has a good application effect in college students in China, with considerable reliability and criterion correlation validity. (2) The TCPQ-12 scale has no cross-cultural measurement invariance, and the structure validity of the Chinese scale is not ideal. There are cross-cultural differences in the division of dimensions in the scale and the understanding of items within the dimensions at home and abroad.

Keywords：creativity, reliability, validity, sinicization, measurement invariance

运动心理健康连续体简表中文版修订

李梦茜[1] 杨寅[1]（通讯作者）

1 北京体育大学心理学院，北京，100084，yangyin@bsu.edu.cn

摘 要 目的：修订中文版运动心理健康连续体简表（Sport Mental Health Continuum – Short Form），并检验其心理测量学指标及在中国运动员中的适用性。方法：用翻译后的运动心理健康连续体简表、抑郁自评量表和运动员倦怠问卷对 657 名北京某高校大学生运动员进行施测，随机抽取 330 名被试作为样本 1 用于项目分析和探索性因素分析；另外 327 名被试作为样本 2 用于验证性因素分析和信度检验。结果：中文运动心理健康连续体简表包括 12 个项目，各项目与总分的相关均显著（rs=0.673～0.815，*ps*<0.001）。探索性因素分析共提取 3 个因子,累积方差贡献率为 76.485%，3 个因子分别为运动主观幸福感、运动社交幸福感、运动心理幸福感，支持原问卷的维度划分。验证性因素分析表明该问卷结构效度良好（χ^2/df==3.413,RMSEA=0.086,NFI=0.935,IFI=0.953,TLI=0.939,CFI=0.953）。运动心理健康连续体简表总分及运动主观幸福感、运动社交幸福感、运动心理幸福感的 Cronbach's α 系数为 0.855~0.919。各维度及总分与低成就感、运动负面评价、运动倦怠总分、抑郁自评总分显著负相关（rs=﹣0.528～﹣0.152，ps<0.001）；运动心理健康连续体简表总分及运动主观幸福感、运动心理幸福感与情绪/体力耗竭显著负相关（rs=﹣0.179～﹣0.277,ps<0.001）。结论：中文版运动心理健康连续体简表在中国大学生运动员群体中均具有良好的信效度,适于考察我国大学生运动员的心理健康水平。修订该量表为中国运动员适应取向心理健康的测量，以及为研究运动员心理健康对运动表现心理的影响提供了科学有效的工具。

关键词 运动心理健康连续体量表，抑郁，运动员倦怠，大学生运动员

The Revised Chinese Version of Sports Mental Health Scale - Short Form

Li Mengxi Yang Yin

(School of psychology, Beijing Sport University, Beijing 100084, China)

Abstract：Objective: To revise the Chinese version of the Sport Mental Health Continuum - Short Form and to

examine its psychometric indicators and applicability among Chinese athletes. Methods:The translated Sports Mental Health Continuum Short Form, Self-Rating Depression Scale, and Athlete Burnout Questionnaire were administered to 657 college athletes from a university in Beijing, and 330 subjects were randomly selected as Sample 1 for item analysis and exploratory factor analysis; the other 327 subjects were used as Sample 2 for confirmatory factor analysis and reliability analysis. Results: The Chinese Sports Mental Health Continuum Short Form included 12 items, and the correlation between each item and the total score was significant (rs=0.673～0.815, *ps*<0.001). Exploratory factor analysis extracted three factors,and the cumulative variance contribution rate was 76.485%.The three factors were sport subjective well-being, sport social well-being, and sport psychological well-being, which supported the dimensional division of the original questionnaire. Confirmatory factor analysis showed good structural validity of the questionnaire (χ^2/df==3.413, RMSEA=0.086, NFI=0.935, IFI=0.953, TLI=0.939, CFI=0.953). The Cronbach's alpha coefficients for the total score of the Sports Mental Health Continuum Short Form and for sport subjective well-being, sport social well-being, and sport psychological well-being ranged from 0.855 to 0.919. The dimensions and the total score of the Sports Mental Health Continuum Short Form were significantly negatively correlated with the total scores of low-achievement, negative appraisal of sports, total scores of burnout in sports, and total scores of self-assessment of depression (rs= - 0.528 to -0.152, *ps*<0.001); the total score of the Sports Mental Health Continuum Short Form and the score of sport subjective well-being and sport psychological well-being were significantly negatively correlated with emotional/physical exhaustion (rs= -0.179 to -0.277, *ps*<0.001).Conclusion: The Chinese version of the Sports Mental Health Continuum Short Form has good reliability and validity in Chinese college athletes, and is suitable for examining the mental health of college athletes in China. The revision of this scale provides a scientific and effective tool for the measurement of adaptive-oriented mental health in Chinese athletes, as well as for the study of the effects of athletes' mental health on the psychology of sports performance.

Keywords：Sports Mental Health Continuum, Depression, Athlete burnout, College athletes

社会排斥对知识隐藏行为的影响：基于认知-情感人格系统理论

管圆圆[1] 杨琴[2]（通讯作者）

1 中国地质大学（武汉）教育研究院，武汉，430074

2 中国地质大学（武汉）教育研究院，武汉，430074，qinyang@cug.edu.cn

摘 要 **目的：**基于认知-情感人格系统理论，个体在接受到情境信息刺激后会激活其人格系统中的认知−情感单元，个体据此调整其后续的行为反应，文章探讨了社会排斥对知识隐藏行为的影响，即社会排斥这一消极信息会激活消极回避的情感和行为，本文还研究表面顺从和焦虑的在社会排斥对知识隐藏行为之间的中介作用，表面顺从的“表面”意味着个体行为停留在外表的动作层面，但个体内心的价值观不会改变，因此可能为了保护自我假装知识共享，实际表现知识隐藏行为。焦虑也是面对社会排斥这一威胁时的正常情绪状态，焦虑也会影响个体对排斥事件做出负面的应对策略和行为反应，即出现回避他人的行为。同时该理论还认为文化背景会影响不同个体在特定情境的不同行为，因此本研究还选取了集体主义作为调节变量。**方法：**研究采用社会排斥量表、集体主义取向量表、表面顺从量表、焦虑情绪量表和知识隐藏行为量表，分三次对 141 名大学生进行多时点问卷调查。**结果：**研究发现社会排斥正向预测知识隐藏行为，并且表面顺从在社会排斥和知识隐藏行为之间的中介作用显著，集体主义在社会排斥-表面顺从-自杀意念的影响中起调节作用。**结论：** 社会排斥对知识隐藏行为的影响是通过表面顺从实现的；集体主义调节社会排斥-表面顺从-知识隐藏行为的这一路径的影响，高集体主义的个体，在遭受社会排斥时更容易出现表面顺从进而产生知识隐藏行为。

关键词　社会排斥，知识隐藏行为，集体主义，表面顺从，认知-情感人格系统理论

The effect of social exclusion on knowledge hiding behavior: based on cognitive-affective personality systems theory

Yuanyuan Guan
China University of Geosciences(Wuhan)

Abstract： Purpose: Based on the cognitive-affective personality system theory, individuals will activate the cognitive-affective unit in their personality system after receiving contextual information stimuli, and individuals will adjust their subsequent behavioral responses accordingly, this article explores the effect of social exclusion on knowledge hiding behavior, that is, the negative information of social exclusion will activate the negative avoidance emotions and behaviors, and this article also investigates the mediating role of surface compliance and anxiety in the relationship between social exclusion and knowledge hiding behavior. This article also examines the mediating role of surface conformity and anxiety in the relationship between social exclusion and knowledge hiding behavior. The "surface" of surface conformity implies that an individual's behavior stays at the level of outward gestures, but the individual's inner values do not change, and thus he or she may pretend to share knowledge in order to protect himself or herself, and may actually display knowledge hiding behavior. Anxiety is also a normal emotional state when faced with the threat of social exclusion, and it can also affect individuals' negative coping strategies and behavioral responses to exclusion, i.e., avoidance of others. The theory also suggests that cultural context affects different individuals' different behaviors in a given situation, so collectivism was also selected as a moderating variable in this study. METHODS: The study used the Social Exclusion Scale, the Collectivism Orientation Scale, the Apparent Conformity Scale, the Anxiety Emotions Scale, and the Knowledge Concealment Behavior Scale to conduct a multi-temporal questionnaire survey on 141 college students in three separate sessions. RESULTS: It was found that social exclusion positively predicted knowledge-hiding behavior, and that surface conformity mediated significantly between social exclusion and knowledge-hiding behavior, and collectivism moderated the effects of social exclusion-surface conformity-suicidal ideation. CONCLUSIONS: The effect of social exclusion on knowledge-hiding behavior is mediated through surface conformity; collectivism moderates the effect of this pathway of social exclusion-surface conformity-knowledge-hiding behavior, and individuals who are high in collectivism are more likely to engage in surface conformity and thus knowledge-hiding behaviors when they are socially excluded.

Keywords： Social exclusion, knowledge-hiding behavior, collectivism, apparent conformity, cognitive-affective personality systems theory

后疫情时代性少数和性多数群体的核心信念挑战对创伤后应激障碍和创伤后成长的影响：有调节的中介效应模型

杨晨啸[1]　朱文臻[1](通讯作者)
[1]华中师范大学心理学院，武汉，430079，wenzhenzhu@ccnu.edu.cn

摘 要　为持续追踪新冠疫情高峰期后，该创伤事件对人们心理健康造成的结果及其影响因素，比较不同群体的优势及挑战，本研究采用核心信念问卷、创伤后应激障碍简易检查表(PCL8-5)、有帮助的和没有帮

助的自我表露问卷、创伤后成长简易量表(PTGDI-X-SF)、领悟社会支持量表，以网络招募的 183 名性少数群体和 255 名性多数群体为被试，了解和比较后疫情时代性少数群体与性多数群体的核心信念挑战(CBC)对创伤后应激障碍(PTSD)和创伤后成长(PTG)的影响，并考察有帮助的自我表露(HSD)和没有帮助的自我表露(UHSD)的中介作用，以及领悟社会支持(PSS)和性少数身份隐藏的调节作用。结果表明：(1)对于所有群体，PTSD、UHSD、感知到的创伤严重性与 PTG 呈二次曲线相关，即当它们在中等水平时，PTG 最高。路径分析显示，对于所有群体，CBC 正向预测 PTSD 和 PTG；UHSD 在 CBC 对 PTSD 起到部分中介作用，即 CBC 增加了 UHSD，导致 PTSD 水平更高；HSD 在 CBC 对 PTG 起到部分中介作用，即 CBC 增加了 HSD，导致 PTG 水平更高；对于性少数群体，HSD 也部分中介 CBC 到 PTSD，即 CBC 增加了 HSD，导致 PTSD 水平更高。(2)多组分析显示，相比性少数群体，性多数群体在面对 CBC 时获得了更多 HSD。(3)对于性多数群体，领悟社会支持(PSS)调节 CBC 到 PTSD，同时调节 UHSD 到 PTSD，具体来说，PSS 削弱了它们对 PTSD 的正向预测作用。PSS 在 CBC 到 HSD 再到 PTG 中调节 CBC 到 PTG 的部分，PSS 越高，CBC 对 PTG 的正向预测作用越强。(4)对于性少数群体，其性少数身份的隐藏程度调节 HSD 到 PTG 的部分，具体而言，身份隐藏越高，HSD 对 PTG 的预测效应越强，尽管高身份隐藏的性少数群体的 PTG 在 HSD 较低时更低，但他们更可能通过 HSD 而发展出更高的 PTG。PTG 的发展离不开适度的消极心理因素。核心信念受到挑战的人们经历 HSD 后，会发展更多的 PTG，而经历 UHSD 后，会导致更多的 PTSD。然而，相比性多数，性少数获得的 HSD 更少，即使经历了 HSD，仍然会导致更多的 PTSD。此外，PSS 在削弱 PTSD 和促进 PTG 的作用在他们身上也消失了。不过他们的潜在优势是，高身份隐藏使其更容易从 HSD 中获得更多的 PTG。
关键词　新冠疫情，核心信念挑战，创伤后应激障碍，创伤后成长，性少数群体

Effects of Core Beliefs Challenge in Sexual Minorities and Sexual Majorities on Post-traumatic Stress Disorder and Post-traumatic Growth in the Post COVID-19 Pandemic Era: a Moderated Mediating Effect Model

YANG Chen-xiao[1],ZHU Wen-zhen[1]
[1]School of Psychology, Central China Normal University, Wuhan 430079, China

Abstract：In order to continuously track the results and influencing factors of the traumatic event on people's mental health after the peak of the COVID-19 epidemic, and compare the advantages and challenges of different groups, We used Core Belief Questionnaire, Post-traumatic Stress Disorder Checklist (PCL8-5), Helpful and Unhelpful Self-disclosure Questionnaire, Post-Traumatic Growth Checklist (PTGDI-X-SF), and Perceived Social Support Scale. 183 sexual minorities and 255 sexual majority groups were recruited online to understand and compare the effects of core belief challenges (CBC) between sexual minorities and sexual majority groups in the post-pandemic era on post-traumatic stress disorder (PTSD) and post-traumatic growth (PTG), and to examine the mediating role of helpful self-disclosure(HSD) and unhelpful self-disclosure (UHSD), and understand the moderating effects of perceived social support (PSS) and sexual minority identity concealment. The results showed that: (1) For all groups, PTSD, UHSD, and perceived trauma severity were conically correlated with PTG, that is, PTG was highest when they were at moderate levels. Path analysis showed that CBC positively predicted PTSD and PTG for all groups. UHSD plays a partial mediating role in CBC, that is, CBC increases UHSD, resulting in higher PTSD level. HSD partially mediates PTG in CBC, that is, CBC increases HSD, resulting in higher PTG level. For sexual minorities, HSD also partially mediates CBC to PTSD, i.e. CBC increases HSD, leading to higher

PTSD levels. (2) Multi-group analysis showed that sexual majority groups obtained more HSD when confronted with CBC than sexual minority groups. (3) For sexual majority groups, perceived social support (PSS) moderates CBC to PTSD and UHSD to PTSD, specifically, PSS weakens their positive predictive effect on PTSD. PSS moderates the direct effects of CBC to PTG within from CBC to HSD to PTG. The higher the PSS, the stronger the positive prediction effect of CBC on PTG. (4) For sexual minorities, the degree of sexual minority identity concealment moderates HSD to PTG. Specifically, the higher the identity concealment, the stronger the predictive effect of HSD on PTG. Although the PTG of sexual minorities with high identity concealment is lower when HSD is lower, they are more likely to develop higher PTG through HSD. The development of PTG is inseparable from moderate negative psychological factors. People whose core beliefs are challenged develop more PTG after experiencing HSD, and more PTSD after experiencing UHSD. However, sexual minorities acquire less HSD than sexual majority, and even experiencing HSD still leads to more PTSD. In addition, the role of PSS in weakening PTSD and promoting PTG was also lost in them. Their potential advantage, though, is that high identity concealment makes it easier to get more PTG through HSD.

Keywords： COVID-19, Core beliefs challenge, Post-traumatic stress disorder, Post-traumatic growth, Sexual minorities

错误记忆对恐惧泛化的影响及其时间持续性

赵润吉　王俭勤（通讯作者）

复旦大学心理学系，上海，200433，wjq@fudan.edu.cn

摘 要 恐惧泛化是焦虑障碍的典型特征与病理基础，研究恐惧泛化的形成机制对解释焦虑障碍等疾病的病理机制以及开发相应临床干预手段具有重要意义。已有研究发现了恐惧习得过程中人们会形成错误记忆，但鲜有研究考察了错误记忆对恐惧泛化的影响及其时间持续性。本研究引入负性情绪材料以及时间变量，探究由情绪材料引发的基于错误记忆的恐惧泛化随时间变化的机制。并将错误记忆的经典范式 DRM 范式与恐惧学习任务相结合，形成基于错误记忆的恐惧泛化研究范式展开实验。实验为 2（词表效价：中性、负性）×3（再认时间间隔：间隔十分钟、间隔一天、间隔一周）的混合设计，其中词表效价为被试内变量，再认时间间隔为被试间变量。选取 123 名在校大学生（男性 48 名）作为被试，每位被试需完成实验的三个阶段，分别为恐惧学习阶段、记忆测试阶段以及恐惧回避阶段。结果发现：（1）与中性关键诱饵相比，被试对于消极关键诱饵产生了更多的错误恐惧记忆；（2）被试对未出现过的关键诱饵词语（CL+）产生了错误的恐惧记忆后，在随后的回避阶段中也会对这些词语产生更多的回避行为，说明错误记忆可引发恐惧泛化；（3）随时间的增加，对学过词语（CS+）的正确恐惧记忆显著降低，并在回避阶段中对于 CS+的回避率显著降低；随时间的增加，虽然对关键诱饵（CL+）的错误恐惧记忆显著降低，但一周后被试对于错误记忆的诱饵项目仍存在恐惧泛化行为。最后，回归分析的结果表明错误恐惧记忆对恐惧泛化有正向预测作用，即当被试产生的错误恐惧记忆越多，在回避阶段就会对此类词语产生更多的回避行为。以上结果表明，错误记忆是导致恐惧泛化的机制之一，并且，错误记忆对恐惧泛化的影响可持续一周。

关键词 错误记忆，恐惧泛化，时间效应，情绪效价

The impact of false memory on fear generalization in a long term

Runji Zhao, Jianqin Wang

Fudan University, 220 Handan Road, Shanghai, China, wjq@fudan.edu.cn

Abstract：Fear generalization is a typical feature and pathological basis of anxiety disorders, and the study of the formation mechanism of fear generalization is of great significance in explaining the pathological mechanisms of anxiety disorders and other diseases as well as in developing corresponding clinical interventions. False memories have been found to be formed during fear acquisition, but few studies have examined the effects of false memories on fear generalization and its temporal persistence. In this study, we introduced negative emotional materials as well as temporal variables to investigate the mechanism of false memory-based fear generalization triggered by emotional materials over time. And the classical paradigm of the DRM paradigm of false memory was combined with the fear learning task to form a research paradigm of fear generalization based on false memory to carry out experiments. The experiment was a 2 (emotional valence of word lists: neutral, negative) ×3 (recognition interval: ten minutes interval, one day interval, one week interval) mixed design, in which the emotional valence of word lists was the within-subjects variable and recognition interval was the between-subjects variable. One hundred and twenty-three college students (48 males) were selected as subjects, and each subject was required to complete three phases of the experiment, namely, the fear learning phase, the memory test phase, and the fear avoidance phase. It was found that (1) subjects produced more false fear memories for negative critical lures than for neutral critical lures; (2) after producing false fear memories for critical lure words that had not appeared (CL+), subjects also produced more avoidance behaviors for these words in the subsequent avoidance phase, suggesting that false memories can trigger fear generalization; and (3) with the increase of time, the correct fear memories for the learned word (CS+) correct fear memory significantly decreased, and the avoidance rate for CS+ was significantly lower in the avoidance phase; and with time, although false fear memory for the critical lure (CL+) significantly decreased, subjects still showed fear generalization behaviors for the incorrectly remembered lure items one week later. Finally, the results of the regression analysis indicated that false fear memories had a positive predictive effect on fear generalization, i.e., when subjects produced more false fear memories, they produced more avoidance behaviors for such words in the avoidance phase. The above results suggest that false memories are one of the mechanisms leading to fear generalization and that the effect of false memories on fear generalization can last up to one week.

Keywords：False memory, fear generalization, time effect,valence of emotion

焦虑情绪对网络谣言相信程度和分享意愿的影响

陆辰　徐珍珍　王碧涵　丁雷　梅嘉靖　王俭勤（通讯作者）

复旦大学心理学系，上海，200433，wjq@fudan.edu.cn

摘 要　网络谣言在全球范围内持续蔓延，对社会稳定和个体心理健康造成严重威胁。在这个信息爆炸的时代，焦虑情绪作为现代社会普遍存在的情绪体验，考察焦虑情绪对网络谣言传播的影响具有重要意义。对此，本研究旨在深入探讨焦虑情绪在网络谣言相信程度和分享意愿方面的作用。实验采用 2(情绪状态：焦虑、中性) ×2(信息类型：谣言、真信息) ×（信息主题：病毒类，普通科学类）三因素混合设计，其中情绪状态为被试间变量，信息类型和信息主题为被试内变量。参照众多国内外学者的研究，本研究采用视频诱导的方式诱导被试的情绪。谣言和真信息均选取自腾讯较真平台、中国互联网联合辟谣平台等官方媒体。研究选取了大学生 102 名，2 名被试因曾看过情绪诱导视频被剔除，最终样本量为 100 名被试。被试被随机分为两组: 焦虑组(n=50)和中性组(n=50)。结果发现：（1）在控制前测对谣言的相信程度影响后，两组对后测谣言的相信程度存在显著差异，$F(1,97) = 4.37$, $p = .04$, 偏$\eta^2 = 0.04$，焦虑组被试更容易相信谣言；（2）

在控制前测对真信息的相信程度影响后，两组对后测真信息的相信程度无显著差异，$F(1,97) = 3.02$, $p = .09$, 偏$\eta^2 = 0.02$；（3）在控制前测对病毒类谣言的相信程度影响后，两组对后测病毒类谣言的相信程度存在显著差异，$F(1,97) = 4.48$, $p = .04$, 偏$\eta^2 = 0.04$，焦虑组被试容易相信病毒类谣言（4）在控制前测对普通科学类谣言的相信程度影响后，两组对后测普通科学类谣言的相信程度无显著差异，$F(1,97) = 2.62$, $p = .11$, 偏$\eta^2 = 0.03$。以上结果表明，相比于真信息，焦虑情绪对谣言存在特异性，即更容易相信谣言，且对病毒类谣言的相信程度高于普通科学类谣言。当前的研究结果有助于我们理解焦虑情绪在信息传播过程中的作用。这能够揭示个体在信息传播过程中受到焦虑情绪影响的心理机制，从而为对抗谣言和错误信息提供更有效的策略和干预措施。

关键词　焦虑情绪，网络谣言，真信息，病毒类谣言

The Effect of Anxiety on Rumor Belief and Sharing Behavior

Chen Lu, Zhenzhen Xu, Bihan Wang, Lei Ding, Jiajing Mei, Jianqin Wang
Department of psychology, Fudan University, Shanghai

Abstract： Rumors, as a global phenomenon, present a significant threat to both social stability and individual psychological well-being in today's information-explosion era. Understanding the impact of anxiety on the spread of internet rumors is crucial due to its prevalence as a common emotional experience in modern society. This study aimed to thoroughly investigate the influence of anxiety on individuals' belief in and willingness to share internet rumors. The experiment utilized a 2(emotional state: anxiety, neutral) × 2(information type: rumor, true information) × (information topic: viral, general science) three-factor mixed design, with emotional state as the between-subjects variable, and information type and information topic as the within-subjects variables. Subjects' emotions were induced using video induction based on previous studies conducted by both domestic and international scholars. Rumors and true information were selected from credible media sources such as Tencent's truthful platform and China Internet Joint Rumor Dispelling Platform. The study involved 102 college students, with 2 subjects being excluded due to exposure to the emotion-inducing video, resulting in a final sample size of 100 subjects. Subjects were randomly assigned to either the anxious group (n=50) or the neutral group (n=50).

The findings revealed that (1) after controlling for the effect of pretest belief in rumors, the anxious group displayed a significantly higher belief in posttest rumors compared to the neutral group, $F(1,97) = 4.37$, $p = .04$, partial $\eta^2 = 0.04$; (2) after controlling for the effect of pretest belief in true information, there was no significant difference between the two groups in their belief in posttest true information, $F(1,97) = 3.02$, $p = .09$, partial $\eta^2 = 0.02$; (3) after controlling for the effect of pretest belief in viral rumors, the anxious group exhibited a significantly higher belief in posttest viral rumors than the neutral group, $F(1,97) = 4.48$, $p = .04$, partial $\eta^2 = 0.04$; (4) after controlling for the effect of pretest belief in general science rumors, there was no significant difference between the two groups in their belief in posttest general science rumors, $F(1,97) = 2.62$, $p = .11$, partial $\eta^2 = 0.03$. These results suggest that anxiety is specifically associated with a higher degree of belief in misinformation compared to truthful information, and that individuals experiencing anxiety are more prone to believe in viral rumors than in general scientific rumors.

The study's outcomes shed light on the role of anxiety in the process of information dissemination, revealing psychological mechanisms by which individuals' decision-making during

information sharing is influenced by anxiety. Consequently, the findings offer valuable insights for developing more effective strategies and interventions to combat rumors and misinformation.
Keywords： Anxiety, Rumors, Truth, Viral Rumors

大学生危险和有害饮酒的人格风险因素：一项基于中国 2534 名大学生的横断面研究

徐鑫鹏[1]，苏剑煌[2]，连心桥[3]，周梅森[1]，王紫烟[1]，申昊天[1]，宗豪愉[2]，黄思语[4]，朱健立[1]，Amanda D Wilson[5]，齐涵（通讯作者）[1]，李晓虹（通讯作者）[1]

1 首都医科大学附属北京安定医院，国家精神疾病医学中心，国家精神心理疾病临床医学研究中心，精神疾病诊断与治疗北京市重点实验室，100088 北京市西城区德外安康胡同 5 号

2 首都医科大学附属复兴医院，北京 100038

3 首都医科大学附属潞河医院，北京，100088

4 首都医科大学基础医学院，北京，100088

5 De Montfort University, Leicester, UK

摘 要 背景：大学生中普遍存在饮酒行为，并且自新冠疫情爆发以来其流行率有所增加。然而，关于中国大学生酒精使用障碍的准确流行率和相关人格风险因素的认识仍非常有限。本研究旨在探究中国北京地区大学生过去 12 个月内危险和有害饮酒的流行率和人格风险因素。方法：从 2022 年 7 月 2 日至 11 月 5 日，对北京地区 2534 名大学生进行了横断面调查，使用一系列结构化问卷测量心理结果和人格特征，包括抑郁、焦虑和压力量表（DASS-21）、失眠严重指数（ISI）、视觉模拟量表-焦虑（VAS-A）、感知社会支持量表（PSSS）、感知同伴饮酒压力量表（PPPDS）、寻求刺激性格量表（ESPS）和酒精使用障碍筛查量表（AUDIT）。进行多变量 logistic 回归分析，以确定过去 12 个月内危险和有害饮酒的相关因素。结果：参与者中过去 12 个月内危险和有害饮酒的流行率为 17.25%。随着寻求刺激人格特质、过去 30 天内吸烟频率和感知同伴饮酒压力程度的增加，过去 12 个月内危险和有害饮酒的风险也增加。结论：中国北京地区大学生过去 12 个月内危险和有害饮酒的流行率较高。寻求刺激人格特质可能是过去 12 个月内大学生发生危险和有害饮酒的独立风险因素。使用 NEO 人格问卷（NEO-PI-R）对这种特质进行筛查可能有助于降低发展酒精使用障碍的可能性。
关键词 酒精使用障碍，大学生，人格特质，寻求刺激人格特质

Identifying Personality Risk Factors for Hazardous and Harmful Drinking among College Students: A Cross-Sectional Study of 2534 Students in China

Xin-Peng Xu[1], Jian-Huang Su[2], Xin-Qiao Lian[3], Mei-Sen Zhou[1], Zi-Yan Wang[1], Hao-Tian Shen[1], Hao-Yu Zong[2], Si-Yu Huang[4], Jian-Li Zhu[1], Amanda D Wilson[5], Han Qi[1]， Xiao-Hong Li[1]

1Beijing Anding Hospital, Capital Medical University, Beijing 100088, China

2Fu Xing Hospital, Capital Medical University, Beijing 100038, China

3LuHe Hospital, Capital Medical University, Beijing 101199, China

4School of Basic Medical Sciences, Capital Medical University, Beijing 100069, China

5De Montfort University, Leicester, UK

Abstract：Background: Alcohol use is prevalent among college students, and its prevalence has increased since the outbreak of the coronavirus disease (COVID-19). However, there is limited knowledge regarding the exact prevalence and associated personality factors of alcohol use disorder (AUD) among Chinese college students. This study aims to identify the prevalence and personality risk factors of hazardous and harmful drinking in the last twelve months among college students in Beijing, China. Methods: From July 2nd to November 5th, 2022, a cross-sectional survey was conducted among 2,534 college students in Beijing using a series of structured questionnaires measuring psychological outcomes and personality traits including Depression, Anxiety and Stress Scale (DASS-21), Insomnia Severity Index (ISI), Visual Analog Scales-Anxiety (VAS-A), Perceived Social Support Scale (PSSS), Perceived Peer Pressure for Drinking Scale (PPPDS), Excitement Seeking Personality Scale (ESPS), and Alcohol Users Disorders Identification Test (AUDIT). Multivariable logistic regression was performed to identify the correlative factors of hazardous and harmful drinking in the past twelve months. Results: The prevalence of hazardous and harmful drinking in the last twelve months among participants was 17.25%. As levels of excitement seeking trait, the frequency of smoking in the past 30 days, PPPDS increased, so did the risk of hazardous and harmful drinking in the past twelve months. Conclusions: The prevalence of hazardous and harmful drinking in the last twelve months among college students in Beijing, China has been relatively high. The trait of excitement seeking appears to be an independent risk factor for engaging in hazardous and harmful drinking in the past twelve months among college students. Conducting screenings for this trait using the NEO Personality Inventory (NEO-PI-R) could be beneficial in reducing the likelihood of developing an AUD.

Keywords：Alcohol use disorder, College students, Personality traits, Excitement seeking trait

社交焦虑障碍认知行为治疗技术的德尔菲法研究

刘萌萌[1] 王鹏翀[1] 俞婧[1]李占江[1] 罗佳[1]（通讯作者）

1 首都医科大学附属北京安定医院，国家精神心理疾病临床医学研究中心，北京市精神疾病诊断与治疗重点实验室,北京 100088

通讯作者 E-mail： luojia_0210@163.com

摘 要 目的：本研究拟用德尔菲法（Delphi）调查社交焦虑障碍(Social anxiety disorder, SAD) 认知行为治疗（Cognitive Behavioral Therapy, CBT）技术在国内的应用情况，为进一步优化 CBT 技术，提高其文化适应性奠定基础。方法：复习国内外关于社交焦虑障碍 CBT 的文献及书籍，筛选出 49 项 CBT 技术并制定专家咨询表。邀请国内 26 名 CBT 专家从使用频率、治疗效果贡献度和来访者接受度三个维度进行两轮评估，最后计算各技术得分并进行排序。结果：（1）两轮专家咨询的积极性为 100%，专家权威系数均值为 0.955。技术各维度评分的肯德尔协调系数范围 0.31-0.51（P＜0.01）；（2）排序前五位的技术为建立治疗联盟，心理教育，识别自动思维，微观案例概念化，资料收集；（3）综合秩次排序靠后，但已证实有效性的技术包括意象重构、录像反馈、现场暴露、想象暴露、正念呼吸和身体扫描。（4）专家一致性程度高的技术如下，第一，基本技术如心理教育，治疗联盟建立，资料收集等；第二，认知技术如识别自动思维，识别中间信念，可替代性思维；第三，行为技术如问题解决、社交技能训练、角色扮演。结论：大部分 SAD 的 CBT 技术专家评分一致性较高，在国内适宜性良好，但仍有部分高阶技术的应用存在争议，如动机访谈、意象重构、录像反馈等。另外，相比于行为技术，优先推荐使用基本技术与认知技术。未来可结合中国文化背景进一步调整并优化治疗技术，提高 CBT 技术的文化适应性。

关键词 社交焦虑障碍，认知行为治疗技术，德尔菲法，技术成分

Cognitive behavior therapy techniques for social anxiety disorder: A Delphi study

Liu Mengmeng[1] Wang pengchong [1]Yujing [1] Li Zhanjiang [1], Luo jia [1]
Corresponding author: luo jia, E-mail：luojia_0210@163.com
Department of clinical psychology, Beijing Anding hospital affiliated to Capital Medical University ＆ National Clinical Research Center for Mental Disorders ＆Beijing key laboratory of diagnosis and treatment of mental disorders，Beijing，100088，China

Abstract：Objective: To investigate the application of Cognitive Behavioral Therapy (CBT) techniques for social anxiety disorder (SAD) domestically by the Delphi method. It is helpful for the further study about the optimizing CBT techniques and improving cultural adaptability.

Methods: Domestic and foreign literature and books on CBT for SAD were reviewed, then 49 CBT techniques were screened and expert questionnaires were built. In two rounds of consultation, each technique was scored by 26 CBT experts on three dimensions including frequency, the contribution of efficacy, and acceptability. Finally, CBT techniques were ranked by the scores. Results: (1) The positivity of the two rounds of consultation was 100%, and the mean value of the coefficient of authority was 0.955. The Kendall's W value for each dimension of CBT techniques ranged from 0.31 to 0.51(P< 0.01). (2) The top 5 techniques were establishing therapeutic alliance, psychoeducation, identifying automatic thoughts, micro-case conceptualization, and data collection. (3) Although some techniques are proven to be effective, they rank low on the list. For example, imagery rescripting, video feedback, in-vivo exposure, imaginal exposure, mindfulness of breathing, and body scanning. (4) Technologies with a high degree of expert consistency. First, basic techniques such as psychoeducation, establishing therapeutic alliance, data collection, etc.; Second, thinking techniques such as identifying of automatic thinking, identifying of intermediate beliefs, alternative thinking, etc.; Third, behavioral techniques such as problem solving, social skills training, role playing, etc.

Conclusions: Most of the CBT techniques for SAD have been evaluated by experts with high consistency and suitability for use in China. However, the use of advanced CBT techniques is still controversial, such as motivational interviewing, imagery rescripting, video feedback, and so on. In addition, basic techniques and cognitive techniques were recommended in preference of behavioral techniques. In future studies, the CBT techniques for SAD should be optimized and customized for the Chinese culture.

Keywords：social anxiety disorder, cognitive behavior therapy, Delphi method, technique components

反社会媒体接触与网络引战：敌意归因偏向的中介作用与共情的调节作用

邱越冬[1] 李放[1]（通讯作者）
1 四川师范大学，成都，610066，lifang_sicnu@126.com

摘 要 随着网络与通信技术发展，社交媒体渗入人们生活的方方面面，网络引战作为一种典型的网络恶意行为，其最常见的一种特征是虐待性攻击行为。由于网络引战对受害者造成的巨大伤害以及对网络环境的破坏，引起了很多研究者的广泛关注。前人研究表明，个体经常暴露于反社会媒体内容（包括暴力、酗酒和鲁莽驾驶等），可能会导致其参与攻击性行为频次更高。国内外对网络引战的研究成果较少，且大多研

究着重考察个人特质与网络引战的关系，关于外部环境因素（反社会媒体接触）与网络引战的关系与内部机制尚未明确。因此，本研究基于 I^3 模型、社会认知理论等，采用网络引战问卷、反社会媒体接触问卷、敌意归因偏差问卷以及基本共情问卷对四川、广州等高校共 1322 名大学生进行调查，为探讨反社会媒体接触与网络引战的关系及其作用机制，建构了一个有调节的中介效应模型，检验敌意归因偏差的中介作用以及共情的调节作用。结果表明：（1）网络引战、反社会媒体接触与敌意归因偏向两两显著正相关；（2）反社会媒体接触显著正向预测网络引战；（3）敌意归因偏差在反社会媒体接触与网络引战关系中起部分中介作用；（4）共情调节了“反社会媒体接触→敌意归因偏差→网络引战”的前后半段路径以及间接路径。当共情能力较强时：反社会媒体接触对网络引战、反社会媒体接触对敌意归因偏差、敌意归因偏差对网络引战的预测作用减弱。因此，大学生接触过多的反社会媒体内容会加重敌意归因偏向，进而产生网络引战行为，但是较强的共情能力能减弱反社会媒体接触与敌意归因偏向对于网络引战的消极影响。本研究验证了环境因素、认知因素与个体因素对网络引战行为的共同作用，对大学生网络引战行为的干预提供一定的策略，为加强网络空间道德建设、网络空间行为规范、网络空间生态治理做出贡献。
关键词　网络引战, 反社会媒体接触, 敌意归因偏向, 共情

Antisocial media contact and online trolling: The mediating role of hostile attribution bias and the moderating role of empathy

Yuedong Qiu[a], Fang Li[a](corresponding author)
[a] School of Psychology, Sichuan Normal University, China

Abstract：With the development of network and communication technology and the penetration of social media into every aspect of people's lives, one of the most common features of online trolling as a typical malicious behaviour on the Internet is abusive aggressive behaviour. Due to the great harm caused by online trolling to the victims and the damage to the cyber environment, it has attracted extensive attention from many researchers. Previous studies have shown that individuals' frequent exposure to antisocial media content (including violence, alcohol abuse, and reckless driving) may lead to a higher frequency of participation in aggressive behaviours. There are fewer domestic and international studies on online trolling, and most of them focus on the relationship between personal traits and online trolling, while the relationship between external environmental factors (antisocial media contact) and online trolling and the internal mechanisms have not yet been clarified. Therefore, based on the I^3 model, social cognitive theory, etc., this study used the online trolling questionnaire, antisocial media contact qestionnaire, hostile attribution bias questionnaire, and basic empathy questionnaire to survey a total of 1,322 college students in universities in Sichuan, Guangzhou, etc., and in order to explore the relationship between antisocial media contact and online trolling and its mechanism of action, a moderated mediation effect model was constructed to test the hostile attribution bias's mediating effect and the moderating effect of empathy. The results showed that (1) online trolling, antisocial media contact, and hostile attribution bias were both significantly and positively correlated; (2) antisocial media contact significantly and positively predicted online trolling; and (3) hostile attribution bias partially mediated the relationship between antisocial media contact and online trolling; (4) Empathy moderated the first and second half of the path "antisocial media contact → hostile attribution bias → online trolling" as well as the indirect path. When empathy was strong, the predictive effects of antisocial media contact on online trolling, antisocial media contact on hostile attribution bias, and hostile attribution bias on online trolling were weakened. Thus, college students' exposure to excessive antisocial media

content increases hostile attribution bias, which in turn leads to online trolling behaviours, but stronger empathy attenuates the negative effects of antisocial media contact and hostile attribution bias on online trolling behaviours. This study verifies the joint role of environmental factors, cognitive factors and individual factors on online trolling behaviours, and provides certain strategies for the intervention of college students' online trolling behaviours, contributing to the enhancement of the construction of cyberspace morality, cyberspace behavioural norms, and cyberspace ecological governance.

Keywords：online trolling, antisocial media contact, hostile attribution bias, empathy

脑电功率谱分析揭示抑郁症的潜在生物标志物

蔡晓晴[1, 2]，陈婷婷[1, 2]，钟明天[1, 2]（通讯作者）

1 华南师范大学心理学院心理应用研究中心，广州，510631

2 华南师范大学脑认知与教育科学教育部重点实验室，广州，510631，ztomorrow@126.com

摘 要 目的：抑郁症是一种常见的慢性精神障碍疾病，其致病原因复杂且康复率较低。目前，抑郁症的临床诊断主要根据患者主观报告及医生诊断结果，存在较强的主观性和高漏诊、误诊率。本研究使用脑电图（EEG）技术测量脑电生理指标，旨在寻找更精确的抑郁症检测和诊断生物标志物，并探究抑郁症脑功能结构变化和发病机制。方法：在某综合性三甲医院招募了 79 名经过 DSM-5 确诊且未服药的抑郁症患者以及来自社区的 54 名健康对照组被试。采用 Neuroscan 公司的 64 导脑电检测仪收集两组被试的 6 分钟静息态脑电数据，对预处理后的数据进行功率谱分析，计算了δ（1-3Hz）、θ（4-7Hz）、α（8-13Hz）、β（14-30Hz）四个频段的绝对功率值，以及左右脑半球的不对称性指数，并对比了两组间的差异。此外，使用流调中心用抑郁量表、状态特质焦虑量表、情感强度量表分别对被试的抑郁水平、焦虑水平以及情感强度进行数据采集，并使用相关分析探究生理指标与量表得分之间的关系。结果：(1)抑郁组被试在δ、θ、α和β四个频段上的绝对功率值均显著高于对照组。(2)其中δ、θ和α频段上的差异在前额叶、中央区、顶叶及枕叶区均有体现，而β频段的差异仅集中在中线区附近的额叶、中央区及顶叶区。(3)两组均未发现额叶α的左右半球不对称，但发现了两组被试均存在δ波在额区的右侧不对称及颞区的左侧不对称。(4)两组被试在抑郁及特质焦虑量表得分上有显著差异（$t = -14.05$, $p < 0.001$; $t = -3.593$, $p < 0.001$）。(5)四个频段的功率值与两组被试的抑郁水平之间均不存在显著相关。α与θ功率值与抑郁被试的特质焦虑水平呈显著正相关（$r = 0.31$, $p < 0.01$; $r = 0.29$, $p < 0.05$），而对照组被试中未发现显著相关结果。结论：脑电功率值差异有望成为可靠的抑郁症识别生物标志物，但额区的半球不对称性在抑郁症诊断中的潜在作用仍有待进一步探索。

关键词 抑郁症，静息脑电，功率谱，半球不对称性

Electroencephalogram Power Analysis Reveals Potential Biomarkers for Depression

CAI Xiaoqing[1,2], CHEN Tingting[1,2], ZHONG Mingtian[1,2] (Corresponding Author)

1 Center for Studies of Psychological Application, School of Psychology, South China Normal University, Guangzhou, 510631, China

2 Key Laboratory of Brain, Cognition and Education Sciences, South China Normal University, Ministry of Education, Guangzhou 510631, China

Abstract： Objective: Depression is a prevalent and chronic mental disorder with complex etiology and low

recovery rates. Currently, the clinical diagnosis of depression still relies heavily on patients' subjective reports and doctors' assessments, leading to considerable subjectivity and high rates of misdiagnosis. Therefore, this study aimed to employ electroencephalogram (EEG) technology to measure electrophysiological indicators of brain activity, with the goal of identifying more precise biomarkers for depression detection and diagnosis. Moreover, this study aimed to investigate in brain function structure and unravel the pathophysiological mechanisms underlying depression. Methods: A total of 79 medication-naïve patients with major depressive disorder (MDD) diagnosed according to DSM-5 criteria were recruited from a comprehensive tertiary hospital, along with 54 healthy control subjects from a community. Resting-state EEG data were collected using a 64-channel Neuroscan system for both groups during a 6-minute recording. Preprocessed data were subjected to power spectrum analysis, calculating absolute power values for four frequency bands: δ (1-3Hz), θ (4-7Hz), α (8-13Hz), and β (14-30Hz). Asymmetry indices for the left and right hemispheres were also computed, and differences between the two groups were compared. Additionally, depression levels, anxiety levels, and emotional intensity were assessed using the Center for Epidemiological Studies Depression Scale (CES-D), State-Trait Anxiety Inventory (STAI), and State Affect Intensity Scale (SAIS), respectively. Correlation analysis was conducted to explore the relationships between physiological indicators and scale scores. Results: (1) The MDD group exhibited significantly higher absolute power values in the δ, θ, α, and β frequency bands compared to the control group. (2) The group differences in δ, θ, and α frequency bands were significant in the frontal, central, parietal, and occipital regions, while the group differences in the β frequency band were only localized in the frontal lobe, central region, and parietal lobe near the midline region. (3) No significant hemisphere asymmetry in α activity was found in either group, however, both groups exhibited right-sided asymmetry in δ activity in the frontal region and left-sided asymmetry in the temporal region. (4) There were significant differences between the two groups of subjects in terms of scores on the depression and trait anxiety scales ($t = -14.05$, $p < 0.001$; $t = -3.593$, $p < 0.001$). (5) No significant correlation were observed between power values in the four frequency bands and depression levels in either group. The power values of α and θ were significantly positively correlated with trait anxiety levels in MDD group ($r = 0.31$, $p < 0.01$; $r = 0.29$, $p < 0.05$), while no significant correlations were found in the control group. Conclusion: The EEG power differences hold promise as reliable biomarkers for depression identification, while the diagnostic utility of frontal alpha asymmetry in depression needs to be further explored.

Keywords：Depression, Resting EEG, Power spectrum, Frontal alpha asymmetry

社交媒体多任务行为相关研究综述与展望

李佳徽[1] 杜捷[2]（通讯作者）

1 重庆工商大学工商管理学院，重庆，400000

2 重庆工商大学工商管理学院，重庆，400000，通讯作者 jdu@ctbu.edu.cn

摘 要 媒体多任务行为是指同时对多个电子或非电子媒体任务进行处理或做出反应。本文整合了国内外相关研究，主要提炼以下四点内容：（1）媒体多任务行为的概念辨析：主要分析了媒体多任务、任务转换、多媒体任务三个概念的联系与区别；（2）媒体多任务行为的测量工具：主要包括问卷调查法（Media Use Questionnaire, MUQ）、实验法；（3）媒体多任务行为的理论基础：使用满足理论（Use & Gratifications Theory）、社会学习理论（Social Learning Theory）、自我决定理论（Self-Determination Theory）、认知资源限制理论（The Limited Capacity Theory）、沉浸理论和自我调节理论、媒介生态理论（Media Ecology Theory）、有界广义互惠理论（Bounded Generalized Reciprocity Theory）和无界间接互惠理论（Unbounded Indirect Reciprocity

Theory）；（4）媒体多任务行为的相关研究：1)对认知控制影响：一个是注意训练假设，是指认知控制的切换功能因在频繁的媒体多任务处理过程中得到训练而提高。另一个是注意分散假设，是指经常进行媒体多任务行为处理会损害个体认知控制中的持续注意力；2)对情绪的影响：目前学术界大部分学者认为媒体多任务行为对个体的情绪呈负向影响；3)对创造力的影响：无论媒体多任务与创造性思维还是创造性行为表现,研究结果都更多呈现非负性关系；4)“前因后效”式影响：引起媒体多任务行为的动机可能有错失恐惧、享受与联系、无聊、信息、习惯性使用，造成的效果可能存在认知分心、学业下降、问题性使用手机。
关键词 社交媒体，媒体多任务，认知控制

A review and prospect of research on social media multitasking behavior

Li Jiahui[1], DU Jie[1]
[1] School of Business Administration, Chongqing Technology and Business University, Chongqing 400000, China

Abstract: Media multitasking refers to processing or reacting to multiple electronic or non-electronic media tasks at the same time. This paper integrates relevant research at home and abroad, and mainly extracts the following four points: (1) Conceptual analysis of media multitasking behavior: it mainly analyzes the connection and difference between the three concepts of media multitasking, task conversion and multimedia tasking; (2) Measurement tools for media multitasking behavior: mainly including Media Use Questionnaire (MUQ) and experimental methods; (3) Theoretical basis of media multitasking behavior: Use & Gratifications Theory, Social Learning Theory, Self-Determination Theory, The Limited Capacity Theory, Immersion Theory and Self-Regulation Theory, Media Ecology Theory, Bounded Generalized Reciprocity Theory and Unbounded Indirect Reciprocity Theory; (4) Research on media multitasking behavior: (1) Impact on cognitive control: One is the attention training hypothesis, which means that the switching function of cognitive control is improved by being trained in the process of frequent media multitasking. The other is the attention distraction hypothesis, which means that frequent media multitasking behavior processing can impair sustained attention in individual cognitive control; (2) Impact on emotions: At present, most scholars in academia believe that media multitasking behavior has a negative impact on individual emotions; (3) Impact on creativity: Whether media multitasking and creative thinking or creative behavior performance, the results of the study show more non-negative relationships; (4) "anteced ent and post" effects: The motivation that causes media multitasking behavior may be missed fear, enjoyment and connection, boredom, information, habitual use, and the effects may be cognitive distraction, academic decline, and problem use of mobile phones.
Keywords: social media, media multitasking, cognitive control

跨文化视角下父母家庭功能、二元应对与养育倦怠关系探究

库都尼戈·库尔班[1]　斯琢然[1]　王广新[1]（通讯作者）
1 北京林业大学，北京，100091，wgx8868@163.com

摘 要　养育倦怠(Parental burnout)是个体因为其父母角色长时间暴露在家庭需要和育儿压力中而导致的慢性疲劳和情绪失调。过去研究中提出家庭功能，即婚姻满意度和共同养育关系可能是养育倦怠的重要预测因素。二元应对既指个体试图帮助减轻他(她)的伴侣感受到的外部压力，又指两人应对压力的共同努力，二元应对可能是出现养育倦怠的重要影响因素。养育倦怠易导致夫妻冲突，对儿童的忽视和暴力行为等负性后果，因此探究其影响因素及作用机制是至关重要的。本研究基于家庭系统理论、风险-资源平衡理论以及家庭危机和适应的双 ABC-X 模型，以 995 个来自汉族和维族家庭的家长为研究对象，在跨文化视角下考察二元应对和家庭功能(婚姻满意度、共同养育关系)与养育倦怠的关系，探究养育倦怠发展的影响因素和机制。结果发现：(1)汉族家庭和维族家庭在二元应对、共同养育关系、婚姻满意度和养育倦怠均有显著差异。(2)养育倦怠受民族、孩子性别、家庭孩子数量、主观经济压力水平的影响。(3)二元应对、婚姻满意度、共同养育关系与养育倦怠之间存在显著负相关。(4)在汉族家庭中,以婚姻满意度和共同养育关系为中介变量的链式中介模型成立($X^2/df=0.49$, RMSEA=0.00, NFI=0.99 , CFI=1.00, TLI=0.99)，夫妻间更好的二元应对会提升他们的婚姻满意度和共同养育关系，从而减少父母养育倦怠。在维族家庭中，二元应对仍能够显著预测养育倦怠，但婚姻满意度及共同养育的中介效应不显著。结论：二元应对对于养育倦怠具有预测效应，其中对于汉族家庭来讲，当夫妻的二元应对水平较高时，更可能具有较强的婚姻满意度和共同养育关系，从而表现出更少的养育倦怠。

关键词　养育倦怠，二元应对，婚姻满意度，共同养育关系

Research on the relationship between family function, dyadic coping and parenting burnout of Uyghur and Han parents from a cross-cultural perspective

Kudunige Kuerban　Zhuoran Si　Guangxin Wang
Beijing Forestry University, Beijing, China

Abstract：Parental burnout is a chronic stress-related disorder experienced in the parental role. Previous studies have suggested that family functioning (marital satisfaction and co-parenting relationships), is important predictors of parenting burnout. Dyadic coping refers to both the individual's attempt to help alleviate the external pressure felt by his or her partner and the joint efforts of the two to cope with the pressure. Dyadic coping may be an important factor in the emergence of parenting burnout. Parenting burnout can easily lead to conflict between couples, neglect of children, violence and other negative consequences, so it is very important to explore its influencing factors and mechanism.. Based on the family system theory, risk-resource balance theory, and the dual ABC-X model of family crisis and adaptation, this study examined the relationship between dyadic coping and family functioning (marital satisfaction, co-parenting relationship) and parental burnout from a cross-cultural perspective, taking 995 parents from Han and Uyghur families as research objects. To explore the influencing factors and mechanisms of the development of parenting burnout. The results show that: (1) There are significant differences between Han and Uyghur families in dyadic coping, co-parenting relationship, marital satisfaction and parental burnout. (2) Parental burnout was affected by ethnicity, child gender, number of children in the family, and subjective economic pressure level. (3) There is a significant negative correlation between dyadic coping, marital satisfaction, co-parenting relationship with parental burnout. (4) In Han families, the chain mediating model with marital satisfaction and co-parenting relationship as mediating variables was established ($X^2/df=0.49$,

RMSEA=0.00, NFI=0.99, CFI=1.00, TLI=0.99). Better dyadic coping between couples will increase their marital satisfaction and co-parenting relationship, thereby reducing parental burnout. In Uyghur families, dyadic coping can still significantly predict parental burnout, but the mediating effect of marital satisfaction and co-parenting is not significant. Conclusion: Dyadic coping has predictive effect on parental burnout. For Han families, couples with higher dyadic coping level are more likely to have stronger marital satisfaction and co-parenting relationship, and thus show less parenting burnout.

Keywords：parental burnout，dyadic coping，marital satisfaction，coparenting relationship

基于古代动物雅称学习的睡眠巩固效应

孙文涛，高乾程，刘妮娜（通讯作者）
天津师范大学心理学部，天津，3000378
通讯作者 E-mail：lnnair@163.com

摘要　睡眠在知识学习和记忆巩固中扮演重要角色。来自新词学习的研究发现，睡眠有助于增强新词表征及其语义网络整合，即新词睡眠巩固效应。然而，现有研究主要基于拼音规则的文字（如英语）使用或学习者，缺乏来自汉语这一独特拼义文字的证据；同时研究中常使用人工假词作为学习材料，对结果的生态效度产生一定影响。因此，本研究旨在在汉语为母语的人群中，采用具有中国文化底蕴的古代动物雅称作为新词材料（如，因为兔子双目通红，古人认为其视力超群，祭祀后人们可以获得洞穿鬼魅的能力，所以用“明视”指代“兔子”），进一步探究新词学习中的睡眠巩固效应。研究采用经典的睡眠巩固范式（见附件图 1），将 40 名大学生被试随机分为睡眠-清醒组和清醒-睡眠组。被试在充分学习 9 个动物雅称后，在 0 小时(T1)，12 小时(T2)和 24 小时(T3)后进行三次测试。每次测验包括反映新词形-音-义表征的概念回忆和快速命名任务，以及反映新词语义整合的大小判断任务。同时，在所有测试之前通过警觉性任务来严格控制昼夜节律对结果的影响。研究结果显示，在新词形-音-义表征和语义整合任务中均发现显著的睡眠巩固效应，表现为两组被试在夜间睡眠后概念回忆率更高和命名速度更快，以及更强的语义距离效应。更重要的是,睡眠-清醒组的睡眠巩固效应（T2）显著大于清醒-睡眠组(T3)，这表明学习后短时间内进入睡眠对新词的巩固更为有利。本研究的发现进一步丰富了新词学习中的睡眠巩固证据，并对记忆互补学习系统模型（complementary learning systems models of memory）提供了一定的启示。

关键词　睡眠巩固，新词学习，汉语，动物雅称

The Sleeping Consolidation Effect on Learning of Animal Nicknames in Ancient Chinese

Wentao Sun, Qiancheng Gao, Nina Liu
Faculty of psychology, Tianjin Normal University, Tianjin, China

Abstract：Sleep plays an important role in knowledge learning and memory consolidation. Research from new word learning finds that sleep helps to enhance the representation of new words and their Semantic network integration, that is, the sleep consolidation effect of new words. However, the existing research is mainly based on the users or learners of pinyin rule characters, and the lack of evidence from Chinese, a unique group of spelling characters; At the same time, artificial pseudowords are often used as learning materials in research, which has a certain impact on the ecological validity of the results. Therefore, this study aims to use ancient animal nicknames with Chinese cultural heritage as new word materials among Chinese native speakers (for example, because rabbits

have bright red eyes, the ancients believed that their vision was superior, and people can obtain the ability to penetrate ghosts after sacrificial ceremonies, so "ming shi" is used to refer to "rabbit"), in order to further explore the sleep consolidation effect in new word learning. The study used the classic sleep consolidation paradigm (see Figure 1 in the attachment) and randomly divided 40 college students into a sleep-awake group and a awake-sleep group. After fully learning 9 animal names, the subjects underwent three tests after 0 hours (T1), 12 hours (T2), and 24 hours(T3). Each test includes conceptual recall and rapid naming tasks that reflect the form-sound-meaning representation of new words, as well as size judgment tasks that reflect the semantic integration of new words. At the same time, the influence of Circadian rhythm on the results was strictly controlled by vigilance task before all tests. The research results showed that significant sleep consolidation effects were found in both new word form-sound-semantic representation and semantic integration tasks, manifested as higher concept recall rate and faster naming speed after nighttime sleep in both groups of participants, as well as stronger semantic distance effects. More importantly, the sleep consolidation effect (T2) of the sleep-awake group was significantly greater than that of the awake-sleep group (T3), indicating that entering sleep for a short period of time after learning is more beneficial for the consolidation of new words. The findings of this study further enrich the evidence of sleep consolidation in new word learning and provide some insights into the complementary learning systems models of memory.

Keywords： sleep consolidation, new word learning, Chinese, animal nickname

附件

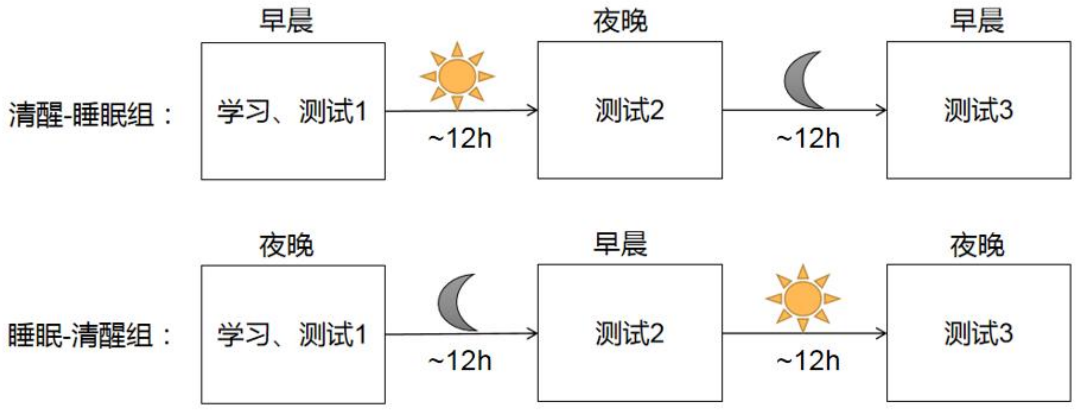


图 1 睡眠巩固范式

基于网络的行为激活和自我同情干预对抑郁症状的疗效对比：随机对照试验的 Meta 分析

刘钦钦 [1,3]　吴姗茜 [2,3]　房捷欣 [4]　胡永东 [4]（通讯作者）

1 首都医科大学应用心理学系，北京，100088

2 首都医科大学精神病学系，北京，100088

3 首都医科大学附属北京安定医院，北京，100088

4 首都医科大学附属北京朝阳医院，北京，100069

通讯作者邮箱：huyongdong@bjcyh.com

摘 要　目的：行为激活和自我同情干预是两种有助于减少抑郁症状的治疗方式。行为激活因其更简洁方便的治疗元素而被认为是认知行为治疗的有效替代手段；自我同情是一种以善意和非判断性理解来开放和减轻自己痛苦的能力，在减轻抑郁症状、焦虑和压力方面也发挥重要作用。自我同情的培养可以通过正念和冥想来实现。近年来，这两种治疗方式也发展出了基于网络的新的治疗形式，但目前基于网络形式实施的治疗有效性仍不清楚。该研究旨在通过检查基于互联网的行为激活和自我同情干预的现有证据，比较两种线上干预方式在改善抑郁症状伤的疗效。

方法：遵循了系统综述和荟萃分析的首选报告项目（PRISMA）报告指南。根据 PICOS（人群、干预、比较、结局、研究设计）模型设计入选标准。研究人员检索了 PubMed，MEDLINE，Embase，PsycINFO 和科克伦系统评价数据库，以获得 2000 年至 2023 年 7 月 1 日发表的相关研究。还检索了收集结果中引用的参考文献，以补充文献。纳入标准为：（1）随机对照试验；（2）以基于网络的行为激活干预/基于网络的自我同情干预作为主要治疗成分；（3）结果报告抑郁症状，并采用定量结果测量。由 2 名独立审查员进行标题和摘要筛选以及全文筛选、信息提取。采用偏倚风险工具（RoB 2）对研究的偏倚风险进行评估。采用综合荟萃分析第 3 版（Comprehensive Meta-Analysis Version 3）对数据进行汇总分析，并对实验组的干预类型进行了亚组分析。

结果：共纳入 20 篇文献，共 4111 例受试者。结果显示基于网络的行为激活和基于网络的自我同情干预在降低治疗后抑郁症状严重程度方面不存在差异（P=0.075>0.05）。偏倚风险评估显示，所有研究至少存在一些问题，并且有证据表明存在轻微的出版偏倚。

结论：基于网络的行为激活和基于网络的自我同情干预在抑郁症状的缓解上没有显著差异，都可以作为抑郁减少抑郁的有效手段。

关键词　行为激活，自我同情，抑郁，元分析，互联网

Comparative efficacy of network-based behavioral activation and self-compassion interventions for depressive symptoms: a Meta-analysis of randomized controlled trials

Qinqin Liu[1,3]　Shanqian Wu[2,3]　Jiexin Fang[4]　Yongdong Hu[4](Corresponding author)

1 Department of Clinical Psychology, Capital Medical University, Beijing, 100088

2 Department of Psychiatry, Capital Medical University, Beijing, 100088

3 Beijing Anding Hospital, Capital Medical University, Beijing, 100088

4 Beijing Chao-Yang Hospital, Capital Medical University, Beijing,100069

email:huyongdong@bjcyh.com

Abstract: OBJECTIVE: Behavioural activation and self-compassion interventions are two therapeutic modalities that can help reduce depressive symptoms. Behavioral activation is considered an effective alternative to cognitive-behavioral therapy due to its more concise and convenient therapeutic elements; self-compassion, the ability to open up and alleviate one's suffering with kindness and non-judgemental understanding, also plays an important role in the reduction of depressive symptoms, anxiety, and stress. Self-compassion can be cultivated through positive thinking and meditation. In recent years, new forms of web-based therapy have also been

developed for both of these modalities, but the effectiveness of web-based forms of therapy implemented at this time remains unclear. This study aimed to compare the efficacy of two online interventions in improving depressive symptomatic injuries by examining the available evidence for internet-based behavioral activation and self-compassion interventions.

METHODS: The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) reporting guidelines were followed. Inclusion criteria were designed according to the PICOS (Population, Intervention, Comparison, Outcome, Study Design) model. The researchers searched PubMed, MEDLINE, Embase, PsycINFO, and Cochrane Systematic Evaluation databases for relevant studies published between 2000 and 1 July 2023. References cited in the collection of results were also searched to supplement the literature. Inclusion criteria were (1) randomized controlled trials; (2) web-based behavioral activation interventions/web-based self-compassion interventions as the primary treatment component; and (3) outcome reporting of depressive symptoms with quantitative outcome measures. Title and abstract screening, as well as full-text screening, and information extraction, were performed by 2 independent reviewers. The risk of bias in the studies was assessed using the risk of bias tool (RoB 2). Data were pooled and analyzed using Comprehensive Meta-Analysis Version 3 (CMA 3.0), and subgroup analyses were conducted for the type of intervention in the experimental group.

RESULTS: A total of 20 papers with 4111 subjects were included. Results showed no difference between web-based behavioral activation and web-based self-compassion interventions in reducing the severity of post-treatment depressive symptoms (p=0.075>0.05). Risk of bias assessments showed at least some problems in all studies and evidence of slight publication bias.

CONCLUSION: Internet-based behavioral activation and Internet-based self-compassion interventions did not differ significantly in the alleviation of depressive symptoms, and both can be effective means of depression reduction.

Keywords：Behavioral activation,Self-compassion,Depression, Meta-analysis, Internet

家庭环境因素和抑制控制与学前儿童体质健康的关系：差别易感性假说的应用

王健楠[1] 郝翠荣[1] 翟相颖[1] 周楠[1]（通讯作者）

1 首都师范大学学前教育学院，北京，100048

通讯作者 E-mail：nanzhou@cnu.edu.cn

摘 要 差别易感性假说提出，具有易感性特质的儿童对积极或消极的教养环境更加敏感，也可以用来解释遗传与环境影响儿童肥胖风险的复杂方式（Belsky, 1997；Molle, et al., 2017）。我国学前儿童超重和肥胖问题日趋严峻，而学前儿童体质健康更是个体特质与家庭环境交互作用的结果（史欣然，2020；Martin-Biggers et al., 2018）。家庭环境中的家庭社会经济地位与家庭嘈杂度都能直接预测儿童体质健康（Leung, 2014），而儿童饮食行为则可能是介导家庭环境与儿童体质指数的重要因素（张晶晶，2022；Lumeng，2014）。近期研究指出，抑制控制很可能是个体体质健康重要的“易感性”特质，从而调节家庭环境对体重的作用（Grammer, 2022）。因此，本研究拟通过建立有调节的链式中介模型，探究家庭环境、抑制控制与学前儿童体质健康间的作用机制。

本研究选取北京市城乡幼儿园 227 名学前儿童（M_{age} = 4.65, SD = 0.84；男生 116 名）为研究对象。根据 WHO《学龄前儿童生长发育标准》评估学前儿童体质指数，通过 EYT GO/NO GO 任务（Howard, et al., 2016）与礼物诱惑任务（Carlson, et al., 2001）测查学前儿童的冷、热抑制控制。采用问卷对家庭社会经济地位（潘

月娟，2019）、家庭嘈杂度（Matheny, et al., 1995）以及学前儿童饮食行为（Wardle, et al., 2001）进行测量。

结果发现：（1）家庭嘈杂度与学前儿童过饱响应、进食缓慢、食物响应、食物喜好等饮食行为在家庭社会经济地位与儿童体质指数间的链式中介效应显著。（2）冷抑制控制在家庭嘈杂度与学前儿童食物喜好饮食行为间的调节效应显著，$F(6, 220) = 2.73$, $p < 0.05$, $R^2 = 0.07$，家庭社会经济地位→家庭嘈杂度→食物喜好→儿童体质指数的链式中介模型受到冷抑制控制的调节作用，β = -0.10, 95% CI = [-0.22, -0.01]，即有调节的链式中介模型成立。冷抑制控制得分为中（*M*）、低水平（*M*-1*SD*）时，增强了家庭嘈杂度对学前儿童食物喜好的负向预测作用。

本研究考察了家庭环境因素与学前儿童体质健康间的链式中介关系，首次在家庭环境与饮食行为关系中引入抑制控制作为调节变量，并验证了差别易感性假说。本研究结果不仅为儿童超重肥胖的研究提供了新的理论视角，而且对于通过重视儿童个体易感特质和家庭环境中的积极因素以促进学前儿童体质健康水平提供了实证支持。

关键词　抑制控制，家庭社会经济地位，家庭嘈杂度，饮食行为，儿童体质指数

The Association Between Family Environmental Factors and Inhibitory Control and Physical Health in Preschool Children: Application of The Differential Susceptibility Model

Jiannan Wang　Cuirong Hao　Xiangying Zhai　Nan Zhou
Capital Normal University，Beijing，100048

Abstract：Differential susceptibility hypothesis, which proposes that children with susceptibility traits are more sensitive to positive or negative parenting environments, can also be used to explain the complex mechanism in which genetics and environment interact to influence childhood obesity risk (Belsky, 1997; Molle, et al., 2017). The problem of childhood overweight and obesity in China is becoming increasingly serious, and preschool children's physical health is the result of the interaction between individual traits and the family environment (Shi, 2020; Martin-Biggers et al., 2018). Both family socioeconomic status and chaos in the family environment directly predict children's physical health (Leung, 2014), while children's eating behaviors may be an important factor mediating family environment and children's body mass index (Zhang, 2022; Lumeng, 2014). Recent studies have suggested that inhibitory control is likely to be an important "susceptibility" trait for individual physical health, moderating the role of family environment on body weight (Grammer, 2022). Therefore, the present study was designed to investigate the underlying mechanisms of family environment, inhibitory control, and preschool children's physical health through the establishment of a moderated chain-mediated model.

In this study, 227 preschool children (M_{age} = 4.65, *SD* = 0.84; 116 boys) from urban and rural kindergartens in Beijing were selected. The preschoolers' body mass index was assessed according to the WHO Standard for Growth and Development of Preschool Children, and the preschoolers' level of cold and heat inhibition control was measured by the EYT GO/NO GO task (Howard, et al., 2016) and the Gift Temptation Task (Carlson, et al., 2001). Questionnaires were used to measure family socioeconomic status (Pan, 2019), Chaos (Matheny, et al., 1995), and children's eating behaviors (Wardle, et al., 2001).

The results found that: (1) Family chaos was significantly associated with the preschool children's eating behaviors such as satiety responsiveness, slowness in eating, food responsiveness, and enjoyment of food in terms

of the chain-mediated effects between socioeconomic status and children's body mass index. (2) The moderating effect of cold inhibitory control between family chaos and preschool children's enjoyment of food eating was significant, $F(6, 220) = 2.73$, $p < 0.05$, $R^2 = 0.07$, and the chain-mediated model of socioeconomic status→chaos→enjoyment of food→BMI was moderated by cold inhibitory control, $\beta = -0.10$, 95% CI = [-0.22,-0.01], and the chain-mediated model with moderation held. Cold inhibition control scores enhanced the negative predictive effect of family chaos on preschoolers' enjoyment of food at low to moderate levels.

This study examined the chain-mediated associations between family environment factors and preschool children's physical health, introduced inhibitory control as a moderating variable in the associations between family environment and eating behaviors, and proved the differential susceptibility model. This study not only provided new research perspectives for childhood obesity in China, but also has important value for paying particular attention to child individual susceptibility trait and family environment in order to promote the improvement of preschool children's physical health.

Keywords：inhibitory control, socio-economic status, family chaos, eating behaviors, BMI

不同学习方式下医学生的学习沉浸体验的访谈研究报告

谢金营[1]，侯晓婷[1]，王静谦[1]，于丽玲[2]（通讯作者）

1 首都医科大学医学人文学院应用心理学系，北京，100101

2 首都医科大学医学人文学院医学心理学系，北京，100101，通讯作者 E-mail：liling07@ccmu.edu.cn

摘 要 学习沉浸体验是学习任务表现的重要影响因素，数字化时代下医学生的学习存在着学习方式的多样性。为考察不同学习方式下医学生的学习沉浸体验，采用深度访谈法收集资料，使用扎根理论资料分析法分析资料。选取北京某医科院校共 15 名医学生，其中男生 5 名，女生 10 名；精神医学 2 名，基础医学 7 名，助产学 1 名，口腔医学 1 名，预防医学 2 名，卫生法学 2 名。选取 3 种常见的学习方式：线上课堂、线下课堂以及自习。发现：（1）在自主报告时，线上课堂中的学习沉浸体验明显低于线下课堂中的学习沉浸体验，甚至有的个体在线上课堂中的学习沉浸体验为零，自习时的学习沉浸体验远高于其他两种学习形式；（2）影响个体的学习沉浸体验的因素主要有：成就动机、对学习内容的兴趣、老师的授课风格、上课的时间、个体的身体状态等因素；（3）在三种学习方式下，成就动机和学习内容的兴趣对个体的学习沉浸体验均有较大影响；（4）不论是线上课堂还是线下课堂，老师的讲课风格对于学生的学习沉浸体验的作用较大；（5）在自习时，个体所处的环境以及自习的时间会对学习沉浸体验产生影响；（6）当个体过于焦虑（不论是学业压力还是其他压力）均会对个体的学习沉浸体验产生影响；（7）在学习沉浸体验过程中，个体的身体状态的表现为：注意力集中、思维活跃、情绪趋近于平静或产生愉悦感。

关键词 学习沉浸体验；扎根理论；访谈

An interview study of medical students' learning flow experience in different learning styles

Xie Jinying, Hou Xiaoting, Wang Jingqian, Yu Liling

Department of Applied Psychology, School of Medical Humanities, Capital Medical University, Beijing 100101, China

Abstract: Learning flow experience is an important influence on the performance of learning, and there exists a diversity of learning styles in medical students' learning in the digital era. In order to examine the learning flow experience of medical students under different learning styles, interview was used to collect data, and data were analyzed by using the rooted theory. A total of 15 medical students were selected from a medical university in Beijing, including 5 male and 10 female students; 2 in psychiatry, 7 in basic medicine, 1 in midwifery, 1 in stomatology, 2 in preventive medicine, and 2 in health law. Three common learning modes were selected: online classroom, offline classroom, and self-study. It was found that: (1) in self-reporting, the learning flow experience in the online classroom was significantly lower than that in the offline classroom, and some individuals even had no learning flow experience in the online classroom, and the learning flow experience in self-study was much higher than that of the other two forms of learning; (2) the factors that affected the individual's learning flow experience mainly included: achievement motivation, interest in the content of the study, the instructor's style of teaching, class time, and individual's physical condition; (3) under the three learning modes, achievement motivation and interest in learning content have a greater impact on individual's learning immersion experience; (4) no matter whether it is an online classroom or an offline classroom, the teaching style has a greater impact on student's learning flow experience; (5) during self-study, the environment and time have an impact on the learning flow experience; (6) when the individual is too anxious (whether it is academic pressure or other pressures), it will have an impact on the individual's learning flow experience; (7) In the process of learning, the individual's physical state is manifested as concentration, active thinking, calmness or a sense of pleasure.

Keywords: learning flow experience, rooted theory, interview

焦虑与体育高考生考试表现的关系研究现状与展望

刘青[1]　钟建伟[1]

1 江西师范大学体育学院，江西，330046

摘 要　长期以来情绪在生活中的作用收到了广泛的关注，而焦虑属于情绪的一种，焦虑作为一种普遍存在于生活各个情境的负性心理，国内外对于焦虑的研究和干预已经有不少研究。在不同的情境中对象中，焦虑会有不同，以体育高考生为对象，国内研究焦虑对体育高考生考试表现的关系及其影响的研究不断而出。然而，体育高考作为中国本土特色化考试，还包含着本土特征。首先，仅有文章并未对在体育高考这一特殊的背景环境下，对其体育高考焦虑做出定义，本研究总结前人焦虑观点，基于扎根理论的研究方法，提出需要对体育高考焦虑的内涵与结构进行重构;其次，在体育高考焦虑测量上，仅有的文章在测量体育高考焦虑上与现实融合度不够，没有充分考虑到体育高考生这个群体的特殊性，本研究在分析成熟焦虑量表上，提出需再结合中国本土化体考情境下，进行量表改良，使其更加能够准确测量体育高考焦虑水平；最后，在焦虑影响体育高考生考试表现的作用机制研究上，国内研究者多数从焦虑、考试焦虑、竞赛焦虑来分析与体育高考生考试表现关系，且较少涉及多个变量。但影响体育考生考试表现的心理机制是复杂、必然受到多个变量的共同影响。且大部分研究的体育高考生考生表现主要是从考试成绩来评定，需将进一步立足于体育高考生特殊对象实际，探讨焦虑与体育高考生考试表现的相关作用机制研究。本研究将增进学术界对体育高考焦虑的本土洞见，并进一步启发学校和教师教练对潜在的体育高考焦虑进行观察，以及如何对其进行有效干预。

关键词　体育高考;焦虑;考试表现

Research Status and Prospects on the Relationship between Anxiety and Exam Performance of Sports College Entrance Examination Students

Liu Qing
Physical Education College of Jiangxi Normal University, No. 99 Ziyang Avenue, Nanchang County, Nanchang, Jiangxi Province

Abstract： The role of emotions in daily life has received widespread attention for a long time, and anxiety belongs to a type of emotion. Anxiety, as a negative psychology commonly present in various situations of life, has been extensively studied and intervened in both domestic and international research on anxiety. Anxiety can vary among objects in different contexts. Empirical research on the relationship and impact of anxiety on exam performance of sports college entrance examination students has been continuously emerging in China, with sports college entrance examination students as the object. However, as a localized examination in China, the sports college entrance examination also contains local characteristics. First of all, only the article has not defined its anxiety in the college entrance examination of physical education under the special background of the college entrance examination of physical education. Based on the Grounded theory research method, this study summarized the previous anxiety views, and proposed the need to reconstruct the connotation and structure of the anxiety in the college entrance examination of physical education; Secondly, in terms of measuring anxiety in the sports college entrance examination, only a few articles have insufficient integration with reality in measuring anxiety in the sports college entrance examination, and have not fully taken into account the special characteristics of the sports college entrance examination group. In analyzing the mature anxiety scale, this study proposes the need to further improve the scale in combination with the localized Chinese physical examination situation, so that it can more accurately measure the level of anxiety in the sports college entrance examination; Finally, on the research of the mechanism of anxiety affecting the test performance of college sports examinees, most domestic researchers analyze the relationship between anxiety, Test anxiety, and competition anxiety and the test performance of college sports examinees, and rarely involve multiple variables. However, the psychological mechanisms that affect the performance of physical education candidates in exams are complex and inevitably influenced by multiple variables. Moreover, most of the research on the performance of sports college entrance examination students is mainly evaluated based on their exam scores. It is necessary to further explore the relevant mechanism of anxiety and exam performance of sports college entrance examination students based on their specific target audience. This study will enhance the academic community's local insights into anxiety in the sports college entrance examination, and further inspire schools, teachers, and coaches to observe potential anxiety in the sports college entrance examination, and how to effectively intervene in it.

Keywords： Physical Education College Entrance Examination; anxiety; Exam performance

不同旋律形态对大学生情绪影响及特点

曾玥[1] 厉萍[2]（通讯作者）
1 山东大学护理与康复学院 山东 250102
2 山东大学人文护理学系 济南 250102 pingli12@sdu.edu.cn

摘 要 目的 基于旋律形态理论对大学生进行音乐干预，观察其对焦虑、抑郁、等情绪的影响。方法 选取

大学生 153 名纳入该研究，采用随机分组法将被试分为上行旋律组、下行旋律组、对照组 3 组，对照组不给予任何形式的音乐干预，上行旋律组、下行旋律组分别给予 7 天的不同旋律模式的音乐干预。比较 3 组被试干预前后的焦虑、抑郁、正负情绪得分。根据继往研究，选取 23 首古典音乐曲目作为干预材料。 结果 与对照组相比，试验组在年龄、性别、音乐素养、所学专业方面无统计学差异；与对照组相比，试验组 SAS、SDS 得分显著降低，具有统计学意义（p＜0.01）；上行旋律组与下行旋律组在正负情绪得分上存在差异，在“备受鼓舞”、“坐立不安”、“注意力集中”这三种情感维度种，试验组与对照组相比，均存在差异，具有统计学意义（p＜0.01）；在“热情的”、“警觉度高的”、“紧张的”这三种情绪维度中，上行旋律组、下行旋律组与对照组相比存在差异，具有统计学意义（p＜0.05）；在“害羞的”这一维度较为特殊，上行旋律组与对照组相比，存在差异，具有统计学意义（p＜0.01）。 结论 基于旋律形态理论对大学生进行音乐干预可降低焦虑、抑郁情绪，不同旋律形态的音乐对大学生情绪具有不同影响。
关键词 音乐治疗，大学生，心理健康，焦虑，抑郁

The influence and characteristics of different melody forms on college students' emotions

Zeng Yue[1] Li Ping[2]
1Shandong University School of Nursing and Rehabilitation
2Shandong University School of Nursing and Rehabilitation Jinan 250102 pingli12@sdu.edu.cn

Abstract：Objective To conduct the music intervention for college students and observe their influence on anxiety, depression and other emotions. Methods 153 college students were selected and included in the study, and the subjects were divided into three groups: ascending melody group, descending melody group and control group. The control group did not give any form of music intervention, and the ascending melody group and descending melody group gave the music intervention of different melody patterns for 7 days respectively. The anxiety, depression, and positive and negative emotions scores of the three groups of participants before and after the intervention were compared. According to previous studies, 23 classical music tracks were selected as the intervention materials. Results as compared with the control group, There was no statistical difference in the test group in terms of age, gender, music literacy and major; Compared with the control group, SAS and SDS scores in the test group, Statistically significant value (p <0.01); There were differences in the positive and negative mood scores between the ascending and descending melody groups, In the three emotional dimensions of "encouraged", "restless" and "concentration", Test group, when compared with the control group, Both have differences, Statistically significant value (p <0.01); Among the three emotional dimensions: "enthusiastic", "high alert" and "nervous", There were differences between the ascending and descending melody groups compared with the control group, Statistically significant value (p <0.05); In the "shy" dimension is more special, The ascending melody group, as compared to the control group, There are differences present, Statistically significant value (p <0.01). Conclusion Music intervention based on college students can reduce anxiety and depression, and music with different melodic forms have different effects on college students' emotions.
Key Words：music therapy，college student，mental healthy，anxiety，depressed

城中村居民心理健康对梦强度的影响研究

李宇航[1]、邹学[2]、解缤[1]（通讯作者）
1 西安体育学院，陕西西安，710068，xiebin0320@163.com

2 西安国际医学中心，陕西西安，710119

摘 要　不同个体对梦的体验有所不同，有的人的梦境栩栩如生，有的人一晚可以做好几个梦，有的人却几乎不做梦。已有研究证明了梦与心理健康之间存在着相关关系，该研究是从梦的频率这一角度分析，噩梦频率的增高更加能够反应心理应激的强度。还有研究探讨了典型梦与心理健康的关系，不同主题的典型梦可以预测被试的心理健康状况，在个体或团体心理咨询中可以作为一项参考指标。目前针对城中村居民梦强度的研究国内外很少，本文通过研究城中村居民梦的强度，探索心理健康与梦强度的关系以及心理健康对梦强度的预测作用，有利于更好的探索他们的心理状况，提供更好的指导。

目的：为了探究城中村居民心理健康与梦强度的关系。

方法：本文采用了 SCL-90 自评量表和梦强度量表通过随机取样的方式对西安市 1190 名城中村居民的心理健康状况和梦强度进行了调查，运用 spss24.0 对数据进行了 t 检验、相关分析和一元回归分析。

结果：（1）城中村居民梦强度较低且主要表现为可意识到的做梦次数(7.60 次/月)和噩梦次数(0.22 次/月)都较低。（2）梦生动性方面出现频率最多的是颜色视觉和听觉，而出现频率较少的是嗅觉和味觉。在梦中视觉和听觉皮层是构成梦境情景表现的基本器官。（3）男女在梦强度上存在显著差异($p=0.000<0.05$)，各维度上女性得分均值均大于男性，女性梦强度更高。（4）SCL-90 总分均与梦强度进行相关分析后发现二者存在显著正相关(r=.382**)，SCL-90 各维度与梦强度各维度也均存在显著正相关。（5）将 SCL 总分为自变量，梦强度为因变量，进行一元线性回归后发现回归方程显著 $F=202.754$，$p<0.001$，SCL 总分（$\beta=0.382$，$P<0.001$）能显著负向预测梦强度，调整后 R^2=0.145,即 SCL 总分可以解释梦强度 14.5%的变异。

结论：男女性别在梦强度上存在显著差异，心理健康与梦强度存在显著正相关，心理健康一定程度上可以负向预测梦强度。通过回归分析发现个体 SCL 得分越高梦强度越弱，即心理健康水平越差梦强度越弱。

关键词　心理健康，城中村居民，梦强度

A study on the effect of mental health on dream intensity among urban village residents

LI Yuhang[1], ZOU Xue[2], XIE Bin[1] (corresponding author)
1 Xi'an Institute of Physical Education, Xi'an, Shaanxi, 710068, xiebin0320@163.com
2 Xi'an International Medical Center, Xi'an, Shaanxi, 710119

***Abstract*:** Different individuals experience dreams differently, some people's dreams are lifelike, some people can dream several times a night, and some people hardly dream. Studies have proved a correlation between dreams and mental health, and the study analyzes from the perspective of dream frequency, and the increase in the frequency of nightmares can better reflect the intensity of psychological stress. There are also studies that explore the relationship between typical dreams and mental health, and typical dreams on different topics can predict the mental health of participants, and can be used as a reference indicator in individual or group psychological counseling. At present, there are few studies on the dream intensity of urban village residents at home and abroad, and this paper explores the relationship between mental health and dream intensity and the predictive effect of mental health on dream intensity by studying the dream intensity of urban village residents, which is conducive to better exploring their psychological conditions and providing better guidance.

Aim: To investigate the relationship between mental health and dream intensity among residents of urban villages.

Methods: The symptom checklist-90 (SCL-90) self-rating scale and the dream intensity scale were used to investigate the mental health status and dream intensity of 1,190 urban village residents recruited by random

sampling in the Xi'an City of China. T-test, correlation analysis, and one-dimensional regression analysis were conducted using SPSS 24.0.

Results: (1) The intensity of dreams of urban village residents was low, and it was mainly manifested as lower number of conscious dreams (7.60 times/month) and nightmares (0.22 times/month). (2) The most frequent occurrence of dream vividness is color vision and hearing, while the less frequent occurrence is smell and taste.In dreams, the visual and auditory cortex are the basic organs that make up the performance of dream situations. (3) There was a significant difference in dream intensity between men and women ($p=0.000<0.05$), and the average score of women in all dimensions was greater than that of men, and the intensity of female dreams was higher. (4) After the correlation analysis of SCL-90 total scores and dream intensity, it was found that there was a significant positive correlation between the two (r=.382**), and there was also a significant positive correlation between SCL-90 and dream intensity. (5) The total SCL was divided into independent variables, dream intensity was the dependent variable, and after unary linear regression, it was found that the regression equation was significantly $F=202.754$, $p<0.001$, SCL total score ($\beta=0.382$, $P<0.001$) could significantly predict dream intensity negatively, and the adjusted $R^2=0.145$, that is, the total SCL score could explain the variation of dream intensity by 14.5%.

Conclusion: There are significant differences in dream intensity between men and women, mental health and dream intensity are significantly positively correlated, and mental health can negatively predict dream intensity to a certain extent. Through regression analysis, it was found that the higher the SCL score of the individual, the weaker the dream intensity, that is, the worse the mental health level, the weaker the dream intensity.

Keywords: mental health, urban village residents, dream intensity

精神分裂症患者的自我与关系自我参照效应缺失：与正常人群的比较

田紫晴[1]　杜佳璐[1]　田雨[1]　李梦盈[1]　马伟军[1]（通讯作者）

1 上海市心理健康与心理危机干预重点实验室，华东师范大学附属精神卫生中心，华东师范大学心理与认知科学学院，上海，200062，wjma@psy.ecnu.edu.cn

摘 要　自我参照效应 (self-reference effect, SRE) 与关系自我参照效应分别指个体对自我、或关系自我中的亲密他人相关材料的记忆效果显著优于其他编码条件的现象，后者是由自我参照的记忆优势及其扩展至亲密他人所致。根据心理距离与解释水平理论，关系自我参照对象的社会距离 (即个体对他人亲疏远近的感知) 影响个体的信息加工与记忆，社会距离越接近自我，对象他人所获的注意资源越多、加工越精细，记忆效果越好。但目前鲜有研究关注精神分裂症患者的自我与关系自我参照效应，及其与正常群体的差异。由于自我与关系自我构念缺损，精分患者的自我与关系自我记忆参照任务表现可能与常人不同，能否表现出自我与关系自我参照效应尚未得到验证。本研究假设：1.精神分裂症患者的自我与关系自我参照记忆优势缺失，即对自我与不同社会距离他人的记忆效果无显著差异；2.正常人表现出自我与关系自我参照效应。

本研究通过一个自我参照范式实验探究精神分裂症患者与正常人的自我与关系自我参照记忆。实验分为学习阶段与再认阶段。学习阶段要求被试在亲人、熟人、远亲、生人中各提名一人进行亲密度评价，并以此四人及自我为参照对象进行人格形容词学习。而后再认阶段进行学习阶段形容词的再认任务，同时测量再认率、R(记得)/K(知道)判断率。结果表明：(1)精神分裂症患者对熟人与远亲的亲密度相近，对自我以及不同社会距离他人的再认率与 R 判断率无显著差异。精分患者的自我和关系自我参照记忆优势缺失，未表现出自我和关系自我参照效应，验证了假设 1。该结果可解释为是由精分患者的自我与关系自我构念缺损所致；(2)正常人与关系他人的亲密度由近及远依次递减，再认率与 R 判断率呈现由高往低递减的自我、亲人与熟人、远亲与生人的三个圈层，表现出自我与关系自我参照效应，验证了假设 2。

本研究加深了对精神分裂症患者的自我与关系自我参照记忆优势缺损的认识，并从自我与关系自我参照效应的视角进一步揭示了精分患者与常人的差异。

关键词　精神分裂症，自我参照效应，关系参照效应，社会距离，社会关系

The Deficit in Relational Self-Reference Effect in Schizophrenia Patients: A Comparison with the Healthy Population

Ziqing Tian[1], Jialu Du[1], Yu Tian[1], Mengying Li[1], Weijun Ma [1,*]
1 Shanghai Key Laboratory of Mental Health and Psychological Crisis Intervention, Affiliated Mental Health Center (ECNU), School of Psychology and Cognitive Science, East China Normal University, Shanghai, China; wjma@psy.ecnu.edu.cn

***Abstract*:** The self-reference effect (SRE) and the relational self-reference effect (RSRE) refer to the phenomena where memory performance for materials related to oneself or significant others in the relational self is significantly better than other encoding conditions. The latter is attributed to the memory advantage of self-reference and its extension to intimate others. According to the theory of psychological distance and the theory of construal level, the social distance of relational reference objects (individuals' perception of closeness or distance between themselves and others) influences one's information processing and memory performance. The closer the social distance to the self, the more attention resources are allocated to the object others, leading to more detailed processing and better memory performance. However, there has been limited research focusing on the self-reference and relational self-reference effects in schizophrenia patients, as well as the differences between this population and the healthy population. Due to deficits in self and relational self-construal, the social relationship and memory reference task performance of the schizophrenia patients may differ from that of the normals, and whether they can exhibit the relational self-reference effect has not been verified. The present study hypothesizes: 1. The schizophrenia patients lack the self-reference and relational self-reference memory advantages, leading to no significant difference in memory performance between themselves and individuals with different social distances; 2. The healthy population exhibits both the self-reference and relational self-reference effects.

The research utilized a behavioral experiment employing the self-reference paradigm to investigate the influence of social distance on the relationship self-reference memory of schizophrenia patients compared to the healthy population. The experiment consisted of a learning phase and a recognition phase. In the learning phase, the participants were asked to rate the intimacy level of a person from each category: close relatives, acquaintances, distant relatives, and strangers. They then learned personality adjectives with these four individuals and themselves as reference objects. In the recognition phase, the participants performed a recognition task with the learned adjectives and measured recognition rates and R (remember)/ K (know) judgment rates. The results indicated: (1) The schizophrenia patients' intimacy levels for acquaintances and distant relatives are similar, and no significant differences in recognition rates and R judgment rates between themselves and individuals with different social distances. The deficit in self-reference and relational self-reference memory strengths in schizophrenia patients is evident, as they do not exhibit the self-reference effect and relational self-reference effect, supporting hypothesis 1. This result can be attributed to deficits in the relational self-construal of them. (2) In contrast, the healthy population displays a gradual decrease in intimacy levels with relational others from near to far, namely the close relatives to the acquaintances, the distant relatives, and the strangers. Moreover, the recognition rates and R judgment rates exhibited a three-tiered pattern of decreasing order: the self, the close relatives and the acquaintances, the distant relatives and the strangers. This demonstrates the self-reference effect and relational self-reference effect of the normal population, confirming hypothesis 2.

This study deepens the understanding of the deficit in self-reference and relational self-reference memory

strengths of the schizophrenia patients, and sheds further light on the differences between the schizophrenia patients and the normals from the perspective of self and relational self-reference memory.
Keywords：schizophrenia, self-reference effect, relational self-reference effect, social distance, social relationship

父母婚姻态度与亲子关系：对有调节的中介作用的成对分析

杨培滢 贾依凡 邝颖茵 曾加慧 刘学兰（通讯作者）
“儿童青少年阅读与发展”教育部哲学社会科学实验室(华南师范大学)/心理应用研究中心/华南师范大学心理学院，广州，510631，liuxuelan@m.scnu.edu.cn

摘 要 依据家庭系统理论，婚姻子系统和亲子子系统是两个相互影响的重要子系统，父母的认知或行为可能会同时影响自身和伴侣的亲子关系。婚姻态度是指个体对于婚姻生活和关系的主观评价和反应倾向。前人在探究婚姻关系与亲子关系的联系时，大多着眼于父母在其所处的特定夫妻关系中的行为与感受，鲜有研究考察父母对婚姻这一客体的总体态度是否以及如何影响其亲子关系。共同教养生态理论认为，父母个体层面和婚姻关系层面的特征均会影响他们的共同教养关系，这又会进一步影响父母与孩子之间的互动与关系，父母间的共同教养可能在婚姻态度与亲子关系之间起中介作用。此外，自我扩张是指个体将伴侣的观点、资源和身份纳入到自我中，是家庭关系中的一个重要影响变量。因此，本研究旨在探究父母的婚姻态度与亲子关系质量间的联系，以及共同教养的中介作用和自我扩张的调节作用。研究对 551 对小学儿童的父母（父亲 M_{age}=37.95，SD = 4.76；母亲 M_{age}=35.39，SD = 4.60）进行了问卷调查，并采用主客体互倚模型对数据进行了分析。结果发现：（1）父母的婚姻态度与自己和伴侣的亲子关系质量均存在正向联系。（2）父母的共同教养部分中介父母婚姻态度对自身亲子关系的影响。（3）父母的共同教养完全中介父母婚姻态度对伴侣亲子关系的影响。（4）父母在婚姻关系中的自我扩张调节自身和伴侣婚姻态度对自身共同教养的正向影响，自我扩张水平越高，该影响越强。（5）父母在婚姻关系中体验到的自我扩张水平越高，其共同教养在自身及伴侣的婚姻态度与自身的亲子关系之间的中介作用越大。本研究发现不仅有助于深化人们对于婚姻子系统与亲子子系统间联系的理解，而且可以为家庭干预实践提供一定的启示：从帮助父母树立积极的婚姻态度着手，来改善家庭系统的功能，进而促进父母与孩子的心理健康和主观幸福。在此基础上，重视父母对养育孩子的合作程度，以及关注父母的自我扩张水平，进而强化婚姻态度干预所带来的积极影响。
关键词 父母婚姻态度，亲子关系，共同教养，自我扩张，主客体互倚模型

Parental Attitudes Toward Marriage and Parent–Child Relationship: Dyadic Analyses of Moderated Mediation

YANG Peiying; JIA Yifan; KUANG Yingyin; ZENG Jiahui; LIU Xuelan
"Reading and Development of Children and Adolescents" Philosophy and Social Science Laboratory of the Ministry of Education (South China Normal University) / Centre for Applied Psychological Research / School of Psychology, South China Normal University, Guangzhou, 510631

Abstract：According to family systems theory, the marriage subsystem and the parent-child subsystem are two

significant subsystems that interact with each other, and parents' perceptions or behaviours may affect both their own and their partner's parent-child relationships. Marital attitudes refer to an individual's subjective evaluation of and tendency to respond to marital life and relationships. Much of the previous research exploring the link between marital relationships and parent-child relationships has focused on parents' behaviours and feelings in the particular couple relationship in which they are involved, and few studies have examined whether and how parents' overall attitudes towards marriage affect their parent-child relationships. The ecological theory of co-parenting suggests that both individual-level and marital-relationship-level characteristics of parents influence their co-parenting relationship, which in turn further influences parent-child interactions and relationships, and that co-parenting between parents may mediate the relationship between marital attitudes and parent-child relationships. In addition, self-expansion, which refers to an individual's incorporation of a partner's perspectives, resources, and identity into the self, is an important influence variable in family relationships. Therefore, the present study aimed to investigate the link between parents' marital attitudes and the quality of parent-child relationships, as well as the mediating role of co-parenting and the moderating role of self-expansion. The study administered a questionnaire to 551 pairs of parents of primary school children (fathers M_{age} = 37.95, SD = 4.76; mothers M_{age} = 35.39, SD = 4.60) and analyzed the data using the actor-partner interdependence model. The results found that (1) parents' marital attitudes were positively associated with the quality of both their own and their partner's parent-child relationships. (2) Parental co-parenting partially mediated the effect of parental marital attitudes on one's own parent-child relationship. (3) Parental co-parenting fully mediates the effect of parental marital attitudes on partner's parent-child relationship. (4) Parental self-expansion in the marital relationship moderates the positive effect of own and partner's marital attitudes on own co-parenting, which is stronger at higher levels of self-expansion. (5) The higher the level of self-expansion experienced by parents in the marital relationship, the greater the mediating effect of their co-parenting between their own and their partner's marital attitudes and their own parent-child relationship. The findings of this study not only help to deepen the understanding of the link between the marital subsystem and the parenting subsystem, but also may provide some insights into family intervention practices: one can start by helping parents to develop positive attitudes toward marriage in order to improve the functioning of the family system, which in turn promotes the psychological well-being and subjective well-being of both parents and children. On this basis, the positive impact of marital attitude interventions can be reinforced by focusing on the level of parental co-operation in parenting and on the level of parental self-expansion.

Keywords： parental marriage attitudes, parent-child relationships, co-parenting, self-expansion, actor-partner interdependence model

威胁性刺激对近身空间的影响——一项基于虚拟现实的研究

陈庆兰[1] 李宜伟[2] 王小桃[1]（通讯作者）

1 江西师范大学心理学院，南昌，330022

2 四川师范大学脑与心理科学院，成都，610066

摘 要

研究背景：防御性近身空间（Defensive peripersonal space, DPPS)是身体周围的防御性缓冲区，有助于保持我们远离潜在威胁。DPPS 的边界测量一直是该领域的核心问题，目前主要采用两种测量范式：多感官反应时间任务和停止距离任务。DPPS 的特征表现在对靠近身体的物体进行加强的多感官整合以及更快的反应时间。因此，多感官任务可以用于估计 DPPS 的边界。相比之下，停止距离任务则更加主观，当刺激物靠近时，被试会选择一个他们认为适合逃离的距离。**研究目的：**我们希望通过比较这两种范式测量 DPPS 的异同，进一步加深对 DPPS 的理解。**研究方法：**我们设计了四个实验，其中实验 1a 和 1b 采用了多感官

任务，分别测量被试面对突然出现的刺激和逐渐靠近的威胁性动物（如蜘蛛）时的触觉刺激反应时间。实验 2a 使用停止距离任务，测量被试在威胁性动物逐渐靠近时的逃离时间。实验 2b 在同一批被试下复现了实验 1b 和实验 2a。实验 1b 通过计算触觉反应时间下降最快的空间范围的中点（xc）来估算 DPPS 的边界参数。而在实验 2a 中，我们则是直接使用被试的逃离时间来估算这个边界。所有实验均采用虚拟现实技术以提高生态效度。**研究结果：**1、实验 1a 结果显示，被试在突然出现的刺激下，无法有效地建立 DPPS，即距离对反应时没有显著影响。2、实验 1b 发现，在威胁性动物逐渐靠近时，被试的 DPPS 边界（xc）显著扩大。3、实验 2a 显示，被试对威胁性动物刺激的逃离距离显著增大，这表明 DPPS 边界在威胁性动物刺激下会变大。4、实验 2b 发现，两种范式测量的 DPPS 边界（xc 和逃离距离）之间并没有显著关联。**研究结论：**我们的研究表明，面对逐渐靠近的威胁性刺激，DPPS 会扩大，以应对可能的威胁。虽然当前的两种测量范式都能有效地描绘 DPPS 的边界，但它们之间并没有显著关联。
关键词　防御性近身空间、多感官处理、虚拟现实技术

The effect of threatening stimuli on proximity space - a virtual reality based study

Chen Qinglan[1]　Li Yiwei[2]　Wang Xiaotao[1]
(1 School of Psychology, Jiangxi Normal University, Nanchang, 330022)
作者单位名称及地址（英文，5 号 Times New Roman 体）ß

***Abstract*：** **Research Background:** The concept of defensive peripersonal space (DPPS) refers to a defensive buffer zone around our bodies that aids in keeping us distant from potential threats. Measuring the boundaries of DPPS remains a focal point within this field of study, primarily utilizing two paradigms: multisensory reaction time tasks and stop-distance tasks. DPPS is characterized by enhanced multisensory integration and quicker RTs for objects approaching the body, thereby making multisensory tasks suitable for estimating DPPS boundaries. Conversely, stop-distance tasks are more subjective, with participants choosing a distance they deem appropriate for evasion when the stimulus approaches. **Research Objectives:** By comparing these two paradigms in measuring DPPS, we aim to further deepen our understanding of the DPPS. **Research Method:** We designed four experiments. Experiments 1a and 1b employed multisensory tasks, measuring the tactile RTs of participants in response to sudden stimuli and gradually approaching threatening creatures like spiders. Experiment 2a utilized the stop-distance task, measuring the evasion time of participants when threatened by gradually approaching creatures. Experiment 2b replicated Experiments 1b and 2a with the same cohort of participants. In Experiment 1b, we estimated the boundary parameters of the DPPS by calculating the midpoint (xc) of the spatial range where the tactile RT fell most rapidly. In Experiment 2a, we directly used participants' evasion time to estimate this boundary. To enhance ecological validity, all experiments were conducted using virtual reality technology. **Research Results:** 1. Experiment 1a revealed that participants were unable to effectively establish a DPPS in response to sudden stimuli, i.e., distance had no significant effect on RT. 2. Experiment 1b found that the DPPS boundaries (xc) of participants significantly expanded when faced with gradually approaching threats. 3. Experiment 2a demonstrated that participants significantly increased their evasion distance in response to threatening stimuli, indicating an enlargement of DPPS boundaries under such conditions. 4. Experiment 2b revealed no significant correlation between the DPPS boundaries measured by the two paradigms (xc and evasion distance). **Research Conclusion:** Our study suggests that DPPS expands in the face of gradually approaching threats to cope with potential danger. While both currently employed measurement paradigms effectively depict the boundaries of the DPPS, they lack

significant correlation with each other.

Keywords：Defensive Peripersonal Space, Multi-Sensory Processing, Virtual Reality Technology

不同框架下权力对道德判断取向偏好的影响:谦逊的调节作用

徐艳　王书婷　林闻正（通讯作者）

江西师范大学心理学院，南昌，330022，通讯作者 E-mail: lin.wenzheng@live.com

摘 要　心理学对道德判断的研究很大程度上试图揭示影响道德的不同因素。例如，以往研究分别证实了权力或框架效应对道德判断的影响。一般来说，高权力水平或积极框架会预测更多功利主义取向。作为道德行为的发起者，个体本身的性格特质同样对道德行为有影响。例如其中一项研究证明，诚实-谦逊水平负向预测剥削行为，而剥削行为通常被认为是不道德的，因为它是损害他人权益的一种表现。此外，STOA（Situation-Trait-Outcome-Activation model）模型认为人格特质的差异往往使得情境对个体的行为表现展示出不同影响，这也提示我们在行为类的实验设计中忽略人格特质对于实验结果稳定性的潜在危害。因此，本研究意在探索人格（即谦逊）与情境（即情境权力与不同描述方式）对道德行为的共同影响。基于 STOA 模型，本文假设谦逊作为一种稳定的性格特质，可以让个体更加关注他人的需求和感受，从而降低权力对个体在不同框架下做出功利主义道德行为的影响。

本研究在高校共招募 316 名学生参与实验，最终有 303 名被试纳入数据分析。首先，被试需要完成一份特质谦逊量表。随后，他们将随机分配至高权力组与低权力组并分别扮演经理与下属，实验者通过角色扮演的方式对被试的权力进行操纵，操纵检验结果表明实验者对于权力的操纵是有效的。在任务完成后，六道经典的道德困境被作为情境背景，分别用积极框架和消极框架呈现给被试，并使用六点计分记录被试对每个情境的功利主义倾向。

多层线性模型的分析发现在积极框架下，谦逊能够调节权力对于道德判断的影响，即低谦逊个体的权力正向影响功利主义得分，高谦逊个体的道德判断不受权力的影响；在消极框架下，道德判断不受权力和谦逊的影响。研究结果表明，谦逊能有效抑制权力促使个体在不同框架下进行功利主义判断的倾向。本研究揭示了谦逊在道德判断中的重要角色，即相比于低权力水平情境，谦逊水平低的个体在高权力水平情境下更易做出功利性的道德行为，这提示我们在选拔和培养领导者时，应该重视他们的谦逊品质，以促进更好的道德决策和行为。

关键词　道德判断，权力，谦逊，框架效应

Power increases the utilitarian orientation: the moderating role of humility and framing effects

Yan XU　Shuting WANG　Wenzheng LIN(Corresponding author)

School of Psychology, Jiangxi Normal University, Nanchang, 330022，Corresponding author

lin.wenzheng@live.com

Abstract: Psychological research on moral judgment largely attempts to reveal the different factors that influence morality. For example, previous studies have separately confirmed the effects of power or framing on moral judgment. Generally speaking, high levels of power or positive framing predict more utilitarianism. As the initiator

of moral behavior, the individual's own personality traits also have an impact on moral behavior. For example, one study found that honesty-humility levels negatively predicted exploitative behavior, which is generally considered immoral because it is a manifestation of harming the rights and interests of others. In addition, the STOA (Situation-Trait-Outcome-Activation model) model suggests that differences in personality traits often cause situations to have different effects on individual behavior, which also alerts us to the potential harm of ignoring personality traits on the stability of experimental results in behavioral experimental design. Therefore, this study aims to explore the joint influence of personality (i.e., humility) and situation (i.e., situational power and different descriptions) on moral behavior. Based on the STOA model, this paper hypothesizes that humility, as a stable personality trait, can make individuals more attentive to the needs and feelings of others, thereby reducing the influence of power on individuals' utilitarian moral behavior under different frames.

This study recruited 316 students from universities to participate in the experiment, and finally 303 participants were included in the data analysis. First, subjects were required to complete expressed humility scale (Ou et al.,2014). Subsequently, they were randomly assigned to high-power and low-power conditions in which they played the roles of managers and subordinates respectively. The manipulation check results showed that the experimenter's manipulation of power was successful After completing the task, six classic moral dilemmas were used as situational backgrounds and presented to subjects in positive and negative frames respectively, using a six-point scoring method to record subjects' utilitarian tendencies for each situation.

Multilevel linear modeling analysis found that under positive framing, humility can moderate the influence of power on moral judgment, i.e., low humility individuals' power positively affects utilitarian scores, the moral judgment of the highly humble individual is not influenced by power; under negative framing, moral judgment is not affected by power and humility. The results of this study indicated that humility can effectively suppress the tendency for power to induce individuals to make utilitarian judgments under different frames. This study reveals the important role of humility in moral judgment, i.e., compared to low-power situations, individuals with low levels of humility are more likely to engage in utilitarian moral behavior in high-power situations. This suggests that when selecting and training leaders, we should pay attention to their humility quality to promote better moral decision-making and behavior.

Keywords：Moral judgment, Power, Humility, Framing effect

自适应注意控制训练对情境意识和飞行模拟绩效的影响：一项眼动研究

邱化珂[1] 朱霞[1]（通讯作者）

1 空军军医大学军事医学心理学系，陕西西安，710000，zhuxia@fmmu.edu.cn

摘 要　基于机组决策模型和过程重叠理论，注意控制是一种一般性认知能力，被认为是高阶认知的基石，而飞行员的情境意识会受到基本认知能力的调节进而对飞行绩效具有重要影响。因此，注意控制训练可能有效提升情境意识和飞行绩效。本研究采用反眼跳任务测量注意控制，情境意识全面评估技术（SAGAT）和情境意识评定技术（3D - SART）用于评估情境意识，通过 JL-8 飞行训练模拟器检测飞行模拟绩效，采

用 Tobbi Glasses 2 便携式眼动仪测量被试飞行过程中的注意模式。基于已有研究，本研究设计自适应注意控制训练，并考察训练在注意控制、情境意识和飞行绩效中的提升效果。结果发现：（1）在注意控制提升上，自适应反眼跳注意控制训练和自适应混合注意控制训练均能有效提升被试注意控制；（2）在情境意识和飞行绩效提升上，相比于自适应反眼跳注意控制训练，自适应混合注意控制训练的提升效果更好；（3）不同组间以及训练组前后的注意模式存在显著差异，训练后相比于训练前更频繁的关注仪器仪表变化。通过眼动追踪技术，发现训练后各组间的注意模式差异，为未来开展基于眼动反馈的飞行训练提供研究支持。本研究设计有效的自适应注意控制训练，并直接选择飞行绩效作为训练校标，通过飞行模拟检验了训练在绩效提升中的效果，进而为飞行员飞行训练提供有效的心理训练辅助手段。
关键词　注意控制训练，情境意识，飞行绩效，眼动

The Influence of Adaptive Attention Control Training on Situational Awareness and Flight Simulation Performance: An Eye-Tracking Study

Huake Qiu[1], Xia Zhu[1]
1 Department of Military Medical Psychology, Air Force Military Medical University, Xi 'an 710000, zhuxia@fmmu.edu.cn

Abstract： Based on aircrew decision model and process overlap theory, attention control is a general cognitive ability which is considered as the cornerstone of higher-order cognition. The situational awareness of pilots will be affected by cognitive ability, and then has an important impact on flight performance. Therefore, attention control training may effectively improve situational awareness and flight performance. In this study, using anti-saccade task to measure attention control. SAGAT and 3D - SART are used to assess situational awareness. Evaluate flight simulator performance through JL-8 flight simulator. During flight simulation., the Tobbi Glasses 2 was used to measure the eye movement. Based on the previous researches, this study used adaptive attention control training and examined the promotion effect of training. The results show that adaptive anti-saccade attention control training and adaptive medley attention control training can effectively improve attention control. Compared with adaptive anti-saccade attention control training, adaptive medley attention control training has a better effect on improving situational awareness and flight simulator performance. There are significant differences in eye movement between before and after training and different groups. More frequent observation of instruments and meters after training. Through eye tracking, the difference of eye movement patterns among each group was discovered, which provided research support for future flight training based on eye movement feedback. This study designs an effective adaptive attention control training, and the flight performance is directly selected as the training criterion validity. Through flight simulation, the effect of training in performance improvement is tested, so as to provide effective psychological training aids for flight training.
Keywords： Attention control training, Situational awareness, Flight performance, Eye-tracking

坚持锻炼对大学生在校手机成瘾的影响：自我控制的中介作用和特质正念的调节作用

汪海宁[1]（通讯作者） 郭玉江[2]

1.郑州大学体育学院（校本部），郑州市，450001，573073242@qq.com
2.郑州大学体育学院，郑州市，450044

摘 要 **目的：**大学时代智能手机的广泛普及对大学生活带来便利的同时，也伴随着许多潜在的问题。手机成瘾作为其中的一个主要问题，会对大学生的学业成绩、学习动机、社交能力等产生负面的影响。而坚持体育锻炼对个体戒除各种成瘾机制具有良好效果。因此，本论文旨在探讨在校大学生坚持体育锻炼对手机成瘾的影响机制，并着重关注两个潜在因素：自我控制和特质正念。自我控制是人们对诱惑和冲动的调控能力，对于抵制手机使用的冲动和保持理性、有序的生活方式至关重要。除了自我控制，特质正念强调对当下经验的关注和接受，有助于个体更加理性地认识手机使用对自身的影响，并减少因手机使用带来的消极情绪和情绪调节不良所导致的成瘾倾向。所以，特质正念在手机成瘾的影响机制中起到调节作用。

方法：采用《手机依赖量表简版(SAS-SV)》《锻炼坚持性量表》《自我控制量表（简版）》和《正念注意觉知量表（MAAS）》在某省以东西南北中为方位选取 5 个城市的在校大学生为研究对象，并采用整群随机取样方式设计并发放 1000 份问卷，最终获取有效问卷 902 份。运用 Hayes 编制的 SPSS 宏中 Model 59 进行有调节的中介模型检验。

结果：（1）直接效应分析：锻炼坚持对手机成瘾负向预测作用显著；（2）中介效应分析：放入中介变量自我控制后，锻炼坚持对手机成瘾的直接预测作用仍然显著。自我控制在锻炼坚持与手机成瘾的关系中起部分中介作用；（3）有调节的中介效应分析："锻炼坚持→自我控制"的直接路径受特质正念的调节。"自我控制→手机成瘾"路径受特质正念的调节。即特质正念在中介模型的前半段和后半段路径的影响机制中起到调节作用。

结论：（1）锻炼坚持对手机成瘾具有显著负向预测作用；（2）自我控制在锻炼坚持与手机成瘾间起部分中介作用；（3）"锻炼坚持→自我控制→手机成瘾"中介路径的前半段和后半段均受特质正念的调节，即锻炼坚持在高特质正念下的自我控制影响作用更显著，自我控制也在高特质正念下对手机成瘾的影响作用更显著。

关键词 大学生，锻炼坚持，自我控制，手机成瘾，特质正念

The Influence of Persistent Exercise on Smartphone Addiction among College Students: The Mediating Role of Self-Control and the Moderating Role of Trait Mindfulness

***Abstract*：Purpose:** The widespread prevalence of smartphones during college years has brought convenience to students' lives but also accompanied several potential issues. Smartphone addiction, as a major concern, can negatively impact college students' academic performance, study motivation, and social skills. On the other hand, consistent engagement in physical exercise has shown positive effects in combating various addictions. Therefore, this paper aims to explore the mechanisms through which persistent exercise during college influences smartphone addiction, with a specific focus on two potential factors: self-control and trait mindfulness. Self-control refers to individuals' ability to regulate impulses and temptations, which is crucial in resisting the urge to use smartphones excessively and maintaining a rational and orderly lifestyle. In addition to self-control, trait mindfulness emphasizes the acceptance and non-judgmental awareness of present experiences, aiding individuals in understanding the effects of smartphone usage more objectively and reducing negative emotions and addictive tendencies caused by smartphone use. Hence, trait mindfulness may play a moderating role in the mechanisms underlying smartphone addiction.

Methods: We administered the Short Version of Smartphone Addiction Scale (SAS-SV), Exercise Adherence Scale, Brief Self-Control Scale, and Mindful Attention Awareness Scale (MAAS) to college students from five cities in different regions (east, west, south, north, and central) of a certain province. A total of 1000 questionnaires were distributed using a cluster random sampling method, and 902 valid responses were collected. We employed Hayes' Model 59 in SPSS macro to test the moderated mediation model.

Results: (1) Direct effects analysis: Exercise adherence significantly negatively predicted smartphone addiction. (2) Mediation analysis: After introducing the mediator self-control, the direct predictive effect of exercise adherence on smartphone addiction remained significant. Self-control partially mediated the relationship between exercise adherence and smartphone addiction. (3) Moderated mediation analysis: The direct path "exercise adherence → self-control" was moderated by trait mindfulness. The path "self-control → smartphone addiction" was also moderated by trait mindfulness. In other words, trait mindfulness played a moderating role in both the pre- and post-mediation paths of the model.

Conclusion: (1) Exercise adherence significantly negatively predicted smartphone addiction. (2) Self-control partially mediated the relationship between exercise adherence and smartphone addiction. (3) The mediation paths "exercise adherence → self-control → smartphone addiction" were both moderated by trait mindfulness. This implies that exercise adherence has a more significant impact on self-control under high trait mindfulness, and self-control also has a more prominent effect on smartphone addiction under high trait mindfulness.

Keywords： College students, Exercise adherence, Self-control, Smartphone addiction, Trait mindfulness

他人聚焦的广告设计提高消费者的购买意愿：谦逊的调节作用

王书婷　徐艳　林闻正（通讯作者）

江西师范大学心理学院，南昌，330022，通讯作者 E-mail: lin.wenzheng@live.com

摘 要　以往人格和广告的研究中发现针对不同人格特质制作个性化广告可以增强广告的吸引力，那么是否存在一种非个性化定制的广告类型能增强所有人的购买意愿呢？我们知道包括个性化广告在内的所有广告都有一个直接的宣传目标（为自己买或者为他人买），所以我们猜测不同宣传目标类型（自我聚焦，他人聚焦）的广告对消费者产生的影响也是不同的。谦逊人格和广告的研究表明，谦逊人格的个体更容易接受和信任广告信息，因此我们推测谦逊个体更容易被广告语言所影响，进而增加广告对他们购买意愿的影响力，即我们认为谦逊会对消费者的购买意愿起到调节作用。之前有研究发现，积极的情感体验可以提高个体的购买意愿，而亲密关系可以促进这种积极情感的产生，因此我们认为亲密关系可能会影响购买意愿，所以本研究还测量了被试为不同亲密程度的人（自己，家人，普通朋友）的购买意愿。

通过对 65 名被试进行的预实验确定了两种类型的广告材料（自我聚焦 vs.他人聚焦）能有效操纵被试对应感知。正式研究共招募 231 名本科生参与实验，实验程序要求被试首先完成谦逊量表，然后随机抽取广告呈现给被试，要求被试对不同亲密度的人的购买意愿进行七点计分。

研究使用了多层线性模型分析结果显示，亲密度的主效应显著，不同类型的广告对购买意愿的影响由谦逊所调节。具体而言，为家人的购买意愿要显著高于为自己的购买意愿，为自己的购买意愿要显著高于为普通朋友的购买意愿；高谦逊水平的被试相比于低谦逊水平的被试购买意愿更高，被试在他人聚焦广告的购买意愿上比自我聚焦广告的购买意愿更强，并且此效应受到谦逊水平的调节， 在低谦逊水平的个体上这种购买意愿的差异更加明显。这一发现支持了本研究的假设，即谦逊能够调节自我聚焦和他人聚焦的广告对购买意愿的影响。本研究揭示了谦逊可以调节不同广告类型对购买意愿的影响，启示了在之后产品广告的制作上更多的使用能够唤起谦逊的他人聚焦的广告设计会增加消费者的购买意愿。

关键词　谦逊，广告，购买意愿，自我聚焦，他人聚焦

Other-focused advertising design enhances consumer purchase intention: the moderating effect of humility

Shuting WANG Yan XU Wenzheng LIN(Corresponding author)
School of Psychology, Jiangxi Normal University, Nanchang, 330022，Corresponding author
lin.wenzheng@live.com

Abstract: In previous research on personality and advertising, it has been found that personalized advertising tailored to different personality traits can enhance the attractiveness of advertisements. So is there a type of non-personalized customized advertising that can enhance everyone's willingness to buy? We know that all advertisements, including personalized advertisements, have a direct promotional goal (buying for oneself or for others), so we speculate that advertisements with different promotional goal types (self-focus, other-focus) also have different effects on consumers. Research on humble personality and advertising shows that individuals with humble personalities are more likely to accept and trust advertising information. Therefore, we speculate that humble individuals are more easily influenced by advertising language, thereby increasing the influence of advertising on their willingness to buy. That is, we believe that humility plays a moderating role in consumers' willingness to buy. Previous research has found that positive emotional experiences can increase individuals' willingness to buy, and intimate relationships can promote the generation of such positive emotions. Therefore, we believe that intimate relationships may affect willingness to buy. Therefore, this study also measured the willingness to buy of subjects with different degrees of intimacy (oneself, family members, ordinary friends).

A pilot study was conducted on 65 subjects to determine that two types of advertising materials (self-focus vs. other-focus) could effectively manipulate corresponding perceptions. A total of 231 undergraduate students participated in the formal study. The experimental procedure required subjects to complete the humility scale first and then randomly select an advertisement to present to the subjects. The subjects were asked to score the purchase willingness of people with different degrees of intimacy on a seven-point scale.

The study used multilevel linear models to analyze the results, which showed that the main effect of intimacy was significant, and the effect of different types of advertisements on purchase willingness was moderated by humility. Specifically, the purchase willingness for family members was significantly higher than for oneself, and the purchase willingness for oneself was significantly higher than for ordinary friends; subjects with high humility levels had higher purchase willingness than those with low humility levels; subjects had stronger purchase willingness for other-focus advertisements than for self-focus advertisements, and this effect was moderated by humility level. This difference in purchase willingness was more pronounced in individuals with low humility levels. This finding supports our hypothesis that humility can regulate the effect of self-focus and other-focus advertisements on purchase willingness. This study reveals that humility can regulate the effect of different types of advertisements on purchase willingness and suggests that using more other-focus advertising designs that can evoke humility will increase consumers' willingness to buy in future product advertising.

Keywords： Humility, Advertisement,Purchase intention,Self-focus,Other-focus

大学生社交焦虑对自杀意念的影响：一个有调节的中介模型

武海叶
四川师范大学心理系，成都，610000，2465308197@qq.com

摘 要　我国近八成的大学生都表示自己有轻微“社恐”，疫情期间一系列封闭隔离的措施也使得大学生减少了更多与现实社会交往的机会，因此大学生的社交焦虑问题日益突出。社交焦虑通常会导致许多消极影响，而社交焦虑高的个体常常也会有更高的抑郁水平，从而更容易产生自杀意念。根据自杀行为的“动机—意志”整合模型（IMV），生命意义感可能成为 IMV 中的动机调节因素对自杀意念具有保护作用。根据自杀的缓冲假设，有必要将研究角度从心理困扰的危险因素转移到逆境中精神障碍的保护因素当中。因此，本研究探讨了社交焦虑对大学生自杀意念的影响以及生命意义感和乐观在二者之间的作用机制。本研究采用交往焦虑量表、生命意义感量表、生活定向测验以及自杀意念量表对 927 名大学生进行调查，探讨生命意义感是否在社交焦虑和自杀意念之间起中介作用以及该过程是否受到乐观的调节。结果发现：（1）社交焦虑正向预测大学生的自杀意念；（2）生命意义感在社交焦虑和自杀意念之间起部分中介作用；（3）社交焦虑对自杀意念的作用以及生命意义感对自杀意念的作用受到了乐观的调节。本研究的结果表明社交焦虑会通过生命意义感来降低自杀意念的形成，且乐观会降低社交焦虑对自杀意念以及生命意义感对自杀意念的影响。
关键词　社交焦虑，自杀意念，生命意义感，乐观

The Effect of Social Anxiety on Suicidal Ideation in College Students: A Moderated Mediating Model

Haiye Wu
Department of Psychology, Sichuan Normal University, Chengdu 610000, 2465308197@qq.com

Abstract: Nearly 80% of college students in China say they have mild "social terrorism", and a series of isolation measures during the epidemic have also reduced the opportunities for college students to interact with real society, so the problem of social anxiety among college students has become increasingly prominent. Social anxiety often leads to many negative effects, and individuals with high social anxiety often also have higher levels of depression, making them more prone to suicidal ideation. According to the "motivation-will" integrated model (IMV) of suicidal behavior, the sense of life meaning may be a motivational modulator in IMV and have a protective effect on suicidal ideation. According to the buffer hypothesis of suicide, it is necessary to shift the research perspective from the risk factors of psychological distress to the protective factors of mental disorders in adversity. Therefore, this study explored the influence of social anxiety on college students' suicidal ideation and the mechanism between sense of life meaning and optimism. In this study, 927 college students were investigated by using the communication anxiety scale, sense of life Meaning Scale, life orientation test and suicide Ideation Scale to explore whether sense of life meaning plays a mediating role between social anxiety and suicide ideation and whether the process is moderated by optimism. The results showed that: (1) Social anxiety positively predicted college students' suicidal ideation; (2) The sense of life meaning plays a partial mediating role between social anxiety and suicidal ideation; (3) The effect of social anxiety on suicidal ideation and the effect of meaning of life on suicidal ideation were moderated by optimism. The results of this study suggest that social anxiety can reduce the formation of suicidal ideation through sense of life meaning, and optimism can reduce the impact of social anxiety on suicidal ideation and sense of life meaning on suicidal ideation.
Keywords: social anxiety, suicidal ideation, sense of meaning in life, optimism

瑜伽锻炼对女大学生自我客体化及注意控制的影响研究

潘寒秋[1] 龙滢[1] 闫讷[1] 解缤[2]（通讯作者）
1 西安体育学院研究生部，西安，710068
2 西安体育学院，西安，710068，E-mail：xiebin0320@163.com

摘 要 目的：女大学生一直深受社会“推崇”的审美标准影响，“筷子腿”等外界信息的输入使她们更多关注外表，并不自觉将其作为自我的主要价值，这便是自我客体化。自我客体化是将观察者的观点内化在自己身体上的心理过程，包括对身体的看法更注重外貌特征而非能力属性。客体化理论指出自我客体化会对身心健康产生负面影响。注意控制是个体在面对冲突性信息时，主动将注意资源分配给目标，并抑制习惯化、自动化和优势反应的加工过程。低注意控制个体易关注消极信息并难以逃离，从而影响心理健康。而瑜伽在改善自我认知、提高认知功能等方面发挥积极作用。因此，本文以瑜伽锻炼为干预手段，探究其对女大学生自我客体化和注意控制的影响。

方法：本研究以瑜伽锻炼为干预手段，选取 74 名女大学生，随机分成瑜伽组和对照组各 37 人。瑜伽组进行 8 周、每周 3 次，每次 90 分钟的瑜伽锻炼，对照组继续按照之前的生活习惯进行生活。在练习瑜伽前及八周后，采用自我客体化问卷和注意控制量表进行测量，并使用相关分析、t 检验及中介效应检验等统计方法。

结果：（1）瑜伽锻炼与自我客体化呈显著负相关（r=-0.423，p＜0.001），与注意控制呈显著正相关（r=0.379，p＜0.01）,自我客体化与注意控制呈显著负相关（r=-0.373，p＜0.01）；（2）干预前，瑜伽组和对照组自我客体化（t=-1.30，p＞0.05）和注意控制（t=1.47，p＞0.05）无显著差异；（3）干预后，瑜伽组较对照组自我客体化显著降低（t=-3.96，p＜0.001），注意控制显著提高（t=3.47，p＜0.01）；（4）瑜伽组干预前后，自我客体化显著降低（t=-3.16，p＜0.01），注意控制显著提高（t=2.21，p＜0.05）；（5）对照组前后测自我客体化和注意控制无显著差异（t=0.76，t=0.35，p＞0.05）；（6）注意控制在瑜伽锻炼和自我客体化的关系中发挥部分中介作用，中介效应值为-2.339（95% CI=[-5.519, -0.376]），中介效应占总效应的 22.19%。

结论：（1）8 周的瑜伽锻炼可以显著降低女大学生自我客体化以及增强注意控制能力；（2）注意控制在瑜伽锻炼和自我客体化的关系中起部分中介作用。

关键词 瑜伽锻炼，自我客体化，注意控制，女大学生

Study on the Influence of Yoga Exercise on Self-objectification and Attentional Control of Female College Students

PAN Hanqiu[1], LONG Ying[1], YAN Ne[1], XIE Bin[2] (Corresponding author)
1 Graduate Department, Xi’an Physical Education University, Xi’an Shaanxi, 710068
2 Department of Psychology, Xi’an Physical Education University, Xi’an Shaanxi, 710068
Corresponding author: xiebin0320@163.com

Abstract：Objective: Female college students have been deeply influenced by the aesthetic standards "respected" by the society, and the input of external information such as "chopstick legs" makes them pay more attention to appearance, and unconsciously regard it as the main value of self, which is self-objectification. Self-objectification is the mental process of internalizing an observer's view of one's own body, including a view of the body that focuses more on physical features than on ability attributes. The objectification theory points out that

self-objectification can have negative effects on physical and mental health. Attentional control is a process in which individuals actively allocate attention resources to the target and inhibit habituation, automation and dominance response when confronted with conflicting information. Low attentional control individuals tend to pay attention to negative information and find it difficult to escape, thus affecting their mental health. Yoga plays a positive role in improving self-cognition and cognitive function. Therefore, this paper takes yoga exercise as an intervention method to explore its influence on female college students' self-objectification and attentional control.

Methods: In this study, 74 female college students were randomly divided into yoga group and control group, 37 in each group. The yoga group received 90 minutes of yoga exercise intervention 3 times a week for 8 weeks, and the control group continued to live according to the previous lifestyle. Before and after 8 weeks of yoga practice, the Self-Objectification Questionnaire and Attention Control Scale (ACS) were used for measurement, and statistical methods such as correlation analysis, T-test and mediating effect test were used.

Results: (1) Yoga exercise was negatively correlated with self-objectification ($r=-0.423$, $p < 0.001$), positively correlated with attentional control ($r=0.379$, $p < 0.01$), and negatively correlated with self-objectification and attentional control ($r=-0.373$, $p < 0.01$); (2) Before intervention, there were no significant differences in self-objectification ($t=-1.30$, $p > 0.05$) and attentional control ($t=1.47$, $p > 0.05$) between yoga group and control group; (3) After intervention, self-objectification in yoga group was significantly lower than that in control group ($t=-3.96$, $p < 0.001$), attentional control was significantly increased ($t=3.47$, $p < 0.01$); (4) Before and after intervention, self-objectification was significantly decreased in yoga group ($t=-3.16$, $p < 0.01$), attentional control was significantly increased ($t=2.21$, $p < 0.05$); (5) There was no significant difference between self-objectification and attentional control in control group ($t=0.76$, $t=0.35$, $p > 0.05$); (6) Attentional control played a partial mediating role in the relationship between yoga exercise and self-objectification. The mediating effect was -2.339 (95%CI = [-5.519, -0.376]), and the mediating effect accounted for 22.19% of the total effect.

Conclusion: (1) 8-week intervention can significantly reduce self-objectification and enhance attentional control ability of female college students; (2) Attentional control plays a partial mediating role in the relationship between yoga exercise and self-objectification.

Keywords：Yoga exercise, Self-objectification, Attentional control, Female college students

自尊与自我建构的中日韩美法五国的跨文化比较

李婉竹[1]　曹启昕[1]　何潇雯[1]　马伟军[2]（通讯作者）

1 华东师范大学心理与认知科学学院，上海，200062，wjma@psy.ecnu.edu.cn

摘 要　自我建构指个体对于自身个性、行为、价值观等方面的认知和塑造过程，包含独立性与依存性两维度。东亚人与西方人在自我建构上存在差异，分别强调人际间的依存性与独立性。自尊指个体对自我核心价值的整体性评价。个体的整体自尊包含一般自尊和特质自尊，而特质自尊又包含“个人能力与独立”、“人际关系和人缘”、“家人情感与互动”三个维度。西方人比东亚人更重视自我独特价值与直接自尊表达。但目前先行研究缺乏东西方不同文化圈自我建构及自尊的直接比较。

本研究的目的在于对东西方不同文化圈自我建构及自尊进行直接比较，以求揭示其各自特点与差异。本研究采用罗森伯格自尊量表、华人多元自尊量表和自我建构量表分别测量了日本、法国、美国、韩国和中国（日本 132 人、法国 90 人、美国 117 人、韩国 123 份、中国 496 人，共 958 人）这五个国家个体的一般自尊、特质自尊与自我建构。

结果发现：（1）在自我建构方面，东亚人（中国、日本和韩国）的依存性显著高于西方人（美国和法国），而独立性显著低于西方人。从东西方不同文化圈的角度验证了自我建构东西方文化差异的观点。（2）特质自尊方面，西方人在“个人能力与独立”维度与“人际关系和人缘”维度得分比东亚人高，说明西方人比

东亚人更为重视个人能力、独立性与人际关系；但在“家人情感与互动”维度人东亚人比西方人高，说明东亚人比西方人更为重视家庭的情感与互动。（3）在一般自尊方面，东亚人与西方人之间无显著差异。本研究揭示了东西方不同文化圈自尊、自我建构的特点与差异，为东西方不同文化圈的自尊和自我建构的跨文化比较提供了实证依据。

关键词　自我建构、整体自尊、一般自尊、特质自尊、跨文化比较

Self-Esteem and Self-Construction: A Cross-Cultural Comparative Study Among Five Countries

Wanzhu Li
East China Normal University, China, Shang Hai Shi, Pu Tuo Qu, Zhongshan Rd 3663, 200062

***Abstract*：** Self-construction refers to the individual's process of recognizing and shaping aspects of their personality, behavior, values, and more, including two dimensions: independence and interdependence. There are differences in self-construction between East Asians and Westerners, with emphasis placed on interdependence and independence in interpersonal relationships, respectively. Self-esteem refers to the overall evaluation of an individual's core self-worth. Overall self-esteem encompasses general self-esteem and trait self-esteem, where trait self-esteem includes three dimensions: "personal abilities and independence," "interpersonal relationships and popularity," and "family emotions and interactions." Westerners tend to place more importance on their unique self-worth and direct self-esteem expression compared to East Asians. However, existing research lacks a direct comparison of self-construction and self-esteem between Eastern and Western cultural circles.

The purpose of this study is to directly compare self-construction and self-esteem between Eastern and Western cultural circles to reveal their respective characteristics and differences. The study used the Rosenberg Self-Esteem Scale, Chinese Multidimensional Self-Esteem Scale, and Self-Construction Scale to measure general self-esteem, trait self-esteem, and self-construction among individuals from Japan, France, the United States, South Korea, and China (132 participants from Japan, 90 from France, 117 from the US, 123 from South Korea, and 496 from China, totaling 958 participants).

The results revealed that: (1) in terms of self-construction, East Asians (China, Japan, and South Korea) scored significantly higher in interdependence and significantly lower in independence compared to Westerners (the US and France), validating the viewpoint of cultural differences in self-construction between Eastern and Western cultural circles. (2) Regarding trait self-esteem, Westerners scored higher than East Asians in the dimensions of "personal abilities and independence" and "interpersonal relationships and popularity," indicating that Westerners place more importance on personal abilities, independence, and interpersonal relationships. However, in the dimension of "family emotions and interactions," East Asians scored higher than Westerners, indicating that East Asians place more importance on family emotions and interactions. (3) There were no significant differences in general self-esteem between East Asians and Westerners. This study reveals the characteristics and differences in self-esteem and self-construction between Eastern and Western cultural circles, providing empirical evidence for cross-cultural comparisons

of self-esteem and self-construction.

Keywords ： Self-construction, overall self-esteem, general self-esteem, trait self-esteem, cross-cultural comparison

城市与农村社区弹性影响因素的共性与差异：一项系统综述

朱仕林[1]（通讯作者）

1 中国地质大学（武汉）教育研究院，心理科学与健康研究中心，武汉，430074，2229359829@qq.com

摘 要 背景：随着社会的发展，“社区弹性”一词被提及的越来越多，国内外的专家学者也对其进行了很多的研究。由于社区有着不同的类型，有的研究侧重城市和农村，但不同的研究者对于城市和农村社区的社区弹性得出的结论存在分歧，因而探讨城市与农村之间社区弹性影响因素的共性与差异对于提高社区应对灾害的能力具有重要的指导意义。目的：本文旨在通过系统文献回顾分析城市和农村社区这两种社区之间社区弹性的共性与差异，探究影响其社区弹性的因素，为促进社区的防灾减灾提供借鉴。方法：按照预定检索策略在中国知网、维普、万方、Pubmed、Web of Science、PsycINFO、PsycARTICLES、PsycBooks、PsycEXTRA 等数据库中检索到 2603 篇文献，经阅读标题和摘要排除不相关和重复文献，排除无法获取全文及与研究目的无关的全文，最终纳入 16 篇文献，并对其进行质量评价。结果：所有纳入文献都涉及城市社区或农村社区的社区弹性，分别属于中国、波斯尼亚-黑塞哥维那、挪威、加拿大、以色列、韩国、尼泊尔 7 个国家。城市社区和农村社区的社区弹性的影响因素存在着共性和差异。其中城市和农村社区社区弹性都涉及的影响因素包括三个层面，分别是政府，如政府的管理和公平；社区，如社区网络、社区的领导力、社区应对灾害的准备、社区的社会资本等等；以及最后的居民层面，如积极响应社区号召、与社区的联系、积极参与和社会认同等因素。除了共性，城市和农村社区在社区弹性的影响因素方面也存在着差异。农村社区居民的共有意识形态以及居民关系影响着其社区弹性，这是城市社区社区弹性所不具备的；而城市社区其基础设施和生活方式等方面则与农村社区有着不小的区别，也造成了二者社区弹性的差异。结论：城市社区与农村社区的社区弹性在以往的研究中存在分歧，是因为社区弹性在两类社区中各有其影响因素，既有相同点，又存在差异。在政府制定相关政策时，需考虑社区的类型，具体问题具体分析，帮助社区提高社区弹性，建设具有弹性的社区，以提高社区应对灾害的能力，促进和谐社会的构建。

关键词 城市，农村，社区弹性，共性，差异

The commonality and differences between the influence factors of urban and rural community resilience: a system review

Zhu Shilin(Corresponding author)[1]

1 China University Of Geosciences, Research Center for Psychological Science and Health, Wu Han, 430074, Corresponding author: 2229359829@qq.com

Abstract：Background: With the development of society, the term "community resilience" has been mentioned more and more, and experts and scholars at home and abroad have conducted a lot of research on it. Because the community has different types and some research focuses on cities and

rural areas, different researchers have different conclusions on the conclusions of community resilience in urban and rural communities. Therefore, the commonality and differences in community resilience factors between cities and rural areas have important guiding significance for improving the ability of communities to deal with disasters. Objective: This article aims to analyze the commonality and differences between community resilience between the two communities of cities and rural communities through system literature, explore the factors that affect the resilience of their community, and provide a reference for promoting disaster prevention and mitigation of the community. Methods: According to the scheduled retrieval strategy, 2603 documents were retrieved in Database of China, Weipu, Wanfang, PUBMED, Web of Science, Psycinfo, Psycarticles, PsyCBooks, Psycextra, etc., and unrelated and repeated documents were excluded by reading title and summary. The full text that has nothing to do with research purposes is finally included in 16 documents and evaluated it for quality. Results: All the enlightenment of the literature involved the resilience of the urban or rural communities, and belongs to 7 countries in China, Persia-Hezonovina, Norway, Canada, Israel, South Korea, and Nepal. The influencing factors of community resilience in urban communities and rural communities have commonality and differences. Among them, the resilience of urban and rural communities involves three levels of influencing factors, including government management and fairness; community, such as community networks, community leadership, community preparations for disasters, community social capital, etc., and the final resident level, such as actively responding to community calls, contact with the community, active participation and social identity. In addition to commonality, there are also differences in the influencing factors of cities and rural communities in community resilience. The co -ideological and residents' relationship between residents of rural communities affects its community resilience, which is not available in the resilience of the urban community community. The infrastructure and lifestyle of urban communities are not small from the rural community, and it also causes the resilience of the community of the two. Conclusion: The resilience of the community in the urban community and the rural community has differences in previous research. It is because the resilience of the community has its own influencing factors in the two types of communities, which are both the same and different. When the government formulates relevant policies, it is necessary to consider the type of community. Specific analysis of specific problems to help the community improve the resilience of the community and build a flexible community to improve the community's ability to deal with disasters and promote the construction of a harmonious society.

Keywords：Cities, rural areas, community resilience , commonality, differences

医患信息不对称影响患方信任——场景工具的开发与检验

崔杨　廖美玲　林国斌（通讯作者）

福建医科大学健康学院，福州，350122，838400402@qq.com

摘 要 医患信任危机是导致医患关系失谐的社会心态根源。基于信息不对称理论，医患间信息不对称是影响医患信任的主要因素之一。目前国内外对医患信息不对称的测量工具较少，难以开展更为深入的研究。本研究基于以往文献，开发医患信息对称性场景工具并使用此工具探究医患信息不对称对患方信任的影响。

研究 1 开发医患信息对称性场景工具。通过方便取样法（*n*=156）对初始条目进行项目分析，剔除 20 项条目；随后通过 *Delphi* 专家咨询法（*n*=9）评估专家权威系数与一致性程度，剔除 27 项条目；最后将剩

余的 25 项条目结合场景模板与条目文字内容开发医患信息对称性场景工具，向医院病人（n=40）进行实验施测，从效价、唤醒度、认同度、现实度四个维度对场景工具进行有效性评价。结果表明纳入场景工具的 25 个条目可采信程度较高（Cr=0.83，W=0.742，p＜0.001），所有场景图片在唤醒度、认同度、熟悉度与效价上的评分均在中值 5 以上，有效性良好。

研究 2 考察不同医患信息对称性水平下的患方信任差异。招募患者 30 名，采用自行开发的医患信息对称性场景工具，结合改编的信任游戏范式，采用单因素两水平（信息对称水平：对称 *VS* 不对称）被试内设计开展行为实验，考察相同被试在不同医患信息对称性水平下的患方信任差异。结果显示，在医患信息对称场景工具构建的实验条件下，被试在对称水平下的信任行为率显著高于不对称水平（t=5.919, p＜0.001），表明被试在医患信息对称条件下对医方角色具备更高的信任水平。

综上，本研究以信息不对称理论为研究视角，开发了信效度良好的医患信息对称性场景工具；并将信任游戏范式引进医患研究领域，结果发现医患信息对称水平下的患方信任水平更高。
关键词　医患信息不对称，医患信任，患方信任，医患关系，工具开发

Doctor-patient information asymmetry affects patient trust--development and testing of a scenario tool

Yang Cui　Meiling Liao　Guobin Lin

School of health，Fujian medical university, Fuzhou，350122

Abstract：Doctor-patient trust crisis is the root of social mentality that leads to the disharmony of doctor-patient relationship. Based on the information asymmetry theory, information asymmetry between doctors and patients is one of the main factors affecting doctor-patient trust. At present, there are fewer measurement tools for doctor-patient information asymmetry at home and abroad, which makes it difficult to conduct more in-depth research. Based on previous literature, this study develops the doctor-patient information symmetry scenario tool and uses this tool to explore the impact of doctor-patient information asymmetry on patient trust.

Study 1 Development of a physician-patient information symmetry scenario tool. The initial items were analysed by the convenience sampling method (n=156), and 20 items were excluded; then the expert authority coefficient and consistency degree were assessed by the Delphi expert consultation method (n=9), and 27 items were excluded; finally, the remaining 25 items were combined with the scenario template and the textual content of the entries to develop the Symmetry of Doctor-Patient Information Scenario Tool, which was administered to the patients in the hospital (n=40) for the purpose of experimental testing. Finally, the remaining 25 items were combined with the scenario template and item text content to develop a scenario tool for doctor-patient information symmetry, which was experimentally administered to hospital patients (n=40). The results showed that the 25 items included in the scenario tool had a high degree of admissibility (Cr=0.83, W=0.742, p<0.001), and all scenarios were rated above the median of 5 for arousal, identity, familiarity, and validity, which is a good validity.

Study 2 examined differences in patient trust at different levels of doctor-patient information symmetry. Thirty patients were recruited to conduct a behavioural experiment using a self-developed doctor-patient information symmetry scenario tool combined with an adapted trust game paradigm in a one-factor, two-level (information symmetry level: symmetry vs. asymmetry) within-subjects design, to examine the differences in patient-side trust among the same subjects at different levels of doctor-patient information symmetry. The results showed that under the experimental conditions constructed by the Doctor-Patient Information Symmetry Scenario Tool, the rate of trusting behaviours of subjects under symmetrical level was significantly higher than that of

asymmetrical level (t=5.919, p<0.001), indicating that subjects possessed a higher level of trust in the role of the doctor under the condition of symmetrical doctor-patient information.

In summary, this study took the information asymmetry theory as the research perspective and developed the doctor-patient information symmetry scenario tool with good reliability and validity; and introduced the trust game paradigm into the field of doctor-patient research, and the results found that the patient's trust level was higher at the symmetry level of doctor-patient information.

Keywords: Doctor-patient information asymmetry, doctor-patient trust, patient trust, doctor-patient relationship, tool development

青少年快感缺失量表在中国一般青少年中的验证

关志顺[1] 马丽萍[1] 迟新丽[2] 严超[1]

1 华东师范大学心理与认知科学学院，上海，200062

2 深圳大学心理学院，深圳，518060

通讯作者：严超，cyan@psy.ecnu.edu.cn

摘 要 快感缺失作为症状和跨诊断特征，广泛存在于精神疾病患者中。同时，作为青少年时期高发的抑郁症核心症状之一，其出现往往代表后续治疗困难和糟糕预后的风险提高。在行为表现上，过往有研究发现青少年抑郁症与成人患者相比在即时性快感缺失方面有所不同。由此可见，为达到更好的筛查和预防效果，有必要采用在青少年快感缺失问题上具效度的工具。然而，过往所开发的快感缺失自评量表大多以成人群体为蓝本。为此，本研究对基于青少年临床群体开发和验证的青少年快感缺失量表（ASA）进行翻译，在中国一般青少年群体中作验证以拓展其适用性。我们招募了 1443 名中学生参与此项研究调查，在半年后，其中 976 人继续参加第二轮调查。前测数据随机分成两组分别进行探索性/验证性因子分析以及信效度分析，并采用动机与情緒自评量表（MAP-SR，分数越低快感缺失程度愈高）、认知情緒调节问卷（CERQ，其分量表中，接受、自我责备、沉思、灾难化、责备他人和抑郁症状呈显着正相关，而积极重新关注、重新关注计划、积极重新评价、理性分析和抑郁症状呈显着负相关）作校标效度分析。儿童愤怒量表（AESC）、儿童愤怒表达量表（ChIA）作区分效度分析。同时采用儿童抑郁量表（CDI）进行预测效度分析。因子分析结果发现，2 因子结构要优于原量表的 3 因子结构（$\chi2$ / df＝3.736、TLI＝0.938，CFI＝0.948，SRMR=0.034，RMSEA＝0.62, 90%CI =0.054 ～ 0.069）。在两样本群体中，ASA 总分的克隆巴赫系数为 0.876-0.889。重测信度 ICC=0.587。分量表一（愉快体验、刺激、动机和努力，负向计分）和分量表二（热情、联系和意义感，正向计分）的克隆巴赫系数分别为 0.875 ～ 0.898，0.729 ～ 0.738，重测信度 ICC=0.439，0.542。校标效度分析结果显示，ASA 各分量表和 MAP-SR 各分量表在两样本群体中均具显着负相关（r=-.338 ～ -.589, 均 p<0.001）。同時，ASA 各分量表和 CERQ 中的积极重新关注、重新关注计划、积极重新评价分量表呈显着负相关（r=-.167 ～ -.436, 均 p<0.001），和灾难化具显着正相关（r=0.248 ～ 0.548, 均 p<0.001）。但分量表一和二在自我责备、接受、理性分析、责备他人的相关关系方向上各有不一致。区分效度分析结果显示，ASA 各分量表和 ChIA 均具显着低相关（r=0.097 ～ 0.232, 均 p<0.001），而和 AESC 则呈现低至中等相关（r=-.165 ～ -.288, 均 p<0.001），。预测效度上，ASA 总分和各分量表均在控制性别、年龄和焦虑程度的基础上显着预测半年后的抑郁水平。研究结果表明 ASA 在中国青少年中具一定文化差异性，具有良好的信效度。但其中的热情、联系和意义感分量表则需要更多的探索。后续将在临床群体中开展进一步的验证工作，拓展其适用性以达到更好的筛查和预防青少年抑郁症和快感缺失问题。

关键词 快感缺失，愉快体验能力，抑郁症，阴性症状，青少年

Validation of the Anhedonia Scale of Adolescent in General Chinese Adolescents

Chi-son Kuan[1], Li-ping Ma[1], Xin-li Chi[2,3], Chao Yan[1#]

1. School of Psychology and Cognitive Science, East China Normal University, 3663 North Zhongshan Road, Shanghai, People's Republic of China
2. School of Psychology, Shenzhen University, Shenzhen, 518060, People's Republic of China

#：Corresponding author

Chao Yan: cyan@psy.ecnu.edu.cn; Room 413, Building Junxiu, 3663 North Zhongshan Road, Shanghai, China, 200062

Abstract：Anhedonia is highly prevalent as a symptom and transdiagnostic features mental disorders. Adolescents are at high risk of develop depression which anhedonia acted as a core symptom. The presence of anhedonia is relevant to risk of subsequent treatment difficulties and poor prognosis. Previous studies have discovered that adolescent depression patients differ from adult patients in terms of consummatory pleasure deficit, suggesting a need for instruments with high validity on adolescents' anhedonia in order to achieve better screening and prevention outcomes. However, most of the scales have been developed based on adult. The Adolescent Pleasure Deficit Scale (ASA) was the only self-reported scale developed and validated based on clinical and general adolescent population. The aim of current study is to translate and validate it in a general Chinese adolescent population to expand its applicability. We recruited 1,443 secondary school students to participate in this study, 976 of them continued to participate six months later. The pre-test data were randomly divided into two groups for exploratory/confirmatory factor analysis and reliability tests. For validity test, we applied the Motivation and Emotion Self-Rating Scale (MAP-SR, lower score indicate a higher degree of anhedonia), the Cognitive Emotion Regulation Questionnaire (CERQ, subscales of acceptance, self-blame, contemplation, catastrophizing, blaming others were positively correlated with depressive symptoms; positive refocusing, refocus on planning, positive reappraisal, putting into perspective were negatively correlated with depressive symptoms) were analyzed for concurrent validity. The Anger Scale for Children (AESC) and the Children's Expression of Anger Inventory (ChIA) were analyzed for discriminant validity. The Child Depression Inventory (CDI) was also used for predictive validity analysis. Factor analysis revealed a 2-factor structure was superior to the origin 3-factor structure ($\chi 2/df = 3.736$, TLI = 0.938, CFI = 0.948, SRMR = 0.034, RMSEA = 0.62, 90% CI = 0.054 to 0.069). For reliability tests, the Cronbach's Alpha coefficients for total ASA score ranged from 0.876 to 0.889. Test - retest reliability ICC = 0.587. Cronbach's Alpha coefficients for ASA subscale 1 (enjoyment, excitment, motivation, and effort, negatively framed) and subscale 2 (enthusiasm, connection, and purpose, positively framed) ranged from 0.875 to 0.898, and from 0.729 to 0.738, and the test-retest reliability ICC =0.439, 0.542, respectively. The results of concurrent validity analyses showed significant negative correlations between the ASA subscales and the MAP-SR subscales in both groups of samples (r=-.338 to -.589, $p<0.001$), and the positive refocusing, refocusing on planning, and positive reappraisal subscales of the CERQ (r=-.167 to -. 436, $p<0.001$), and significant positive correlation with catastrophizing (r=0.248 to 0.548, $p<0.001$). However, inconsistent results in the relationship between two subscales of ASA and self-blame, acceptance, putting into perspective, and blaming others of CERQ were observed. Discriminant validity analyses showed that each of the ASA subscales had a low level of correlation with the ChIA subscales (r=0.097 to 0.232, $p<0.001$), and AESC subscales (r=-.165 to -.288, $p<0.001$). In terms of predictive validity, the ASA total score and its subscales significantly predicted the level of depression six months later, after controlling the effect of gender, age, and anxiety level. These findings suggest that the ASA

has good reliability and validity. ASA is also culturally diverse among Chinese adolescents compare to the British samples in the original article. However, the enthusiasm, connection and purpose subscale of ASA needs more exploration. Further validation in clinical populations will follow, to expand of applicability of ASA for a better screening of adolescent depression and anhedonia problems.

Keywords：anhedonia, experience of pleasure, depression, negative symptoms, adolescent

风险决策框架效应的跨文化差异

曹婉郡　管苡辰　江润杰　张克顺（通讯作者）

青岛大学心理系，青岛，266071，通讯作者 keshun.zhang@qdu.edu.cn

摘 要　框架效应作为一种经典的非理性决策偏差，是指同一问题的不同描述框架会导致个体偏好变化的现象。以往研究发现，集体主义-个人主义文化特征会对框架效应产生影响，然而研究结果存在分歧。现有研究多数通过两个国家文化对比得出结论，样本广度不够，这可能是导致研究结果不一致的原因。因此，本研究通过分析疫情期间全球 54 个国家 80586 名受访者“亚洲疾病”问题决策数据，以澄清文化对风险决策及其框架效应的影响。研究共由两部分组成，研究一通过倾向性得分匹配构建假想随机测验，验证在跨国大样本中国家个体主义-集体主义文化背景与风险决策的关系，研究二在全球范围内使用边际效应分析探讨框架效应的跨文化差异。结果表明：1.个体主义国家的个体普遍风险规避，集体主义国家的个体普遍风险寻求；2.框架效应在全球国家普遍存在。个人主义集体主义指数与框架效应呈倒 U 型关系。高个体主义和高集体主义国民的框架效应都比较小。研究一证实了缓冲假说，个体主义国家文化背景的个体普遍风险规避，集体主义国家文化背景的个体普遍风险寻求，集体主义国家更倾向于承担风险采取防疫措施以改善集体福祉、减轻他人损失；研究二得出国家个体主义/集体主义文化特征鲜明程度（个体主义/集体主义得分绝对值相对高低）影响框架效应，文化背景特征鲜明的国家受框架效应影响更弱。本研究表明风险决策中框架效应受到文化背景的塑造，文化特征和框架效应的倒 U 型关系也澄清了以往研究的分歧，为研究重大突发事件下框架效应的跨文化差异提供一定的参考价值。

关键词　风险决策，框架效应，个体主义与集体主义，倒 U 型关系

Cross-cultural differences in risk decision framing effects

Wanjun Cao,　Yichen Guan,　Runjie Jiang,　Keshun Zhang (Correspondence)

Department of Psychology, Qingdao University, Qingdao，266071

Abstract：The framing effect, a classic irrational decision bias, is a phenomenon in which different descriptive frames of the same problem lead to changes in individual preferences. Previous studies have found that collectivist-individualist cultural characteristics influence the framing effect, but the results are mixed. Most of the existing studies draw their conclusions by comparing the cultures of two countries with insufficient sample breadth, which may be the reason for the inconsistent findings. Therefore, this study analyses decision data on 'Asian disease' issues from 80,586 respondents in 54 countries during the epidemic to clarify the influence of culture on risk decision-making and its framing effects. The study consists of two parts, Study 1, which constructs a hypothetical randomized trial using propensity score matching to examine the relationship between national individualistic-collectivist cultural contexts and risk decision-making in a large cross-national sample, and Study 2, which explores cross-cultural differences in framing effects globally using marginal effects analysis. The results show that 1. individuals in individualistic countries are generally risk-averse and individuals in collectivist countries are generally risk-seeking; and 2. the framing effect is prevalent in countries around the world. The

individualism-collectivism index has an inverted U-shaped relationship with the framing effect. The framing effect is smaller for both high individualism and high collectivism nationals. Study 1 confirms the buffering hypothesis that individuals from individualistic national cultural backgrounds are generally risk-averse, individuals from collectivistic national cultural backgrounds are generally risk-seeking, and collectivistic countries are more inclined to take risks in order to take precautionary measures to improve collective welfare and mitigate the losses of others; Study 2 concludes that the degree of national individualism/collectivism (the relative absolute individualism/collectivism score) influences the framing effect, and that countries with distinctive cultural characteristics are less affected by the framing effect. This study shows that the framing effect in risk decision-making is influenced by cultural background, and the inverted U-shaped relationship between cultural characteristics and the framing effect also clarifies the inconsistency of previous studies, which provides a certain reference value for the study of cross-cultural differences in the framing effect in major emergencies.
Keywords：Risk Decision Making, Framing Effect, Individualism/Collectivism, U-Shaped Relationship

基于审美研究的“丑萌”模因对情绪的影响及神经机制探究

安易　夏天生（通讯作者）
广东工业大学，广州，510000，xiatiansheng@gdut.edu.cn

摘 要　“丑萌”作为一种模因文化，可以解释为“奇怪的令人快乐的图像”。不同与传统审美，“丑萌”模因并不以“美观性”作为吸引力的主要来源，目前尚不清楚这一现象出现的原因及“丑萌”审美体验的神经机制。本研究利用 oddball 范式，结合脑电图和情绪面孔识别技术考察了“丑萌”审美体验对情绪的影响及其认知神经机制。参与者被分为 A、B 两组（n=30），通过对出现的新异刺激进行吸引力判断，比较参与者在进行不同类型的审美体验（丑型、萌型与丑萌型）所引发的情绪上及神经机制上的异同。在 A 组中，标准刺激为“萌”的图片，新异刺激为“丑萌”的图片；在 B 组中，标准刺激为“丑”的图片，新异刺激为“丑萌”的图片。实验结果显示，在 A 组中，与“萌”型的标准刺激相比，“丑萌”型的新异刺激在引发愉悦情绪的同时还引发了惊讶的情绪。事件相关电位显示，两种刺激都引发了与“快乐”相关的事件相关电位 LPP，而“丑萌”型的图片还引发了与“惊讶”相关的 P300。在 B 组中，“丑”型的标准刺激所引发的情绪多为“厌恶”、“恐惧”等负面情绪，而“丑萌”型的新异刺激引发的情绪则主要为积极的正向情绪；“丑”型和“丑萌”型的两种刺激均引发了与惊讶相关的 P300 电位，“丑”型刺激还引发了与负面认知相关的 N2 电位，而“丑萌”型刺激同时引发了与“愉悦”情绪相关的 LPP 电位；此外，通过对比两组实验发现，与“萌”型图像相比，“丑”型及“丑萌”型在审美体验中出现了更多的 N1 成分，这意味着丑萌模因在审美过程中可能需要更多的注意力投入。研究结果表明，除了“愉悦”的情绪外，丑萌模因还引发了“惊讶”等积极情绪和更多注意力，本研究为探究新的审美现象“丑萌模因”的心理及神经机制提供了经验证据。
关键词　丑萌，审美，神经机制，情绪

The Influence of the "Ugly-Cute" Memes Based on Aesthetic Research on Emotions and Investigation of Neural Mechanisms

Yi An, Tiansheng Xia (Corresponding Author)
Guangdong University of Technology, Guangzhou, 510000, xiatiansheng@gdut.edu.cn

Abstract："Ugly-cute" as a meme culture can be explained as "strange and delightfully amusing images". Unlike

traditional aesthetics, the appeal of "ugly-cute" memes does not primarily rely on "beauty". The reasons for the emergence of this phenomenon and the neural mechanisms underlying the aesthetic experience of "ugly-cute" are still unclear. In our study, we employed the oddball paradigm, combining electroencephalography (EEG) and emotion face recognition technology, to investigate the impact of the aesthetic experience of "ugly-cute" on emotions and its cognitive neural mechanisms. Participants were divided into two groups, A and B (n=30), and their emotional and neural responses to different types of aesthetic experiences (ugly, cute, and ugly-cute) were compared by judging the attractiveness of novel stimuli. In Group A, the standard stimuli were "cute" images, and the novel stimuli were "ugly-cute" images. In Group B, the standard stimuli were "ugly" images, and the novel stimuli were "ugly-cute" images. The results showed that in Group A, compared to the "cute" standard stimuli, the "ugly-cute" novel stimuli elicited both pleasant and surprised emotions. Event-related potentials (ERPs) showed that both types of stimuli elicited a late positive potential (LPP) associated with "happiness", while the "ugly-cute" images also elicited a P300 component associated with "surprise". In Group B, the emotions elicited by the "ugly" standard stimuli were mostly negative, such as "disgust" and "fear", while the emotions elicited by the "ugly-cute" novel stimuli were mainly positive. Both the "ugly" and "ugly-cute" stimuli elicited a P300 component associated with "surprise", and the "ugly" stimuli also elicited an N2 component associated with negative cognition, while the "ugly-cute" stimuli elicited an LPP component associated with "pleasure". Furthermore, by comparing the two groups, it was found that compared to the "cute" images, both the "ugly" and "ugly-cute" images had more N1 components in the aesthetic experience, indicating that the "ugly-cute" memes may require more attentional resources during the aesthetic process. The results of our study suggest that besides the emotion of "pleasure", the "ugly-cute" memes also elicit positive emotions such as "surprise" and require more attentional resources. Our study provides empirical evidence for exploring the psychological and neural mechanisms of the new aesthetic phenomenon of "ugly-cute" memes.

Keywords：Ugly-cute, Aesthetics, Neural mechanisms, Emotions

谦逊降低刻板印象威胁：以女性空间认知能力为例

燕丰羽 赵诗韵 滕鑫 林闻正（通讯作者）

江西师范大学心理学院，南昌，330022，通讯作者 E-mail: lin.wenzheng@live.com

摘 要 刻板印象威胁是指污名群体的成员因担心自己的表现会证实消极刻板印象而导致表现下降的一种现象。刻板印象威胁已被证实会损害个体在许多领域的能力，如女性的空间认知能力。因此，消解这种威胁给个体带来的负面影响，是研究者普遍关注的问题。过往的研究表明，个体某种程度对自我表现的关注会减弱刻板印象带来的威胁效应。这一研究结果暗示了自我关注对刻板印象威胁的影响；而谦逊作为一种积极品质，表现为个体较低的自我关注。因此，本研究以女性空间认知能力为例，旨在探讨谦逊与刻板印象威胁的关系。该研究假设谦逊可以缓解刻板印象威胁对女性空间认知能力的负面影响。

为此，本研究采用实验法，将 387 名女性学生随机分为威胁组（n = 152）和对照组（n = 235）。首先进行刻板印象威胁操纵。威胁组阅读了一段强调男性在空间任务上优于女性的信息，而对照组阅读了一段表明男性和女性在空间任务上表现相近的信息。然后要求被试进行空间旋转任务来测量其空间认知能力。最后要求被试自我报告其情绪体验、刻板印象威胁水平和特质性谦逊水平。

方差分析结果显示，特质性谦逊可以调节刻板印象威胁对女性空间认知能力的影响，即更谦逊的女性会受到更少的刻板印象威胁的影响。这一结果支持了本研究的假设，并揭示了谦逊作为一种积极的人格特质，可以减少女性受到刻板印象威胁的影响。未来研究还需要进一步探讨谦逊是如何通过影响个体的认知、情绪和动机等心理过程来降低刻板印象威胁的内在机制。

关键词　谦逊，刻板印象威胁，空间认知能力

Humility Reduces Stereotype threat: A case study of women's spatial cognition

Fengyu YAN　Shiyun ZHAO　Xin TENG　Wenzheng LIN(Corresponding author)
School of Psychology, Jiangxi Normal University, Nanchang, 330022，Corresponding author
lin.wenzheng@live.com

Abstract： Stereotype threat refers to the phenomenon that members of stigmatized groups perform worse in related tasks confirming to their group stereotypes. Stereotype threat has been shown to impair individuals' abilities in many domains (e.g., women's spatial cognition). Therefore, alleviating those negative effects on individuals has become the focus of this research field. Previous studies suggested that a certain degree of self-concern can weaken the threat effect of stereotypes. This finding implies that the influence of self-focus on stereotype threat; and humility as a positive quality is characterized by low self-concern. Therefore, this study aims to explore the relationship between humility and stereotype threat by examining its effects on women's spatial cognition. This study hypothesizes that humility can mitigate the negative impact of stereotype threat on women's spatial cognition.

To this end, this study adopts an experimental design and randomly assigned 387 female students to a threat group (n = 152) and a control group (n = 235). Stereotype threat was manipulated by having the threat group and the control group read information emphasizing male superiority and male-female similarity in spatial tasks, respectively. Then, the subjects were asked to perform a spatial rotation task to measure their spatial cognition scores. Finally, the subjects were asked to complete some questionnaires to measure their emotional experience, stereotype threat level and trait humility.

The ANOVA results show that trait humility could moderate the effect of stereotype threat on women's spatial cognition. In particular, more humble women were less affected by stereotype threat. This finding supports the hypothesis of this study and reveals that humility could reduce the impact of stereotype threat on women. Future research needs to further explore how humility reduces stereotype threat by influencing individuals through cognitive, emotional and motivational processes.

Keywords： Humility, Stereotype threat, Spatial cognitive ability

个体资源组织资源协同影响职业行为的机制分析及设计 EAP 的启示

张济英　宋国萍（通讯作者）
陕西师范大学心理学院暨陕西省行为与认知神经科学重点实验室，西安，710061
gpsong@126.com

摘　要　本文基于职业动机理论和工作需要-资源理论，探讨不同事件背景下员工职业生涯投入行为的形成机制。分别在极端公共卫生事件爆发期和生产生活常态化时期，采用职业生涯韧性、家庭支持、职业生涯

投入行为量表对在职员工进行测量。职业生涯投入行为能正向预测员工的工作满意度和职业生涯满意度。本文通过中介调节模型分析，探究不同时期下职业韧性对职业生涯投入行为的影响机制，以期为企业设计EAP提升员工职业生涯投入行为提供具体路径。结果发现，在极端公共卫生事件爆发期，职业韧性在组织承诺的中介下正向预测职业生涯投入行为，组织支持氛围在组织承诺对职业生涯投入行为的关系中起调节作用。在生产生活常态化时期，组织支持氛围对组织承诺和职业生涯投入行为的关系中的调节作用不显著，且心理可得性在职业韧性和组织承诺的关系中起调节作用。该研究结果说明不同背景下，影响职业动机和投入行为的因素不同，对资源的感知程度也影响着具体的职场行为，提醒我们要善于在动态发展的环境中把握关键变量，从而为更好的改善职业环境提供参考路径。基于此，我们得到了企业设计EAP的启示：从资源视角出发，助力个体内部资源和外部资源协同提升，为组织赋能，从而促进员工职业生涯投入行为。一方面，本文通过路径分析发现个体资源组织资源在工作场所中相互影响，协同作用于员工职业生涯投入行为，另一方面，从提升资源的视角入手，丰富了传统EAP聚焦问题解决的服务模式。
关键词　职业生涯韧性，职业生涯投入行为，中介调节模型，对EAP的启示

Mechanism analysis of individual resource organization resource synergistic influence on professional behavior and implications for EAP design

Jiying Zhang　Guoping Song (corresponding author)
School of Psychology and Shaanxi Provincial Key Laboratory of Behavioral and Cognitive Neuroscience, Shaanxi Normal University, Xi 'an 710061, China
gpsong@126.com

Abstract:Based on occupational motivation theory and work needs-resource theory, this paper discusses the formation mechanism of employees' career engagement behavior under different event backgrounds. In the outbreak period of extreme public health events and the normal period of production and life, the career resilience, family support and career engagement behavior scale were used to measure the on-the-job employees. Career engagement behavior can positively predict employees' job satisfaction and career satisfaction. Through the mediation model analysis, this paper explores the influence mechanism of career resilience on career engagement behavior in different periods, in order to provide specific ways for enterprises to design EAP to improve employees' career engagement behavior. The results showed that during the outbreak of extreme public health events, occupational resilience positively predicted career engagement behavior under the mediation of organizational commitment, and organizational support atmosphere played a moderating role in the relationship between organizational commitment and career engagement behavior. In the normalized period of production and life, the moderating effect of organizational support atmosphere on the relationship between organizational commitment and career engagement behavior was not significant, and psychological availability played a moderating role in the relationship between occupational resilience and organizational commitment. The results of this study show that the factors affecting occupational motivation and engagement behavior are different under different backgrounds, and the degree of perception of resources also affects specific workplace behaviors. It reminds us that we should be good at grasping key variables in the dynamic development environment, so as to provide a reference path for better improving the occupational environment. Based on this, we get the enlightenment of enterprise design EAP: From the perspective of resources, help the internal and external resources of individuals to collaborate and improve the organization, so as to promote the career engagement

behavior of employees. On the one hand, through path analysis, this paper finds that individual resources and organizational resources interact with each other in the workplace and synergistically affect employees' career engagement behavior. On the other hand, from the perspective of resource enhancement, this paper enricfies the traditional EAP problem-focused service model.
Key words: career resilience, career engagement behavior, mediation model, implications for EAP

新冠疫情下公众心理健康水平变化研究——基于新浪微博数据

王璐瑶[1]　康春花[1]　曾平飞[2]（通讯作者）

1 浙江师范大学心理学院，浙江金华，321004

2 浙江师范大学教育学院，浙江金华，321004 通讯作者 E-mail：zpf@zjnu.cn

摘 要　新冠疫情爆发，给公众生活、工作和学习造成巨大冲击。为探讨其对公众心理健康的影响，本文抓取疫情前后及疫情期间发布的含有“心理咨询”关键词的新浪微博内容，运用应激适应、心理韧性以及社会支持等心理学理论，对数据进行分析，探究疫情不同阶段公众心理健康水平的变化。

根据已有研究对疫情阶段的划分，本文进一步将其划分为五阶段：无疫情期、疫情爆发期、常态化防控期、疫情反复期、后疫情期。本文使用 Python 作为主要分析工具，清洗后数据共包括 78044 条微博。首先使用 WordCloud 词云图和词频统计，对比公众在疫情不同阶段讨论心理咨询话题时的词频情况；再进一步利用 SnowNLP 进行情感分析，探究各阶段公众的情感趋势变化；最后在讨论部分探讨了疫情前后影响公众心理健康的因素。

研究结果如下：(1)词频结果显示，在全部阶段中，总占比高于 10%的高频词包括“问题”“情绪”“工作”“需要”“老师”“孩子”；各阶段次高频词存在差异，大多数次关键词主要集中于学习、朋友等日常方面，然而在疫情爆发期，对疫情相关词汇的讨论激增，且词频表内容与其他阶段明显不同。(2)情感分析结果显示，疫情前后文本内容总体上是积极的，但仍存在焦虑；疫情不同阶段人们的情感倾向不同，疫情爆发期公众的负面情绪最突出，负性文本达到 39.27%，远高于无疫情期的 22.14%，疫情中后期负性文本随疫情形势变化有相应波动，如在疫情反复期负性文本有所上升，疫情结束后比例有所下降但依旧高于无疫情期；疫情期间的正性文本普遍低于无疫情期，但在疫情结束后相对回升。

公众面临突发事件时，需要适应性的心理应对机制来自我调节，故疫情期间公众心理健康水平存在波动，尤其是在疫情爆发期间，公众的负性情绪显著增加，而各方面的社会支持增强了公众的心理韧性，对稳定公众心理健康水平有一定帮助。本研究以新冠肺炎疫情为背景，揭示重大生活事件对公众身心健康的影响。对未来类似重大生活事件对心理健康的影响提供一定的预测和启示。

关键词　心理咨询，应激适应理论，情感分析，新冠疫情

Research on the change of public mental health level under the COVID-19—based on Sina Weibo data

Wang Luyao[1], Kang Chunhua[2], Zeng Pingfei[3]

School of Psychology, Zhejiang Normal University, Jinhua, 321004, China

College of Education, Zhejiang Normal University, Jinhua, 321004, China

Abstract：The outbreak of the COVID-19 epidemic has had a huge impact on public life, work and learning. To explore its impact on public mental health, this article captures Sina Weibo content containing the keyword "psychological counseling" published before and during the epidemic, and uses psychological theories such as

stress adaptation, psychological resilience, and social support to analyze the data and explore the changes in public mental health levels at different stages of the epidemic.

Based on existing research on the classification of epidemic stages, this article further divides them into five stages: no epidemic period, epidemic outbreak period, normalized prevention and control period, epidemic recurrence period, and post epidemic period. This article uses Python as the main analysis tool, and the cleaned data includes a total of 78044 Weibo posts. Firstly, use WordCloud word cloud images and word frequency statistics to compare the frequency of public discussions on psychological counseling topics at different stages of the epidemic; Further use SnowNLP for sentiment analysis to explore the changes in public sentiment trends at various stages; Finally, in the discussion section, the factors affecting public mental health before and after the epidemic were explored.

The research results are as follows: (1) Word frequency results show that in all stages, high-frequency words with a total proportion of more than 10% include "problems", "emotions", "work", "needs", "teachers", and "children"; There are differences in high-frequency words at different stages, with most of the secondary keywords mainly focused on daily aspects such as learning and friends. However, during the outbreak of the epidemic, discussions on epidemic related vocabulary have surged, and the content of the word frequency table is significantly different from other stages. (2) The emotional analysis results show that the text content before and after the epidemic is generally positive, but there is still anxiety; People's emotional tendencies vary at different stages of the epidemic, with the most prominent negative emotions among the public during the outbreak period, with negative texts reaching 39.27%, much higher than the 22.14% during the non epidemic period. Negative texts in the middle and later stages of the epidemic fluctuate accordingly with changes in the epidemic situation. For example, negative texts increase during the recurrence period of the epidemic, and the proportion decreases after the end of the epidemic but is still higher than during the non epidemic period; The positive text during the epidemic period is generally lower than that during the non epidemic period, but it relatively rebounds after the end of the epidemic.

When the public faces unexpected events, they need adaptive psychological coping mechanisms that come from self regulation. Therefore, there are fluctuations in the public's mental health level during the epidemic, especially during the outbreak of the epidemic, the negative emotions of the public significantly increase, and various social support enhances the public's psychological resilience, which is helpful for stabilizing the public's mental health level. This study takes the COVID-19 as the background to reveal the impact of major life events on the physical and mental health of the public. Provide certain predictions and insights on the impact of similar major life events on mental health in the future.

Keywords：Psychological consultation, stress adaptation theory, emotional analysis, COVID-19

初中生数学焦虑的特征分析——以甘肃省四所学校为例

王姗[1]　李宁[1]　赵峰[1]　买合甫来提·坎吉[1]（通讯作者）

1 新疆师范大学心理学院，乌鲁木齐市，830017，通讯作者 mkanji@163.com

摘 要 前期研究已证实较高水平数学焦虑与较低数学成绩之间存在关联。本研究采用二阶聚类分析和网络分析方法，探究初中生数学焦虑的自然分组并分析高数学焦虑组网络的特征及其潜在干预靶点。以甘肃省1382名初中生为研究对象，对其数学焦虑水平进行测量。二阶聚类分析结果显示，甘肃省初中生数学焦虑水平分三组，分析其特征后，将其命名为高数学焦虑组（27%），中数学焦虑组（48%）和低数学焦虑组（25%）。对高数学焦虑组进行网络分析，结果显示“我最害怕上数学课”是网络中最核心的条目。节点预期影响结果显示，“我最害怕上数学课”，“我担心父母对我的数学成绩感到失望”，“临近数学考试，我会担心数学题出

的是不是很难”和“写数学作业是一件难受的事”四个条目的中心性程度较高。结果表明了高数学焦虑在初中生群体中有较高的发生率；以及父母在孩子数学焦虑发展中的独特作用；同时揭示了“我最害怕上数学课”为高数学焦虑组的最核心的条目，以其为干预靶点制定干预方案，可能在更大程度上降低初中生的数学焦虑水平。考虑到条目“临近数学考试，我会担心数学题出的是不是很难”和“写数学作业是一件难受的事”对高数学焦虑的重要作用，本研究也为中小学双减政策提供了一定的理论依据和支撑。
关键词 数学焦虑，初中生，二阶聚类分析，网络分析

Characteristics Analysis of Math Anxiety Among Junior High School Students: A Case Study of Four Schools in Gansu Province, China

WANG Shan[1], LI Ning[1], ZHAO Feng[1], Mahpiret·KANJI[1]
（1.College of Psychology, Xinjiang Normal University, Urumqi, 830017, China）

Abstract：Previous research has confirmed the association between higher levels of math anxiety and lower math achievement. In this study, we employed second-order cluster analysis and network analysis methods to explore the natural grouping of math anxiety among junior high school students and analyze the characteristics of the high math anxiety group and its potential intervention targets. A total of 1382 junior high school students from Gansu Province were selected as the research subjects, and their levels of math anxiety were measured.The results of the second-order cluster analysis revealed three groups of math anxiety levels among junior high school students in Gansu Province. After analyzing their characteristics, we identified them as the high math anxiety group (27%), the moderate math anxiety group (48%), and the low math anxiety group (25%). Network analysis was conducted on the high math anxiety group, and the results indicated that "I am most afraid of attending math classes" was the central node in the network. The node expected influence results revealed that "I am most afraid of attending math classes," "I worry that my parents will be disappointed with my math grades," "I get anxious about whether math questions in exams will be too difficult," and "Doing math homework is an uncomfortable task" had relatively high centrality levels.These findings indicate a higher prevalence of high math anxiety among junior high school students and highlight the unique role of parents in the development of their children's math anxiety. Moreover, the identification of "I am most afraid of attending math classes" as the core node in the high math anxiety group suggests that developing intervention strategies targeting this specific aspect may significantly reduce math anxiety levels among junior high school students. Considering the importance of the items "I get anxious about whether math questions in exams will be too difficult" and "Doing math homework is an uncomfortable task" in high math anxiety, this research also provides theoretical support for educational policies aimed at reducing academic burdens in primary and secondary schools.In conclusion, our study contributes to a better understanding of math anxiety among junior high school students in Gansu Province and offers potential intervention targets to alleviate high math anxiety. It also provides a theoretical basis and support for educational policies promoting workload reduction in primary and secondary schools.
Key words：Math anxiety, junior high school students, second-order cluster analysis, network analysis

亲子疏离对赴高原工作人员创伤后应激障碍的影响：社会功能的中介作用

郝维红[1] 谭洁滢[1,2] 戴琴[1*]（通讯作者）

1 陆军军医大学士官学校，石家庄，050081
2 重庆大学公共管理学院，重庆，400044
1* 陆军军医大学医学心理系，重庆，400038，E-mail: daiqin101@hotmail.com

摘 要 **背景**：研究证实恶劣自然灾害和亲子疏离都对个体心理健康有害。但较少研究关注恶劣自然环境（如高海拔）和亲子疏离对心理健康，尤其是对创伤后应激障碍的影响。本研究的目的是了解赴高海拔地区工作人员创伤后应激障碍的现状，检验亲子疏离与创伤后应激障碍之间的关系，以及社会功能缺陷在亲子疏离和创伤后应激障碍之间的中介作用。**方法**：采用整群抽样法选择完成高海拔工作 6 个月后的 3642 名工作人员进行人口统计信息、亲子疏离问卷、社会功能缺陷筛查时间表和创伤后应激障碍检查表的问卷调查。**结果**：本研究中，高原工作人员创伤后应激障碍症状的检出率为 3.3%。亲子疏离、社会功能缺陷、创伤后应激障碍症状相互之间都呈正相关关系。年龄（B=0.103，t=2.25，p＜0.05）、亲子疏离感（B=0.214，t=13.833，p＜0.01）和社会功能缺陷（B=1.528，t=21.029，p＜0.01）都显著正向预测创伤后应激障碍症状。此外，社会功能缺陷在亲子疏离对创伤后应激障碍的影响有部分中介作用，效应值为 0.11。**结论**：赴高原工作人员创伤后应激障碍症状的检出率要高于普通人群。亲子疏离不仅直接影响创伤后应激障碍，还会通过社会功能障碍间接影响其严重程度。对于高海拔地区的工作人员，应及时评估其亲子疏离和社会功能情况。对于高海拔环境中的亲子疏离感较高的个体来说，工作团队可以从重塑社会功能方面对亲子疏离感较高的个体进行心理辅导，降低创伤后应激障碍的发生，缓解创伤后应激障碍的症状。
关键词 亲子疏离，社会功能障碍，创伤后应激障碍，高海拔

The Effect of Parent-child Alienation on Post-traumatic Stress Disorder for Workers at High Altitude: the Role of Social Function

Hao Weihong[1], Tan JieYing[1,2], Dai Qin[3*]
1 Faculty of Medical Psychology, Army Medical University, Gaotan Yan Zheng Street, Shapingba District, Chongqing
2 Chongqing University, School of Public Policy and Administration, Shazhong Street, Shapingba District, Chongqing
1* Army Medical University Non-commissioned Officer School, Zhongshan West Road, Shijiazhuang City, Hebei Province

Abstract: **Background:** Research suggests that harsh natural disasters and parent-child alienation are detrimental to individual mental health. However, few studies have focused on the effects of harsh natural environments (e.g., high altitude) and parent-child alienation on post-traumatic stress disorder, especially on post-traumatic stress disorder. The purpose of this study was to understand the current status of post-traumatic stress disorder among workers at high altitude, to examine the relationship between parent-child alienation and post-traumatic stress disorder, and the mediating role of social disability between parent-child alienation and post-traumatic stress disorder. **Method:** Cluster sampling was employed to select 3642 workers six months after completing the work at high altitude for questionnaires on demographic information, inventor of Alienation toward Parents, social disability screening schedule, and post-traumatic stress disorder checklist. **Results:** In this study, the prevalence rate of post-traumatic stress disorder symptoms among workers at high altitude was 3.3%. Parent-child alienation,

social disability, and post-traumatic stress disorder symptoms were all positively associated with each other. Age (B=0.103，t=2.25，p＜0.05), parent-child alienation (B=0.214，t=13.833，p＜0.01), and social disability (B=1.528，t=21.029，p＜0.01) significant positively predicted post-traumatic stress disorder symptoms. Moreover, social disability has a partial mediating effect on the effect of parent-child alienation on post-traumatic stress disorder, the mediating effect size was 0.11. **Conclusion:** The prevalence rate of PTSD-positive symptoms among the workers at high altitude is higher than that among general Chinese adults. Parent-child alienation can not only directly affect the severity of PTSD symptoms, but also indirectly affect it by social disability. For workers at high altitude, parent-child alienation and social function should be assessed in time. For individuals with higher sense of parent-child alienation at high altitude, the team could strengthen the psychological counseling in terms of reshaping social function, reducing the prevalence of PTSD, and relieving PTSD symptoms.
Keywords: Parent-child alienation, Social disability, Post-traumatic stress disorder, High altitude

大学生上行社会比较与错失焦虑的关系：反刍思维的中介作用及自悯的调节作用

刘舒琦[1]　林祯秀[1]（通讯作者）　杨甜甜[1]

1 福建医科大学应用心理学系，福州，350122，907438581@qq.com

摘　要：目的：错失焦虑是指因担心错过他人的新奇经历或有意义事件而产生的一种弥散型焦虑。错失焦虑可能由上行社会比较引起，即个体将自己与比自己优秀的人进行比较，由于高社会比较倾向的个体具有更高的社会比较需求，更关注他人的感受，对他人的信息敏感，因而可能引发更高的错失焦虑水平。以往研究多基于线上网络背景视角下进行上行社会比较与错失焦虑之间的关系，较少在日常生活的背景下考察二者之间的关系。为明确在日常生活背景下，上行社会比较对错失焦虑的作用机制，本研究修订了错失焦虑量表使其更贴近日常生活背景，同时构建了一个有调节的中介模型，重点考察反刍思维在二者关系中的中介作用以及自悯的调节作用。方法：以 300 名大学生为被试，采用上行社会比较量表、反刍思维量表、自悯量表及错失焦虑量表进行调查。结果显示：（1）在控制性别、年龄、年级后，上行社会比较对反刍思维和错失焦虑均有显著的正向预测作用；（2）中介效应分析结果表明，反刍思维能够在上行社会比较与错失焦虑的关系之间起部分中介作用，中介效应量为 0.14，中介效应占总效应的 27.45%；（3）有调节的中介模型检验表明，自悯调节了“上行社会比较—反刍思维—错失焦虑”这一中介效应的前半路径(R^2=0.36, F=27.36, P＜0.01)和后半路径(R^2=0.64, F=29.24, P＜0.01)，具体而言，上行社会比较对反刍思维的影响随着大学生自悯水平的升高而减弱，反刍思维对错失焦虑的影响随着大学生自悯水平的升高而升高。此外，随着自悯水平的提升，反刍思维在上行社会比较与错失焦虑关系中的中介效应也呈降低趋势。结论：在日常生活中，上行社会比较同样也会引起错失焦虑，并且上行社会比较通过反刍思维进一步加重错失焦虑，而自悯对于减少反刍思维和降低错失焦虑水平皆有益处。可见，反刍思维在上行社会比较与错失焦虑之间具有重要的作用，因此，提高自悯水平有助于减少个体的反刍思维和错失焦虑水平，为早期明确心理干预目标，帮助大学生调节不良思维倾向和应对方式具有一定的现实意义。
关键词：错失焦虑，上行社会比较，反刍思维，自悯

Upward Social Comparison and College Students' Fear of Missing Out: Mediating Effect of Rumination and Moderating Effect of Self-Compassion

LIU Shuqi，LIN Zhenxiu，YANG Tiantian
Fujian Medical University , Fuzhou, 350122, China

Absrtact: Objective: Fear of missing out refers to a kind of diffuse anxiety caused by the fear of missing out on other people's novel experiences or meaningful events. Fear of missing out may be caused by upward social comparison, in which individuals compare themselves with people who are better than them, and by individuals with a high social comparison tendency who have higher social comparison needs and are more concerned about the feelings of others, being sensitive to other people's information may lead to higher levels of fear of missing out. Previous studies have focused on the relationship between upward social comparison and fear of missing out in the context of online networks, but rarely in the context of daily life. In order to clarify the mechanism of upward social comparison on fear of missing out in the context of daily life, this study revised the fear of missing out scale to make it more close to the context of daily life, and constructed a moderated mediation model, the mediating role of rumination and the moderating role of self-compassion in the relationship between them were investigated. Methods: A total of 300 college students were investigated with the scale of upward social comparison, rumination thinking, self-compassion and fear of missing out. The results showed that: (1) After controlling for sex, age and grade, upward social comparison had significant positive predictive effect on both rumination and fear of missing out; (2) mediation effect analysis showed that upward social comparison had significant positive predictive effect on both rumination and fear of missing out, the mediating effect of rumination was 0.14, and the mediating effect was 27.45% of the total effect. (3) the mediating model test showed that the mediating effect of rumination was 0.14% , and the mediating effect of rumination was 27.45% of the total effect, self-compassion moderated the first half of the mediating effect of"Upward social comparison-ruminating thought-fear of missing out"(R^2= 0.36, F= 27.36, p < 0.01) and the second half of the mediating effect (R^2= 0.64, F= 29.24, p < 0.01) , the effect of upward social comparison on rumination decreased with the increase of college students' self-compassion level, while the effect of rumination on fear of missing out increased with the increase of college students' self-compassion level. In addition, the mediating effect of rumination on the relationship between upward social comparison and fear of missing out also decreased with the increase of self-compassion level. Conclusion:In daily life, upward social comparison also causes fear of missing out, and upward social comparison exacerbates fear of missing out by ruminating, and self-compassion is beneficial for reducing rumination and fear of missing out levels. Therefore, improving the level of self-compassion can help to reduce the level of ruminating thinking and fear of missing out, and make the goal of psychological intervention clear in the early stage, it is of practical significance to help college students adjust their unhealthy thinking tendency and coping style.

Keywords: fear of missing out, upward social comparison,rumination,self-compassion

零工经济时代下感知算法控制对网约车司机离职倾向的影响机制研究

金致君[1] 边晓宁[1] 管圆圆[1] 杨琴[1]（通讯作者）
1 中国地质大学（武汉）应用心理学研究所，武汉，430000，通讯作者 qinyang@cug.edu.cn

摘 要　随着在线劳动平台的出现，零工经济为全民就业探索了新方向，愈来愈多零工劳动者的需求受到社会的广泛关注。作为平台有效监控、管理劳动者的关键手段，算法控制能够辅助零工劳动者更高效迅捷地达成工作目标。但目前学界鲜少有研究从劳动者的角度出发去研究如何利用算法控制去提升他们的工作感受。根据有关数据显示，到 2024 年零工群体数量预计达到 4 亿。因此，如何研究如何降低算法控制下零工劳动者离职意向，对稳定我国就业市场、推动社会经济繁荣发展至关重要。在系统回顾和梳理过往研究的基础上，本文选取零工经济平台中最具代表性的劳动者——网约车司机作为研究对象，以认知交互理为

基础，从工作要求—资源模型出发，引入中介变量阻碍性评估和工作满意度，以及调节变量工作投入，探讨感知算法控制对网约车司机离职倾向的影响路径。研究结果发现：（1）感知算法控制负向预测网约车司机离职倾向；（2）阻碍性评估和工作满意度在感知算法控制与网约车司机离职倾向之间存在链式中介作用；（3）工作投入通过调节感知算法控制对阻碍性评估的负向影响，进而调节阻碍性评估与工作满意度的链式中介作用。通过本文研究可知，从算法管理角度出发，零工劳动平台可以拓宽劳动者与平台互动空间，强化零工劳动者与算法平台的积极联结，引导他们对算法机制形成正向认知，逐步实现从“管控和被管控”到“合作共赢”的良性发展；从组织管理来看，平台合理利用算法控制将提升劳动者工作积极性，增强平台黏性。此外，传统企业也可以通过引入算法控制技术，拓宽劳动者资源平台，充分释放其潜能并为企业创造更大的价值。
关键词　零工经济，算法控制技术，感知算法控制，工作满意度，阻碍性评估

Research on the influence mechanism of perceived algorithmic control on the turnover intention of online car-hailing drivers in the era of gig economy ——A moderated chain mediation model

Jin Zhijun[1]　Bian Xiaoning[2]　Guan Yuanyuan[2]　Yang Qin[2]
Institute of Applied Psychology, China University of Geosciences (Wuhan), No. 388 Lumo Road, Hongshan District, Wuhan City

***Abstract*：** With the emergence of online labor platforms, the gig economy has explored a new direction for national employment, and the needs of more and more gig workers have received extensive attention from the society. As a key means for the platform to effectively monitor and manage workers, algorithmic control can assist gig workers to achieve their work goals more efficiently and quickly. However, there are few studies in the academic community to study how to use algorithmic control to improve their work experience from the perspective of workers. According to relevant data, the number of gig workers is expected to reach 400 million by 2024. Therefore, how to study how to reduce the turnover intention of gig workers under the control of the algorithm is very important to stabilize China 's employment market and promote the prosperity and development of social economy. On the basis of systematic review and combing of previous studies, this paper selects the most representative laborer in the gig economy platform, the online ride-hailing driver, as the research object. Based on the cognitive interaction theory, starting from the job requirement-resource model, this paper introduces the mediating variables hindrance assessment and job satisfaction, as well as the moderating variable work engagement, and discusses the influence path of perceived algorithm control on the turnover intention of online ride-hailing drivers. The research results show that : (1) the perception algorithm controls the negative prediction of the turnover intention of the online ride-hailing drivers ; (2) Hindrance assessment and job satisfaction have a chain mediating effect between perceived algorithm control and turnover intention of ride-hailing drivers. (3) Work engagement moderates the chain mediating effect of hindrance assessment and job satisfaction by adjusting the negative impact of perceived algorithmic control on hindrance assessment. Through research, it can be seen that from the perspective of algorithm management, the gig labor platform can broaden the interaction space

between workers and the platform, strengthen the positive connection between gig workers and the algorithm platform, guide them to form a positive cognition of the algorithm mechanism, and gradually realize the benign development from ' control and controlled ' to ' win-win cooperation ' ; from the perspective of organizational management, the rational use of algorithm control by the platform will enhance the enthusiasm of workers and enhance the stickiness of the platform. In addition, traditional enterprises can also broaden the resource platform of workers by introducing algorithm control technology, fully release their potential and create greater value for enterprises.
Keywords：Gig economy, algorithm control technology, perceptual algorithm control, job satisfaction, hindrance assessment

低权力贪功，高权力避责：权力对自我-他人归因差异的影响及其神经机制

胡文星　俞宗火（通讯作者）
（江西师范大学心理学院，南昌，330022，yuzonghuo@126.com）

摘 要　在社会合作中，领导者和下属的责任归因对于个体的利益和团体的和谐都至关重要，责任归因出现偏差是导致团队冲突的重要原因。已经有大量的研究表明人们在进行责任归因时会表现出自我-他人的差异，如基本归因错误和自我服务偏差。然而权力的高低是否会导致人们在对自我和对他人进行归因时出现差异，目前还缺乏相关证据。本研究共招募 36 个被试，采用近红外光学脑成像技术（fNIRS），考察参与合作任务时，高、低权力者在成功与失败情景下对自己和他人归因差异的影响及大脑皮层的神经活动。结果表明，高、低权力者都表现出强烈的自我服务偏差和基本归因错误，并伴随与自动过程（腹内侧前额叶皮层）和受控过程（内侧前额叶和背内侧前额叶）有关脑区的激活，右侧颞顶联合区也参与这一加工过程。具体来说，对自己进行归因时，相比于任务失败，任务成功时会进行更多的内部归因。对他人进行归因时，无论任务成功与失败，都倾向于进行特质推断。进一步比较对自我和他人的归因差异，相比于他人，低权力者在任务成功时进行更多的自我归因，而高权力者在任务失败时进行更多的外部归因，表现出低权力贪功、高权力避责的现象，此时伴随着受控过程有关脑区的激活。本研究阐述了权力对自我-他人归因差异的影响，以及额顶颞神经网络的关键作用，还讨论了这种偏差现象对团队管理与社会合作的启发。
关键词　权力，自我服务偏差，基本归因错误，归因差异，功能性近红外光学脑成像技术（fNIRS）

The low-power greed for more success, while the high-power take on less responsibility: the effect of power on self-other attribution differences and its neural mechanisms

Hu wenxing　Yu zonghuo
(School of Psychology, Jiangxi Normal University, Nanchang, 330022)

Abstract: The attribution of responsibility by leaders and subordinates matters to both individual interests and group harmony during social cooperation, and biased attribution of responsibility is an important cause of team conflict. Self-other attribution differences, such as fundamental attribution error and self-serving bias, have been widely discussed in attribution research; however, it remains unclear whether and how individuals' sense of power,

such as a high/low level of power, influences their subsequent responsibility attribution to self and others. A total of 36 subjects were recruited for this study, and functional near-infrared spectroscopy methodology (fNIRS) was used to examine the effects of differences in attributions to self and others and neural activity in the cerebral cortex of high- and low-powered individuals in success and failure scenarios when engaged in a cooperative task. The results showed that individuals with high and low power exhibited a strong self-serving bias and fundamental attribution error, accompanied by activation of brain regions associated with automatic (ventral medial prefrontal cortex, VMPFC) and controlled processes (medial prefrontal and dorsal medial prefrontal, MPFC, DMPFC) and that the right temporoparietal joint area (TPJ) was also involved in this processing. Specifically, when making attributions to oneself, more internal attributions are made for task success than for task failure. When making attributions to others, trait inferences tend to be made regardless of task success or failure. Further analysis revealed that power affected self-other attribution difference, compared to others, low-powered individuals made more self-attributions when they succeeded in a task, whereas high-powered individuals made more external attributions when they failed in a task, showing the low-power greed for more success and the high-power take on less responsibility, which was accompanied by activation of brain regions related to controlled processes. Our findings elucidate the influence of power on self-other attribution differences and the critical role of the fronto-temporoparietal network in these processes. Implications of this attribution bias phenomenon for team management and social cooperation are discussed.

Keywords: power, self-serving bias, fundamental attribution error, attribution difference, fNIRS

探究危机情境下的语言能力机制：基于眼动研究的证据

刘芝塞[1,2] 杨光[1,2] 杨秀杰[3] 陈路遥[4] 刘友谊[5] 丁国盛[5] 闫国利[1,2] 吴俊杰[1,2]（通讯作者）

1 教育部人文社会科学重点研究基地天津师范大学心理与行为研究院，天津，300387

2 天津师范大学心理学部，天津，300387

3 北京师范大学心理学部，北京，100875

4 北京师范大学国际中文教育学院，北京，100875

5 北京师范大学认知神经科学与学习国家重点实验室，北京，100875

通讯作者 E-mail：psywujunjie@foxmail.com

摘 要 语言能力是日常工作和生活中必不可少的能力。前人研究大多考察安静环境或者单一背景声音下的语言加工过程，尚不清楚危机情境下语言能力的机制。危机情境是一种以“高压力”、“强噪音”为特点的特殊情境，是消防员、武警、医生等特殊职业从业者工作中的典型场景。相关从业者需要在这类场景中，快速且准确地捕获重要的语言信息，并在此基础上进行快速精准的推理，以完成任务目标。本研究创设一个火灾救援任务场景的危机情境，招募 110 名大学生被试，从信息捕获、信息推理两个维度考查被试在危机情境和非危机情境下的行为指标和眼动指标的差异，以及他们的行为和眼动模式与个体的执行功能、人格等因素之间的联系。结果表明：（1）相对于非危机情境，危机情境下被试的阅读速度更快、注视次数和回视次数更多、瞳孔直径更大；（2）危机情境调节着个体执行功能与信息推理之间的关系强度。（3）瞳孔直径在情境对注视次数的影响中起部分中介的作用；（4）在人格特征方面与危机情境下表现优秀的被试越相似的个体，其在危机情境下的行为表现越好。这些结果表明，危机情境下高效的阅读过程依赖个体的执行功能、认知卷入和特定的人格特质，本研究拓展了我们对复杂现实场景下的语言能力机制的认识。

关键词 危机情境，语言能力，眼动，阅读

Exploring the Mechanisms of Language Competence in Emergency Situation: Evidence from Eye Movements

Zhisai Liu[1,2], Guang Yang[1,2], Xiujie Yang[3], Luyao Chen[4], Youyi Liu[5], Guosheng Ding[5], Guoli Yan[1, 2], Junjie Wu[1, 2](Corresponding author)

1 Key Research Base of Humanities and Social Sciences of the Ministry of Education, Academy of Psychology and Behavior, Tianjin Normal University, Tianjin, 300387, China

2 Faculty of Psychology, Tianjin Normal University, Tianjin, 300387, China

3 Faculty of Psychology, Beijing Normal University, Beijing, 100875, China

4 School of International Chinese Language Education, Beijing Normal University, Beijing, 100875, China

5 State Key Laboratory of Cognitive Neuroscience and Learning, Beijing Normal University, Beijing, 100875, China

Corresponding author's E-mail：psywujunjie@foxmail.com

Abstract: Language competence is an essential skill in daily life. Previous studies have predominantly focused on language processing in quiet environments or with single background sounds, leaving the mechanisms of language ability in emergencies still need to be clarified. Emergencies present 'high-pressure' and 'strong noise' situations for professionals like firefighters, armed police, and doctors. In such situations, these professionals need to accurately capture important information while reading and inferencing to fulfill their tasks. In the present study, we simulated an emergency fire rescue scenario and recruited 110 college students to participant the experiment. We examined the differences in behavioral and eye movement indicators between participants in emergency and non-emergency situations, focusing on information capture and inference. Additionally, we also explored the relationships between their behavior, eye movement patterns, and individual factors such as executive functions and personality traits. The results revealed the following key findings: (1) compared with the non-emergency situation, participants in the emergency situation had shorter total reading time, more fixation times, more regression times, and larger pupil diameter; (2) the emergency situation modulated the relationship between individual executive functions and information inference; (3) pupil diameter played a partial mediating role in the effect of the situation on fixation times; (4) participants who performed better in the emergency situation showed more similar in personality traits to those individuals who achieved good performance. These results indicate that individuals' reading comprehension in emergency situations depends on their executive functions, cognitive involvement, and certain personality traits. Our study expands our understanding of the mechanisms of language competence in complex real-life scenarios.

Keywords: emergency, language competence, eye movements, reading

焦虑情绪与整体思维对跨期决策的影响

吴琪[1]　毕翠华[2]（通讯作者）

1 四川师范大学心理学院，四川，610066

2 四川师范大学心理学院，成都，610066，cuihuabi@sicnu.edu.cn

摘 要　跨期决策是指对发生在不同时间点上的成本与收益进行权衡进而做出选择的过程。人们在进行决策时，易受到焦虑情绪的影响。焦虑会使人们存在注意偏向、解释偏向和记忆偏向等认知加工特点，也会缩小人们认知活动的范围和过程，为个体的认知加工过程与决策行为的发生提供相应的动机背景。这意味着高焦虑个体在处理信息时存在局部性加工的特点，而跨期决策需要权衡不同时间点上的成本与收益，整合不同时间点的信息进行整体加工和思考，因此整体思维方式可能在其中起到重要作用。基于此，本研究根据决策的双系统理论和信息加工模型，从情绪与认知的相互作用去理解决策行为，试图考察焦虑情绪影响跨期决策中的时间焦点这一心理时间认知的作用，以及焦虑情绪与整体思维对跨期决策的交互影响。实验招募大学生被试 124 名（平均年龄为 20.58 ± 2.09 岁）。所有的被试被随机分配到焦虑组与平静组。焦虑启动组通过视频诱发和写作两项任务去诱发被试焦虑情绪,控制任务下的被试则看一段相对平静的视频。之后被试又被随机分配到能启动不同思维方式的 Navon 任务下，接下来，被试需要完成《时间焦点量表》和跨期决策任务，最后对时间洞察力和特质焦虑水平这两个控制变量进行测量。结果显示：（1）与控制组被试（$M \pm SD = 5.04 \pm 1.23$）相比，焦虑启动组被试（$M \pm SD = 5.68 \pm 1.11$）在现在时间焦点的得分更高($t = 3.02$, $p = 0.003$)；（2）焦虑与整体思维的交互作用显著（$F(1, 120) = 4.08$, $p = 0.046$)。对于采用局部思维方式的个体，焦虑启动组被试的跨期决策延迟折扣率显著高于控制组被试的跨期决策延迟折扣率($F(1, 120) = 6.82$, $p = 0.010$)，而对于启动整体思维的个体，焦虑启动组被试与控制组被试的跨期决策延迟折扣率没有显著差异($F(1, 120) = 2.36$, $p = 0.13$)。（3）时间焦点在焦虑对跨期决策的影响中起完全中介作用。总的来说，焦虑会使个体的时间焦点集中于现在，而较少考虑未来的结果，进而使人们在跨期决策中偏好于即时结果。而当个体采用整体的思维方式去认知事物时，能减少焦虑情绪带来的短视行为。

关键词　焦虑，时间焦点，整体思维，跨期决策

The Effects of Anxiety and Holistic Thinking on Intertemporal Decision-Making

Wu Qi[1]　Bi Cuihua[2] (Corresponding Author)

[1]School of Psychology, Sichuan Normal University, Chengdu, China

[2]School of Psychology, Sichuan Normal University, Chengdu, 610066, cuihuabi@sicnu.edu.cn

***Abstract*:** Intertemporal decision-making refers to the process of weighing costs and benefits that occur at different points in time and then making choices. People are vulnerable to anxiety when making decisions. Anxiety leads to cognitive processing features such as attentional bias, interpretive bias and memory bias, and also narrows the scope and process of cognitive activity, providing the appropriate motivational context for the individual's cognitive processing and decision-making behaviour to occur. This implies that high anxiety individuals are characterised by localised processing of information, whereas intertemporal decision-making requires weighing up costs and benefits at different points in time and integrating information from different points in time for holistic processing and thinking, and thus holistic ways of thinking may play an important role in this. Based on this, this study understands decision-making behaviour in terms of the interaction between emotion and cognition according to the dual systems theory of decision-making and the information processing model, and tries to examine the role of psychotemporal cognition, in which anxiety affects the temporal focus in intertemporal decision-making, and the interaction between anxiety and holistic thinking on intertemporal decision-making. One hundred and twenty-four college student participants were recruited for the experiment (mean age 20.58 ± 2.09 years). All subjects were randomly assigned to the anxiety group and the calm group. In the anxiety-initiated group, the subjects were given two tasks to induce anxiety through video elicitation and writing, while the participants in the control task watched a relatively calm video. Afterwards, participants were randomly assigned to the Navon task,

which activates different thinking styles. Next, subjects were required to complete the Time Focus Scale and the Intertemporal Decision Making task, and finally, two control variables, temporal insight and trait anxiety level, were measured. The results showed that (1) subjects in the anxiety-initiated group ($M \pm SD = 5.68 \pm 1.11$) scored higher in the present time focus ($t = 3.02$, $p = 0.003$) compared to subjects in the control group ($M \pm SD = 5.04 \pm 1.23$); (2) the interaction between anxiety and global thinking was significant ($F(1, 120) = 4.08$, $p = 0.046$). For individuals who adopted a local thinking style, the inter-period decision delay discount rate of subjects in the anxiety-initiated group was significantly higher than that of subjects in the control group ($F(1, 120) = 6.82$, $p = 0.010$), whereas for individuals who initiated a holistic thinking style, there was no significant difference between the inter-period decision delay discount rate of subjects in the anxiety-initiated group and those in the control group ($F(1, 120) = 2.36$, $p = 0.13$). (3) Temporal focus plays a fully mediating role in the effect of anxiety on intertemporal decision making. Overall, anxiety causes individuals to focus their temporal focus on the present and less on future outcomes, which in turn leads to a preference for immediate outcomes in intertemporal decision making. Whereas, when individuals adopt a holistic way of thinking to perceive things, it can reduce the immediate preference brought about by anxiety.

Keywords：anxiety, time focus, holistic thinking, intertemporal decision making

观看唐宋仕女图与 AI 生成仕女图对身材焦虑者的情绪调节效应

赵月萌[1]　郭嘉跃（通讯作者）

广东工业大学，广州，510000，guojiayue@gdut.edu.cn

摘 要 数字时代网络信息及图片处理技术不断迭代发展为人们调整图片及视频中的外貌提供无限可能，社交媒体中的信息内容良莠不齐，人们常常在无意识状态下受到他人在社交平台上展示的生活和外貌的影响，试图模仿和追求这些看似完美的形象。在此过程中审美偏好及审美判断的变化以及自我映射与对比易导致身材焦虑。传统唐宋仕女图反映了丰满与清瘦差异较大的时代独特审美特点，对应了身材焦虑的两个端点，观看传统艺术作品对情绪调节有积极作用。在数字化时代利用传统画作合理调节由负性社会反馈引发的身材焦虑具有活化传统画作及保护心理健康的双重意义。因此本研究关注身材焦虑问题，探讨观看中国唐宋仕女画和 AI 生成画作对焦虑情绪的调节作用。本研究通过身体形象-负性情绪量表 (Body Image-Negative Affect Scale, BIAS-NAS)筛选高、低焦虑组被试各 16 人，参加 ERP 脑电实验。采用视觉异构对比范式（Visual Oddball Paradigm），考察传统唐代仕女画与 AI 生成仕女画两种实验材料对不同身材焦虑水平被试情绪调节的差异，特别关注数据中的 P300 成分，评估被试对两种视觉刺激的注意和情感处理。观看中国传统国画和 AI 生成画作显著降低了高焦虑组的身材焦虑水平，脑电数据反馈 AI 生成仕女图诱发了 LPC。在高焦虑组中，共情和移情现象均显著增加。在低焦虑组中，观赏中国传统国画和 AI 生成画作均未引起明显情绪变化，脑电数据反馈高焦虑组的 LPC 波幅显著高于低焦虑组。证明中国传统唐宋仕女图和 AI 生成画作在数字化时代下作为情绪调节工具具有潜在价值，对减轻身材焦虑有一定帮助。共情和移情在情绪调节中扮演重要角色，可能进一步促进这种效应。本研究初步探讨了唐代仕女图和 AI 生成画作对身材焦虑情绪的影响，在数字化时代下的心理健康服务和艺术创作实践领域进行初步研究。

关键词　中国传统国画，AIGC 生成画作，情绪调节，身材焦虑，ERP 实验

Emotion-moderating effects of viewing Tang and Song dynasty ladies' drawings versus AI-generated ladies' drawings in body image anxious individuals

Yuemeng Zhao，Jiayue Guo(Corresponding Author)
Guangdong University of Technology, Guangzhou, 510000，guojiayue@gdut.edu.cn

Abstract：The continuous iterative development of network information and image processing technology in the digital age provides infinite possibilities for people to adjust their appearance in pictures and videos. With the mixed information content in social media, people are often unconsciously influenced by the lives and appearances of others displayed on social media platforms, and they try to imitate and pursue these seemingly perfect images. Traditional Tang and Song Dynasty paintings of ladies reflect the unique aesthetic characteristics of the era with a large difference between plumpness and thinness, which corresponds to the two endpoints of body anxiety, and viewing traditional artworks has a positive effect on emotional regulation. In the digital era, using traditional paintings to reasonably regulate body anxiety triggered by negative social feedback has the dual significance of revitalizing traditional paintings and protecting mental health. Therefore, this study focuses on the issue of body anxiety and explores the effects of viewing Chinese Tang and Song dynasty ladies' paintings and AI-generated paintings on anxiety regulation. In this study, 16 subjects in each of the high and low anxiety groups were screened by the Body Image-Negative Affect Scale (BIAS-NAS) and participated in the ERP EEG experiment. The Visual Oddball Paradigm (VOP) was used to examine the differences between the two experimental materials, the traditional Tang Dynasty painting of a lady and the AI-generated painting of a lady, on the emotion regulation of subjects with different levels of body anxiety, with a special focus on the P300 component in the data, and to assess the subjects' attentional and emotional processing of the two types of visual stimuli. Viewing traditional Chinese paintings and AI-generated paintings significantly reduced the level of figure anxiety in the high-anxiety group, and the EEG data fed back that the AI-generated painting of a lady induced LPC. in the high-anxiety group, both empathy and empathizing phenomena were significantly increased. In the low anxiety group, viewing both traditional Chinese paintings and AI-generated paintings did not induce significant mood changes, and the EEG data feedback that the LPC amplitude of the high anxiety group was significantly higher than that of the low anxiety group. It proves that Chinese traditional Tang and Song dynasty ladies' paintings and AI-generated paintings have potential value as emotion regulation tools in the digital era, and are helpful in reducing body anxiety. Empathy and empathy play an important role in emotion regulation and may further contribute to this effect. This study preliminarily investigates the effects of Tang Dynasty ladies' drawings and AI-generated paintings on body image anxiety, and conducts preliminary research in the field of mental health services and art creation practices in the digital age.

Keywords： Traditional Chinese Painting, AIGC Generated Paintings, Emotion Regulation, Body Anxiety, ERP Experiments

Emoji 对后续文字语句的情绪影响：基于启动效应的探索

戴元富[1]　高晓妍[1]　黄辰[1]　蒋长好[2]（通讯作者）
1 首都体育学院运动科学与健康学院，北京，100191
2 首都体育学院运动脑成像研究中心，北京，100191，jiangchanghao@cupes.edu.cn

摘 要 Emoji 作为一种全球广泛使用的日式图形符号，在网络交流中具有强大的情绪功能，能够填补缺失的情绪线索。然而在多样的网络交流中，除了 emoji 具有情绪线索外，文字语句本身也可能带有情绪线索。本研究旨在探究 emoji 对于后续文字语句的情绪影响，并分析不同情绪效价的 emoji 和文字语句的相互作用效果。研究招募了 30 名每天使用社交软件超过 2 小时的大学生，并采用间接启动范式，进行了两个递进的行为实验。两个实验均采用 2（emoji 效价：积极、消极）×3（文字句效价：积极、中性、消极）被试内设计，其中实验 1 以 emoji 为启动刺激，对文字语句进行反应，收集反应时和正确率；实验 2 以 emoji 和文字语句为启动刺激，对 emoji 和文字语句形成的组合语句进行反应，收集反应时和效价程度。结果显示在实验 1 中，emoji 和文字句效价一致时正确率最高，而不论 emoji 刺激是积极还是消极，中性文字句正确率最低；emoji 效价为积极时，反应时间快于效价为消极时。在实验 2 中，emoji 与文字句效价一致的反应时间快于效价冲突时，积极 emoji 与中性文字句的组合反应时间快于消极 emoji 与中性文字句的组合；含积极 emoji 的组合句效价程度均高于含消极 emoji 的组合句，不论 emoji 是积极还是消极，由积极文字句构成的组合句效价程度总是高于中性文字句构成的组合句，最低的是消极文字句构成的组合句。上述结果表明：（1）emoji 对于后续文字语句存在情绪启动效应；（2）emoji 的情绪影响起辅助作用，文字句效价起决定作用；(3) emoji 与文字句情绪线索的差异会导致加工速度不同，且这一过程带有积极偏好。
关键词 emoji；情绪启动效应；情绪线索；一致性效应

Emotional impact of Emoji on subsequent textual sentences: an exploration based on priming effects

Yuanfu DAI[1] Xiaoyan GAO[1] Chen HUANG[1] Changhao JIANG[2]

1 School of Kinesiology and Health, Capital University of Physical Education and Sports, Beijing

2 The Center of Neuroscience and Sports, Capital University of Physical Education and Sports, Beijing

Abstract：Emoji, a Japanese graphic symbol widely used worldwide, has a powerful emotional function in online communication, filling in missing emotional cues. However, in diverse online communication, in addition to emoji having emotional cues, textual sentences themselves may also carry emotional cues. This study aimed to investigate the emotional impact of emoji on subsequent textual sentences and to analyse the interaction effects of emoji and sentences with different emotional valence. The study recruited 30 college students who used social software for more than 2 hours per day and conducted two progressive behavioural experiments using an indirect priming paradigm. Both experiments used a 2 (emoji valence: positive, negative) × 3 (textual sentence valence: positive, neutral, negative) within-subjects design, in which Experiment 1 used emoji as the initiating stimulus and responded to textual sentences to collect response times and correct rates, and Experiment 2 used emoji and textual sentences as the initiating stimuli, and responded to combined sentences formed by emoji and textual sentences to collect reaction time and the degree of valence. The results showed that in Experiment 1, the highest correct rates were found when the emoji and textual sentences were of the same valence, whereas neutral textual sentences had the lowest correct rates regardless of whether the emoji stimulus was positive or negative. Response times were faster when the emoji valence was positive than when the valence was negative. In Experiment 2, emoji and textual sentences are faster when valence is congruent than when validity is conflicting. The reaction time for the combination of positive emoji with neutral textual sentences was faster than the combination of negative emoji with neutral textual sentences. The combination of sentences containing positive emoji had a higher degree of valence than that of negative emoji, and the combination of positive textual sentences always had a higher degree of valence than that of neutral textual sentences, irrespective of the emoji's positive or negative valence. The

lowest is the one composed of negative emoji. The above results suggest that: (1) emoji has an emotional priming effect on subsequent textual sentences; (2) the emotional impact of emoji plays a secondary role, while the textual sentence valence plays a decisive role; (3) the difference between the emotional cues of emoji and textual sentences leads to different processing speeds, and this process has a positive preference.
Keywords：emoji; emotional priming effect; emotional cues; congruent effect

青年孤独感对抑郁的影响研究：一个链式中介模型

刘耀娜[1]　王挺[2]（通讯作者）
1 江西中医药大学，南昌，330004
2 江西中医药大学人文学院，南昌，330004，2935126547@qq.com

摘 要　青年是个体走向成人世界，迈入社会生活的准备时期，其标志性事件主要有离开家庭告别父母，升学接受更高教育，进入求职就业阶段，走入恋爱婚姻关系等等。这些事件都会给青年人的内心造成冲击和压力。近年来，青年的抑郁症状检出率显著高于其他年龄段成人，且易感性呈逐年上升的趋势，提示青年的心理健康问题的预防和干预需要得到重视。本研究立足于帮助青年更好地度过这一过渡阶段，对青年心理健康问题中的抑郁症状进行研究。青年普遍面临着旧链接的断裂与新联系的缺乏，因此十分容易体验到孤独感。研究表明，孤独感与抑郁之间存在明显的正相关关系，并且孤独感是抑郁的一个前因变量。生命意义寻求和生命意义存在是生命意义感的两个维度。研究证明，生命意义存在是一个心理健康的保护性因素，与孤独感和抑郁均存在密切关联，而生命意义存在可被看作是通过生命意义寻求转移的一种认知资源，即进行生命意义寻求可以获得生命意义存在。本文在前人研究的基础上，探究孤独感、生命意义寻求、生命意义存在对抑郁的影响机制。本研究使用孤独感量表(UCLA)、生命意义寻求量表(MLQ-S)、生命意义存在量表(MLQ-P)、流行病学研究中心抑郁量表(CES-D)进行调查研究，通过网络问卷调查法收集了 646 份问卷，通过筛查，最终得到了有效的 608 份。选用 spss26.0 软件及 process3.5 插件对回收数据进行处理和分析，统计方法包括信度检验、描述性统计分析、独立样本 t 检验、单因素方差分析、相关分析、回归分析、中介效应检验等。结果如下：农村的青年群体和城市青年群体的孤独感（$p<0.01$），抑郁（$p<0.05$）水平上存在显著差异。生命意义寻求与孤独感显著负相关（$r=-0.212$），生命意义寻求与抑郁显著负相关（$r=-0.176$）。生命意义寻求和生命意义存在在孤独与抑郁的关系中链式中介效应显著。本研究的结论是生命意义寻求与生命意义存在在孤独感与抑郁的关系中存在链式中介效应。青年的孤独感既可以直接影响抑郁症状，还可以通过影响生命意义寻求进而影响生命意义存在，最终对抑郁产生影响。
关键词　孤独感，抑郁，生命意义寻求，生命意义存在，链式中介

Research on the impact of loneliness on depression depression in youth: a chain mediated model

Yaona Liu[1]　Ting Wang[2]
1Jiangxi University of Chinese Medicine,NanChang,330004
2Jiangxi University of Chinese Medicine, Faculty of Humanities,NanChang,330004

Abstract：Youth is the preparation period for individuals to go to the adult world and enter the social life. Its symbolic events mainly include leaving the family and saying goodbye to their parents, going to school to receive

higher education, entering the stage of job hunting and employment, entering into love and marriage, and so on. These events will bring shock and pressure to the hearts of young people. In recent years, the detection rate of depressive symptoms in young people is significantly higher than that in adults of other ages, and the susceptibility is increasing year by year, suggesting that the prevention and intervention of mental health problems in young people should be paid attention to. This study is based on helping young people better through this transition stage, to study the depressive symptoms of young people's mental health problems. Young people are generally faced with the breaking of old links and the lack of new connections, so it is very easy to experience loneliness. Studies have shown that there is a significant positive correlation between loneliness and depression, and loneliness is an andextral variable of depression. Life meaning seeking and life meaning existence are two dimensions of life meaning sense. Studies have proved that the existence of meaning of life is a protective factor for mental health, which is closely related to loneliness and depression, and the existence of meaning of life can be regarded as a cognitive resource transferred through the meaning of life seeking, that is, the existence of meaning of life can be obtained through the meaning of life seeking. On the basis of previous studies, this paper explores the mechanism of loneliness, the search for meaning of life and the existence of meaning of life on depression. In this study, we used University of California Loneliness at Los angels (UCLA), The search for meaning subscale (MLQ-S), The presence of meaning subscale (MLQ-P), and The Center for Epidemiological Studies Depression Scale(CES-D) for investigation and research. A total of 646 questionnaires were collected through online questionnaire survey method, and effective 608 were ultimately obtained through screening. The spss 26.0 software and the process3.5 plug-in process and analyze the collected questionnaire data. The statistical methods include reliability test, descriptive statistical analysis, independent sample t-test, one-way anova, correlation analysis, regression analysis, mesomeric effect test, etc. The results were as follows: There were significant differences in loneliness ($p < 0.01$) and depression ($p < 0.05$) between rural youth and urban youth.Meaning seeking was negatively correlated with loneliness ($r=-0.212$), and meaning seeking was negatively correlated with depression ($r=-0.176$). The relationship between loneliness and depression is significantly mediated by the link between life meaning seeking and life meaning existence.The conclusion of this study is that the relationship between loneliness and depression is mediated by a chain between life meaning seeking and life meaning existence. Young people's loneliness can not only directly affect the symptoms of depression, but also affect the existence of meaning of life through affecting the meaning of life, and finally affect depression.

Keywords：loneliness, depression, the search for meaning, the presence of meaning, chain intermediary

基于机器学习模型预测医学生心理应激的风险因素识别

杨甜甜[1] 林祯秀[1]（通讯作者） 刘舒琦[1]

1 福建医科大学心理学系，福州，350122，907438581@qq.com

摘 要 目的：暴露在应激事件下的医学生会产生一定的心理应激反应，造成心理健康损害。疫情常态化防控开始阶段对医学生心理应激反应带来极大影响，本研究旨在采用机器学习模型探究新冠疫情全面常态化管理的初始阶段医学生的心理应激反应情况，并识别与分析导致负性情绪反应的风险因素。方法：利用问卷星平台对某省 979 名医学生开展问卷调查，收集人口学与新冠病毒防护行为、控制感、社会支持等心理量表数据。利用动态聚类分析区别医学生是否存在负性情绪应激反应，并建立不同机器学习模型，评价其对负性情绪的预测能力。在此基础上，选择较优模型探索疫情常态化管理下医学生负性情绪反应的风险因素。结果：（1）结果发现，随机森林模型预测医学生负性情绪上表现最佳（通过 10 折交叉验证生成的随机森林模型准确率为 97.1%，Kappa 系数为 0.942）。（2）30.8%医学生存在负性情绪应激反应，进一步通过随机森林模型预测，发现负性情绪的预测准确率为 81.3%、灵敏度为 78.4%、特异度为 84.3%、阳性

预测值为 83.3%、阴性预测值为 79.6%，表明随机森林模型具有较高的稳定性与准确度。（3）通过随机森林模型分别预测负性情绪中抑郁、焦虑、压力三个子维度分类的正确性，准确率分别为 85.2%、87%和 90.3%，表明随机森林模型可以对负性情绪及其子维度进行准确有效的分类。（4）在此基础上，进一步以人口学特征、新冠病毒防护行为、新冠疫情应对方式、控制感、社会支持及恐慌情绪为自变量，负性情绪为因变量，分析其对负性情绪应激反应产生影响的因素，结果发现消极应对方式、和恐慌情绪是影响负面情绪应激反应产生的重要风险因素，而控制感、社会支持为是心理应激反应的保护因素。结论：基于大量的人口学与心理特征调查，通过使用不同机器学习训练模型分析，识别医学生在应激下的心理反应，其中消极的应对与恐慌情绪是导致负性情绪反应升高的危险因素，个体的控制感与社会支持对负性情绪反应具有较强的保护作用。可见，随机森林模型可作为医学生在公共卫生事件下应激下负性情绪的预测工具，因此，可以根据研究结果明确对医学生的早期干预目标，提高干预的效果是具有重要意义的。
关键词　常态化防控，应对方式，社会支持，负性情绪，控制感

Identification of Risk Factors for Predicting Psychological Stress in Medical Students Based on Machine Learning Models

YANG Tiantian，LIN Zhenxiu，LIU Shuqi
Fujian Medical University , Fuzhou, 350122, China

Absrtact: Objective: Medical students exposed to stressful events can develop certain psychological stress responses that cause mental health damage. The beginning stage of normalized epidemic prevention and control brings great impact on the psychological stress reaction of medical students, and this study aims to explore the psychological stress reaction of medical students in the initial stage of the full-scale normalized management of the new crown epidemic by using a machine learning model, and to identify and analyze the risk factors that lead to negative emotional reactions. Methods: A questionnaire survey was conducted on 979 medical students in a province using the Questionnaire Star platform to collect data on demographic and neocoronavirus protective behaviors, sense of control, social support, and other psychological scales. Dynamic cluster analysis was utilized to distinguish whether medical students had negative emotional stress reactions, and different machine learning models were established to evaluate their predictive ability for negative emotions. On this basis, the better model was selected to explore the risk factors of negative emotional reactions of medical students under the normalized management of the epidemic. Results: (1) It was found that the random forest model performed the best on predicting negative emotions of medical students (the accuracy of the random forest model generated by 10-fold cross-validation was 97.1%, and the Kappa coefficient was 0.942). (2) 30.8% of medical students survived negative emotional stress reactions, which were further predicted by the random forest model, and found that the prediction accuracy of negative emotions was 81.3%, sensitivity was 78.4%, specificity was 84.3%, positive predictive value was 83.3%, and negative predictive value was 79.6%, which indicated that the random forest model had a high degree of stability and accuracy. (3) The accuracy of predicting the correctness of the classification of the three sub-dimensions of depression, anxiety and stress in negative emotions through the random forest model was 85.2%, 87% and 90.3%, respectively, indicating that the random forest model can accurately and effectively classify negative emotions and their sub-dimensions. (4) On this basis, demographic characteristics, neocoronavirus protective behaviors, neocoronavirus outbreak coping styles, sense of control, social support, and panic as independent variables, and negative emotions as dependent variables, were further

analyzed for the factors that influence the generation of negative emotional stress response, and it was found that negative coping styles, and panic are important risk factors that influence the generation of negative emotional stress response, while sense of control, social support for are protective factors for psychological stress reactions. Conclusion: Based on a large number of demographic and psychological characteristics investigations, the psychological responses of medical students under stress were identified by analyzing them using different machine learning training models, in which negative coping and panic were risk factors for elevated negative emotional responses, and the individual's sense of control and social support had a strong protective effect on negative emotional responses. It can be seen that the random forest model can be used as a predictive tool for negative emotions under stress in medical students under public health events, so it is of great significance that early intervention goals for medical students can be clarified based on the results of the study to improve the effectiveness of the intervention.

Keywords:normalization prevention and control, coping style, social support, negative emotions, sense of control

脑电神经反馈训练对运动表现的影响：元分析研究

安心[1]，郑名扬[1]，邵永聪[1](通讯作者）

1 北京体育大学心理学院，北京，100084，budeshao@bsu.edu.cn

摘 要 卓越的运动表现总是令运动员心向往之。如何提高运动表现不可避免地成为运动心理学工作者的重要研究课题。神经反馈训练（Neurofeedback Training，NFT）作为一种生物反馈方法，通过向参与者实时反馈大脑信号引导其自主调节大脑皮层的激活模式，从而达到治疗精神疾病、提升运动表现、促进睡眠质量等目标。然而，过往实证研究对 NFT 对运动表现影响的结果并不一致，且并未在大样本中系统性探讨影响 NFT 有效性的因素。基于以上问题，本研究选取采用 NFT 的随机对照实验进行元分析，以评估其促进运动表现的有效性。此外，通过亚组分析，评估 NFT 对运动表现的影响是否受到受试者运动经验和 NFT 指导语类型的影响，并为 NFT 的实际应用提供更有针对性的建议。在 Web of Science, PubMed, PsycINFO, Science Direct 平台上检索 1991 年 1 月至 2023 年 3 月 31 日发表的相关研究后，从 804 篇研究中筛选因变量为运动表现且为 NFT 随机对照实验的研究纳入。由两名作者共同确定纳入标准并筛选文章和提取数据。随后，采用 Cochrane 偏倚风险工具评估纳入研究的质量。使用随机效应模型计算 Hedge’s g 和 95%置信区间 (CI)。最终共有 8 项随机对照实验 (178 名参与者) 符合纳入标准，没有一项研究在所有方面具有低偏倚风险。元分析结果显示，NFT 对运动表现无显著影响 (Hedges’s g = 0.13, 95% *CI* [-0.44-0.70], $p = 0.67$)。以运动经验和指导语类型进行亚组分析，各组在 NFT 效果上也均无显著差异 (知识经验：$p = 0.73$；指导语类型：$p = 0.44$)。本研究未发现 NFT 对运动表现的促进作用，同时运动经验和指导语类型并非调节因素。此外，结合漏斗图和 Egger 检验评估发表偏倚，结果表明存在发表偏倚可能性较低（$t = 0.86$, $p = .41$）。未来相关实证研究需格外注意安慰剂效应的排除，并结合训练次数、训练内容和参与者基本情况对最佳 NFT 训练方案加以探索。

关键词 神经反馈训练，运动表现，EEG，生物反馈训练，指导语

The effect of electroencephalographic neurofeedback training on sports performance: A meta-analysis study

Xin An[1], Ming-Yang Cheng[1], Yongcong Shao[1*]

1 School of Psychology, Beijing Sport University, Beijing, 100084, China, budeshao@bsu.edu.cn

Abstract: Optimal athletic performance is a constant pursuit for athletes. Consequently, enhancing athletic performance has emerged as a significant research area within the field of sport psychology. Neurofeedback Training (NFT), guides participants to independently regulate the activation pattern of the cerebral cortex through real-time feedback of brain signals, so as to achieve the goals of treating psychiatric disorders, improving athletic performance, and promoting the quality of sleep, etc. Nonetheless, the findings from prior empirical studies investigating the impact of NFT on exercise performance have yielded inconsistent results, while factors influencing the efficacy of NFT in larger sample sizes remain unexplored. Based on the above issues, this study selected randomized controlled trials using NFT for meta-analysis to assess its effectiveness in promoting athletic performance. In addition, subgroup analyses were conducted to assess whether the effect of NFT on athletic performance was influenced by subjects' sport experience and the type of NFT instruction. After searching for relevant studies published from January 1991 to March 31, 2023 on Web of Science, PubMed, PsycINFO, and Science Direct platforms, studies whose dependent variable was sport performance and were randomized controlled trials of NFT were screened for inclusion from 804 studies. Two authors worked together to determine the inclusion criteria and screen articles and extract data. Subsequently, the Cochrane Risk of Bias tool was used to assess the quality of the included studies. Hedge's g and 95% confidence intervals (CI) were calculated using a random effects model. A total of eight randomized controlled trials (178 participants) ultimately met the inclusion criteria, and none of the studies had a low risk of bias in all aspects. Results of the meta-analysis showed no significant effect of NFT on athletic performance (Hedges' g = 0.13, 95% CI [-0.44-0.70], p = 0.67). Subgroup analyses with sport experience and type of instruction also showed no significant differences in the NFT effect in any of the groups (sport experience: p = 0.73; type of instruction: p = 0.44). The present study did not observe a facilitating effect of NFT on athletic performance. Furthermore, the variables of sport experience and type of instruction were not identified as moderators in this context. In addition, the combination of funnel plot and Egger's test to assess publication bias indicated a low likelihood of publication bias (t = 0.86, p = .41). Future studies should focus on excluding the placebo effect and optimizing the NFT training regimen by considering the number of sessions, training content, and participant profiles.
Keywords: Neurofeedback training, sport performance, EEG, biofeedback training, instruction

基于模糊数学方法评价自动驾驶接管绩效

朱圆圆[1]　杨艳群[2]　王越[1]　郑新夷[1]（通讯作者）

1 福州大学人文社会科学学院，福州，350108，zhengxinyi@fzu.edu.cn

2 福州大学土木工程学院，福州，350108

摘 要　在有条件自动驾驶条件下，驾驶员接管性能一直是一个潜在的安全问题。影响接管性能的因素有系统和人为因素，并且由于接管是由认知、识别和判断一系列过程组成的复杂行为过程，需要多个指标去衡量它。因此，本研究基于模糊数学的综合评价方法，探讨接管前置时间、驾驶信任、情绪唤醒和性别因素对接管绩效的综合影响。研究过程采用问卷调查与实验相结合的方法，问卷采用《自动驾驶车辆信任态度量表》，实验部分采用 E-Prime 软件设计实验方案。使用接管反应时、判断反应时和判断准确率这 3 个指标对接管绩效进行评价，运用模糊数学理论对这三个指标进行赋值并计算接管绩效总分，同时比较各条件下接管绩效的差异。

本研究评价了 131 名参与者的表现，发现情绪唤起对接管反应时和判断反应时的主效应显著，性别因素对判断反应时的主效应显著;在交互效应方面，情绪唤起与性别因素对接管反应时的交互作用显著，前置

时间与情绪唤醒对判断准确率的交互作用显著。整合三项指标后，对接管绩效差异显著的变量进行模糊综合评价，结果发现：首先，3s 前置时间（F=86.2625）的接管绩效最好，8S 前置时间（F=85.0575）的接管绩效最差，但在唤起中性情绪时，5S 的接管绩效最好，3S 的接管绩效最差;其次，低驾驶信任度的参与者接管绩效优于高信任度的参与者;再次，男性驾驶员的接管绩效优于女性驾驶员;最后，驾驶员在唤起中性情绪时的接管绩效优于积极情绪时的接管绩效，在性别与情绪的交互中，表现为男性驾驶员在唤起中性情绪后表现最好，但在唤起积极情绪后接管的绩效最差。

这些结果表明，前置时间会影响驾驶员接管性能;对自动驾驶系统高度信任的驾驶员接管的风险更大;情绪对驾驶员接管绩效的影响较大，在中性情绪下，适当延长前置时间有助于提高驾驶员接管绩效，男性驾驶员比女性驾驶员更容易受到情绪的影响。因此，这项研究的主要结论是，驾驶员的情绪稳定性有利于男性驾驶员在紧急情况下接管车辆。

关键词　自动驾驶，驾驶接管，接管绩效，模糊数学

Evaluate the performance of autonomous driving takeover based on fuzzy mathematical methods

Zhu YuanYuan[1]　Yang YanQun[2]　Wang Yue[1]　Zheng XinYi[1]

1 School of Humanities and Social Sciences, Fuzhou University, Fuzhou

2 College of Civil Engineering, Fuzhou University, Fuzhou

Abstract：Driver takeover performance has always been a potential safety issue under conditional autonomous driving conditions. The factors that affect the performance of takeover are systemic and human factors, and because takeover is a complex behavioral process composed of a series of processes of cognition, recognition, and judgment, multiple indicators are needed to measure it. Therefore, based on the comprehensive evaluation method of fuzzy mathematics, this study explores the comprehensive effects of takeover lead time, driving trust, emotional arousal and gender factors on takeover performance.The research process adopts a combination of questionnaire survey and experiment, the questionnaire adopts the "Autonomous Vehicle Trust Attitude Scale", and the experimental part adopts E-Prime software to design the experimental protocol. The takeover performance was evaluated by using the three indicators of takeover response, judgment reaction and judgment accuracy, and fuzzy mathematical theory was used to assign the values of these three indicators and calculate the total score of takeover performance, and the differences in takeover performance under various conditions were compared.

This study evaluated the performance of 131 participants and found that emotional arousal had a significant main effect on takeover response and judgment response, and gender factors had a significant main effect on judgment response. In terms of interaction effects, the interaction between emotional arousal and gender factors on takeover response was significant, and the interaction between lead time and emotional arousal on judgment accuracy was significant.After integrating the three indicators, a fuzzy comprehensive evaluation of the variables with significant differences in takeover performance shows that:Firstly, the takeover performance of 3S lead time (F=86.2625) was the best, and the takeover performance of 8S lead time (F=85.0575) was the worst, but when it evoked neutral emotions, the takeover performance of 5S was the best and the takeover performance of 3S was the worst. Second, participants with low driving trust took over better performance than participants with high confidence; Again, male drivers outperformed female drivers in takeover; Finally, the driver's takeover performance when evoking neutral emotions was better than when positive emotions were taken over, and in the interaction between gender and emotion, male drivers performed best after evoking neutral emotions, but took over the worst performance after evoking positive emotions.

These results suggest that lead time affects driver takeover performance; Drivers who have a high degree of trust in the autonomous driving system are at greater risk of taking over; Emotions have a greater impact on driver takeover performance, and under neutral emotions, appropriately extending the lead time can help improve driver takeover performance, and male drivers are more susceptible to emotions than female drivers. Therefore, the main conclusion of this study is that the emotional stability of the driver favors male drivers taking over the vehicle in an emergency.

Keywords：Autonomous driving, takes over, take over performance, fuzzy math

焦虑在公交车驾驶员心理健康中的独特作用：一项网络分析研究

罗晓红[1] 陈婷婷[1] 杨珍芝[12] 曾红[1]

1 广州大学教育学院，广州，510006

2 北京师范大学–香港浸会大学联合国际学院，珠海，519087

通信作者：曾红，E-mail：zhh0791@163.com

摘 要 公交车驾驶员心理健康状况是公共交通安全运行的基础与保障。掌握驾驶员的心理健康水平及分布规律，可及早发现潜藏的问题和风险因素，为日后开展驾驶员心理健康干预、减少违法事故提供参考依据。目的：本研究旨在评估公交车驾驶员心理健康状况，并利用网络分析的方法探讨其不同心理症状之间的相互关系。方法：采用中文版症状自查量表(Symptom Check List-90, SCL-90)测量广东某市公交车驾驶员的心理健康状况，共有 1007 名驾驶员的数据纳入本研究。心理症状网络分析采用中心性指标预期影响(Expected Influence, EI)来考察中心成分，并将桥接期望影响值(Bridge Expected Influence, BEI)的最高点作为桥接成分，探索公交车驾驶员心理症状网络的维持和发展机制。结果：本研究发现，公交车驾驶员心理症状检出率为 8.44%。其中，焦虑因子得分在公交车驾驶员心理症状网络中的预期影响最高，其次分别是抑郁因子和精神病症因子。通过三个因子上各条目的得分构建焦虑、抑郁和精神病症的桥接网络，桥预期影响的稳定性良好(CS=0.60)，其中，焦虑因子中的“感到熟悉的东西变陌生或不像是真的”桥预期影响值最高，其次是焦虑因子中的“感到要赶快把事情做完”。结论：本研究结果表明，焦虑是公交车驾驶员心理症状网络的关键成分，提示焦虑在激活其他节点间发挥着重要作用，并对整个心理症状网络的维持有重要影响，以焦虑因子为靶点的干预措施可能会更大程度上提升公交车驾驶员整体的心理健康水平。

关键词 公交车驾驶员, 心理症状, 网络分析, 桥接症状, 焦虑

The unique role of anxiety in mental health of bus drivers: A network analysis

LUO Xiaohong[1], CHEN Tingting[1], YANG Zhenzhi[12], ZENG Hong[1]

1. Department of Psychology, Guangzhou University, Guangzhou 510006, China
2. Beijing Normal University-Hong Kong Baptist University United International College, Zhuhai 519087, China

Abstract: The psychological well-being of bus drivers is the foundation and guarantee for the safe operation of public transportation. Understanding the psychological health level and distribution patterns of drivers can help

identify hidden problems and risk factors in a timely manner, providing a reference for future interventions to improve driver's psychological health and reduce traffic violations. Objective: This study aims to assess the psychological well-being of bus drivers and explore the relationships between different psychological symptoms using network analysis. Methods: The Chinese version of the Symptom Check List-90 (SCL-90) was used to measure the psychological well-being of bus drivers in a city in Guangdong Province. Data from 1007 drivers were included in this study. Network analysis of psychological symptoms was conducted using the centrality index of Expected Influence (EI) to examine central components, and the highest point of Bridge Expected Influence (BEI) was identified as the bridging component to explore the maintenance and development mechanisms of the psychological symptom network among bus drivers. Results: The study found that the detection rate of psychological symptoms among bus drivers was 8.44%. Among them, the anxiety factor had the highest expected influence in the psychological symptom network of bus drivers, followed by the depression factor and the psychotic symptom factor. Anxiety, depression, and psychosis bridge networks were constructed based on the scores of items in the three factors. The stability of bridge expected influence was good (CS=0.60). Among them, the item "Feeling that familiar things are strange or not real" had the highest bridge expected influence in the anxiety factor, followed by the item "Feeling pushed to get things done." Conclusion: The results of this study indicate that anxiety is a key component of the psychological symptom network among bus drivers. It suggests that anxiety plays an important role in activating other nodes and has a significant impact on the maintenance of the entire psychological symptom network. Interventions targeting anxiety may have a greater impact on improving the overall psychological well-being of bus drivers.
Keywords: Bus drivers, psychological symptoms, network analysis, bridging symptoms, anxiety

大学生应激生活事件与睡眠问题及抑郁体验的关系：情绪调节的中介作用及其性别差异

李庆一[1]，叶学鉴[1]，李葆明[1]，王春杰[1*]
1 杭州师范大学脑科学研究所，杭州，3311121

摘 要　本研究的目的是调查大学生应激生活事件与睡眠问题和抑郁体验的关系，并探讨情绪调节策略和性别在这种关系中的作用。本研究在杭州市某大学招募 1451 名在校大学生（899 名女性和 552 名男性，平均年龄 19.68 岁，标准差为 1.61）。对所有被试，应用青少年生活事件自评量表测量应激生活事件，应用匹兹堡睡眠质量指数量表测量睡眠质量，应用抑郁体验问卷测量两种常见的抑郁体验（自我批评和无助），应用情绪调节问卷测量两种常见的情绪调节策略（表达抑制和认知重评）。研究结果：1）应激生活事件与自我批评和无助呈正相关，与睡眠质量呈负相关；2）对于男性被试，表达抑制在应激生活事件对自我批评和无助的影响中起部分中介作用，但在女性被试中没有发现类似的中介作用；3）对于女性被试，认知重评在应激生活事件与睡眠质量之间的关系中起到部分中介作用，但在男性被试中没有发现类似的中介作用。以上结果表明，应激生活事件与睡眠质量及心理健康之间的关系非常复杂，受情绪调节策略和性别的影响。本研究结果对如何有效预防和减少青年高危群体的睡眠障碍和心理健康问题具有指导意义。
关键词　应激生活事件，睡眠质量，抑郁体验，情绪调节策略，性别差异。

Relationships of stressful life events with sleep problems and

depressive experience in university students: the mediating role of emotion regulation and its gender difference

Qingyi Li[1], Xuejian Ye[1], Bao-ming Li[1], Chunjie Wang[1*]
[1] Institute of Brain Science, Hangzhou Normal University, Hangzhou 311121, China

Abstract： The present study investigated the relationships between stressful life events with sleep quality and depressive experience in Chinese university students and to probe the potential mediating role of emotion regulation. A total of 1451 university students (552 males and 899 females, mean age = 19.68, SD = 1.61) were recruited. For all the participants, the Adolescent Self-Rating Life Events Checklist was used to measure the experience of stressful life events, the Pittsburgh Sleep Quality Index to measure sleep quality, the Depressive Experience Questionnaire to measure two commonly-seen depressive experience (self-criticism and dependency), and the Emotion Regulation Questionnaire to measure two commonly-used emotion regulation strategies (cognitive reappraisal and expressive suppression). The results show that, 1) experience of stressful life events was positively associated with self-criticism and dependency but negatively with sleep quality; 2) cognitive reappraisal partially mediated the relationship between stressful life events and sleep quality in female but not male subjects; 3) expressive suppression partially mediated the relationships of stressful life events with both self-criticism and dependency in male and female subjects. Taken together, the present results indicate that stressful life events not only directly affect the sleep quality and depressive experience of university students, but also indirectly affect sleep quality and depressive experience through affecting the use of different emotion regulation strategies. These results provide enlightenment for designing interventions aimed at reducing sleep disturbances and mental health problems for at-risk young adults.

Keywords： Stressful life events; Sleep quality; Depressive experience; Emotion-regulation strategies; Gender difference

创伤经历者的失眠困扰与社会支持：一项静息态脑功能磁共振 ReHo 特征初步比较

刘奕浓[1]　郭云霄[1]　赵子仪[1]　阮君[1]　刘斯君[1]　任志洪[1]（通讯作者）
[1]青少年网络心理与行为教育部重点实验室，华中师范大学心理学院，湖北省人的发展与心理健康重点实验室，武汉，430079，ren@ccnu.edu.cn

摘 要　**背景：**创伤经历者是指经历或目睹异乎寻常的灾难性威胁事件后的个体，部分个体会出现再体验、回避、认知和情绪的负性改变、唤起和反应的改变以及入睡困难、失眠等症状。但尚未有研究探究创伤经历者的失眠困扰与社会支持相关脑机制。**目的：**通过静息态脑功能磁共振成像采集脑功能数据进行脑局部一致性 ReHo (regional homogeniety)分析，探讨有失眠困扰的创伤经历者与睡眠正常的创伤经历者的脑功能差异及其与临床症状以及社会支持的相关性。**材料与方法：**招募 15 例有失眠困扰的的创伤经历者和睡眠正常的创伤经历者 32 例，31 例健康对照组(Healthy Control，HC）,评估创伤后应激障碍症状、解离等临床症状以及社会支持得分。其中所有创伤经历者，应经历过创伤性事件且创伤后应激障碍症状筛查量表得分不低于 31 分。失眠困扰创伤组被试失眠严重程度指数量表得分高于 15 分，且自我报告存在失眠困扰。使用量表评估创伤后应激障碍症状、解离等临床症状以及社会支持得分。采用 DPARSF 5.0 处理核磁数据,SPSS 软件包检验三组 ReHo 差异脑区与临床量症状与社会支持的相关性。**结果：**两组创伤经历者的人口统计学

资料和临床症状评分无显著差异。相对睡眠正常组，失眠困扰组右侧小脑前叶，右侧额中回，左侧海马旁回的 ReHo 值更高，左侧颞上回、右侧颞上回 ReHo 值更低。相对健康对照，失眠困扰组右侧颞叶梭状回、脑干、前扣带回 ReHo 值更低，左侧叶下核外、颞上回 ReHo 值降低，右侧额上回、额中回半球间 ReHo 值更高。此外，睡眠正常组相对于 HC 组，右侧枕叶、颞中回 ReHo 值降低，右侧顶叶，后扣带 ReHo 值升高。相关性分析显示,失眠困扰组左侧海马旁回、左侧颞上回 ReHo 值与医疗社会支持量表 (Medical Outcomes Study Social Support Survey,MOS-SSS)社会互动性合作分量表评分负相关(p = 0.039,r= -0.54), (p = 0.025,r= -0.57)，左侧左叶下核外 ReHo 值与 MOS-SSS 实际性支持分量表评分正相关(p = 0.018,r= 0.60)。睡眠正常组右侧颞中回 ReHo 值与解离得分 (Somatoform Dissociation Questionnaire, SDQ-5) 负相关(p = 0.044,r= -0.36)。**结论：**存在失眠困扰的创伤经历者与睡眠正常的创伤经历者脑功能 ReHo 值有显著差异，失眠困扰创伤组累及更多脑区，涉及情感认知中枢，且与社会支持相关。

关键词　创伤经历者 失眠困扰 社会支持 静息态脑功能磁共振成像 脑局部一致性

Insomnia distress and social support in trauma-experienced individuals: a preliminary comparison of a resting-state fMRI ReHo feature

Yinong Liu[1], Yunxiao Guo[1], Ziyi Zhao[1], Jun Ruan, Sijun Liu, Zhihong Ren[1]

[1] Key Laboratory of Adolescent Cyberpsychology And Behavior (CCNU), Ministry Of Education; School of Psychology, Central China Normal University; Key Laboratory of Human Development and Mental Health Of Hubei Province, Wuhan, China

Abstract: **Background:** Trauma survivors refer to individuals who have experienced or witnessed unusual catastrophic threats. Some individuals will experience symptoms such as re-experiencing, avoidance, negative changes in cognition and emotion, changes in arousal and response, difficulty in falling asleep, and insomnia. However, no research has explored the brain mechanisms related to insomnia and social support in traumatic individuals. **Objective:** To collect brain function data by resting-state functional magnetic resonance imaging, and conduct regional homogeneity (ReHo) analysis of the brain, to explore the differences in brain function between trauma patients with insomnia and normal sleep, and their correlation with clinical symptoms and social support. **Materials and methods:** 15 trauma experiencers with insomnia, 32 trauma experiencers with normal sleep, and 31 healthy controls (Healthy Control, HC) were recruited, and clinical symptoms such as post-traumatic stress disorder symptoms, anxiety, depression, dissociation, and social support scores were evaluated. All those with trauma experience should have experienced traumatic events and the score of PTSD Symptom Screening Scale should be higher than 31 points. The score of the insomnia severity index scale should be higher than 15 points in the insomnia distress trauma group, and self-reported insomnia distress. Posttraumatic stress disorder symptoms, clinical symptoms such as anxiety, depression, and dissociation, and social support scores were assessed using scales. All subjects underwent resting-state MRI brain function scans. DPARSF 5.0 was used to process the MRI data, and the SPSS software package was used to test the correlation of ReHo differences between the three groups of brain regions with clinical symptoms and social support. **Results:** There were no significant differences in demographic data and clinical symptom scores between the two groups of trauma experiencers. Compared with the

normal sleep group, the ReHo values of the right anterior lobe of the cerebellum, the right middle frontal gyrus, and the left parahippocampal gyrus of the insomnia-disturbed trauma group were higher, and the ReHo values of the left superior temporal gyrus and the right superior temporal gyrus were lower. Compared with the healthy control group, the ReHo values of the right temporal lobe fusiform gyrus, brainstem, and anterior cingulate gyrus were lower in the insomnia-disturbed trauma group; In addition, compared with the HC group, the normal sleep group had lower ReHo values in the right occipital lobe and middle temporal gyrus, and higher ReHo values in the right parietal lobe and posterior cingulate. Correlation analysis showed that the ReHo values of the left parahippocampal gyrus and left superior temporal in the insomnia distress trauma group were negatively correlated with the scores of the social interaction cooperation subscale of the Medical Outcomes Study Social Support Survey (MOS-SSS) (p = 0.039, r = -0.54), (p = 0.025, r = -0.57), and the ReHo values outside the left inferior lobe were correlated with the actual MOS-SSS scores. Sexual support subscale scores were positively correlated (p = 0.018, r = 0.60). In the trauma group with normal sleep, the ReHo value of the right middle temporal gyrus was negatively correlated with the dissociation score (Somatoform Dissociation Questionnaire, SDQ-5) (p = 0.044, r = -0.36). **Conclusion:** There is a significant difference in the ReHo value of brain function between trauma experiencers with insomnia and normal sleep. More brain regions are involved in the trauma group with insomnia, involving emotional cognition centers, and related to social support.

Keywords：Trauma experiencers, insomnia, social support, resting-state fMRI, Regional Homogeniety

阈下抑郁和抑郁症个体在言语流畅性任务下前额叶氧合血红蛋白水平的变化

兰金滢[1,2]，邹晓伟[1,2]，万爱兰[2]（通讯作者）

1 南昌大学公共政策与管理学院，南昌，330031

2 南昌大学第一附属医院心身医学科，南昌，330006

摘 要 **背景：**当个体具有某些抑郁症状但不符合《美国精神障碍诊断统计手册第五版》（DSM-V）中抑郁症的诊断标准时，则称为阈下抑郁。阈下抑郁与抑郁症相比有更高的患病率，且所造成的负面影响与抑郁症相当。但是阈下抑郁与其他精神疾病，尤其与抑郁症的关系尚不明确。本研究通过功能性近红外光谱(functional near-infrared spectroscopy，fNIRS)成像技术探讨阈下抑郁和抑郁症个体在言语流畅性任务下（verbal fluency test，VFT）前额叶氧合血红蛋白水平的变化特点，为二者关系研究提供客观依据。**方法：**本研究于 2023 年 3 月至 6 月纳入 108 名受试者，包括 36 名阈下抑郁个体，35 名抑郁症患者，36 名健康个体，采用 24 项汉密尔顿抑郁量表和流调用抑郁量表评分评估受试者抑郁严重程度并进行分组；应用 53 通道的 fNIRS 仪器，在 VFT 下测量前额叶各区域氧合血红蛋白相对浓度的变化。使用 SPSS 23.0 统计学软件进行数据分析。**结果：**在 VFT 表现方面，阈下抑郁组、抑郁症组和健康对照组比较差异无统计学意义（P＞0.05）。三组的氧合血红蛋白平均值差异有统计学意义，差异主要位于额极（F=39.83，P＜0.001）和背外侧前额叶皮质（F=13.03，P＜0.001）。事后分析结果显示，阈下抑郁组在额极（P＜0.001）和背外侧前额叶皮质（P＜0.05）的氧合血红蛋白平均值均低于抑郁症组。**结论：**阈下抑郁个体在执行 VFT 期间额极和背外侧前额叶区域功能下降，但是与抑郁症患者相比，阈下抑郁个体的功能下降程度较低。阈下抑郁与抑郁症在在背外侧前额叶和额极区域有着相似的受损模式，且阈下抑郁的受损程度低于抑郁症，因此阈下抑郁与抑郁症可能性质相同，只是严重程度不同。

关键词 阈下抑郁；抑郁症；功能性近红外光谱成像；言语流畅性任务；氧合血红蛋白

Changes in prefrontal oxyhemoglobin levels in individuals with subthreshold depression and depression under verbal fluency task

Lan Jinying[1,2] Zou Xiaowei[1,2] Wan Ailan[2]

1 School of Public Policy and Administration，Nanchang University，Nanchang 330031

2 Department of Psychosomatic Medicine，The First Affiliated Hospital of Nanchang University，Nanchang 330006

***Abstract*：Background**：When an individual has certain depressive symptoms but does not meet the diagnostic criteria for depression in the Diagnostic Statistical Manual of Mental Disorders, Fifth Edition (DSM-V), it is called subthreshold depression. Subthreshold depression has a higher prevalence than depression and has comparable negative consequences to depression. However, the relationship between subthreshold depression and other psychiatric disorders, especially depression, is unclear. In this study, we explored the characteristics of changes in prefrontal oxyhemoglobin levels in subthreshold depressed and depressed individuals under the verbal fluency task (VFT) by functional near-infrared spectroscopy (fNIRS) imaging to provide an objective basis for the study of the relationship between subthreshold depression and depression. **Methods**：From March to June 2023, 108 subjects were enrolled, including 36 individuals with subthreshold depression , 35 patients with depression , and 36 healthy individuals. Subjects were assessed for depression severity and grouped using Centre for Epidemiological Studies Depression Scale (CES-D) and 24 items Hamilton Depression Rating Scale (HAMD-24) . A 53-channel functional near-infrared spectroscopy was applied to measure changes in relative oxyhemoglobin concentrations in various prefrontal lobe regions under a verbal fluency task. SPSS 23.0 statistical software was used to data analysis. **Results**：In terms of VFT performance, there was no statistically significant difference between the subthreshold depression group, the depression group and the healthy control group ($P > 0.05$). The differences in mean oxyhemoglobin values between the three groups were statistically significant, with the differences located mainly in the frontal pole (F=39.83, P<0.001) and dorsolateral prefrontal cortex (F=13.03, P<0.001). Post hoc analysis showed that the subthreshold depression group had lower mean oxyhemoglobin values in both the frontal pole ($P <$ 0.001) and dorsolateral prefrontal cortex ($P < 0.05$) than the depression group. **Conclusions**： Subthreshold depresssion individuals had reduced function in frontopolar and dorsolateral prefrontal regions during the performance of a verbal fluency task, but to a lesser extent compared to depressed patients. Subthreshold depression and depression share a similar pattern of impairment in the dorsolateral prefrontal and frontal pole regions, and subthreshold depression is less impaired than depression; therefore, subthreshold depression and depression may be of the same nature, but differ only in severity.

***Keywords*：**Subthreshold Depression；Depression；Functional near-infrared spectroscopy imaging；Verbal fluency task；Oxygenated hemoglobin

累积情境风险与农村留守儿童的社会情绪能力：个体保护因子的链式中介作用

陈丹[1] 黄月胜[2]

1 天津中医药大学管理学院，天津，301617

2 湖南第一师范学院教育学院/儿童心理发育与脑认知科学湖南省重点实验室，长沙，410205，

huangys@hnfnu.edu.cn

摘 要 我国农村留守儿童人数为 697 万人，其中由(外)祖父母隔代照料者占 96%。由于家庭监护功能不足、缺乏来自父母的情感关爱与物质支持，会经历更多的情境风险。在面对情境风险时，留守儿童的认知态度相对消极，自我管理和情绪调整的能力较弱，人际交往问题更为严重，概括起来，这些问题突出表现为社会情绪能力较低。社会情绪能力的重要性不言而喻，但目前研究主要集中在其重要性、现状、培养模式的分析，缺乏多个情境风险视角，和积极保护特质视角对社会情绪能力影响机制的研究。而此类研究对于深入理解累积风险怎样影响留守儿童社会情绪能力以及如何帮助暴露于多重风险之下的留守儿童提高社会情绪能力均具有重要意义。本研究为了减少不同情境风险因子的差别效应被掩盖，更好辨别出对社会情绪能力更为敏感的风险来源，把风险因素进行分类，比较不同情境风险对社会情绪能力的作用机制，并探讨情境风险对留守儿童社会情绪能力的累积效应、函数关系。采用父母教养方式问卷、学校氛围知觉问卷、家庭社会经济地位评估问卷、特拉华社会情绪能力量表、自尊量表、心理弹性量表，对 807 名留守儿童和 357 名非留守儿童进行施测。结果发现：（1）相较与非留守儿童，留守儿童面临更多情境风险且保护因子、社会情绪能力显著更低；（2）家庭关系情境风险对留守儿童社会情绪能力的预测作用，大于学校情境风险和家庭 SES 情境风险；（3）在家庭关系、学校和家庭 SES 情境风险中，自尊和心理弹性在累积风险和社会情绪能力之间起链式中介作用；（4）累积风险因子与留守儿童社会情绪能力之间呈“负加速模式”；（5）随着情境风险增多，保护因子会减少，两者呈“此消彼长”关系，导致社会情绪能力降低。
关键词 累积情境风险；留守儿童；社会情绪能力；自尊；心理弹性

Cumulative Contextual Risk and and social emotional competency of left-behind children: The Chain Mediation Effect of Individual Protective Factors

CHEN Dan[1], HUANG Yue-sheng[2]

1 School of Management, Tianjin University of Traditional Chinese Medicine, Tianjin 301617, China

2 School of Education/ Hunan Key Laboratory of Children’s Psychological Development and Brain Cognitive Science, Hunan First Normal University, Changsha 410205, China

Abstract: The number of left-behind children in rural China is 6.97 million, of which 96% are taken care of by grandparents. Due to the lack of family monitoring function and the lack of emotional care and material support from parents, they will experience more contextual risks. In the face of contextual risks, the cognitive attitude of left-behind children is relatively negative, the ability of self-management and emotional adjustment is weak, and the interpersonal communication problems are more serious. In summary, these problems are highlighted by the low social emotional competency. The importance of social emotional competency is self-evident, but the current research mainly focuses on the analysis of its importance, current situation and cultivation mode, and lacks the research of the mechanism of multiple contextual risk perspectives and positive protective trait perspectives on social emotional competency. This kind of research is of great significance for in-depth understanding of how cumulative risk affects the social-emotional ability of left-behind children and how to help left-behind children exposed to multiple risks improve their social-emotional competency. In order to reduce the masking of the

differential effects of risk factors in different contexts, this study better identifies risk sources that are more sensitive to social emotional ability, classifies risk factors, compares the mechanism of action of different situational risks on social emotional ability, and explores the cumulative effect and functional relationship of situational risks on social emotional competency of left-behind children. A total of 807 left-behind children and 357 non-left-behind children were tested by parental bonding instrument, school climate perception questionnaire, Delaware Social and Emotional Competency Scale, self-esteem scale, resilience scale and personal information questionnaire. The results showed that: (1) Compared with non-left-behind children, left-behind children faced more contextual risks and had significantly lower protective factors and social-emotional competency; (2) The predictive effect of family relationship contextual risk on left-behind children's social emotional competency was greater than that of school contextual risk and family SES contextual risk; (3) In family relationship, school and family SES contextual risk, self-esteem and psychological resilience play a chain mediation role between cumulative risk and social emotional competency; (4) There is a "negative acceleration pattern" between cumulative risk factors and left-behind children's social emotional competency; (5) With the increase of contextual risk, the protective factors will decrease, showing a "trade-off" relationship between the two, resulting in a decrease in social-emotional competency.

Key Word: Cumulative contextual risk, Left-behind children, Social emotional competency, Self-esteem, resilience

6.2“博士生学术论坛”分组展贴报告

生命意义感影响网络游戏成瘾：社交焦虑与感觉寻求的中介作用

马少勇[1]　桑青松[1]

安徽师范大学教育科学学院，安徽 芜湖 241002

摘要　青少年期是个体需要应对众多矛盾和冲突的阶段，容易产生多种问题行为，在个体的多种问题行为中，大学生的行为成瘾问题因其群体的广泛性和影响的日益严重性而受到人们的广泛关注，在世界范围内已经成为又一个世界瞩目的社会与健康问题。生命意义感作为个体系统中反映个体态度、价值观的重要组成部分，对网络游戏成瘾的发生、发展产生作用。随着大学生出现以“生命意义感缺失”为核心特征的“空心病”现象，这些缺乏生命意义感的个体可能会因为自身没有足够的动力去追寻生命目标和意义，缺乏目标感和价值感，进而陷入迷茫、无所适从的生活状态。他们因此倾向于通过成瘾活动填补自己内在的空虚，从而更容易表现出成瘾的行为。研究基于 I-PACE 理论模型和强化学习理论探讨生命意义感对大学生网络游戏成瘾影响及社交焦虑和感觉寻求在其中的作用；试图建立生命意义感影响网络游戏成瘾的社交焦虑与感觉寻求的中介模型，探析模型中各变量之间的关系，揭示生命意义感影响网络游戏成瘾的心理机制。采用生命意义感量表、网络游戏成瘾量表、社交焦虑量表以及感觉寻求量表对 1150 名研究对象进行问卷调查；结果表明生命意义感与大学生网络游戏成瘾呈显著负相关，社交焦虑与感觉寻求在生命意义感与大学生网络游戏成瘾之间起平行中介作用；高生命意义感是大学网络游戏成瘾的保护性因素，负向预测网络游戏成瘾行为；研究结果利于揭示生命意义感影响网络游戏成瘾的内在机制，为验证相关理论提供实证依据，为网络游戏成瘾的预防与干预提供新的思路和理论依据。

关键词　生命意义感，网络游戏成瘾，社交焦虑，感觉寻求，大学生

The influence of sense of meaning on online game addiction: the mediating role of social anxiety and sensation seeking

Ma Shaoyong Sang Qingsong
The college of Education Science, Anhui Normal University, Wuhu 241002, China

Abstract: Adolescence is a stage in which individuals need to deal with many contradictions and conflicts, and it is easy to produce a variety of problematic behaviors. Among the various problematic behaviors of individuals, behavioral addiction of college students has been widely concerned by people because of its universality and the increasing severity of its influence, and has become another social and health problem attracting worldwide attention. The sense of meaning of life, as an important part of the individual system reflecting the individual attitude and values, plays an important role in the occurrence and development of online game addiction. With the phenomenon of "hollow disease" in college students, which is characterized by "lack of sense of meaning of life", these individuals lacking sense of meaning of life may fall into a confused and confused state of life because they do not have enough motivation to pursue life goals and meanings and lack a sense of purpose and value. They therefore tend to fill their inner void through addictive activities, which makes them more likely to exhibit addictive behaviors. Based on I-PACE theory and reinforcement learning theory, this study explores the influence of meaning of life on online game addiction and the role of social anxiety and sensation seeking among college students. This paper attempts to establish a mediating model between social anxiety and sensation seeking in which sense of meaning of life affects online game addiction, explore the relationship between the variables in the model, and reveal the psychological mechanism of meaning of life affecting online game addiction. The meaning of life scale, online game addiction scale, social anxiety scale and sensation seeking scale were used to investigate 1150 subjects. The results show that there is a significant negative correlation between sense of meaning of life and online game addiction. Social anxiety and sensation seeking play a parallel mediating role between sense of meaning of life and online game addiction of college students. High sense of life meaning is the protective factor of college online game addiction, and negatively predicts online game addiction behavior. The research results help to reveal the internal mechanism of the influence of the sense of meaning of life on online game addiction, provide an empirical basis for the verification of relevant theories, and provide a new idea and theoretical basis for the prevention and intervention of online game addiction.

Keywords: Sense of life meaning, online game addiction, social anxiety, sensation seeking, college students

3~5 岁幼儿家庭教育生活刺激的类型及影响因素——基于 CFPS 的潜在剖面分析

郭俊俏[1]　赵必华[1]（通讯作者）　潘俊星[2]
1 安徽师范大学 教育科学学院，安徽芜湖，241000，通讯作者 E-mail: zhaobihua1@sina.com
2 淮北师范大学 学生工作处大学生心理健康教育中心，安徽淮北，235000

摘　要 家庭是儿童社会化的第一场所，家庭教育是儿童社会化的主要手段，识别家庭教育生活刺激的类型是提升家庭教育质量、促进儿童社会化的重要基础。为探究 3~5 岁幼儿家庭教育生活刺激的类型及影响因素，本研究基于中国家庭追踪调查（China Family Panel Studies，CFPS）2018 少儿家长代答问卷和 2018 个

人自答问卷，以 1716 名 3~5 岁幼儿为被试（匹配 2018 个人自答问卷中幼儿的父亲或母亲信息后样本量为 1548 人），采用家庭环境观察量表中的 4 个题项测量幼儿的家庭教育生活刺激。1716 名 3~5 岁幼儿的平均年龄为 4.03 岁（*SD* = 0.80），其中 3 岁、4 岁和 5 岁的幼儿人数分别是 530 人（30.9%）、609 人（35.5%）和 577 人（33.6%）；男生 920 人，女生 796 人；乡村 904 人，城镇 794 人，18 人未填答此信息。1548 名幼儿父母的平均年龄为 31.30 岁（*SD* = 5.16），其中，男性 396 人，女性 1152 人；初中及以下、高中和大学及以上的人数分别为 920 人（59.4%）、307 人（19.8%）和 321 人（20.7%）。采用潜在剖面分析和多项 logistic 回归分析进行数据处理，结果表明，3~5 岁幼儿家庭教育生活刺激的类型可分为“高识字低讲故事组”（13.40%）、“低识字高讲故事组”（12.94%）、“全低组”（23.02%）与“全高组”（50.64%）四种；父亲或母亲受教育水平对 3~5 岁幼儿家庭生活教育刺激的类型具有显著影响，具体表现为随着父母受教育水平的提升，3~5 岁幼儿的家庭教育生活刺激表现为“高识字低讲故事组”、“低识字高讲故事组”和“全高组”的概率越高；城乡类型对 3~5 岁幼儿家庭生活教育刺激的类型具有显著影响，具体表现为城镇幼儿的家庭教育生活刺激表现为“高识字低讲故事组”、“低识字高讲故事组”和“全高组”的概率高于乡村幼儿。总之，3~5 岁幼儿的家庭教育生活刺激可分为 4 种类型，而且幼儿父母的受教育水平和幼儿的城乡类型影响家庭教育生活刺激不同类型的发生率。

关键词 3~5 岁幼儿，家庭教育生活刺激，潜在剖面分析，父母受教育水平，城乡类型

The Types of Life Stimulation in Family Education among Preschoolers Aged 3 to 5 Years and It's Influences: A Latent Profile Analysis Based on CFPS

Guo Junqiao[1], Zhao Bihua[1], Pan Junxing[2]

1. School of Educational Science, Anhui Normal University, Anhui Wuhu 241000, China;
2. Student Affairs Department, Huaibei Normal University, Anhui Huaibei 235000, China

***Abstract*:** Family is the first place for children's socialization, and family education is the main means of children's socialization. Identifying the life stimulation types in family education is an important basis for improving the quality of family education and promoting children's socialization. In order to explore the types and influences of life stimulation in family education among preschools aged 3 to 5 years in China, based on the data of 2018 Child Proxy Questionnaire and 2018 Individual Self-report Questionnaire of China Family Panel Studies, participants were 1716 preschoolers aged 3 to 5 years (the sample of parents of the preschoolers was 1548 in 2018 Individual Self-report Questionnaire of China Family Panel Studies), and the life stimulation in family education was measured with four items in the Home Observation for Measurement of the Environment. The mean age of 1716 children aged 3 to 5 years was 4.03 years (*SD* = 0.80), and the number of children aged 3 years, 4 years, and 5 years was 530 (30.9%), 609 (35.5%) and 577 (33.6%), respectively. Among 1716 preschoolers, the number of male and female preschoolers was 920 and 796, respectively; and the number of preschoolers in rural and urban areas was 904 and 794, respectively, and 18 people did not report this information. The mean age of preschoolers' parents (1548) was 31.30 years old (*SD* = 5.16), and 396 were males and 1152 were females. The number of middle school and below, high school and university and above among preschooler's parents was 920 (59.4%), 307 (19.8%) and 321 (20.7%), respectively. Latent profile analysis and logistic regression were utilized to analyze the data. The results showed that the types of life stimulation in family education among preschoolers aged 3 to 5 years could be classified as "high literacy and low storytelling group" (13.40%), "low literacy and high storytelling group" (12.94%), "all low group" (23.02%) and "all high group" (50.64%). There was a significant difference in

the level of highest education among parents for the types of life stimulation in family education. Specifically, with the improvement of the highest education level of parents, the life stimulation in family education for preschoolers aged 3 to 5 is more likely to be in the range of “high literacy and low storytelling group”, “low literacy and high storytelling group” and “all high group”. There was a significant difference in urban or rural types among preschoolers for the types of life stimulation in family education. Specifically, preschoolers who live in urban families were more likely to be in the range of “high literacy and low storytelling group”, “high storytelling and low literacy group” and “all high group” than preschoolers who live in rural families. In conclusion, life stimulation in family education among preschoolers aged 3 to 5 years can be divided into four types, and the different types are influenced by the level of highest education of children’s parents and children’s urban or rural types.

***Keywords*:** preschoolers aged 3 to 5 years, life stimulation in family education, latent profile analysis, the highest educational level of parents, urban or rural types

Are “night owls” or “morning larks” more likely to delay sleep due to problematic smartphone use? A cross-lagged study among undergraduates

Chengjia Zhao[1], Jiankang He[2], Huihui Xu[2], Jingjing Zhang[3], Guohua Zhang[2,4,5**] Guoliang Yu[6**]

[1] School of Education, Renmin University of China, Beijing 100872, China; zhcj091@126.com

[2] Department of Psychology, School of Mental Health, Wenzhou Medical University, Wenzhou 325035, China; hjk0825@wmu.edu.cn (J.H.); xuhuihuimint@163.com (H.X.); zghcnu@wmu.edu.cn (G.Z.)

[3] School of Nursing, Wenzhou Medical University, Wenzhou, 325035, China; 89275956@qq.com (J.Z.);

[4] Zhejiang Provincial Clinical Research Center for Mental Disorders, The Affiliated Wenzhou Kangning Hospital, Wenzhou Medical University, Wenzhou, 325035, China; zghcnu@wmu.edu.cn (G.Z.)

[5] Key Laboratory of Alzheimer's Disease of Zhejiang Province, Institute of Aging, Wenzhou Medical University, Wenzhou, Zhejiang, China; zghcnu@wmu.edu.cn (G.Z.)

[6] Institute of Psychology, Renmin University of China, Beijing 100872, China; yugllxl@sina.com

Correspondence: Guoliang Yu, Guohua Zhang.

Email: yugllxl@sina.com; zghcnu@wmu.edu.cn

***Abstract*:** Sleep is an important physiological process in life, but "staying up late" has become a "world problem" for contemporary people, particularly among university students. Sleep procrastination is associated with a wide variety of indicators, such as sleep biorhythms and problematic smartphone use. The current study examined the longitudinal reciprocal relationships between problematic smartphone use and sleep procrastination. Furthermore, the research examined sleep biorhythms differences in relationships between those two variables. A total of 1423 Chinese university students participated in the two-wave study. The results found there were reciprocal relationships between problematic smartphone use and sleep procrastination. Additionally, sleep biorhythms moderated the relationships between problematic smartphone use and sleep procrastination (i.e., problematic smartphone use at T1 can significantly predict sleep procrastination at T2 for the morning larks group, whereas

problematic smartphone use at T1 cannot significantly predict sleep procrastination at T2 for the night owls group). The problematic smartphone use and the difference in sleep biorhythms should be taken into account while developing interventions for sleep procrastination

Keywords： problematic smartphone use; sleep procrastination; sleep biorhythms; Chinese university students; cross-lagged study

学龄前儿童近似数量加工和数学能力的关系：加工速度的作用

沈施巧　李可玥　卫薇（通讯作者）

浙江大学心理与行为科学系，杭州，310028，weiwei820@zju.edu.cn

摘 要　近似数量加工和数学能力之间存在着紧密的联系，但是这一关系背后的机制一直未明确。根据加工速度理论，加工速度是驱动更高阶认知能力发展的核心能力。并且，已有研究证明近似数量加工和数学能力均与加工速度存在相关关系。因此，我们假设加工速度作为近似数量加工与数学能力的基础，是二者产生相关的原因。本研究采用横向和纵向两种方法来验证该假设。研究一采用横断研究，测量了 89 名 3～5 岁学龄前儿童的近似数量加工能力、数学能力、加工速度、以及智力和家庭社会经济地位等控制变量。结果发现，在控制了年龄、家庭社会经济地位和智力因素后，近似数量加工能力、数学能力和加工速度三者之间存在显著的相关关系，并且加工速度与数学能力之间的相关程度比近似数量加工与数学能力之间的相关程度更高。但是在控制了加工速度后，近似数量加工和数学能力之间的相关关系不再显著；而在控制了近似数量加工能力后，加工速度与数学能力依然显著相关。研究二采用纵向研究，对研究一中的被试进行追踪，测量了 74 名儿童 6 个月后的数学能力。结果发现，在控制了年龄、家庭社会经济地位和智力因素后，儿童的近似数量加工能力和加工速度可以显著地预测其 6 个月后的数学能力，并且加工速度的预测作用更强。但是在控制了加工速度后，近似数量加工能力对数学能力的预测作用不再显著；而在控制了近似数量加工能力后，加工速度对数学能力的预测作用依然显著。这说明学龄前儿童的加工速度可以解释近似数量加工和数学能力之间的相关关系。并且，相较于近似数量加工能力，学龄前儿童的加工速度对数学能力的作用更重要。

关键词　近似数量加工能力，数学能力，加工速度，学龄前儿童

The association between approximate number system and math abilities in preschoolers: The role of processing speed

Shiqiao Shen　Keyue Li　Wei Wei*

Department of Psychology and Behavioral Sciences, Zhejiang University, Hangzhou

Abstract: Research has shown a close association between approximate number system (ANS) and math abilities; however, the underlying mechanism of the association remains unclear. According to the processing speed theory, processing speed is a central mental capacity that drives changes in higher-order cognition. Meanwhile, processing speed has been observed to be significantly correlated with both ANS and math abilities. Therefore, we proposed that ANS ability correlates with math ability because they both rely on processing speed. This study adopted both cross-sectional and longitudinal designs to examine the hypothesis. Using a cross-sectional design, Study 1 measured ANS ability, math ability, processing speed, and controlled variables including intelligence and family

socioeconomic status in 89 preschoolers aged 3 to 5 years. It was found that after controlling for age, family socioeconomic status, and intelligence, there were significant correlations between ANS ability, math ability, and processing speed, and the correlation between processing speed and math ability was higher than that between ANS and math abilities. However, the correlation between ANS and math abilities was no longer significant after controlling for processing speed, whereas the correlation between processing speed and math ability remained significant after controlling for ANS ability. Study 2 used a longitudinal design to follow the subjects in Study 1, measuring the math ability of 74 preschoolers after 6 months. Results showed that after controlling for age, family socioeconomic status, and intelligence, ANS ability and processing speed significantly predicted math ability 6 months later, and the predicting role of processing speed was more important. However, ANS ability was no longer significant in predicting math ability after controlling for processing speed, whereas processing speed still significantly predicted math ability after controlling for ANS ability. These suggest that preschoolers' processing speed can explain the correlation between ANS and math abilities. Moreover, preschoolers' processing speed may play a more important role than ANS ability in math ability.
Keywords：approximate number system ability, math ability, processing speed, preschoolers

儿童期虐待会在纵向上影响探索吗？一个有调节的中介效应模型

申曦　王金良（通讯作者）
西南大学心理学部，重庆，400715，通讯作者：wjl200789@163.com

摘 要　探索，关注信息寻求但伴随着潜在的负面可能性，在青少年的心理健康和社会适应中发挥着重要作用。鉴于儿童期虐待会对个体产生广泛而持久的影响，人们对这些早期生活中的不良经历与这种适应性行为间的纵向关系知之甚少。因此，本研究旨在考察儿童期虐待是否会阻碍以后的探索，以及不确定性压力的中介作用和不确定性不容忍的调节作用。采用两个时间点的纵向设计，被试为 685 名青少年（$M_{年龄}$ = 15.99, $SD_{年龄}$ = 0.92, 43.5% 女性），测量的时间跨度为 6 个月。相关分析结果表明，儿童期虐待与探索仅在横向水平上呈显著正相关，却在纵向水平上不相关。在控制年龄和性别后，T2 的不确定性压力在 T1 儿童期虐待与 T2 探索间起完全中介作用。T1 的不确定性不容忍除了负向调节 T1 儿童期虐待与 T2 探索间的直接效应外，也正向调节 T2 不确定性压力中介 T1 儿童期虐待与 T2 探索这一中介路径的第一阶段。由于不确定性压力的关键作用，为促进这些受虐待青少年进行更多的积极探索，需要相应的认知和行为干预来调整他们对不确定性的感知和认知。
关键词　儿童期虐待，探索，不确定性压力，不确定不容忍，纵向有调节的中介效应模型

Does childhood maltreatment longitudinally impede exploration? A moderated mediation model

Xi Shen　Jin-Liang Wang
Faculty of Psychology, Southwest University, Chongqing, 400715, China

Abstract：Exploration, focused on information seeking but accompanied underlying negative possibilities exert

an essential function in the psychological and social adaptation of adolescents. As childhood maltreatment would have wide-ranging and long-lasting impacts on individuals, little was known about the longitudinal relationship between these early life adverse experiences and this adaptive behavior. Therefore, the present study aimed to examine whether childhood maltreatment would impede later exploration, and the mediating role of uncertainty stress and the moderating role of intolerance of uncertainty. Participants were 685 adolescents from a longitudinal design with two- time waves spanning six months (M age = 15.99, SD age = 0.92, 43.5% female). Correlation analysis indicated that childhood maltreatment was negatively correlated with exploration only simultaneously, but not longitudinally. After controlling age and gender, uncertainty stress fully mediated the relationship between childhood maltreatment and subsequent exploration. Besides negatively moderated this direct association, intolerance of uncertainty also positively moderated the first-stage of uncertainty stress mediating the relationship between childhood maltreatment and subsequent exploration. Given the critical role of uncertainty stress, promoting more exploration among these maltreated adolescents requires corresponding cognitive and behavioral interventions to adjust their perception and cognition of uncertainty.

Keywords： childhood maltreatment, exploration, uncertainty stress, intolerance of uncertainty, a longitudinal moderated mediation model

青少年孤独感和社交焦虑的共发：一项网络分析

陈嘉慧[1]　任萍[1]（通讯作者）

1 北京师范大学中国基础教育质量监测协同创新中心，北京，100875

通讯作者 E-mail：renping@bnu.edu.cn

摘 要　**背景：**研究发现，孤独感和社交焦虑之间存在共病关系。然而，大多数研究都依赖于潜在变量模型（即计算症状得分来代表孤独感和社交焦虑），忽视了不同障碍的症状之间的相互关系。网络分析认为心理障碍的症状之间存在复杂的交互作用,将心理障碍看作症状之间相互作用的结果,为理解孤独感和社交焦虑共病提供了新的视角。本研究拟采用网络分析的方法，考察青少年孤独感和社交焦虑的共发网络以及同伴关系（互选友谊数量、友谊质量、同伴侵害）对其网络的影响。**方法：**本研究采用自我报告的儿童孤独感问卷、青少年社交焦虑问卷、修订的 Olweus 受欺凌问卷、友谊质量问卷以及同伴提名的友谊数量，对中国中部省份某城市 2601 名中学生进行了问卷调查。**结果：**结果表明认知相关的症状（如，担心见新朋友、认为交朋友很难、害怕被拒绝、害怕被朋友取笑在孤独感和社交焦虑共发网络中有高桥梁中心性。此外，友谊质量与孤独感症状之间呈现负相关；同伴侵害与社交焦虑之间呈现正相关；而互选友谊数量与社交焦虑之间呈现负相关。**结论：**研究结果为青少年孤独感和社交焦虑症状的共病提供了初步证据。研究结果还强调了针对同伴关系的措施对于预防和干预孤独和社交焦虑症状的共发具有重要作用。

关键词　孤独感，社交焦虑，同伴关系，网络分析，青少年

Comorbidity Between Loneliness and Social Anxiety in Adolescents: Bridge Symptoms and Peer Relations

Jiahui Chen[1]　Ping Ren[1] *

1 Collaborative Innovation Center of Assessment toward Basic Education Quality, Beijing Normal University, 100875

***Abstract*:**

Background: Loneliness and social anxiety often co-occurs during adolescence. However, previous research investigating the comorbidity between loneliness and social anxiety symptoms in population samples has relied on latent variable modeling in which averaged scores representing dimensions were derived from observed symptoms. The network approach provided a novel perspective to explore loneliness and social anxiety symptoms as a causal system of interacting symptoms. Therefore, this study extended beyond prior work to explore the comorbidity between loneliness and social anxiety and its relations to peer relations (i.e., bullying victimization and friendship quality and the number of reciprocated friends), using network analysis. **Methods:** We aimed to address this gap by performing a network analysis in a sample of Chinese adolescents (N=2601, 51.6% male). Participants completed the self-report measures of Children's Loneliness Scale, Social Anxiety Scale for Adolescents, the Bully/Victim Questionnaire and Friendship Quality Questionnaire as well as peer nomination measures of the number of reciprocated friends. Results: Network analysis revealed that cognitive-related symptoms (i.e., worry about meeting new friends, hard to making new friends, fear of being made fun, fear of being rejected) were bridge symptoms in the co-occurrence between loneliness and social anxiety. Bullying victimization had positive associations and friendship quality had negative associations with symptoms of loneliness and social anxiety. Conclusions: Findings provide preliminary evidence of the comorbidity between loneliness and social anxiety symptoms in adolescents. The results also highlight the potential importance of targeting peer relations in preventing and intervening the comorbidity of loneliness and social anxiety symptoms.

***Keywords*:** Loneliness, Social anxiety, Peer relations, Network analysis, Adolescents

考试焦虑青少年的威胁解释偏差：气质的调节作用

白舒靓[1]　刘沛兵[1]　周仁来[1,2]（通讯作者）

1 南京大学心理系，南京，210023

2 媒体融合生产技术与系统国家重点实验室，北京，100803

摘 要　威胁解释偏差是指个体在面对不确定的情境时倾向于以威胁或负面方式解释其含义的倾向。这种偏差与焦虑症状的形成密切相关，然而对于威胁解释偏差在考试焦虑产生中的作用的研究相对较少。本研究的目标是探究考试焦虑的青少年中威胁解释偏差的存在，并研究气质对其的调节作用。研究采用了 1210 名年龄在 10 至 14 岁之间的青少年作为研究样本，并使用了模糊情境问卷来测量威胁解释偏差、预期负性情绪和控制感。研究结果显示，相较于低考试焦虑的青少年，高考试焦虑的青少年在考试相关和无关情境下更容易出现威胁解释偏差，并表现出更多的负性情绪和较低的控制感。此外，消极情绪和意志控制在考试焦虑水平和威胁解释偏差之间起到调节作用。具体来说，意志控制水平能够预测低考试焦虑的青少年在考试相关情境中的威胁解释偏差和负性情绪，但却无法预测高考试焦虑的青少年中的这些变量。另一方面，消极情绪对于低考试焦虑的青少年在考试相关情境中威胁解释偏差的影响更为显著。这些研究结果对于进一步研究如何干预考试焦虑提供了重要的启示。它们有助于我们更深入地了解威胁解释偏差在考试焦虑中的作用，并为开展干预措施提供了指导。

关键词　考试焦虑，威胁解释，意志控制，消极情绪

Threat Interpretation Bias in Adolescents with Test Anxiety: The Moderating Role of Temperament

Shuliang Bai[1], Peibing Liu[1], Renlai Zhou[1,2]

1 Department of Psychology, Nanjing University, Nanjing 210023, China.
2 State Key Laboratory of Media Convergence Production Technology and Systems, Beijing 100803, China.

Abstract：Threat interpretation bias refers to the tendency of individuals to interpret ambiguous situations in a threatening or negative manner. This bias is closely associated with the development of anxiety symptoms; however, research on the role of threat interpretation bias in the formation of test anxiety is relatively limited. The aim of this study was to investigate the presence of threat interpretation bias in adolescents with test anxiety and examine the moderating effect of temperament. A sample of 1210 adolescents aged 10 to 14 years was recruited, and a questionnaire on ambiguous situations was used to measure threat interpretation bias, anticipated negative emotions, and perceived control. The results revealed that compared to adolescents with low test anxiety, those with high test anxiety were more prone to exhibit threat interpretation bias and display higher levels of negative emotions and lower levels of perceived control in both test-related and unrelated situations. Additionally, negative emotions and effortful control played a moderating role in the relationship between test anxiety level and threat interpretation bias. Specifically, effortful control predicted threat interpretation bias and negative emotions in adolescents with low test anxiety in test-related situations, but not in those with high test anxiety. Conversely, negative affectivity had a more significant impact on threat interpretation bias in adolescents with low test anxiety in test-related situations. These findings provide important insights for further understanding the role of threat interpretation bias in test anxiety and offer guidance for the development of intervention strategies.

Keywords：test anxiety, threat interpretation, effortful control, negative affectivity

大学生童年创伤经历与非自杀性自伤的关系：表达抑制与奖赏敏感性的作用

孙晨哲[1,2] 曹华[1] 杨玲[3]（通讯作者）
1 西北师范大学心理学院，兰州，730070
2 郑州铁路职业技术学院学生工作部，郑州，450000
3 西北师范大学心理学院，兰州，730070，yangling@nwnu.edu.cn

摘 要 非自杀性自伤(NSSI)是导致年轻人死亡的主要原因，已成为一个重要的公共卫生问题。以往研究发现，20 岁左右是 NSSI 问题出现的高峰年龄之一，我国大学生中 NSSI 的检出率处于较高水平，近年来备受研究者关注。本研究基于 NSSI 整合模型与人格生物理论构建有调节的中介模型，以探讨大学生童年创伤经历对 NSSI 的影响，并进一步检验表达抑制的中介作用与奖赏敏感性的调节作用。采用童年创伤问卷、非自杀性自伤行为问卷、情绪调节量表与行为抑制/激活系统量表对 630 名大学生进行问卷调查。结果发现：(1)大学生童年创伤经历对 NSSI 具有正向预测作用，表达抑制在童年创伤经历与 NSSI 见起中介作用；(2)

奖赏敏感性在中介模型中起到了调节作用，但其不同过程所产生的调节作用效果不同，奖赏反应削弱了童年创伤对 NSSI 的直接正向影响与表达抑制对 NSSI 正向影响(中介模型后半段)，而奖赏愉悦寻求加强了表达抑制对 NSSI 的正向影响(中介模型后半段)。具体而言，童年不良经历不仅能够直接影响大学生 NSSI，还可以通过促进其情绪的表达抑制策略对 NSSI 产生间接影响；但仅在低奖赏反应大学生中存在童年创伤对 NSSI 的直接与间接影响，而高奖赏反应大学生中这种影响并不显著；且仅在高奖赏愉悦寻求大学生中存在童年创伤对 NSSI 的间接影响，而低奖赏愉悦寻求大学生中间接影响不显著。本研究不仅进一步探索了导致大学生 NSSI 的心理因素与形成路径，明确了路径的起效条件，同时推进了对以往奖赏敏感性在这一过程中矛盾作用结果的深入理解。基于此，本研究启示我们在进行 NSSI 干预时需要关注童年创伤的重要作用，同时针对奖赏反应低、奖赏愉悦寻求高的童年创伤大学生：一方面，改善其情绪调节方式，鼓励其情绪表达；另一方面，开展积极心理训练以改善奖赏系统失衡，从而降低其 NSSI 行为风险，预防校园心理危机事件的发生。
关键词 非自杀性自伤；童年创伤；表达抑制；奖赏敏感性

Relationship Between Childhood Trauma and Non-Suicidal Self-Injury in College Students: The Role of Expressive Suppression and Reward Sensitivity

Sun Chenzhe[1,2] Cao Hua[1] Yang Ling[3]

1 school of Psychology, Northwest Normal University,Lanzhou, 730070

2 Students' Affairs Office, Zhengzhou Railway Vocational & Technical College, Zhengzhou, 450000

3 school of Psychology, Northwest Normal University,Lanzhou, 730070, yangling@nwnu.edu.cn

Abstract: Non-suicidal self-injury (NSSI) is one of the leading causes of death in young people and has become a major public health problem. Previous studies have found that around 20 is one of the peak ages for the emergence of NSSI problems, and the detection rate of NSSI among college students in China is at a high level, so it has received much attention from researchers in recent years. This study constructs a mediated moderation model based on the NSSI integration model and the biological theory of personality, to explore the effect of childhood trauma on NSSI in college students and test the mediating effect of expression suppression and the moderating effect of reward sensitivity. A total of 630 college students were surveyed using the Childhood Trauma Questionnaire, the NSSI Behavior Questionnaire, the Emotion Regulation Scale and the Behavior Inhibition / Activation System Scale. The results showed that: (1) College students' childhood trauma positively predicted NSSI, and expression inhibition mediated the relationship between childhood trauma and NSSI; (2) The different processes in reward sensitivity played different moderated roles in the mediation model, reward response impaired the direct positive effect of childhood trauma on NSSI and the positive effect of expression suppression on NSSI (the second half of the mediation model), reward pleasure seeking strengthened the positive effect of expression suppression on NSSI (the second half of the mediation model). Specifically, Childhood trauma not only directly positive predicted NSSI, and had indirect predict NSSI via expression suppression; however, the direct and indirect effects of childhood trauma on the NSSI were only present in low reward-responsive college students, not high reward-responsive college students; and the indirect effects of childhood trauma on the NSSI were only present in high reward pleasure seeking college students, not low reward pleasure seeking college students. The present study

not only further explored the psychological factors and formative pathways that lead to college students' NSSI, but also clarified the conditions under which the pathways take effect, while advancing a deeper understanding of the previous conflicting results of reward sensitivity in this process. Based on this, the present study reveals college students' NSSI interventions need focus on the important role of childhood trauma. For college students who experienced childhood trauma with low reward response and high reward pleasure seeking: on the one hand, improve their emotion regulation, encourage their emotion expression; on the other hand, carry out positive psychology training to improve the imbalance of the reward system, so as to reduce the risk of their NSSI behaviors, and to prevent the occurrence of campus psychological crisis events.
Keywords: Non-suicidal self-injury；Childhood trauma；Expressive suppression；Reward sensitivity

基于 CNKI 的我国高校心理辅导研究可视化分析

李楠

西北师范大学　教育科学学院，甘肃 兰州 730070，linan@lzu.edu.cn

摘 要　高校心理辅导工作关乎青年学生健康成长，是心理辅导工作的重要组成部分，高校培养人才更加为高校心理辅导工作赋予了特殊的意义。本文利用 SATI3.2、UCINET6、SPSS20.0 等软件对中国知网中有关高校心理辅导的研究论文进行了分析和解读，采用数学与统计学方法，通过绘制知识图谱和聚类树状图来显示高校心理辅导相关研究的知识特征、结构和研究前沿领域。学者们分别从高校心理辅导的对象、方式、效果、对策等不同角度开展了研究，对进一步做好新时期高校心理辅导工作提供了理论支持。但研究也存在一些不足，一方面，较少有学者将新时代新形势和学生的新特点与高校心理辅导工作相结合进行研究；另一方面，高校心理辅导的形式有待创新，效果有待检验。高校心理辅导相关研究热点概况为五个：一是大学生朋辈心理辅导；二是思想政治教育与心理辅导；三是就业心理辅导；四是团体心理辅导；五是贫困生心理辅导。本文还对高校心理辅导的研究趋势进行了讨论，归纳出三类研究方向，未来可以进行深入研究。随着“互联网+”时代的到来，高校心理辅导工作面临着新的挑战，如何更好地利用网络资源开展心理辅导？如何充分利用信息通信技术和互联网平台，将高校心理辅导工作与互联网进行深度融合，努力提升高校心理辅导工作水平，是一项亟待研究的重要课题。

关键词　高校，心理辅导，可视化分析

Visualization analysis of psychological counseling research in Chinese universities based on CNKI

Nan Li

School of Education Science, Northwest Normal University, Lanzhou 730070, Gansu, linan@lzu.edu.cn

Abstract：Psychological counseling work in universities is related to the healthy growth of young students and is an important component of psychological counseling work. Cultivating talents in universities has given special significance to psychological counseling work in universities. In this paper, SATI3.2, UCINET6, SPSS20.0 and

other software are used to analyze and interpret the research papers on college psychological counseling in CNKI. Using mathematical and statistical methods, Knowledge graph and cluster tree graph are drawn to show the knowledge characteristics, structure and research frontiers of college psychological counseling related research. Scholars have conducted research from different perspectives such as the objects, methods, effects, and strategies of psychological counseling in universities, providing theoretical support for further improving the work of psychological counseling in universities in the new era. However, there are also some shortcomings in the research. On the one hand, few scholars have combined the new situation of the new era and the new characteristics of students with the psychological counseling work in universities for research; On the other hand, the forms of psychological counseling in universities need to be innovated, and the effectiveness needs to be tested. There are five research hotspots related to psychological counseling in universities: firstly, peer psychological counseling for college students; Secondly, ideological and political education and psychological counseling; Thirdly, employment psychological counseling; Fourth, group psychological counseling; The fifth is psychological counseling for impoverished students. This article also discusses the research trends of psychological counseling in universities and summarizes three types of research directions, which can be further studied in the future. With the arrival of the "Internet plus" era, college psychological counseling is facing new challenges. How can we make better use of network resources to carry out psychological counseling? How to fully utilize information and communication technology and internet platforms, deeply integrate college psychological counseling work with the internet, and strive to improve the level of college psychological counseling work is an important issue that urgently needs to be studied.

Keywords：Universities, psychological counseling, visual analysis

多维度视角下的父母心理控制与学前儿童问题行为：儿童外倾性和性别的调节作用

程雪林 邢淑芬（通讯作者）

首都师范大学心理学院，北京，100048，E-mail:xsf2986@163.com

摘 要　大量研究表明父母心理控制是儿童问题行为的重要风险因素。然而，相关研究忽视了心理控制的多维性，混淆了心理控制不同维度对儿童问题行为的独特影响。近年来，爱的撤回和引发内疚两种典型的心理控制策略与儿童问题行为的关系得到关注，但相关研究仍存在一些局限性。一是集体主义文化背景下的研究较少，同时缺乏对学前儿童群体的关注；二是儿童特征在父母爱的撤回、引发内疚与儿童问题行为之间的调节作用尚不清楚。解决以上两项问题将有助于提高儿童问题行为早期干预的针对性。因此，本研究在中国集体主义文化背景下，基于心理控制的多维度视角，深入考察父母爱的撤回、引发内疚与学前儿童问题行为的独特关系，并进一步探究儿童外倾性和性别对上述关系的共同调节作用。

研究采用方便取样的方式选取 480 名学前儿童（男孩 267 名，M_{age} = 4.54 岁）及其父母为研究对象。使用问卷法收集变量数据。在数据分析阶段，采用 SPSS 25.0 对研究的主要变量进行描述性统计分析，采用 M*plus* 8.0 进行结构方程模型分析、简单斜率分析和 Johnson-Neyman 分析。研究结果显示：（1）母亲爱的撤回显著正向预测儿童内、外化问题，父亲爱的撤回显著正向预测儿童内化问题。外倾性和母亲爱的撤回的交互项显著预测儿童外化问题，当儿童的外倾性得分高于–1.13*SD* 时，母亲爱的撤回显著正向预测儿童外化问题，儿童的外倾性越高，预测作用越强；（2）父亲、母亲引发内疚对儿童内、外化问题的主效应均不显著，但外倾性和父亲引发内疚的交互项显著预测儿童外化问题，当儿童外倾性得分高于 0.45*SD* 时，父亲引发内疚显著负向预测儿童外化问题，儿童外倾性越高，预测作用越强；（3）上述结果均不存在儿童性别差异。研究结果表明，在中国集体主义文化背景下，爱的撤回相较于引发内疚是更需要被规避的教养

方式，高外倾性儿童更易受到母亲爱的撤回的消极影响和父亲引发内疚的积极影响。

关键词　爱的撤回，引发内疚，问题行为，外倾性，性别

The relationship between parental psychological control and preschoolers' problem behaviors based on a multidimensional perspective: The moderating role of preschooler's surgency and gender

CHENG Xuelin　XING Shufen (Corresponding author)
College of Psychology, Capital Normal University, Beijing, 100048, E-mail: xsf2986@163.com

Abstract: A large number of studies have demonstrated that parental psychological control is a significant risk factor for children's problem behaviors. However, these studies focus on unidimensional psychological control, confusing the different effects of different dimensions of psychological control on children's problem behaviors. In recent years, love withdrawal and guilt induction, as typical strategies of psychological control, have received attention in their association with children's problem behaviors. Nevertheless, there are still several limitations in the existing research. On the one hand, research conducted in collectivism culture and in preschoolers is limited. On the other hand, it is still unclear how child characteristics moderate the relationship between parental love withdrawal (and guilt induction) and children's problem behaviors. Addressing these two issues will greatly contribute to the targeted early intervention for children's problem behaviors. Therefore, the current study was aimed to take a dimensional approach to examine whether parental love withdrawal and guilt induction were related to preschoolers' problem behaviors. And then, the joint moderating effects of preschoolers' surgency and gender on the above associations were further explored.

In this study, 480 preschoolers (267 boys, *M*age = 4.54 years old) and their parents were selected by convenient sampling method. The data were collected using questionnaires. In the data analysis, descriptive statistical analyses of the main variables were performed using SPSS 25.0. Structural equation model analyses, simple slope analyses, and Johnson-Neyman analyses were conducted by M*plus* 8.0. The results showed that (1) maternal love withdrawal significantly and positively predicted preschoolers' internalizing and externalizing problems, while paternal love withdrawal significantly and positively predicted preschoolers' internalizing problems. What's more, the interaction item (maternal love withdrawal × surgency) significantly predicted preschoolers' externalizing problems. Specifically, when the score of preschoolers' surgency was higher than –1.13*SD*, maternal love withdrawal significantly and positively predicted preschoolers' externalizing problems. And the higher the preschoolers' surgency, the stronger this association. (2) The main effects of paternal and maternal guilt induction on preschoolers' internalizing and externalizing problems were not significant. However, the interaction term of surgency and paternal guilt induction significantly predicted preschoolers' externalizing problems. When the score of preschoolers' surgency was higher than 0.45*SD*, paternal guilt induction significantly and negatively predicted preschoolers' externalizing problems. And the higher the preschoolers' surgency, the stronger this association. (3) There was no gender difference in the above results. The findings of this study indicate that, in the context of collectivism culture in China, love withdrawal should be avoided compared to guilt

induction. Furthermore, children with high surgency are more susceptible to the negative impact of maternal love withdrawal and the positive impact of paternal guilt induction.
Keywords: love withdrawal, guilt induction, problem behavior, surgency, gender

亲子关系凌驾于夫妻关系之上？父母离间行为对青少年内化问题行为的影响

王堃炎 张天羽 刘明东 张向葵（通讯作者）
东北师范大学心理学院，长春，130024，zhangxiangkui@126.com

摘 要 目的：父母离间行为是指离间父母通过思想灌输、行为控制等方式，诱导孩子对目标父母无理由的恐惧、憎恨及排斥，具体而言就是一方父母（离间父母）以孤立另一方父母（目标父母）为目的，而对孩子进行的心理操纵。父母离间行为是父母婚姻冲突的方式，其结果是影响青少年心理健康和人格的正常发展。以往研究结果表明，父母离间行为是青少年内化问题行为的风险因素，但是对其两者之间的潜在作用机制及其在中国文化背景下是否一致尚不清楚。本研究将探讨父母离间行为对青少年内化问题行为的影响，以及亲子依恋的中介作用和社会支持的调节作用之间的关系。方法：研究采用父母离间行为量表、亲子依恋量表、社会支持量表和青少年内化问题行为量表对 629 名中学生进行调查研究。结果：（1）父母离间行为显著正向预测青少年内化问题行为；（2）亲子依恋在父母离间行为与青少年内化问题行为之间起中介作用；（3）社会支持在父母离间行为影响青少年内化问题行为的直接路径中起调节作用，即在社会支持水平较低的个体中，父母离间行为对青少年内化问题行为的影响更大。结论：父母离间行为通过影响青少年亲子依恋进而影响其内化问题行为，父母离间行为对低社会支持青少年的内化问题行为影响更大。保护儿童不受伤害不仅是儿童自身的发展任务，而且是整个家庭、社会系统的责任。任何形式的儿童虐待都是不可接受的，父母离间行为也不例外。对此，我们建议父母应当树立家庭教育的责任主体，提高共同抚养意识，改变家庭教育游离于受教育权范围之外，同时充分发挥社会支持在化解家庭危机的积极作用。
关键词 父母离间行为，亲子依恋，社会支持，内化问题行为，青少年

音段内和超音段语音意识对单词阅读的影响——汉语母语者和英语母语者的对比研究

姜莹[1]，盖笑松[1,2]（通讯作者）,Jenny Thomson[3]
1 东北师范大学心理学院，长春，130024
2 吉林省普通高等学校人文社会科学重点研究基地东北师范大学心理健康教育研究中心，长春，130024
通讯作者 Email: gaixs669@nenu.edu.cn
3 谢菲尔德大学人类语言交际科学学院，谢菲尔德 S10 2TS, 英国

摘 要 语音意识是指人们感知和操纵口语声音结构的能力。大量证据表明，以拼音文字为母语的人，音段内语音意识和超音段语音意识水平与其阅读技能密切相关。然而，这些关系是否存在于以英语为第二语言的汉语母语者中尚不清楚。此外，音段内和超音段语音意识对于汉语母语者在英语单词阅读中的相对贡献尚未明确。本研究旨在考察英语母语成人和汉语母语成人中，英语音段内和超音段语音意识与单词阅读

和假词阅读之间的联系。在英国和中国招募了年龄匹配的参与者共 150 人，让他们在一个时间点完成了音段内和超音段英语语音意识测试、假词重复测试、快速命名测试以及英语词汇测试。本研究有三个主要发现。首先，音段内语音意识（删除和假词分割）和超音段语音意识（听觉后缀判断和书面后缀判断）与汉语母语成年人的英语真词和假词阅读有显著的相关关系，但这些关系在英国母语成年人中未被发现。在英语母语者中，只有假词分割和假词阅读之间显著相关。其次，在控制了假词重复、快速命名和词汇能力的影响后，超音段语音意识对中国成年人真词阅读的发展影响大于音段内语音意识。第三，在控制了假词重复、快速命名和词汇能力的影响后，汉语母语成人的音段内语音意识对假词阅读的影响大于超音段语音意识。以上结果表明，在汉语母语成人的单词阅读和假词阅读发展中，音段和超音段语音意识起着不同的作用。过去，超音段语音意识的影响在很大程度上被忽视了。本研究解释了汉语母语背景对英语学习的潜在影响，其结果对以象形文字为母语的成人在第二语言读写能力的提升方面具有重要的教育启示。
关键词　语音意识，音段内和超音段，单词阅读，假词阅读，第二语言

The Influence of Segmental and Suprasegmental Phonological Awareness on Word Reading—A Comparison Between Native English Speakers and Native Chinese Speakers of English

Ying Jiang[1] Xiaosong Gai[1,2*] Jenny Thomson[3]

1 School of Psychology, Northeast Normal University, Changchun 110024, China

2 Key Research Base of Humanities and Social Sciences of Higher Education in Jilin Province, Center of Mental Health Education and Research, Northeast Normal University, Changchun 110024, China

3 Department of Human Communication Sciences, University of Sheffield, Sheffield S10 2TS, UK

Abstract: Phonological awareness (PA) refers to people's ability to perceive and manipulate the sound structure of a spoken word. Extensive evidence has revealed that segmental PA and suprasegmental PA are closely related to reading skills in native speakers learning to read an alphabetic script such as English. However, whether these relations exist among native Chinese speakers (NCS) of English is less clear. Moreover, the relevant contributions of segmental and suprasegmental PA to word reading are as yet uncharacterized in NCS. This study examined the links between English segmental/suprasegmental PA and word reading/pseudoword reading in native English and Chinese adults. Age-matched participants recruited in the UK and China completed both segmental and suprasegmental English PA assessments along with non-word repetition, rapid naming, and English vocabulary assessments at a single time point. There are three main findings. First, both segmental PA (elision and segmenting nonword) and suprasegmental PA (aural suffix judgment and written suffix judgment) were found to be significantly related to native Chinese adults' English real word and pseudoword reading, but these relations were found in native British adults'. Only segmenting nonwords and pseudoword reading correlated significantly in NES. Second, suprasegmental PA affected Chinese adults' real word reading development more than segmental PA, independent of non-word repetition, rapid naming, and vocabulary. Third, NCS's segmental PA ability had a greater impact than suprasegmental PA on pseudoword reading after controlling for non-word repetition, rapid naming, and vocabulary. The results suggest that segmental PA and suprasegmental PA play different roles in NCS's word reading and pseudoword reading development. The impact of suprasegmental PA has been largely

ignored in the past. This study explains the potential impact of a native language background in Chinese characters on English learning, and the findings may have significant educational implications for enhancing second language literacy skills in adults within a logographic setting.
Keywords：phonological awareness, segmental and suprasegmental, word reading, pseudoword reading, second language

父母教育期望如何影响青少年学业成绩？--基于 CFPS 数据的实证分析

王芳[1]（通讯作者）
[1]西安交通大学人文社会科学学院，西安，710049

摘 要　本研究探讨了父母教育期望对子女学业成绩的影响及其中的内在机制（父母教育投资和子女学习参与）。研究结论表明，父母教育投资和子女学习投入是父母教育期望影响子女学业成绩的两个重要中介变量。父母教育期望越高，他们为子女支付的直接和间接学费和补习费用就越高。更为重要的是本研究结果表明，父母对青少年的学业辅导和青少年自身的学习参与对其学业成绩有显著的正向影响，而课外补习则对青少年学业成绩的提高没有显著影响。对中介效应的 Bootstrap 估计结果也表明，与父母教育投资相比，父母教育期望对子女学习投入的中介效应相对更高。研究局限、影响及政策建议也进行了讨论。
关键词　父母教育期望，青少年学业成绩，学习参与，教育投资

How do parental education expectations influence youth academic achievement?

-------Evidence from China Education Panel Survey

Wang Fang[1]

[1]School of Humanities and Social Sciences, Xi'an Jiaotong University, No.28 Xianning W. Rd, Beilin District, Xi'an City, Shaanxi, Peoples R China. 710049

Abstract: This study examined the impact of parental education expectation on children's academic achievements, and the internal mechanisms (parents' educational investment and children's learning engagement) involved. We found that parents' educational investment and children's learning engagement are two important mediating variables through which parents' educational expectations affect their children's academic achievements. The higher the expectations, the higher the direct and indirect tuition and training costs parents must pay for their children. Academic counselling for parents and children's learning engagement was found to have a significant positive effect on academic achievement, while no significant improvement was found from tutoring. Bootstrap estimations of the mediation effects also showed that parental education expectations had a relatively higher mediating effect on children's learning input than did parental education investment. Limitations and implications are discussed.

Keywords：Parental education expectation, Children's academic achievement, Learning engagement, Education investment

孰因孰果？ 青少年身体不满意和限制性饮食的纵向追踪

张天羽[1]，王堃炎[1]，顾婷玉[1]，张亚利[2]，刘明东[1]，张向葵[1]（通讯作者）

1 东北师范大学心理学院，长春，130024，通讯作者 E-mail：zhangxiangkui@126.com

2 河北师范大学教育学院，石家庄，050024

摘 要 **背景：**身体不满意和限制性饮食是肥胖心理学及饮食失调研究领域中的热点问题之一。两者在青少年群体中经常同时出现，但它们之间的时间关系尚不明晰。已有研究大多是通过横断取样在西方文化背景下开展的,所得到的研究结果可能不具有良好的稳定性,也不具有较强的准因果关系,而且不能推广到中国青少年群体中。**目的：**基于三重影响模型和目标矛盾理论，考察中国青少年身体不满意与限制性饮食的准因果关系。**方法：**采用身体不满意量表、限制性饮食量表对 672 名青少年（358 名女孩，平均年龄=14.33±0.94）进行 3 个时间点的追踪测量，每次间隔 5 个月。**结果：**（1）方差分析结果显示，身体不满意的时间主效应、性别主效应以及交互效应均不显著；限制性饮食的时间主效应、性别主效应显著，交互效应不显著；（2）相关分析表明，身体不满意与限制性饮食的同时性和继时性相关显著；（3）交叉滞后分析发现，前期的身体不满意均能显著预测后期的限制性饮食行为，反之亦然。**结论和意义：**青少年的身体不满意和限制性饮食行为互为因果。这一发现不仅为在中国背景关于身体不满意和限制性饮食方面的研究提供了参考，而且对减少青少年身体不满意和限制性饮食提供了实证性依据和支持：一方面，心理健康和临床工作者可通过专业的心理训练来改善青少年对自身身体的病态认知、情感和评价。另一方面，学校和相关教育部门也要警示青少年莫要乐此不疲地通过控制饮食来减肥塑性，由此获得的可能并非是一劳永逸的美丽，而是走进了"限制性饮食—身体不满意—限制性饮食"这一相互缠绕、难解难分的"怪圈"。

关键词 青少年，身体不满意，限制性饮食，交叉滞后分析

自我损耗对个体欺骗行为的影响：共情的调节作用

王蔚晨[1] 王静[2] 王海英[1]（通讯作者）

1 东北师范大学心理学院，长春，130024

2 成都市第十二中学初中部，成都，610000

1 东北师范大学心理学院，长春，130024，wanghy178@nenu.edu.cn

摘 要 欺骗行为是指个体有意图通过言语或非言语的方式操纵他人错误信念的行为，包括利他欺骗行为与利己欺骗行为两类。已有研究表明个体在不同情境中做出这两种欺骗行为的倾向性不同。自我控制是个体的重要品质，其水平影响个体道德行为，如欺骗行为。自我控制资源模型认为自我控制过程需要消耗心理资源。自我损耗则是指在自我控制活动后，由于能量耗竭而引起的执行功能下降的状态。但是自我损耗的不良后效可通过所诱导的积极情绪或个体的亲社会人格特征等得到缓解。已有研究表明自我损耗促进个体利己欺骗行为并抑制利他欺骗行为产生。根据共情—利他主义假设，共情抑制个体利己动机激活利他动机。因此本研究推测，共情可缓解自我损耗对欺骗行为的影响，并设计了两个行为实验对这一推测进行探索。研究一首先采用《人际关系指针量表》测量被试特质共情水平，而后采用改编的划"e"任务操纵被试自我损耗水平，并采用"找不同"任务测量被试在高低自我损耗状态下产生的利他和利己欺骗行为次数，考察

特质共情在自我损耗与个体欺骗行为间的缓解作用。研究二在自我损耗任务（同研究一）后利用视频诱发被试状态共情，并对其产生的利他和利己欺骗行为次数进行测量，考察状态共情在自我损耗与个体欺骗行为间的缓解作用。结果表明：(1)高自我损耗状态下的个体产生的利己欺骗行为显著高于利他欺骗行为，低自我损耗状态下个体做出的利己欺骗行为显著低于利他欺骗行为;(2)自我损耗负向预测个体利他欺骗行为，正向预测个体利己欺骗行为，具体而言，高自我损耗组的被试比低自我损耗组的被试做出更多的利己欺骗行为和更少的利他欺骗行为；(3)状态共情在自我损耗与个体欺骗行为间起到调节作用，特质共情调节作用不显著。
关键词　自我损耗，利他欺骗行为，利己欺骗行为，特质共情，状态共情

The Effects of Ego Depletion on Individuals' Deception: the Moderating Role of Empathy

Wang Weichen[1], Wang Jing[2], Wang Haiying[1*]
1 School of Psychology, Northeast Normal University, Changchun, 130024
2 Chengdu No. 12 Middle School, Chengdu, 610000
1 School of Psychology, Northeast Normal University, Changchun, 130024,
wanghy178@nenu.edu.cn

Abstract：Deception refers to the behavior that individuals have the intention to manipulate the false beliefs of others through verbal or non-verbal means, including altruistic deception and self-interested deception, and previous studies have shown that individuals have different tendencies to engage in these two deception in different situations. Self-control is an individual's important quality and ability, and its level affects moral behavior of individual, such as deception. The Self-control strength model believes that the process of self-control needs to consume psychological resources, while ego depletion refers to the state of energy exhausted which reduce the performance of executive function after self-control. However, the adverse aftereffects of ego depletion can be alleviated by positive emotions or individual prosocial personality. Previous studies have shown that ego depletion promotes self-interested deception and suppresses altruistic deception. According to the empathy-altruistic hypothesis, empathy suppresses individual self-interested motivation and activates altruistic motivation. Therefore, this study speculated that empathy could alleviate the effect of ego depletion on deception, and designs two behavioral experiments to explore the inference. In study 1, to examine the relationship between ego depletion and deception and the moderated effect of trait empathy, first using Interpersonal Reactivity Index to measure subject trait empathy level, and then adopt adapted "e" task manipulation subject ego depletion level, and using "different task" to measure all subjects' altruistic and self-interested deception. In study 2, to explore the moderated effect of state empathy between ego depletion and deception, using video to induce subjects' state empathy after ego depletion task(the same as study 1), and then measured the number of altruistic and self-interested deception. The results shows that: individuals with high ego depletion had more self-interested deception than altruistic one and individuals with low ego-depletion had more altruistic deception than self-interested one; (2) ego depletion negatively predicts individuals' altruistic deception and positively predicts self-interested deception; (3) state empathy plays an mediated role between the relationship between ego depletion and deception but trait empathy doesn't.
Keywords：ego depletion, altruistic deception, self-interested deception, trait empathy, state empathy

情以何堪：情商心智模式及其对学业投入和学业倦怠的影响*

姜蕴珊　张建卫（通讯作者）　郑文峰　赵正佳
北京理工大学人文与社会科学学院，北京 100081，通讯作者 E-mail：jianweizhang@bit.edu.cn

摘 要 现有研究已经证实情商对学生学业表现具有显著影响，但情商心智模式的内涵结构及其对学业投入和学业倦怠的影响亟需实证厘清。本研究基于自我决定理论，在实证验证情商心智模式的基础上构建了链式中介模型，以考察成长型情商心智模式和固定型情商心智模式对学业投入和学业倦怠的关系及和谐激情、情绪耗竭和乐观悲观主义的中介作用。本研究以 504 名大学生为被试，采用问卷调查法进行调查发现：（1）成长型情商心智模式和固定型情商心智模式分别能够显著正向预测学业投入及学业倦怠。（2）和谐激情和乐观主义在成长型情商心智模式与学业投入的关系中起中介作用，且该中介作用包含三条路径：和谐激情的单独中介作用、乐观主义的单独中介作用以及和谐激情-乐观主义的链式中介作用。（3）情绪耗竭和悲观主义在固定型情商心智模式与学业倦怠的关系中起中介作用，该中介作用包含两条路径：情绪耗竭的单独中介作用及情绪耗竭-悲观主义的链式中介作用。本研究从理论上提出情商心智模式并实证探索了情商心智模式影响学生学业表现的作用机制，有助于深化对情商及学业表现的认识，为大学生学业投入的培养提供了实践启示。

关键词 情商心智模式，学业投入，学业倦怠

Emotional Quotient is too heavy to bear：EQ Mindset and their Impact on Academic Engagement and Burnout*

Yunshan Jiang, Jianwei Zhang (Corresponding Author), Wenfeng Zheng, Zhengjia Zhao
School of Humanities and Social Sciences, Beijing Institute of Technology, Beijing 100081,
jianweizhang@bit.edu.cn

Abstract: Previous studies have indicated a significant impact of emotional intelligence (hereinafter EQ) on students' academic performance. However, it is still unclear the internal structure of the EQ mindset and its effects on academic engagement and burnout. Based on the self-determination theory, the current study constructed a serial mediating model to examine the relationship between EQ mindset (i.e., the growth EQ mindset and the fixed EQ mindset) on academic engagement and burnout. Furthermore, we examined the mechanisms of which EQ mindset might function. Across an empirical study of 504 college students, we found that the growth EQ mindset and the fixed EQ mindset models significantly and positively predicted academic engagement and academic burnout. Further, student's academic engagement was affected by the growth EQ mindset support partly through 3 different pathways: a) the separate mediation of harmonizing passion, b) the separate mediation of optimism, c) the chained mediation of harmonizing passion-optimism; and the accumulative mediating effects of emotional exhaustion and pessimism on the relationship between the fixed EQ mindset and academic burnout, while only the independent effects of emotional exhaustion. This study theoretically proposed the EQ mindset and empirically explored the mechanism by which the EQ mindset affects students' academic performance. Moreover, the results of this study deepen our understanding of the relationship between EQ and academic performance. Finally, this study provided practical insights into the cultivation of college students' commitment to learning.

* 基金项目：国家自然科学基金资助项目（72074024）
* The research was supported by the National Natural Science Foundation of China (72074024)

Keywords: EQ mindset, academic engagement, academic burnout

助力还是阻力？压力心智模式影响大学生亲环境行为的双路径机制*

杨文亚　张建卫（通讯作者）　付萌萌　许亚楠

北京理工大学人文与社会科学学院，北京 100081，通讯作者 E-mail：jianweizhang@bit.edu.cn

摘 要 亲环境行为是个体在生态方面道德决策的结果。已有研究表明压力反应与道德决策结果显著相关。作为塑造压力反应的源头，压力心智模式是否也会对个体道德决策结果（如亲环境行为）产生影响？本研究认为压力心智模式（压力促进心智模式与压力损害心智模式）与亲环境行为之间呈现出较为复杂的关系。具体来说，压力促进心智模式通过道德想象会对大学生亲环境行为产生促进作用，而压力损害心智模式通过道德解脱会对大学生亲环境行为产生抑制作用。此外，研究基于社会认知理论，认为道德认同可正向调节压力促进心智模式对大学生亲环境行为的间接作用，并负向调节压力损害心智模式对大学生亲环境行为的间接作用。由此本研究采用问卷法对 523 名学生被试进行调查发现：(1) 压力损害心智模式会诱发更多的道德解脱，进而对大学生亲环境行为产生负面影响。(2) 压力促进心智模式会诱发更多的道德想象，进而对大学生亲环境行为产生正向影响。(3) 道德认同负向调节了压力损害心智模式通过道德解脱对大学生亲环境行为的间接效应，即当道德认同水平较低时，这种效应越强。(4) 道德认同不会调节压力促进心智模式通过道德想象对大学生亲环境行为的间接效应。本研究有助于深化压力情境下大学生亲环境行为形成机制的认识，更全面了解其压力心智模式对亲环境行为的作用机制，对优化大学生亲环境行为的培养实践有一定的指导意义。

关键词 压力心智模式，亲环境行为，道德认同，道德想象，道德解脱

Assistance or Resistance? A Dual Pathway Mechanism of a Stress Mindset and University Students' Pro-Environmental Behaviors*

Wenya Yang, Jianwei Zhang (corresponding author), Mengmeng Fu, Yanan Xu

School of Humanities and Social Sciences, Beijing Institute of Technology, Beijing 100081, jianweizhang@bit.edu.cn

Abstract: Pro-environmental behavior is the result of moral decision-making in ecology. Previous research has documented that stress responses are significantly associated with moral decision-making. As the source, do stress mindsets shaping individual stress responses impact moral decision-making (e.g., pro-environmental behavior)? We argued that the relationship between a stress mindset (Stress-is-enhancing mindset and Stress-is-debilitating mindset) and pro-environmental behavior is complex. Specifically, the stress-is-enhancing mindset has a positive indirect effect on students' pro-environmental behaviors via moral imagination. Yet, a stress-is-debilitating mindset has a negative indirect effect on students' pro-environmental behaviors via moral disengagement. Additionally, drawing on social-cognitive theory, moral identity positively moderates the indirect relationship between the stress-is-enhancing mindset and pro-environmental behaviors and negatively moderates the indirect relationship between the stress-is-debilitating mindset and pro-environmental behaviors, respectively. A total of 523 students were recruited to participate in this study and completed self-report measures of stress mindset, moral identity,

* 基金项目：国家社会科学基金重点项目 (22AZD026)

* The research was supported by the Key Project of National Social Science Foundation of China (22AZD026)

moral imagination, moral disengagement, and pro-environmental behavior. The results suggest that a) stress-is-enhancing mindset has a positive indirect influence on students' pro-environmental behaviors through moral imagination, b) stress-is-debilitating mindset has a negative indirect influence on students' pro-environmental behaviors through moral disengagement, c) moral identity negatively moderated the indirect influence of stress-is-debilitating mindset on students' pro-environmental behaviors through moral disengagement, such that this relationship is stronger under conditions of lower level moral identity, and d) moral identity has no significant moderator effect on the indirect influence of stress-is-enhancing mindset on students' pro-environmental behaviors through moral imagination. The current study benefits more comprehensive insight into the mechanism of university students' pro-environmental behaviors in stress conditions. Theoretical and practical implications are also discussed.
Keywords**:** stress mindset, pro-environmental behavior, moral identity, moral imagination, moral disengagement

关系质量与儿童共情能力关系的三水平元分析

赵雪融[1] 张向葵[1]（通讯作者） 闫亚昕[1] 程浩[2]

[1]东北师范大学心理学院，长春，130024，zhangxiangkui@126.com

[2]赣南师范大学教育科学学院，赣州， 341000

摘 要 共情是关心他人的火花，是社交生活的粘合剂。大量研究发现，儿童期是共情发展的关键阶段，在此期间，儿童共情能力在高质量的亲子和同伴关系中快速发展。关于亲子和同伴关系质量与儿童共情的研究，不同研究采用了不同维度和指标评估关系质量和共情,导致已有研究结果存在亲子和同伴关系质量与儿童共情能力的关系仍不完全明晰的问题，因此亟需进一步研究。本元分析研究纳入 57 项研究、274 个效应量、16916 名被试，采用三水平元分析，分别考察了亲子和同伴关系质量与儿童共情能力的关系。主效应检验结果显示，亲子关系质量和儿童共情能力呈中度显著正相关关系(r = 0.21, 95%CI = [0.16, 0.25])，同伴关系质量和儿童共情能力呈中高度显著正相关关系(r = 0.25, 95%CI = [0.18, 0.32])。此外，调节效应检验发现，亲子关系质量和儿童共情能力的关系受到关系质量维度、关系质量指标、共情维度和共情指标的调节，但不受关系对象和性别的调节。与亲子关系质量的消极维度相比，积极维度与共情之间的相关性更强。在亲子关系质量指标方面，亲子依恋与儿童共情能力存在较强的正相关关系；而父母消极养育与儿童共情能力具有较强的负相关关系。关于共情维度，相较于情绪和行为共情，亲子关系质量与儿童认知共情的相关性更强。在共情指标中，亲子关系质量与心理理论之间的相关性较强。然而，同伴关系质量和儿童共情能力的关系仅受到关系质量指标的调节。具体而言，与同伴拒绝相比，同伴消极冲突与儿童共情能力的相关性更强。上述结果表明，亲子和同伴关系质量均与儿童共情能力密切相关。未来研究应重点关注亲子依恋对儿童共情的积极影响，以及父母消极养育和同伴消极冲突对儿童共情的消极影响。

关键词 儿童；共情能力；亲子关系质量；同伴关系质量；三水平元分析

Associations between relationship quality and children's empathy: A three-level meta-analysis

ZHAO Xuerong[1], ZHANG Xiangkui[1] (Corresponding author), YAN Yaxin[1], CHENG Hao[2]
[1]School of Psychology, Northeast Normal University, Changchun 130024

[2]School of Education Science, Gannan Normal University, Ganzhou, 341000

Abstract: Empathy is the spark of human concern for others, and the glue that makes social life possible. Many studies have found that childhood is the critical stage for the empathy development, during which children's empathy develops rapidly in the high-quality parent-child and peer relationships. For the relevance investigations between the children's empathy and the qualities of the parent-child as well as peer relationships, various dimensions and indicators are used in different studies to evaluate the relationship quality and the empathy, leading the relevance between the children's empathy and the qualities of the parent-child and peer relationships not sufficiently clear. Therefore, it is urgent to perform further investigations. In this study, the meta-analysis adopts 57 studies, 274 effect sizes, and 16,916 participants, a three-level meta-analysis is then used to investigate the relevance between the children's empathy and the qualities of the parent-child as well as peer relationships. The results reveal a moderately significant positive correlation between the children's empathy and the parent-child relationship quality (r = 0.21, 95%CI = [0.16, 0.25]), and a moderate-to-large positive correlation between the children's empathy and the peer relationship quality (r = 0.25, 95%CI = [0.18, 0.32]). In addition, the moderation analyses show that the relationship between the children's empathy and the parent-child relationship quality can be moderated by the relationship quality dimensions, indicators, the empathy dimensions, and indicators, but not by the relationship objects and the gender. Compared with the negative dimension of the parent-child relationship quality, the association between the positive dimension and the empathy is stronger. Regarding the indicators of the parent-child relationship quality, there is a strong positive correlation between the parent-child attachment and the children's empathy, while the negative parenting has a strong negative relevance with the children's empathy. As for the empathy dimension, children's cognitive empathy is more strongly associated with the parent-child relationship quality when compared with the emotional and behavioral empathy. Among the empathy indicators, the parent-child relationship quality has a strong correlation with the mind theory. However, the relationship between the children's empathy and the peer relationship quality is only moderated by the relationship quality indicators. In particular, compared with the peer rejection, the negative peer conflict has a stronger relevance with the children's empathy. The meta-analysis results in this study indicate that the qualities of the parent-child and peer relationships are closely related to the children's empathy. Future research should focus on the positive influence of the parent-child attachment on the children's empathy, and the negative influence of the negative parenting and peer conflict on the children's empathy.

Key words: children; empathy; parent-child relationship quality; peer relationship quality; three-level meta-analysis

社会情感能力对学习投入的影响：师生关系和学校归属感的链式中介作用

黄鑫[1,2]　王丽娟[1]（通讯作者）　李铭秀[2]
（1.东北师范大学心理学院，长春　130000；2.四川省成都市树德中学，成都 610000）
通讯作者：王丽娟，Email: wanglj699@nenu.edu.cn

摘 要　社会情感能力对中学生的认知发展、主观幸福感、学业成就，减少问题行为等方面有显著影响。然而，社会情感能力影响学生学习投入的具体机制尚不明确。研究初三学生的学习投入对于促进学生的学业发展具有不可忽视的重要作用。本研究以《社会情感能力量表》、《师生关系问卷》、《学习投入问卷》，《学校归属感问卷》为研究工具，采用方便取样法对西南地区某中学 323 名初三学生（女生 52%）进行问卷调查，考察社会情感能力、师生关系和学校归属感对学习投入的影响。结果显示：（1）社会情感能力、师生关系、学校归属感与学习投入及其各维度之间均存在显著正相关；（2）社会情感能力能够直接预测学习投入，直接效应值为 0.169；（3）师生关系在社会情感能力与学生的学习投入之间起独立中介作用，其中介效应值为 0.233；（4）学校归属感在社会情感能力与学习投入之间起独立中介作用，其中介效应值为 0.145；（5）师生关系和学校归属感在社会情感能力与学习投入之间起链式中介作用，其中介效应值为 0.068。研究建议，学校应重视中学生社会情感能力的培养，开展社会情感能力学习项目；教师注重在支持的环境中建立良好的师生关系，增强学生的学校归属感，进而促进学生的学习投入。本研究结果丰富了现阶段关于社会情感能力与学习投入的研究，为培养中学生的学习投入提供了新途径。
关键词　社会情感能力，学习投入，师生关系，学校归属感

The Effect of Social and Emotional skills on Learning Engagement: The Chain Mediating Role of Teacher-Student Relationship and Sence of School Belonging

HUANG Xi[1,2]　WANG Lijuan[1]　LI Mingxiu[2]
（1.Faculty of Psychology,Northeast Normal University,Changchun 130000;2.Chengdu Shude High School,Chengdu　610000 ）

Abstract： Social and Emotional skills has a significant impact on promoting cognitive development, subjective well-being, academic achievement, and reducing problem behaviors in middle school students.However, the specific mechanisms on social and emotional skills influences students' learning engagement are unclear.The study of junior high school students' learning engagement plays an important role that cannot be ignored in promoting students' academic development.Using the Social Emotional Skills Scale, Teacher-Student Relationship Questionnaire, Learning Engagement Questionnaire, and Sense of School Belonging Questionnaire as the research tools, this study used the convenience sampling method to administer a questionnaire survey to 323 junior high school students (52% girls) in a middle school in southwest china to examine the effects of social and emotional skills, teacher-student relationship, and sense of school belonging on learning engagement.The results show that (1) there was a significant positive correlation between social and emotional skills, teacher-student relationship, sense of school belonging and learning engagement and its dimensions;(2) Social and emotional skills directly predicted learning engagement with a direct effect value of 0.169;(3) Teacher-student relationship acts as an independent mediator between social and emotional skills and students' learning engagement with a mediation effect value of 0.233;(4)Sence of school belonging acts as an independent mediator between social and emotional skills and learning engagement with a mediation effect value of 0.145;(5) Teacher-student relationship and sense of school belonging acted as chain mediators between social and emotional skills and learning engagement with a mediation effect value of 0.068.This study recommend that schools should emphasize the development of social and

emotional skills in secondary school students by conducting social and emotional skills learning programs; and that teachers should focus on building good teacher-student relationship in supportive environments to enhance students' sense of school belonging which in turn promotes students' learning engagement .The results of this study enrich the research on social and emotional skills and learning engagement and provide a new way to cultivate middle school students' learning engagement .

Keywords： Social and Emotional skills,Learning Engagement,Teacher-Student Relationship,Sence of School Belonging

指导家庭教育如何预防小学生网络沉迷：基于一项实证研究

龙春兰 [1] 刘思扬 [2]

1 华中师范大学心理学院 武汉 430070

2 华中师范大学心理学院 武汉 430070 Liusiyang015@outlook.com

摘 要 随着网络使用低龄化的影响，预防小学生网络沉迷是教育面临的困境之一。基于家校协同育人理念，提升家庭教育质量是学校的重要职责。通过实证研究了解影响小学生网络沉迷的因素将有利于学校针对性地进行家庭教育指导。基于家庭系统理论提出研究假设，采用智能手机依赖量表、焦虑量表、亲子冲突量表、网络沉迷量表对湖南省的 501 名小学家长展开研究。结果发现：①家长手机依赖与小学生网络沉迷呈显著正相关（r=0.60，P <0.001)，与家长焦虑和亲子冲突分别呈显著正相关（r =0.44,0.38,P <0.001)；②通过链式中介模型检验，家长手机依赖对小学生网络沉迷直接效应显著，效应值为 0.48；家长焦虑和亲子冲突在家长手机依赖与小学生网络沉迷之间均单独起中介作用，中介效应值分别是 0.04、0.08；并且它们构成的链式中介效应也显著，效应值为 0.03。因此，学校可以通过展示实证研究结果让家长意识到自己行为对于小学生网络沉迷的重要性，同时可以从帮助家长减少手机依赖、缓解焦虑以及建立良好的亲子关系的角度提出家庭教育具体指导建议，形成积极和谐的家庭氛围，预防小学生网络沉迷。

关键词 家庭教育,手机依赖,焦虑,亲子关系,网络沉迷

Guidance on Family Education to Prevent Elementary School Students' Internet Addiction: Based on an Empirical Study

1 School of Psychology, Central China Normal University, Wuhan 430070

2 School of Psychology, Central China Normal University, Wuhan 430070

Email: Liusiyang015@outlook.com

Abstract With the increasing trend of younger children using the internet, preventing internet addiction among elementary school students has become a significant challenge in education. Based on the concept of collaborative parenting between families and schools, improving the quality of family education becomes an important responsibility of schools. Conducting empirical research to understand the factors influencing internet addiction among elementary school students will help schools provide targeted guidance on family education. Using the Family Systems Theory, this study proposes research hypotheses and conducts research on 501 elementary school parents in Hunan Province, using the Smartphone Dependency Scale, Anxiety

Scale, Parent-Child Conflict Scale, and Internet Addiction Scale. The results revealed the following findings: ①There is a significant positive correlation between parents' smartphone dependency and elementary school students' internet addiction ($r = 0.60$, $P < 0.001$). Parental anxiety and parent-child conflict also show significant positive correlations with internet addiction ($r = 0.44, 0.38$, $P < 0.001$), respectively. ②Through the examination of a chain mediation model, it was found that parents' smartphone dependency has a direct and significant effect on elementary school students' internet addiction, with an effect size of 0.48. Parental anxiety and parent-child conflict individually play mediating roles between parents' smartphone dependency and internet addiction, with mediation effect sizes of 0.04 and 0.08, respectively. Additionally, the chain mediation effect formed by these factors is also significant, with an effect size of 0.03. Therefore, schools can use the results of this empirical research to raise parents' awareness of the importance of their behaviors in preventing internet addiction among elementary school students. Furthermore, specific family education guidance can be provided to help parents reduce smartphone dependency, alleviate anxiety, and foster a positive parent-child relationship, thereby creating a harmonious family atmosphere and effectively preventing internet addiction among elementary school students.

Keywords family education; smartphone dependency; anxiety; parent-child relationship; internet addiction

消极老年刻板印象与老年人目标追求的日记研究

麻雨婷　张宝山（通讯作者）
陕西师范大学心理学院，西安，710062，zhangbs@snnu.edu.cn

摘 要　消极老年刻板印象在老年人的日常生活中普遍存在。以往研究发现，刻板印象威胁与目标取向密切相关，但现实生活中老年人的消极老年刻板印象经历与目标追求之间的关系尚不明确。本研究通过一项为期 7 天的日记研究设计，探讨了消极老年刻板印象经历与老年人日常目标追求的关系，以及威胁、挑战反应的中介作用和自我完整性的调节作用。100 名老年人连续七天参与问卷调查，评估他们每日的消极老年刻板印象经历、威胁和挑战反应、目标追求和自我完整性。结果表明，消极老年刻板印象通过两条不同的中介路径影响老年人的日常目标追求，即消极老年刻板印象经历一方面通过威胁反应与目标追求中回避责任的倾向正相关，另一方面通过挑战反应与每日目标进展负相关。此外，自我完整性在两个中介过程中发挥不同的调节作用。具体而言，自我完整性缓解了威胁反应与回避责任之间的正相关关系，以及消极老年刻板印象经历与挑战反应之间的负相关关系。研究结果揭示了现实生活中老年人的刻板印象经历与目标追求之间的关系及其机制，不仅丰富了老年刻板印象理论，而且为老年人目标追求的干预研究提供了理论借鉴，有助于促进老年人健康老龄化。

关键词　消极老年刻板印象，威胁和挑战反应，目标追求，老年人

A Daily Diary Study of Negative Aging Stereotypes and Goal Pursuit in Older Adults

MA Yuting, ZHANG Baoshan
School of Psychology, Shaanxi Normal University, Xi'an, 710062

Abstract: Aging stereotypes are ubiquitous in the lives of older adults and are closely related to goal orientation, but few studies have examined the relationship between negative aging stereotype experiences and goal pursuit in older adults in real life. Through a seven-day diary study design, this study examined the relationship between negative aging stereotype experiences and daily goal pursuit as well as the intervening roles of threat and challenge reaction and self-integrity. One hundred older adults completed measures assessing their daily experiences of negative aging stereotypes, threat and challenge reaction, goal pursuit and self-integrity for one week. The results showed that negative aging stereotypes are associated with daily goal pursuit in older adults through two separate pathways, namely, negative aging stereotype experiences are positively related to avoidance of responsibilities in goal pursuit through threat reaction, and negatively associated with progress toward goals through challenge reaction. Moreover, self-integrity played different moderating roles on the two mediating processes. That is, self-integrity weakens the positive relationship between threat reaction and avoidance of responsibility, and weakened the negative association between negative aging stereotype experiences and challenge reaction. This study is the first to reveal the relationship between aging stereotypes and goal pursuit of older adults in real life. Our findings not only enrich the literature on aging stereotypes, but also offer theoretical guidance for future interventions of goal pursuit and contributes to promoting healthy aging in older adults.

Keywords: negative aging stereotype, threat and challenge reaction, goal pursuit, older adults

父母媒介干预、影响因素及与儿童问题性媒介使用的关系：基于潜在剖面分析

李娟[1] 赵雅男[1] 李燕[1]（通讯作者）
1 上海师范大学学前教育学院，上海，200234，liyan@shnu.edu.cn

摘 要 在数字时代，儿童被各种数字媒介（如手机、电脑）所包围，要降低儿童过度暴露或依赖于屏幕媒介的风险及其对儿童发展功能的消极影响（即问题性媒介使用），父母的媒介干预至关重要。父母媒介干预是家长理解、支持和规范儿童媒介相关的行为或活动的一系列措施，主要包括积极干预、限制干预、共同观看以及监督。本研究通过对 1415 名儿童及其父母进行了调查，对父母的媒介干预进行潜在剖面分析，采用父母媒介干预量表、夫妻关系量表以及儿童问题性的媒介使用量表，以探讨父母媒介干预的类型特点及其影响因素，以及不同类型的媒介干预与儿童问题性媒介使用之间的关系。结果表明：（1）学前儿童父母的媒介干预可以分为四种潜在类别：母亲主导的干预（母亲高水平父亲低水平，28.20%）、父亲主导的干预（父亲高水平母亲低水平，24.88%）、一致的高水平干预（母亲和父亲均高水平，26.99%）及一致的低水平干预（母亲和父亲均低水平，19.93%）。（2）父母子系统、儿童子系统以及更广泛的社会环境（如夫妻关系）均会影响父母媒介干预。首先，孩子年龄越小，父母越可能属于一致的高水平干预；孩子的性别与媒介干预的类型不存在显著关系。其次，父亲年龄越小，他们越有可能被分到一致的高水平干预，而母亲年龄与媒介干预类型之间的关系不显著；父母学历越高更可能属于一致的高水平干预。最后，父母报告的婚姻冲突越多，越有可能属于一致的低水平干预；反之，他们更有可能是一致的高水平干预；父亲感知的婚姻冲突越少，则越可能属于父亲主导干预；母亲感知的婚姻冲突越少，则越可能属于母亲主导干预。（3）在不同的媒介干预类型上，儿童问题性的媒介使用存在显著差异。一致的高水平干预下儿童出现媒体使用问题的可能性最低，而一致的低水平干预下则最高；相比父亲主导干预类型，母亲主导干预类型下儿童问题性媒介使用的可能性更低。研究结果有助于父母调节其媒介干预行为，形成最佳的、适宜的媒介干

预模式，并促进数字时代的儿童获得更好发展。

关键词 父母媒介干预，影响因素，儿童问题性的媒介使用，潜在剖面分析

Chinese Parental Mediation, Predictors, and Associations with Child Problematic Media Use: A Latent Profile Analysis

Li Juan[1] Zhao Yanan[1] Li Yan[1](corresponding author)
1 Shanghai Institute of Early Childhood Education, Shanghai Normal University, Shanghai, 200234, liyan@shnu.edu.cn

***Abstract*:** In the digital age, children are surrounded by various digital media such as smartphones and computers. Parental mediation is crucial to prevent children from excessive exposure or reliance on screen media and its negative impact on their development (i.e., problematic media use). Parental mediation refers to a series of measures taken by parents to understand, support, and regulate children's media-related behaviors or activities, including active mediation, restrictive mediation, co-viewing, and monitoring. In this study, 1415 children and their parents were investigated. Parental mediation was analyzed by the method of latent profile analysis. The parental mediation scale, the couple relationship scale, and the children's problematic media use scale were measured. The purpose of this study was to examine the characteristics of the mediation profiles and their influencing factors, as well as the association between the mediation profiles and children's problematic media use. The results indicated that: (1) Parental mediation for parents of preschool children can be classified into four latent profiles: mother-dominated mediation (high-mother and low-father mediation, 28.20%), father-dominated mediation (high-father and low-mother mediation, 24.88%), consistent high-level mediation (high level of fathers and mothers, 26.99%), and coordinated low-level mediation (low level of fathers and mothers, 19.93%). (2) The parental-child subsystem, child subsystem, and broader social environment (such as marital relationship) all influenced parental mediation. Firstly, the younger the child, the more likely parents belonged to consistent high-level mediation group; child's gender had no significant relationship with mediation profiles. Secondly, the younger the father's age, the more likely they were classified into consistent high-level mediation group, while there was no significant relationship between mother's age and mediation profiles; parents with higher education were more likely to belong to consistent high-level mediation group. Finally, the more marital conflict reported by parents, the more likely they were classified into consistent low-level mediation group; conversely, they were more likely to be classified into consistent high-level mediation group; the fewer perceived marital conflicts by the father, the more likely they belonged to father-dominated mediation group, and the fewer perceived marital conflicts by the mother, the more likely they belonged to mother-dominated mediation group. (3) Based on the different mediation profiles, there were significant differences in problematic media use in children. The likelihood of children having media use problems was lowest in the consistent high-level mediation group, while it was highest under consistent low-level mediation group; the likelihood of problematic media use was lower under mother-dominated mediation group compared to father-dominated mediation group. These findings can help parents to regulate their mediation behaviors, develop optimal and appropriate mediation patterns, and promote better development of children in the digital age.

Keywords: parental mediation, influencing factors, children's problematic media use, latent profile analysis

水下特种作业对认知能力的影响研究

赵后雨[1] 梁坤[1] 于泽源[1] 文宇坤[1] 方以群[2]*
1 海军军医大学海军特色医学中心，上海，200433
2 海军军医大学海军特色医学中心，上海，200433，1287225836@qq.com

摘 要 **目的** 随着人类海洋探索任务的不断增加，水下特种作业越来越普遍。水下特种作业需要在特殊的高压环境中进行体力劳动。除了良好的体能，完整的认知能力对于顺利且安全地完成作业至关重要。水下特种作业因其特殊性可能会引起认知能力的变化。本研究旨在探索水下特种作业对认知能力的影响及其可能的机制。**方法** 本研究首先利用认知能力测量系统，在特种作业潜水员水下特种作业前后进行加工速度和记忆力的测试，并收集其唾液测量作业前后的应激激素水平的变化，利用问卷评估作业前后焦虑情绪的变化。本研究收集了 30min 和 3h 两种作业时长作业前后的数据。然后利用 2.0ATA 环境下大鼠游泳的方式构建模拟水下特种作业动物模型。75 只雄性 SD 大鼠随机分为 5 组，空白对照组（NC 组），2.0ATA 环境中不同时长游泳组（AS0.5h 组，AS1h 组，AS2h 组及 AS3h 组）。各组大鼠首先进行 5 天的 Morris 水迷宫定位航行训练。第 6 天，除 NC 组外，其余各组大鼠在模拟加压舱 2.0ATA 环境中游泳。造模后每组 6 只恢复 30min 后进行行为学测试，利用水迷宫空间探索测试检测认知能力，利用旷场试验检测情绪及应激状态。每组 3 只取全脑组织固定于多聚甲醛溶液中进行 HE 染色和尼氏染色检测海马结构。每组剩余的 6 只取血清和海马标本进行生化检测，利用 ELISA 检测血清中 CORT 的水平；QRT-PCR 检测海马中 IL1-β mRNA, IL6 mRNA, TNF-α mRNA, BDNF mRNA 和 TRKB mRNA 的相对表达水平。 **结果** 进行 30min 水下特种作业的特种作业潜水员作业结束后，加工速度和记忆力显著提升（$P<0.001$），应激水平与焦虑情绪无明显变化；而进行 3h 水下特种作业的特种作业潜水员作业结束后，加工速度和记忆力显著下降（$P<0.05$），应激水平和焦虑情绪显著增加。动物实验发现短时间的模拟水下特种作业并不会对认知能力造成影响，但是时长超过 2h 的模拟水下特种作业会造成显著的认知能力下降、急性应激反应、焦虑情绪、海马结构和功能的损伤以及神经炎症反应。具体表现为，与 NC 组相比，水迷宫空间探索测试时，AS3h 组平台穿越次数（$P<0.01$）和目标象限时间百分比（$P<0.01$）显著减少；旷场实验时，AS3h 组运动总距离（$P<0.01$）和中央区域活动时间（$P<0.05$）显著减少；AS3h 组血清中 CORT 显著升高（$P<0.01$）；病理检查提示 AS3h 组出现明显海马神经元固缩、细胞肿胀，尼氏体数量减少；AS3h 组 BDNF/TRKB 基因及蛋白表达均显著下降；AS3h 组炎症因子基因表达显著升高。**结论** 我们的研究发现水下特种作业对认知能力的影响具有时长依赖性，长时间的水下特种作业作为一种强烈的急性应激源会引起认知能力的显著下降，神经炎症反应可能是长时间水下特种作业至认知损伤的关键机制之一。我们的研究结果对水下特种作业人员的认知功能保护具有一定的参考意义。

关键词 水下特种作业，认知能力，神经炎症

The impact of underwater special operation on cognitive performance

ZHAO Hou-yu，LIANG Kun，YU Ze-yuan，WEN Yu-kun, FANG Yi-qun
Navy Special Medical Center，Naval Medical University，Shanghai 200433 China

***Abstract*：Objective** In the context of ongoing human ocean exploration missions, underwater special operation is increasingly common. Underwater special operation requires physical effort in a special high-pressure environment. Besides physical fitness, intact cognitive functions are essential for the successful and safe completion of underwater special operations. Underwater special operation may induce changes in cognitive functions. The aim of this study was to explore the impact of underwater special operation on cognitive functions and possible mechanism. **Methods** We first tested the processing speed and memory ability of special operations

divers before and after underwater special operations and collected saliva to measure changes in CORT levels and evaluated changes in anxiety levels using a questionnaire. In this study, data were collected before and after operations of both 30min and 3h operational duration. A simulated underwater special operation animal model was then constructed by letting rats swimming in a 2.0 ATA environment. 75 male SD rats were randomly divided into 5 groups, a normal control group (NC group), and different duration swimming groups in a 2.0 ATA environment (AS0.5h, AS1h, AS2h and AS3h groups). Each group included 15 rats. After 7 days' acclimatization, the rats in each group first underwent 5 days of Morris Water Maze (MWM) training. On day 6, all groups of rats, except the NC group, swam in a simulated 2.0 ATA hyperbaric environment. Behavioral tests were performed after 30 min of rest for 6 rats in each group after modelling. The MWM test was conducted to evaluate the cognitive performance of the rats and the Open Field Test (OFT) was used to evaluate their emotional and stress states. The whole brain tissue of 3 rats in each group was fixed in paraformaldehyde solution for HE staining and Nissl staining to evaluate hippocampal structure. The remaining 6 rats in each group were subjected to biochemical analysis using serum and hippocampal specimens. The level of CORT was measured by ELISA. The relative expression levels of IL1-β mRNA, IL6 mRNA, TNF-α mRNA, BDNF mRNA and TRKB mRNA in the hippocampus was measured by QRT-PCR. **Results** After 30 min of underwater special operation, the special operations divers showed a significant increase in processing speed and memory, and no significant changes in stress and anxiety. Whereas after 3 h of underwater special operation, the special operations divers showed a significant decrease in processing speed and memory, and a significant increase in stress and anxiety. Short duration of simulated underwater special operation did not affect cognitive performance but simulated underwater special operation lasting longer than 2h caused significant cognitive decline, acute stress response, anxiety, damage to hippocampal structure and function, and neuroinflammatory responses. Compared to the NC group, the AS3h group showed a significant reduction in the number of platform crossings (P<0.01) and percentage of time in the target quadrant (P<0.01) during the MWM test; a significant reduction in the total distance of movement (P<0.01) and central area activity time (P<0.05) during the OFT; a significant increase in the level of CORT (P <0.01); significant hippocampal neuronal consolidation, cell swelling and reduced number of nissl bodies; a significant decrease in the expression of BDNF/TRKB and a significant increase in the relative expression of inflammatory factor. **Conclusion** The effects of underwater special operation on cognitive performance are time-dependent. Long duration underwater special operation, working as a strong acute stressor, can cause significant cognitive decline, and the neuroinflammation may be one of the key mechanisms. Our findings have implications for the protection of cognitive functions in underwater workers.

Keywords：underwater special operations, cognitive ability, neuroinflammation

中-英双语者二语键入过程中的语音和正字法加工

刘月月[1]　张德阳[1] 傅永丽[1] 何文广[2]（通讯作者）

1 曲阜师范大学教育学院，曲阜，273165

2 曲阜师范大学心理学院，曲阜，273165，通讯作者 Email：hewg@qfnu.edu.cn

摘　要　书写产生领域关注两个基本问题，一是认知编码阶段的正字法通达是否存在语音中介，二是认知编码阶段的语言信息是否影响书写的动作执行。以往研究主要集中在母语手写领域，而对二语以及键入方式的关注不够。本研究采用图-词干扰范式，以熟练和非熟练中-英双语者为被试，通过两个实验系统探讨了二语键入过程中认知编码阶段和动作执行阶段的语音效应和正字法效应。实验设计为 5（SOA：－200 ms，－100 ms，0 ms，100 ms，200 ms）×3（干扰词类型：仅正字法高相关，仅语音高相关，无关）两因素被

试内设计，因变量为认知编码阶段上键入图片名称的反应时（response times，RTs），动作执行阶段上整词键入的持续时间（whole response duration，WRD）和按键间隔时间（interkeystroke intervals，IKIs）。实验 1 探讨熟练双语者键入二语时语音在正字法通达中的作用以及语言信息对动作执行的影响。结果发现，认知编码阶段，SOA 为－200 ms 时，RTs 指标上同时出现了正字法促进效应和语音促进效应，表明正字法和语音可同时激活；动作执行阶段，SOA 为 0 ms 时，WRD 指标上出现语音促进效应，表明语音促进了整词键入速度。实验 2 探讨非熟练双语者键入二语时语音在正字法通达中的作用以及语言信息对动作执行的影响。结果发现，认知编码阶段，RTs 指标上正字法促进效应出现在 SOA 为－200 ms，而语音促进效应出现在 SOA 为 0 ms，表明正字法激活早于语音；动作执行阶段，SOA 为－200 ms 时 WRD 指标上出现正字法促进效应，SOA 为－100 ms 时 IKIs 指标上出现语音抑制效应且 WRD 指标上出现边缘显著的语音抑制效应，SOA 为 100 ms 时 WRD 指标上出现语音抑制效应，表明正字法在较早期（SOA=－200 ms）促进了整词键入速度，语音随后（SOA=－100 ms）延迟了按键间隔时间并出现延迟整词键入速度的趋势，并最终在较晚期（SOA=100 ms）延迟了整词键入速度。结论：（1）熟练和非熟练中-英双语者键入二语时，正字法激活均不晚于语音，支持正字法自主假说；（2）语音和正字法信息对动作执行的影响受二语熟练度的调节，这可能源于动作执行阶段不同熟练水平双语者的语音和正字法的表征质量与可及性不同。
关键词　二语书写产生，语音，正字法，图-词干扰范式，键入

Phonological and orthographic processing during second language typing production of Chinese-English bilinguals

LIU Yueyue[1]　ZHANG Deyang[1]　FU Yongli[1]　HE Wenguang[2]
1 School of Education, Qufu Normal University, Qufu 273165
2 School of Psychology, Qufu Normal University, Qufu 273165

***Abstract*:** Two basic issues in the field of written production concern whether phonology influences the output of orthography and how language processes affect the action execution. Previous studies conducted in the native language have provided evidence for handwriting production, less is known about how phonology and orthography work in second language(L2) typing production, and whether their work would be mediated by second language proficiency. In the current study, the picture-word interference paradigm was adopted, in which proficient and non-proficient Chinese-English bilinguals were required to typewrite the English names of pictures while attempting to ignore written distractor words. The distractor was either orthographically highly related only(*near-bear*), phonologically highly related only(*chair-bear*), or unrelated (*cloud-bear*) to the picture name(e.g., *bear*). The response times (RTs) for the phase of cognitive coding, as well as the whole response duration (WRD) and the mean length of inter-keystroke intervals (IKIs) for the phase of action execution, were recorded. Experiment 1 examined the influence of phonology on the output of orthography and the effects of phonological and orthographic processes on typing action execution for proficient bilinguals. Results showed that both orthographic and phonological representations were activated simultaneously when SOA was－200 ms in the phase of cognitive coding. In the phase of action execution, phonology shortened the WRD when SOA was 0 ms. Experiment 2 explored the influence of phonology on the output of orthography and the effects of phonological and orthographic processes on typing action execution for non-proficient bilinguals. Results found that in the phase of cognitive coding, the orthographic priming effect appeared when SOA was －200 ms, and the phonological priming effect appeared when SOA was 0 ms, indicating that the activation of orthography was earlier than that of phonology. In the phase of action execution, orthography shortened the WRD when SOA was －200 ms, and phonology then prolonged the IKIs and had a tendency to slow down the WRD when SOA was －

100 ms, which eventually delayed the WRD when SOA was 100 ms. The overall results suggested that the activation of orthography was no later than phonology during second language typing production for both proficient and non-proficient bilinguals, which supported the orthographic autonomy hypothesis. In addition, the effects of phonological and orthographic processes on typing action execution were modulated by second language proficiency, which might be due to the difference in the quality and accessibility of phonological and orthographic representations in the phase of action execution for bilinguals with different proficiency.
Keywords: L2 written production, phonology, orthography, picture-word interference paradigm, typing

二语书写可直接通达正字法：来自不同书写方式的证据

刘月月[1] 何文广[2] 沈国晴[2]
1 曲阜师范大学教育学院，曲阜，273165
2 曲阜师范大学心理学院，曲阜，273165，通讯作者 Email：hewg@qfnu.edu.cn

摘 要 书写产生中语音在正字法通达中的作用以及语言信息对动作执行的影响是书写产生领域的两个基本问题，围绕这两个问题的争论分别形成了语音中介假说和正字法自主假说，以及序列模型和级联模型。为比较以手写和键入方式书写二语时，语音在正字法通达中的作用以及语言信息对动作执行的影响，本研究以中-英双语者为被试，采用图-词干扰范式，通过两个实验系统探讨了以不同方式书写二语时，认知编码阶段和动作执行阶段上的语音效应和正字法效应。实验设计为 5（SOA：－200 ms，－100 ms，0 ms，100 ms，200 ms）×3（干扰词类型：仅正字法高相关，仅语音高相关，无关）两因素被试内设计，因变量为认知编码阶段上书写图片名称的反应时（response times，RTs）和动作执行阶段上整词书写的持续时间（whole response duration，WRD）。实验 1 考察手写二语时，语音在正字法通达中的作用以及语言信息对动作执行的影响。结果发现，认知编码阶段，RTs 指标上正字法促进效应最早出现在 SOA 为－200 ms，而语音促进效应最早出现在 SOA 为 0 ms，表明正字法激活早于语音；动作执行阶段，SOA 为－200ms 时 WRD 指标上出现了正字法促进效应，表明正字法促进了整词书写速度。实验 2 考察键入二语时，语音在正字法通达中的作用以及语言信息对动作执行的影响。结果发现，认知编码阶段，RTs 指标上正字法促进效应最早出现在 SOA 为－200 ms，而语音促进效应最早出现在 SOA 为 0 ms，表明正字法激活早于语音；动作执行阶段，各效应均未出现。结论认为：（1）手写和键入二语时，语义均可直接通达正字法，不需要以语音为中介，支持正字法自主假说。（2）手写二语时，正字法加工可以级联到动作执行，符合级联模型；键入二语时，语言信息的加工在动作执行之前已经完成，符合序列模型。
关键词 二语书写产生，双语者，图-词干扰范式，手写，键入

Direct access to orthography in second language written production: Evidence from different writing modes

LIU Yueyue[1] HE Wenguang[2] SHEN Guoqing[2]
1 School of Education, Qufu Normal University, Qufu 273165
2 School of Psychology, Qufu Normal University, Qufu 273165

Abstract: Two basic issues in the field of written production concern whether phonology influences the output of orthography and how language processes affect the action execution. Debates on these two issues have led to the phonological mediation hypothesis and the orthographic autonomy hypothesis, as well as the serial model and the

cascaded model, respectively. To compare the role of phonology in orthographic access and the influence of language processes on action execution during Chinese-English bilinguals handwrote or typed second language(L2) words, the picture-word interference paradigm was adopted to explore the phonological and orthographic effects on the cognitive coding and action execution of the two different writing modes. Experiment 1 found that during handwriting, the orthographic priming effect appeared earlier than the phonological one in the phase of cognitive coding, and the former was still active in the phase of action execution. Experiment 2 found that during typing, the orthographic priming effect was also earlier than the phonological one in the phase of cognitive coding, nevertheless, no effects arose in the phase of action execution. In conclusion, these findings demonstrated that: (1) Semantic could access the orthographic representation directly in the phase of cognitive coding for both handwriting and typing, which supported the orthographic autonomy hypothesis. (2) For handwriting, the orthographic process could be cascaded to the action execution, providing evidence for the cascaded model; however, linguistic processes were completed before action execution for typing, which was consistent with the serial model.
***Keywords*:** L2 written production, bilinguals, picture-word interference paradigm, handwriting, typing

中文社会评价词表

李璐璐　陈庆荣　胡传鹏（通讯作者）
南京师范大学心理学院，中国南京，210097

摘 要　社会评价是人们日常生活中不可分割的部分，是理解人类心理与行为规律的重要窗口，也是心理学多个分支领域的长期话题。然而，目前还没有一个标准化的中文社会评价词表，这给社会评价的相关研究带来了障碍。为解决这一问题，我们通过两项研究从外貌、社会经济地位、社交能力、能力和道德五个维度建立了中文社会评价词表。在研究一中，通过小规模实验对五个社会评价维度的可行性进行验证，主要包括收集词汇以及对五个维度的 71 个词进行评分。研究二中，来自全国七个分区（华北、东北、西北、华东、华中、西南和华南）的被试（n = 1270, 50%为女性）对 1911 个词汇进行了 6 个维度（五个社会评价维度和一个效价维度）的评分。研究采用 JsPsych 编写程序进行在线实验。所有词汇被随机分成 6 组，每组 318 或 319 个词汇，人均评价次数为 1908 次或 1914 次，人均完成实验时间 2 个小时左右。最终选择被明确评定为属于五个维度之一的词汇，包括 256 个外貌维度词汇（158 个积极词，98 个消极词），113 个社会经济地位维度词汇（41 个积极词，72 个消极词），111 个社交能力维度词汇（64 个积极词，47 个消极词），284 个能力维度词汇（206 个积极词，78 个消极词）和 369 个道德维度词汇（176 个积极词，193 个消极词）。本研究提供了一个全面的汉语社会评价词表，为社会心理学、语言学、社会学、计算社会科学的研究者提供了一个坚实的基础和有用的资源。
关键词　社会评价，中文词表，道德，能力

The Chinese Social Evaluative Word List

Lulu Li, Qingrong Chen, Hu Chuan-Peng
School of Psychology, Nanjing Normal University, Nanjing, China, 210097

***Abstract*:** Social evaluation is an integral part of people's daily lives, serving as a significant window for understanding human psychological and behavioral patterns. It is also a long-last topic in multiple subfields of psychology. However, there is no standardized Chinese social evaluative word list, which create obstacle for social evaluation related research. To fill the gap, we developed a Chinese Social Evaluative Word List from five

dimensions, appearance, socioeconomic status, sociability, competence, and morality, in two studies. In study 1, we conducted a small-scale experiment to verify the feasibility of the five social evaluation dimensions by collected words and rated 71 words from these five dimensions. In study 2, a large sample of participants (n = 1270, 50% female) from seven regions in China rated 1911 words on six dimensions (five social evaluation dimensions and one valence dimension). The study employed JsPsych to design the online experiment. All the words were randomly divided into six groups, with each group consisting of 318 or 319 words. Each participant rated the words a total of 1908 or 1914 times, and the average completion time for the experiment was approximately 2 hours. We selected those words that were unambiguously rated as belonging to one of five dimensions, including 256 words for appearance (158 positive, 98 negative), 113 words for socioeconomic status (41 positive, 72 negative), 111 words for sociability (64 positive, 47 negative), 284 words for competence (206 positive, 78 negative), and 369 words for morality (176 positive, 193 negative). This study provides a comprehensive Chinese social evaluative word list, serving as a solid foundation and a useful resource for researchers from social psychology, linguistics, sociology, and computational social science.

Keywords：Social evaluation, Chinese word list, Morality, Competence

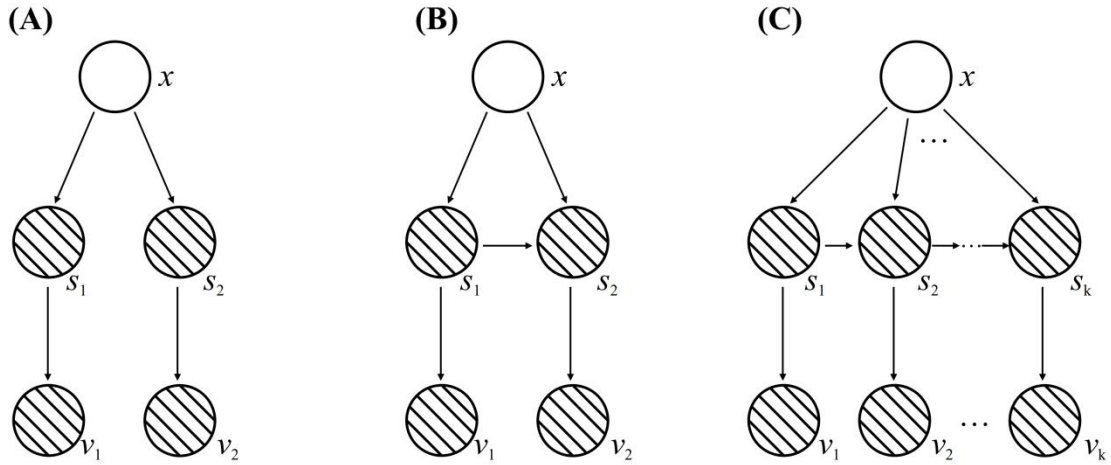
基于贝叶斯网络的人格评估方法

臧鑫磊 杨娟（通讯作者）

认知与人格教育部重点实验室，西南大学心理学部，重庆，400715

通讯作者 E-mail：valleyqq@swu.edu.cn

摘 要 传统人格评估是通过个体内省的方式，但主观报告的得分可能存在偏差，如社会赞许。如何客观地刻画人格是心理学界的关键问题。为了解决这个问题，我们基于贝叶斯网络提出了一种新型人格评估方法。贝叶斯网络（有向无环图）是贝叶斯视角下的一种机器学习模型。它提供了一种可视化的结构来描述概率模型，还能清楚地表达随机变量之间的因果关系；它可将联合概率简单地进行因子分解为条件概率和边缘概率的乘积形式。此外，我们引入了两个直观假设：1.“真实人格”是不能被直接观测的隐变量；2.问卷捕获的是“状态人格”，它是“真实人格”和填写问卷时的“状态”的交互作用。图 A 先考虑只有 2 个状态变量；图 B 加入时间序列；图 C 扩展到一般状态。



图(A)中x表示“真实人格”的隐变量；S_1和S_2分别表示在状态1和状态2下由基于x的概率分布所生成的“状态人格”，即人格量表分数；本模型假设S_1和S_2是相互独立的；V_1和V_2分别表示所对应的状态1和状态2下由S_1和S_2分别生成两种可观测到的某种行为，即特征向量。(B)在(A)的基础上增加了状态1到状态2的时间序列(概率依赖关系)，其直观解释为S_2是在S_1后发生的且依赖于前一时刻S_1；即S_2与S_1存在依赖关系、非独立的；V_1和V_2之间没有这种时间依赖关系，只受到其所对应的“状态人格”S_1和S_2分的影响。(C)将(B)的2个时间状态依赖关系扩展至K个。

*注：本文重点不在介绍贝叶斯网络的学习与预测问题，因此没有显式地写出参数以简化模型的复杂度。

图 A 中，我们的目标是基于可观测的行为 V_1 和 V_2 以及通过问卷捕获的“状态人格”S_1 和 S_2 求得无法直

接观测的“真实人格”的条件概率$p(x|S_1,S_2,V_1,V_2)$。根据贝叶斯网络的因子分解易得联合概率

$$p(x,S_1,S_2,V_1,V_2)=p(x)p(S_1|x)p(S_2|x)p(V_1|S_1)p(V_2|S_2)$$

基于概率乘积法则

$$p(x|S_1,S_2,V_1,V_2)=\frac{p(x,S_1,S_2,V_1,V_2)}{p(S_1,S_2,V_1,V_2)}=\frac{p(x)p(S_1|x)p(S_2|x)p(V_1|S_1)p(V_2|S_2)}{p(S_1)p(V_1|S_1)p(S_2)p(V_2|S_2)}=\frac{p(x)p(S_1|x)p(S_2|x)}{p(S_1)p(S_2)}$$

显然，“真实人格”独立于观测到的行为。也就是说，观测的行为是“真实人格”在 S_1 和 S_2 的状态下交互作用的结果，而非“真实人格”可以直接作用产生的可观测行为。此外，利用所学模型，在给定 V_1 的条件下，推断 S_1 的条件概率$p(S_1|V_1)$，即观测到 V_1 行为时推断在状态 1 下的“状态人格”S_1。基于贝叶斯定理易得

$$p(S_1|V_1)=\frac{p(V_1|S_1)p(S_1)}{p(V_1)}=\frac{p(V_1|S_1)p(S_1)}{\int p(V_1|S_1)p(S_1)\,\mathrm{d}S_1}\propto p(V_1|S_1)p(S_1)$$

其中，可将$p(S_1)$看作先验概率，$p(V_1|S_1)$是似然函数，$\int p(V_1|S_1)p(S_1)\,\mathrm{d}S_1$是归一化因子。因此，后验概率$p(S_1|V_1)$正比于$p(V_1|S_1)p(S_1)$。极大似然估计，求$p(V_1|S_1)$极值来估计$p(S_1|V_1)$。同理可求$p(S_2|V_2)$。

图 B 表示的是，“状态人格”S_2 是 S_1 后发生且受到 S_1 的影响。更直观的解释是：基于某种实验操纵，让个体从 S_1 到 S_2 发生了状态转移。与图 A 模型不同的是联合概率分布

$$p(x,S_1,S_2,V_1,V_2)=p(x)p(S_1|x)p(S_2|x,S_1)p(V_1|S_1)p(V_2|S_2)$$

图 C 将 2 个状态扩展至更一般的 K 个状态，其联合概率分布

$$p(x,S_1,\ldots,S_k,V_1,\ldots,V_k)=\prod_{i=1}^{K-1}p(x)p(S_1|x)p(V_1|S_1)p(S_{i+1}|x,S_i)p(V_{i+1}|S_{i+1})$$

上述模型为心理学人格评估的通用方法。其核心是如何基于待评估的人格特质，设计有效的实验操纵，以扰动样本数据集（即操纵改变“状态人格”和可观测的行为），进而生成有差异的序列$\{S_1,\ldots,S_K\}$及与之对应的行为序列$\{V_1,\ldots,V_K\}$。

关键词 人格评估，机器学习，图模型，贝叶斯网络

A Bayesian network-based approach to personality assessment

Zang XinLei, Yang Juan
Key Laboratory of Cognition and Personality (SWU), Ministry of Education;
Faculty of Psychology, Southwest University, Chongqing 400715, China

Abstract：Traditional personality assessment is by means of intra-individual introspection, but subjectively reported scores may be biased, such as social approval. How to assess personality objectively is a key issue in psychology. To address this issue, we propose a novel personality assessment method based on Bayesian networks. Bayesian network (directed acyclic graph) is a machine learning model in Bayesian perspective. It provides a visual structure to describe probabilistic models and also clearly expresses causal relationships between random variables; it also allows for a simple factorization of the joint probability distribution into the form of a product of conditional and marginal probabilities. In addition, we introduce two intuitive assumptions: 1. The "real personality" is a hidden variable that cannot be directly observed; 2. The questionnaire captures the "state personality", which is an interaction between the "real personality" and the "state" at the time of completing the questionnaire. Figure A starts by considering only 2 state variables; Figure B adds time series; Figure C extends to general states.

In the framework of Figure A, our goal is to find the conditional probability of the "real personality", which is not directly observable, based on the observable behaviors V1 and V2 as well as the "state personalities" S1 and S2 captured by the questionnaire. According to the factorization of Bayesian network, the joint probability is easily obtained: $p(x,S_1,S_2,V_1,V_2)=p(x)p(S_1|x)p(S_2|x)p(V_1|S_1)p(V_2|S_2)$

Based on the probability product rule:

$$p(x|S_1,S_2,V_1,V_2)=\frac{p(x)p(S_1|x)p(S_2|x)}{p(S_1,S_2)}$$

Clearly, the "real personality" is independent of the observed behavior. That is, the observed behavior is the result of the interaction of the "real personality" in the states of S1 and S2, rather than the observable behavior that the "real personality" can directly act to produce. In addition, we can use the learned model to infer the conditional probability of S1 given V1, i.e., to infer the "state personality" S1 in state 1 when observing the behavior of V1. Based on Bayes' theorem, it is easy to get:

$$p(S_1|V_1)\propto p(V_1|S_1)p(S_1)$$

where $p(S_1)$ can be thought of as the prior probability and $p(V_1|S_1)$ as the likelihood function. Thus, the posterior probability $p(S_1)$ is proportional to $p(V_1|S_1)$. Estimate $p(S_1|V_1)$ by solving for $p(V_1|S_1)$ extremes.

Represented in Figure B, the "state personality" S2 occurs after S1 and is influenced by S1. A more intuitive interpretation is that the state transfer from S1 to S2 occurs based on some experimental manipulation of the individual. In contrast to the model in Figure A, the joint probability distribution:

$$p(x,S_1,S_2,V_1,V_2)=p(x)p(S_1|x)p(S_2|x,S_1)p(V_1|S_1)p(V_2|S_2)$$

Figure C extends such states to a more general K states with joint probability distribution:

$$p(x,S_1,...,S_k,V_1,...,V_k)=\prod_{i=1}^{K-1}p(x)p(S_1|x)p(V_1|S_1)p(S_{i+1}|x,S_i)p(V_{i+1}|S_{i+1})$$

The above model is a generalized approach to personality assessment in psychology. It centers on how to design effective experimental manipulations to perturb the sample dataset (i.e., manipulations that change the "state personality" and observable behaviors) based on the personality traits to be assessed, thereby generating differentiated $\{S_1,...,S_K\}$ versus corresponding $\{V_1,...,V_K\}$.

Keywords：Personality Assessment, Machine Learning, Graph Modeling, Bayesian Networks

空间 Simon 效应对面孔-词 Stroop 任务中返回抑制的影响

孙佳禾[1]　韦红浪[2]　何文广[2]（通讯作者）

1 上海体育大学心理学院，上海，200438

2 曲阜师范大学心理学院，曲阜，273165，hewg@qfnu.edu.cn

摘 要　返回抑制(inhibition of return, IOR)与情绪刺激是否存在交互作用是为 IOR 研究中所关注的热点问题。为了深入探究情绪认知加工是否与返回抑制过程存在交互，本研究联合线索-目标范式与面孔-词 Stroop 任务，通过操纵范式中刺激呈现的水平和垂直空间位置分别进行了 2(线索有效性：有效、无效)×2(面孔-词效价一致性：一致、不一致)的组内设计。实验 1 使用经典的线索-目标范式考察水平空间范式中返回抑制效应对面孔-词 Stroop 效应的影响，结果发现面孔-词 Stroop 效应和返回抑制效应之间不存在交互作用。为了探究水平空间运动所产生的 Simon 效应是否影响返回抑制效应，实验 2 将范式改为垂直空间，结果发现面孔-词 Stroop 效应显著，且与返回抑制效应的交互作用显著，仅在效价不一致条件下得到线索有效试次的反应速度显著慢于线索无效试次。结果表明水平空间 Simon 效应影响了返回抑制过程，而排除这一因素的影响后，返回抑制和情绪刺激在抑制冲突过程中对信息的加工方式存在交互。在面孔-词效价一致的条件下，对统一效价信息的加工使得返回抑制效应受到面孔-词情绪 Stroop 效应的压制。为了进一步探索情绪效价信息对返回抑制效应存在怎样的影响，研究对不同条件下的返回抑制效应量进行分析，结果得到积极不一致试次的返回抑制效应量显著大于消极不一致试次。这说明面孔-词 Stroop 范式中，处理消极信息所占用的认知资源与返回抑制认知加工过程存在竞争关系，从而减弱返回抑制效应。研究结果支持了返回抑制加工与情绪认知过程并不分离，二者存在交互作用。

关键词　返回抑制，面孔-词 Stroop 任务，空间 Simon 效应，情绪效价

The effect of spatial Simon effect on inhibition of return in face-word Stroop task

Sun Jiahe[1]　Wei Honglang[2]　He Wenguang[2](corresponding author)
1 Shanghai University of Sport, School of psychology, Shanghai 200438
2 Qufu Normal University, School of psychology, Qufu 273165

Abstract：The interaction between inhibition of return (IOR) and emotional stimuli is a hot issue of concern in IOR research. In order to further explore whether emotional cognitive processing interacts with the process of IOR, the study combined the cue-target paradigm with the face-word Stroop task and conducted a within-group design of 2 (cue validity: cued, uncued)×2 (face-word valence consistency: consistent, inconsistent) by manipulating the horizontal and vertical spatial positions of stimulus presentation in the paradigm. Experiment 1 used the classic cue-target paradigm to examine the IOR effect in horizontal space paradigm, and found that there was no interaction between face-word Stroop effect and IOR effect. In order to explore whether the Simon effect produced by horizontal spatial position would affect the IOR effect, experiment 2 changed the paradigm to vertical space. The results showed that face-word Stroop effect was significant, and there was a significant interaction between it and IOR effect. The reaction time of cued trials was significantly slower than that of uncued trials only under inconsistent valence conditions. The results showed that horizontal spatial Simon effect affected the IOR process, and after excluding this factor's influence, there was an interaction between IOR and emotional stimuli in the process of inhibiting conflict. Under the condition of face-word valence consistency, processing unified valence information made the IOR effect suppressed by face-word emotional Stroop effect. In order to further explore how emotional valence information affects the IOR effect, this study analyzed the amount of IOR effect under different conditions. The results showed that the amount of IOR effect in positive inconsistent trials was significantly greater than that in negative inconsistent trials. This indicates that cognitive resources occupied by processing negative information in face-word Stroop paradigm compete with cognitive processing of IOR, thereby weakening its effect. The results further supported that IOR processing and emotional cognitive processes were not separated but interacted with each other.

Keywords：Inhibition of return，Face-word stroop task，Spatial simon effect，Emotional valence

三至五年级学生汉语阅读过程中整字水平和部件水平的语音预视收益

罗杰飞[1]　钦锐琦[2]　吴岩[1]（通讯作者）
1 东北师范大学心理学院，长春，130024
2 东北师范大学教育学部，长春，130024，通讯作者 E-mail：wuy399@nenu.edu.cn

摘 要　本研究利用眼动技术中的边界范式，探究了中国 3-5 年级儿童在汉语阅读过程中对于副中央凹语音信息的加工。选择占汉字总数 80%的形声字作为关键字，研究目标形声字在部件水平上的语音规则性的效应。孩子们阅读由规则形声字(如："惜")、不规则形声字(如："借")、同音字(如："稀")或正字法不同的非同音字(如"沐")作为目标预视字来代替正常简单字的句子。规则形声字和不规则形声字都包含正常的简单字(如："昔")作为声旁，规则形声字与其声旁具有相同的发音(发音为"xi1")。同音条件的设置可以检验在没

有正字法相似性的情况下，在整字水平上的语音预视收益。同时，对规则形声字和不规则形声字的预视收益进行比较，可以进一步揭示部件水平的语音加工，而将不规则形声字条件与无关的对照条件进行比较，可以探索正字法信息的预视收益。本研究从发展的角度探讨了儿童在阅读过程中对不同层次的副中央凹语音信息的依赖，结果表明，汉字语音信息在句子阅读过程中具有显著的预视收益，整字水平的语音信息可以在早期被激活，为语音中介模型提供了证据。而在五年级学生中，部件水平语音信息的副中央凹预视收益只出现在加工后期。这些发现强调了语音信息在儿童汉语阅读中的重要性，对于不同年龄组的儿童而言语音效应的表现不尽相同。不仅如此，正字法信息的预视收益因年级而异，五年级的孩子激活得更早。

关键词　汉字，整字水平语音，部件水平语音，预视收益

Parafoveal preview effects of character-level and radical-level phonology in reading of Chinese among third to fifth graders

Jiefei Luo, Ruiqi Qin, Yan Wu
School of Psychology, Northeast Normal University, Changchun, Jilin Province, P.R.China

Abstract：This eye-movement study utilizing the boundary paradigm investigated the processing of phonological information in the parafoveal during reading among Chinese children in grades 3 to 5. In the experiment, children were required to read sentences with either regular, irregular, homophone, or unrelated control phonograms as the replaced characters for the normal simple characters. Both regular and irregular characters contained a consistent simple character as the phonetic radical, with the regular character sharing the identical pronunciation with its target phonetic radical. The character-level phonological preview benefit was revealed when visually dissimilar homophones were compared to the unrelated control condition, while the radical-level phonological preview benefit was obtained by comparing regular and irregular characters. The results showed a significant preview benefit of character-level phonological information across all grades and processing indicators during sentence reading. By contrast, the parafoveal preview effects of radical-level phonological information only emerged during the later processing period among the fifth graders. These findings highlight the significance of phonological information in Chinese reading among children, with varying effects observed across different age groups.

Keywords：Chinese character, Character-level phonology, Radical-level phonology, Preview benefit

自我矛盾性对认知灵活性影响的研究

李继文[1]　杨娟[1]（通讯作者）
1 西南大学心理学部，重庆，400700

摘　要　自我矛盾性（self-ambivalence）指人们对自我持有冲突的看法（Bhar et al., 2007；Tisher et al., 2014）。Bhar 等人认为自我矛盾性存在两个维度，分别是自我价值矛盾性和道德矛盾性，自我价值矛盾性涉及到个体对自我价值存在不一致的看法，而道德矛盾性指个体对自己是好人还是坏人比较纠结。矛盾性的 ABC 理论（Van et al., 2015）认为矛盾性会对我们的信息加工方式产生影响，当一个人对其他物体持有比较高的矛盾性态度时，他会采取系统加工的方式处理随后的信息。比如有研究者让被试同时经历冲突的情绪，接着让他们完成 Remote Associates Task（RAT），结果发现混合情绪启动下的个体在 RAT 任务联想能力越强（Fong, 2006），RAT 可以有效反应个体的发散思维和创造力。有研究者认为

这是由于情绪上的矛盾性通过促进个体的认知灵活性进一步影响人们的信息加工方式（Rotheman et al., 2015）。然而值得注意的是，以往研究主要针对的是情绪矛盾性，作为矛盾性的一种，不清楚自我矛盾性是否也会促进个体的认知灵活性。围绕这个问题，我们设计了两个实验进行探究。研究 1 收集了 45 名个体的自我矛盾性问卷以及认知灵活性数据（数字字母转换任务），结果发现自我价值矛盾性与反应时和转换代价没有关系，而道德矛盾性与转换/重复试次的反应时负相关，即道德矛盾性水平越高，个体在转换/重复试次上的反应时越小。实验 2 探究自我矛盾性与认知灵活性之间是否存在因果关系，以及这种关系背后的机制，即道德矛盾性是否通过积极情绪或者观点采择促进认知灵活性。我们采用 3（被试间，自我价值和道德矛盾性启动、控制组）×2（重复和转换试次）的混合实验设计，共招募 135 名被试，删除未成功启动的被试，共有 126 人进入数据分析。结果发现，相较于自我价值矛盾性和控制组，道德矛盾性启动组在重复和转换试次上有更快的反应时，同时反应时的转换代价和 Bin 值也最小（基于错误率和反应时计算得到，类似于转换代价）。我们随后做了中介分析，中介变量为积极情绪和观点采择，然而却没有发现中介效应的存在。总之，我们的研究发现了道德矛盾性会促进个体的认知灵活性，而自我价值矛盾性与认知灵活性没有关系，未来的研究需要进一步探究这种关系背后的原因。

关键词　自我矛盾性，自我价值矛盾性，道德矛盾性，转换代价，认知灵活性

The effect of self-ambivalence on cognitive flexibility

Jiwen Li[1], and Juan Yang[1*]

[1]Faculty of Psychology, Southwest University, Chongqing, China, 400700

Abstract: Self-ambivalence is conceptualised as the holding of conflicting views of the self simultaneously（Bhar et al., 2007； Tisher et al., 2014）. They identified subscales that are consistent with two of three aspects of self-ambivalence theorised: self-worth ambivalence holding conflicted evaluations of the self and confusion about self-worth, and moral ambivalence holding dichotomous views of the self as good or bad. The ABC (Affect, Behavior, Cognition) model of ambivalence have shown that ambivalence is associated with increased systematic processing (Van et al., 2015). For example, research found the experience of emotional ambivalence causes an increased sensitivity to associations, as reflected by higher scores on the Remote Associates Task (RAT). RAT can effectively reflect the individual's divergent thinking and creativity. It was explained that emotional ambivalence affects people's information processing styles by promoting individual cognitive flexibility. It was worth noting that previous studies mainly focused on emotional ambivalence. As a kind of ambivalence, it was not clear whether self-ambivalence could also promote cognitive flexibility. We designed two experiments to answer this question. We recruited 45 samples from students to finish Self-Ambivalence Measure (SAM) and number-letter change tasks. The results found that self-worth ambivalence was not related to reaction time and switching costs, while moral ambivalence was negatively associated with reaction time on switching/repetition trials. That is, the higher the level of moral ambivalence, the faster the individual's response time on switching/repetition trials. We continued to explore the causal relationship between self-ambivalence and cognitive flexibility, and the mechanism behind this relationship. In specific, whether moral ambivalence promotes cognitive flexibility through positive emotions or perspective taking. We adopted a mixed experimental design of 3 (between subjects, priming of self-worth and moral ambivalence, control group) × 2 (within subject, repetition and switching trials). We have recruited 135 subjects in study 2, and deleted the subjects who failed to prime, leaving 126 subjects into the final analysis. It was found that compared with the self-worth ambivalence and control groups, the moral ambivalence priming responded faster on repetitions and switching trials, and the switching cost and Bin value were also the smallest (based on error rate and response, which is similar to the switching cost). Further mediation analysis did

not found that emotion or perspective taking could mediate the relationship between moral ambivalence and cognitive flexibility. In conclusion, our study found that moral ambivalence could promote individuals' cognitive flexibility, while self-worth ambivalence has no effect on cognitive flexibility. Future research needs to further explore the mechanism behind these effect.
Keywords：Self-ambivalence, self-worth ambivalence, moral ambivalence, cognitive flexibility, switching costs

典型性是相似性么？来自前提典型性效应认知过程的证据

杨继月 [1,2], 孙明泽 [3], 龙长权 [4](通讯作者, E-mail：lcq@swu.edu.cn), 邓玮 [1,2](通讯作者, E-mail：wdeng@um.edu.mo)

[1] 澳门大学心理学系，澳门

[2] 澳门大学认知与脑科学研究中心，澳门

[3] 华南师范大学心理学院，广州

[4] 西南大学认知与人格重点实验室，重庆

摘 要　典型类别作为前提会比不典型类别引发更快更强的属性泛化，这被称作前提典型性效应。该效应深刻的影响人们的学习和推理。有研究认为前提典型性效应是前提和结论类别特征之间的相似性，即前提典型性效应等同前提-结论相似性。这忽略了典型性在类别结构表征中的作用。在对类别结构进行表征来形成类别概念时，典型性会影响类别成员之间的关系。因此，为了探究前提典型性效应的发生机制，本研究控制了典型、不典型前提与结论的相似性以排除前提-结论相似性的影响，借助事件相关电位（ERPs）和时频分析揭示了前提典型性效应的认知过程。34 名被试完成了一项归纳任务，根据前提判断结论成立的可能性大小。研究发现，在排除了前提-结论相似性的影响后，典型前提仍比不典型前提有更快的反应时。同时，ERP 和时频分析的结果显示前提典型性效应的认知过程分为两个阶段。**早期阶段**与心理熟悉度评估和语义加工过程有关：典型前提比不典型前提有更高的心理熟悉度、更困难的语义检索过程（前提和结论类别概念之间的语义距离较远），表现为更小的 FN400 波幅及更大的 theta 功率。**晚期阶段**与认知监控有关：典型前提比不典型前提引发了更少的认知监控，表现为典型前提有更小的晚期负波（SN）波幅和 theta 功率。这些发现表明，前提典型性不同与前提-结论相似性，即在排除了相似性的影响后，典型性还与类别概念的语义加工过程有关。
关键词　推理，类别归纳，归纳强度，脑电，功率谱分析

Typicality goes beyond similarity: the cognitive processing of the premise typicality effect

Jiyue Yang[1,2], Mingze Sun[3], Changquan Long[4], Sophia W. Deng[1,2]

[1] Department of Psychology, University of Macau, Macau

[2] Center for Cognitive and Brain Sciences, University of Macau, Macau

[3] School of Psychology, South China Normal University, Guangzhou

[4] Key Laboratory of Cognition and Personality of the Ministry of Education, Southwest University, Chongqing

Abstract： Typical categories as premises are more likely to generate faster and more definitely induction compared to atypical categories, which is the premise typicality effect. Some studies suggested that the premise typicality effect was equivalent to premise-conclusion similarity. However, this opinion ignored the role of typicality in the representation of category concepts. To figure out how the premise typicality effect occurs during induction, we revealed cognitive processes of the premise typicality effect by measuring event-related potentials and neural oscillations. In a category-based induction task, we excluding the influence of premise-conclusion similarity by ensuring the similarity between typical premises and conclusions as low as the similarity between atypical premises and conclusions. Participants were required to rate how likely premises support conclusions. Results showed that typical premises still had faster induction than atypical premises after excluding the influence of premise-conclusion similarity. Moreover, we found that the cognitive processes of the premise typicality effect consisted of two stages. **The early stage** was related to familiarity assessment and semantic processing. In specific, typical premises had higher psychological familiarity and a more difficult semantic retrieval process which was related to the semantic distance between categories, revealed by less FN400 amplitudes and larger early theta power. **The late stage** of the cognitive process of the premise typical effects was cognitive monitoring. Typical premises had less cognitive monitoring than atypical premises, revealed by less SN amplitudes and late theta power. These findings showed that the premise typicality effect was distinct from the premise-conclusion similarity. Typicality involved semantic processing related to category concepts after excluding the influence of premise-conclusion similarity.

Keywords：property induction, reasoning, generation, Event-related potentials (ERPs), time-frequency analysis

生命意义感影响大学生网络游戏成瘾：社交焦虑的中介作用和性别的调节效应

马少勇[1]　桑青松[1]

安徽师范大学教育科学学院，安徽 芜湖 241002

摘 要　大学阶段是个体需要应对众多矛盾和冲突的阶段，容易产生多种问题行为，在个体的多种问题行为中，大学生的行为成瘾问题因其群体的广泛性和影响的日益严重性而受到人们的广泛关注，在世界范围内已经成为又一个世界瞩目的社会与健康问题。相较于物质成瘾，网络游戏成瘾是一种单纯的行为成瘾，心理特征是造成网络游戏成瘾的主要原因，根据“失补偿”假说，部分大学生由于自我察觉功能受损，不能主动修复阻碍因素，会通过不适当的“心理补偿”（如网络游戏）方式得到满足，继而引发“病理性代偿”过程，这种状况如果不能得到改善并持续恶化会造成发展的中断，以致网络游戏成瘾的发生。依据问题行为理论模型，生命意义感作为个体系统中反映个体态度、价值观的重要组成部分，对网络游戏成瘾的发生、发展产生作用。为探讨生命意义感与大学生网络游戏成瘾的关系以及社交焦虑和性别的作用，研究基于问题行为理论模型及病态网络使用的认知—行为理论，采用网络游戏成瘾量表、生命意义感量表及社交焦虑量表对 1544 名研究对象进行调查，结果表明生命意义感与大学生网络游戏成瘾显著相关，社交焦虑在生命意义感与大学生网络游戏成瘾之间起中介作用；性别调节了“生命意义感→社交焦虑→网络游戏成瘾”的后半段路径。高生命意义感是大学网络游戏成瘾的保护性因素，负向预测网络游戏成瘾行为，研究结果利于揭示生命意义感对网络游戏成瘾影响的内在机制，将为网络游戏成瘾的预防与干预提供新的思路和理论依据。

关键词　生命意义感，网络游戏成瘾，社交焦虑，性别，大学生

The Meaning of life influences online game addiction in college students:

social anxiety Mediating role and the moderating effect of sex

Ma Shaoyong Sang Qingsong

The college of Education Science, Anhui Normal University, Wuhu 241002, China

***Abstract*:** The university stage is a stage in which individuals need to deal with many contradictions and conflicts, which is prone to produce a variety of problematic behaviors. Among the various problematic behaviors of individuals, the behavioral addiction of college students has been widely concerned by people because of its universality and the increasing severity of its influence, and has become another social and health problem attracting worldwide attention. Compared with substance addiction, online game addiction is a simple behavioral addiction, and psychological characteristics are the main cause of online game addiction. According to the "loss compensation" hypothesis, some college students are unable to take the initiative to repair the obstructive factors due to their impaired self-perception function, and will be satisfied through inappropriate "psychological compensation" (such as online games). This leads to the "pathological compensation" process, if this situation can not be improved and continue to deteriorate will cause the interruption of development, resulting in the occurrence of online game addiction. According to the problem behavior theory model, the sense of meaning of life, as an important part of the individual system reflecting the individual attitude and values, plays a role in the occurrence and development of online game addiction. In order to explore the relationship between the sense of meaning of life and online game addiction of college students, as well as the role of social anxiety and gender, based on the problem behavior theory model and the cognitive-behavioral theory of pathological Internet use, 1544 subjects were investigated by using the online game addiction scale, sense of life scale and social anxiety scale. The results show that sense of meaning of life is significantly related to online game addiction, and social anxiety plays an intermediary role between sense of meaning of life and online game addiction. Gender regulates the second half of the path of "sense of life meaning → social anxiety → online game addiction". High sense of life meaning is a protective factor for college online game addiction, and negatively predicts online game addiction behavior. The research results are conducive to revealing the internal mechanism of the influence of sense of life meaning on online game addiction, and will provide new ideas and theoretical basis for the prevention and intervention of online game addiction.

***Keywords*:** Sense of life meaning, online game addiction, social anxiety, gender, college students

健康焦虑的网络化解释偏向矫正效果及机制

杜夏雨[1] 赖丽足[1] 史从戎[1] 张涛[1] 郭子涵[1] 韩菁[1] 任志洪[1]（通讯作者）

1 青少年网络心理与行为教育部重点实验室，华中师范大学心理学院，湖北省人的发展与心理健康重点实验室，武汉，430079，ren@ccnu.edu.cn

摘 要　**背景：**适应不良的健康焦虑是指个体对自身健康状况的不恰当或过度关注而引起的恐惧和担心。根据健康焦虑的综合模型，个体的灾难化解释与健康焦虑的发展和维持紧密相关，如能减轻其灾难化解释

将有助于缓解健康焦虑症状。因此，本研究旨在探究网络化解释偏向矫正(internet-based cognitive bias modification-interpretation, iCBM-I)对健康焦虑的干预效果，并检验灾难化解释在干预起效中的机制作用。**方法：**采用随机对照试验，将符合适应不良健康焦虑标准(简式健康焦虑量表得分≥15)的被试(N = 228)随机分配到 iCBM-I 干预组(100%积极反馈，N = 76)、注意控制组(50%积极 50%消极反馈，N = 76)以及等待组(N = 76)。干预组和注意控制组进行为期 12 天的在线任务训练(每 3 天 1 个单元，共 4 单元)，等待组不做训练。在干预前、干预后及干预后一个月对被试的健康焦虑、灾难化解释、一般焦虑和抑郁进行测量。基于意向治疗原则，使用广义线性混合模型分析 iCBM-I 的干预效果，使用两因素方差分析和层次回归分析考察人口学变量和症状变量基线水平的调节作用，使用平行发展模式的潜在增长曲线模型分析灾难化解释的纵向中介效应。**结果：**与等待组相比，iCBM-I 干预对健康焦虑个体的灾难化解释(d = -0.83, p < 0.001)、一般焦虑(d = -0.62, p < 0.001)和抑郁(d = -0.94, p < 0.001)症状存在显著的中到大即时干预效果，且一个月后的追踪效果仍显著(健康焦虑：d = -0.59, p < 0.001；灾难化解释：d = -0.76, p < 0.001；一般焦虑：d = -0.56, p < 0.01；抑郁：d = -0.77, p < 0.001)。与注意控制组相比，iCBM-I 干预对健康焦虑个体的健康焦虑(d = -0.50, p < 0.01)、灾难化解释(d = -0.56, p < 0.01)和一般焦虑(d = -0.38, p = 0.021)症状存在显著的中等即时干预效果，且一个月后对灾难化解释(d = -0.49, p < 0.01)的追踪效果显著。健康焦虑个体的婚姻状况、健康焦虑基线症状水平和灾难化解释基线水平在 iCBM-I 干预健康焦虑症状中起到调节作用，灾难化解释在 iCBM-I 干预健康焦虑症状中起到纵向中介作用。**结论：**本研究为健康焦虑的网络化干预提供了新视角。未来研究可以考虑联合“自上而下”和“自下而上”的干预方法，以提高健康焦虑的干预效果。

关键词　健康焦虑，解释偏向矫正，随机对照试验，潜在增长曲线模型

The effect and mechanism of internet-based cognitive bias modification-interpretation in health anxiety

Xiayu Du[1], Lizu Lai[1], Congrong Shi[1], Tao Zhang[1], Zihan Guo[1], Jing Han[1], Zhihong Ren[1]

[1]Key Laboratory of Adolescent Cyberpsychology And Behavior (CCNU), Ministry Of Education; School of Psychology, Central China Normal University; Key Laboratory of Human Development and Mental Health Of Hubei Province, Wuhan, China

***Abstract*：** **Background:** Maladaptive Health anxiety refers to the fear and worry caused by inappropriate or excessive attention to one's own health condition. Based on the comprehensive model of health anxiety, the development and maintenance of health anxiety is closely related to an individual's catastrophizing interpretation, and alleviating catastrophizing interpretation can help reduce the symptoms of health anxiety. Therefore, the current study aims to investigate the effect of internet-based cognitive bias modification-interpretation (iCBM-I) on health anxiety and the longitudinal mediating mechanism of catastrophizing interpretation. **Methods:** A randomized controlled trial was conducted, in which eligible participants (N = 228) with maladaptive health anxiety (Short Health Anxiety Inventory [SHAI] scores ≥ 15) were randomly assigned to an iCBM-I group (100% positive feedback, N = 76) , an attention control group (50% positive and 50% negative feedback, N = 76), and a wait-list control group (N = 76). Participants in iCBM-I group and attention control group finished internet-based tasks for 12 days (one session every 3 days, a total of four sessions). The health anxiety, catastrophizing interpretation, general anxiety, and depression were measured at pre-treatment, post-treatment and 1-month follow-up. The generalized linear mixture model was used to analyze the effect of the iCBM-I. Two-factor analysis of variance and hierarchical regression were used to analyze the moderating effect of demographic and symptom variables at baseline, and the latent growth curve model of the parallel development was used to analyze the longitudinal mediating effect of catastrophizing interpretation. **Results:** Compared with the wait-list control

group, iCBM-I group had significant immediate moderate to large effects on the catastrophizing interpretation (d = -0.83, p < 0.001), general anxiety (d = -0.62, p < 0.001) and depression (d = -0.94, p < 0.001) for participants with health anxiety. At 1-month follow-up, iCBM-I group still showed significant effects (Health anxiety: d = -0.59, p < 0.001; catastrophizing interpretation: d = -0.76, p < 0.01; general anxiety: d = -0.56, p < 0.01; depression: d = -0.77, p < 0.001). Compared with the attention control group, iCBM-I group had significant immediate moderate effects on the health anxiety (d = -0.50, p < 0.01), catastrophizing interpretation (d = -0.56, p < 0.01), and general anxiety (d = -0.38, p = 0.021) for participants with health anxiety. At 1-month follow-up, iCBM-I group showed a significant effect on the catastrophizing interpretation (d = -0.49, p < 0.01). The marital status, baseline level of health anxiety symptoms and catastrophizing interpretation played a moderating role in the effects of iCBM-I for health anxiety, and catastrophizing interpretation played a longitudinal mediating role. **Conclusions:** The current study provided new perspective for the networked intervention for health anxiety. In the future, researchers may consider the combination of "top-down" and "bottom-up" therapy, to improve the intervention effects for health anxiety.

Keywords：Health anxiety, cognitive bias modification-interpretation, randomized controlled trials, latent growth curve model

正念还是转移注意力？运动中情感调节策略的使用效果因人而异

刘娇　毛志雄（通讯作者）

北京体育大学心理学院，北京，100084，zhxmao@bsu.edu.cn

摘 要 当运动锻炼达到一定强度时，不可避免的消极情感反应极可能导致锻炼中断和退出。锻炼者将注意力从身体内部感受转移至外部环境（即外部焦点策略）以缓解消极情感、增加积极情感，是常用的心理调节策略。但是，近来有研究发现正念，即专注当下身体感觉并保持开放接受的态度，也是一种调节情感的有效策略。本研究旨在比较正念和外部焦点两种策略改善中等强度急性有氧运动情感反应的有效性。采用2*3 的混合实验设计，通过身体活动量将参与者分为身体活动不足组（n = 14）和身体活动充足组（n = 15），并要求两组参与者以随机顺序在三种不同的实验条件下完成 20 分钟的中等强度运动（心率储备的 55-65%）。在正念条件下，参与者在跑步过程中听一段 20 分钟的正念跑步的音频；在外部焦点的条件下，参与者在跑步过程中听一段 20 分钟的播客；在控制条件下，参与者在跑步时则不听任何内容。在运动过程中每隔五分钟记录一次参与者的情感反应，并在运动后记录其回忆情感、预期情感以及运动后愉悦感。线性混合效应模型的结果显示，与外部焦点和控制条件相比，只有身体活动充足组的个体在正念条件下报告了更积极的运动中情感反应。然而，与控制条件相比，身体活动不足的参与者在外部焦点条件下报告了更积极的运动中情感反应。最后，探索性分析表明，在正念和外部焦点条件下，所有参与者都报告了对未来锻炼的更积极的预期情感，而只有身体活动充足组在正念条件下报告了更高的运动后愉悦感。综上，对身体活动充足的个体而言，在中等强度的运动中使用正念，即充分感受由运动带来的身体感觉，将会是一种新的提高运动积极情感、降低消极情感的有效策略，有利于锻炼行为的坚持性并减少锻炼退出；而对于身体活动不足的个体而言，将注意力从身体感觉上转移开来才是提高锻炼积极体验的有效策略。

关键词 情感反应；正念；注意焦点；中等强度身体活动；双模式理论

Mindfulness or attention distracting? The efficacy on affective regulation strategies during exercise depends on individual's physical activity levels

Jiao Liu Zhi-Xiong Mao
Beijing Sport University, Beijing, 100084, zhxmao@bsu.edu.cn

Abstract: When exercise reaches a certain intensity, it is inevitable that the individual will have negative affective response which will lead to exercise interruption and drop out. Shifting attention from internal bodily sensations to external environmental factors (dissociation focus) is one of the most common regulation strategies. However, recent studies have found that mindfulness, which is directing attention to present moment experiences with intention, and above all with an accepting, openness, and non-judgmental attitude, can also be effective in improving positive affective responses. The purpose of this study was to investigate the effectiveness of mindfulness in promoting affective responses to moderate-intensity acute aerobic exercise and to further explore whether the use of mindfulness strategies in exercise differs depending on the level of physical activity (PA). We conducted a 2 (higher level of PA vs. lower level of PA) *3 (mindfulness vs. attention distraction vs. control) experimental design in present study. Two groups, one including sufficiently and one insufficiently active participants, completed a 20-min moderate-intensity exercise (based on 55-65% of heart rate reserve) on treadmill in three different experimental conditions (mindfulness, attention distraction, and control) in a randomized order. Core affective valence was measured repeatedly during exercise. Linear mixed effects modeling (MEM) showed that, as expected, a more positive affective response in the mindfulness condition, compared to the attention distraction and control conditions, emerged only in the group of sufficiently active individuals. We also found that participants in the insufficiently active group experienced more pleasant feelings with the attention distraction condition compared to the control condition. Additional exploratory analysis suggested that all participants reported more positive forecasted affect for exercising in the future in the mindfulness and the attention distraction condition, whereas only in the sufficiently active group, greater post-exercise enjoyment was reported after mindfulness than in either of the other conditions. We interpret these findings as evidence that non-regular exercisers should be advised to rather divert their attention away from their bodily sensations during moderate-intensity physical activity.

Keywords: affective response; mindfulness; attention focus; moderate PA; dual-mode theory

计算机安全警告信息加工及其影响因素的研究综述

王洁[1] 钱秀莹[1]（通讯作者）
1 浙江大学心理与行为科学系，杭州，310058，xqian@zju.edu.cn

摘 要 随着计算机和通信技术的普及，越来越多的人开始使用计算机完成各项任务。尽管计算机技术为人类带来了很多便利，但它也在无形中为不法分子提供了犯罪机会。在计算机的使用中存在各种各样的威胁，例如恶意软件攻击、网络钓鱼等等，给用户（尤其是非专业的用户）带来了巨大的安全隐患。警告作为防止用户受到伤害的关键环节，引起了学界广泛的关注，目前已有大量研究关注用户与计算机安全警告的交互问题。本论文回顾了以往针对计算机安全警告的研究，总结了相关的研究进展，并在此基础上，提出了该领域未来的研究方向。计算机安全警告是告知用户计算机系统中可能存在的问题的通信媒介，按其特征、感觉模式和传达的安全威胁可以分为不同的警告类型。通信-人类信息加工模型和人在环路模型作为计算机安全警告领域的两种基本理论模型，涵盖了警告信息加工的各个阶段及其影响因素，被广泛用于指导计算机安全警告的设计和改善。以往研究者针对计算机安全警告效果的影响因素开展了大量的研究，总的来说，这些研究的发现可以分为警告特征相关的因素与接收者相关的因素，其中警告特征相关的因素主要集中在警告的视觉特征（如颜色、图标、布局等）和警告内容（如关于危险、后果、说明的信息）方面；

接收者相关的因素主要包括习惯化效应及个体差异。基于此，未来的计算机安全警告的相关研究可以重点关注多通道的计算机安全警告的设计与研究、探究个性化的计算机安全警告以及结合心理学的研究发现，从用户的心理角度出发，改善已有计算机安全警告的效果，同时形成一个更加系统的理论框架，用以指导未来的研究和警告设计实践。
关键词　计算机，安全警告，信息加工，研究综述

A Review of Computer Security Warning Information Processing and Its Influencing Factors

WANG Jie[1], QIAN Xiuying[1]
1 Department of Psychology and Behavioral Sciences, Zhejiang University, HangZhou 310058

Abstract：With the popularization of computer and communication technology, more and more people are using computers to complete various tasks. Although computer technology has brought a lot of convenience to human beings, it has also invisibly provided opportunities for criminals. There are various threats in the use of computers, such as malicious software attacks, phishing, etc., which have brought huge security risks to users (especially non-professional users). As a key link to prevent users from being harmed, warnings have attracted extensive attention from academia. At present, a large amount of research has focused on the interaction between users and computer security warnings. This paper reviews previous research on computer security warnings, summarizes relevant research progress, and proposes future research directions in this field. Computer security warnings are communication media that inform users of possible problems in the computer system. According to their characteristics, perceptual patterns and conveyed security threats, they can be divided into different types. The communication-human information processing model and the human-in-the-loop security framework are two basic theoretical models in the field of computer security warnings, covering various stages of warning information processing and their influencing factors, and are widely used to guide the design and improvement of computer security warnings. Previous researchers have conducted a lot of research on the factors affecting the effectiveness of computer security warnings. Generally speaking, the findings of these studies can be divided into warning feature-related factors and receiver-related factors. Among them, warning feature-related factors mainly focus on the visual features (such as color, icon, layout, etc.) and warning content (such as information about danger, consequences, explanations); receiver-related factors mainly include habituation effects and individual differences. Based on this, future research on computer security warnings can focus on the design and research of multi-channel computer security warnings, explore personalized computer security warnings, and combine psychological research findings to improve the effectiveness of existing computer security warnings from the user's psychological perspective. In addition, a more systematic theoretical framework needs to be formed to guide future research and warning design practices.

Keywords：Computer, Security Warning, Information Processing, Research Review

活动参与限制和结直肠癌永久性肠造口患者总体生活质量的关系：心理困扰的中介作用和家庭功能的调节作用

李国鹏　覃瑞　赵香玉　厉萍（通讯作者）
山东大学护理与康复学院，济南，250012，pingli12@sdu.edu.cn

摘　要　**目的:**虽然癌症诊断和造口使结直肠癌患者存在活动参与限制，从而影响其生活质量，但其潜在的机制尚未得到充分研究。因此，本研究拟探讨心理困扰是否中介活动参与限制与总体生活质量的关系，以及家庭功能是否通过调节了活动参与限制通过心理困扰影响总体生活质量的间接路径。

方法：便利选取山东省肿瘤医院造口门诊的 282 例结直肠癌永久性肠造口患者为被试，采用欧洲癌症研究与治疗组织生活质量问卷的 3 个维度、2 条目的患者健康问卷和广泛性焦虑问卷以及家庭关怀指数分别调查患者的总体生活质量、活动参与限制、心理困扰和家庭功能。采用 SPSS26.0 和 PROCESS4.0 插件对数据进行分析。

结果:中介分析显示，心理困扰部分中介(间接效应= -0.087,95% CI = -0.135- -0.041)活动参与限制与总体生活质量的关系；有调节的中介分析表明，家庭功能（交互项β＝－0.137, P＝0.027）显著调节了活动参与限制通过心理困扰对总体生活质量的间接路径。具体而言，随着家庭功能的提高，间接路径的效应显著降低。

结论:结直肠癌永久性肠造口患者总体生活质量较差。有调节的中介模型为理解活动参与限制、心理困扰和家庭功能如何影响总体生活质量提供了思路。旨在改善结直肠癌永久性肠造口幸存者生活质量的干预措施应考虑针对这些方面。

关键词　参与限制，心理困扰，家庭功能，生活质量，结肠直肠癌

Limitations on participation and global quality of life among CRC survivors with permanent stomas: Moderated mediation analysis of psychological distress and family functioning

Guopeng Li, Rui Qin, Xiangyu Zhao, Ping Li
School of Nursing and Rehabilitation, Shandong University, Jinan 250012,
pingli12@sdu.edu.cn

Abstract **Objective:** Although a cancer diagnosis and stoma creation leave colorectal cancer (CRC) survivors with significant limitations on participation in life activities that would impair their global quality of life (QoL), the underlying psychological mechanisms are understudied. The aim of this cross-section study was to examine whether psychological distress mediates the association of limitations on participation in life activity with global QoL, and whether family functioning moderated the indirect effects of limitations on participation in life activities with global QoL through psychological distress.

Methods: CRC survivors with permanent stomas (n = 282) completed questionnaires assessing socio-demographic and clinical characteristics, limitations on participation in life activities, psychological distress, family functioning and global QoL. The mediation model and moderated mediation model were conducted using the PROCESS macro for SPSS.

Results: Mediation analysis showed that the association of limitations on participation in life activities with global QoL was partially mediated by psychological distress (indirect effect = -0.087, 95% CI = -0.135 to -0.041). Moderated mediation analysis indicated that the indirect effects of limitations on participation in life activities on global QoL through psychological distress were significantly moderated by family functioning (β = − 0.137, P = 0.027). Specifically, the indirect effects decreased were significant as family functioning levels increased.

Conclusion: CRC survivors with permanent stomas experienced poor global QoL. The moderated mediation model provides a better understanding of how limitations on participation in life activities, psychological distress, and family functioning work together to affect global QoL. Interventions aiming to improve QoL among CRC survivors with permanent stomas should consider targeting these aspects.
Keywords: Limitations on participation, Psychological distress, Family functioning, Quality of life, Colorectal cancer

监控与接纳，还是仅仅监控？拆解正念训练对情绪反应效果的一项随机对照研究

魏艳萍[1] 孙丽敏[1] 薛 将[1] 陈树林[1]（通讯作者）
[1]浙江大学心理与行为科学系，杭州，310030
通讯作者 E-mail: chenshulin@zju.edu.cn

摘 要 **引言：**过往基于监控与接纳理论(Monitor and Acceptance Theory, MAT)的研究未能发现监控和接纳对消极情绪的效果差异。本研究希望通过评估正念水平和情绪反应性来阐明它们的效果差异。**方法：**392 名被试随机分为 3 组(监控与接纳组，MA；只有监控组，MO；等待对照组，WL)。MA 和 MO 组的被试需要完成 14 天的线上正念训练，内容分别为同时练习监控与接纳，或者仅进行监控练习。研究在干预前(T1)、干预后(T2)和 2 周后的随访(T3)中使用正念五因素量表(短版)、积极消极情绪量表和情绪反应性量表进行了测量。**结果：**除了不判断维度以外，MA 和 MO 在 T2 时的各维度正念水平均有提升，与 WL 的差异显著($ps < 0.05$)。MA 和 MO 之间比较，MA 的不反应水平在 T2($F = 9.595$, $df = 1$, $p = 0.002$, $\eta_p^2 = 0.034$)和 T3($F = 8.146$, $df = 1$, $p = 0.005$, $\eta_p^2 = 0.029$)均更高；MO 的观察水平在 T3 时更高($F = 6.210$, $df = 1$, $p = 0.013$, $\eta_p^2 = 0.022$)。与 WL 相比，MO 和 MA 均提升了积极情绪、降低消极情绪和情绪反应性($ps < 0.05$)。在 T2 时，MA 和 MO 在积极消极情绪和情绪反应性上的效果没有显著差异($ps > 0.05$)，但是在 T3 时，MO 在情绪反应性上的得分低于 MA，组间差异显著($F = 11.171$, $df = 1$, $p < 0.001$, $\eta_p^2 = 0.039$)。**讨论：**本研究表明两周的监控与接纳训练和单独监控训练均能够提升监控和接纳的正念水平，提升积极情绪，减少消极情绪和情绪反应性。在 2 周的随访阶段，单独的监控训练在提升正念水平和降低情绪反应性上表现出更好的效果。
关键词 监控与接纳理论，随机对照研究，情绪反应性，短程正念

Monitor and acceptance, or monitor only? A randomized controlled study on the effect of dismantling mindfulness training on emotion reactivity

Yanping Wei[1] Limin Sun[1] Jiang Xue[1] and Shulin Chen[1]
[1] Department of Psychology and Behavioral Sciences, Zhejiang University, Hangzhou, China

***Abstract*：** **Introduction:** Previous studies based on the Monitor and Acceptance Theory (MAT) failed to find the different effects of monitoring and acceptance on negative affect. This study wanted to explore it by assessing the mindfulness and emotion reactivity. **Methods:** 392 participants were divided into three groups (Monitor and Acceptance, MA; Monitor Only, MO; Waiting List, WL) randomly. Participants in MA and MO groups had a

14-day online mindfulness training focused on monitoring skills and acceptance, or only monitoring skills respectively. Five Facet Mindfulness Questionnaire (short version), Positive and Negative Affect Scale, and Emotional Reactivity Scale were used to assess the outcomes before (T1), after the intervention (T2), and in the two-week follow-up (T3). **Results:** The results showed significant improvements on all facets of mindfulness except nonjudgment in T2 for both MA and MO compared to WL (*ps* < 0.05). Compared between MA and MO, MA showed higher score on nonreactivity in both T2 (F = 9.595, df = 1, p = 0.002, η_p^2 = 0.034) and T3 (F = 8.146, df = 1, p = 0.005, η_p^2 = 0.029), while MO had higher score in observing in T3 (F = 6.210, df = 1, p = 0.013, η_p^2 = 0.022). Both MA and MO increased positive affect, decreased negative affect and emotion reactivity compared to WL (*ps* < 0.05). There were no significant differences between MA and MO on affects and emotion reactivity in T2 (*ps* > 0.05). However, MO showed better effect on emotion reactivity in T3 compared to MA (F = 11.171, df = 1, p < 0.001, η_p^2 = 0.039). **Discussion:** This study demonstrated that both MA and MO could improve monitoring and acceptance and had positive effects on positive and negative affect and emotion reactivity in two weeks. MO showed better effects on mindfulness and emotion reactivity in the follow-up.

Keywords：Monitor and acceptance theory, randomized controlled study, emotion reactivity, brief mindfulness

马基雅维利主义员工如何维持与领导的关系能量—基于特质激活理论

孙毅聪[1]　颜爱民[1]　胡馨芳[1]　臧志梅[1]（通讯作者）
1 中南大学，长沙，430018，sunyicong123@126.com

摘 要　马基雅维利主义的员工通常被视为“怀疑他人，渴望控制和地位，并擅长操纵的黑暗个体”，但最近的研究表明马基雅维利主义也具备一些优势，比如更强的适应能力和灵活性，并在提升绩效和关系构建方面有独特的作用机制。本研究基于特质激活理论探讨了马基雅维利主义如何维持与领导的关系能量，并厘清了其中介机制和调节边界。研究以 275 名有效员工为研究对象，分别在三个时间点(每个时间点间隔一个月)，收集了马基雅维利主义（T1）,领导-成员交换矛盾（T1）,表面顺从（T2）,关系能量（T3）的量表，运用 Mplus 进行了路径分析。结果发现表面顺从是马基雅维利主义员工维持与领导关系能量的重要中介机制，马基雅维利主义员工通过采用表面顺从的策略，在维持与领导友好关系的同时并没有改变内心秉承的价值观，这有助于维持与领导的关系能量并保持心理资源；领导成员交换矛盾会进一步激活马基雅维利主义的特质，增加他们采用表面顺从策略的可能性，进而维持了领导之间的关系能量。这些研究结果表面，马基雅维利主义员工特质的“另一面”，他们具有独特的维持与领导关系能量的中介机制和边界条件，响应了学者们提出的探讨黑暗人格特质的独特性的号召，具有一定的理论意义和管理实践意义。
关键词　马基雅维利主义，特质激活理论，关系能量，表面顺从

How do Machiavellianism Employees Maintain Relationship Energy with Leaders–Based on Trait Activation Theory

Yicong Sun[1], Aimin Yan[1], Xinfang Hu[1], Zhimei, Zang[1*]
1 Business School, Central South University, Changsha, China

Abstract：Machiavellianism employees are often viewed as "dark individuals who are suspicious of others,

crave control and status, and excel at manipulation," but recent research suggests that Machiavellianism also offers strengths, such as greater adaptability and flexibility, and unique mechanisms for performance enhancement and relationship building. Based on trait activation theory, this study explores how Machiavellianism sustains relational energy with leaders and clarifies its mediating mechanisms and moderating boundaries. The study collected the scales of Machiavellianism (T1), Leader-Member Exchange ambivalence (T1), facades of conformity (T2), and relational energy (T3) at three-time points (one-month intervals between each time point) with 275 employees as participants and conducted a path analysis using Mplus. The results found that facades of conformity is an important mediating mechanism for Machiavellian employees to maintain their relational energy with their leaders, and Machiavellian employees, by adopting the strategy of facades of conformity, maintain a friendly relationship with their leaders without changing their internal adherence to their values, which helps to maintain relational energy with their leaders and keep their psychological resources; the leader-member exchange ambivalence further activates the trait of Machiavellianism and increases the likelihood that they will employ facades of conformity strategies, which in turn maintains the relational energy between leaders. These findings suggest that the "other side" of Machiavellianism employee traits, with their unique mediating mechanisms and boundary conditions for maintaining relational energy with leaders, responds to scholars' call for exploring the uniqueness of darker personality traits, and has both theoretical and managerial practical implications.
Keywords： Machiavellianism, trait activation theory, relational energy, facades of conformity

本土化情绪调节的测量及应用模式的检验

唐凯晴[1,2] 黄敏儿[1]（通讯作者）

1 中山大学心理学系，广州，510006，edshme@mail.sysu.edu.cn

2 广州中医药大学医学信息工程学院，广州，510006

摘 要 国内以往较为常用的情绪调节测量工具所评估的调节策略具有一定的局限性，一方面没有考虑到个体在实际生活中可能会采用不止一种策略来调节情绪；另一方面缺乏华人价值观的融入，没有考虑到文化因素对情绪应对的影响，如华人文化非常推崇策略性的忍耐。有研究者对此提出了“适当表达”情绪调节策略，并编制了测量量表，但研究对象局限在台湾地区的青少年群体。本研究旨在面向大陆地区大学生群体，进一步检验基于情绪精炼理论发展的本土化情绪调节量表的测量学属性及其应用模式。方法：412 名大学生参与了问卷测量，问卷包括本土化情绪调节量表、人际关系适应量表、安适幸福感量表以及领悟社会支持量表。结果：①本土化情绪调节量表具有稳定的三因素结构（$\chi 2/df$ =4.04，RMSEA=0.087，CFI=0.952，TLI=0.941，SRMR=0.050），即认知重评、表达抑制和适当表达，总量表和各分量表的内部一致性系数在 0.854-0.946 之间。②认知重评和适当表达均能正向预测人际关系适应、安适幸福感以及领悟社会支持，而且适当表达对女性人际关系适应的正面效果优于认知重评。③表达抑制负向预测人际关系适应，而且男性的表达抑制显著高于女性。结论：本土化情绪调节量表具有较好的信效度，适当表达是切合华人文化的有助于提升个体身心适应的情绪调节策略。

关键词 情绪精炼；认知重评；表达抑制；适当表达；信效度

Validation and Application of Indigenizing Emotion Regulation Questionnaire

TANG Kai-qing[1 2], Huang Min-er[1]
[1] Department of Psychology, Sun Yat-Sen University, Guangzhou 510006
[2] School of Medical Information Engineering, Guangzhou University of Chinese Medicine, Guangzhou 510006

Abstract：Objective: This study aimed to test the factor structure and psychometric properties of Indigenizing Emotion Regulation Questionnaire in Chinese mainland college students. Methods: 412 college students were recruited to complete a series of scales, including Indigenizing Emotion Regulation Questionnaire, Chinese College Student Adjustment Scale, Peace of Mind Scale and Perceived Social Support Scale. Results: ①Indigenizing Emotion Regulation Questionnaire had a stable three-factor structure($\chi 2/df$ =4.04, RMSEA=0.087, CFI=0.952, TLI=0.941, SRMR=0.050), including reappraisal, suppression and proper voicing, and the internal consistency coefficient of the total scale and each subscale was between 0.854 and 0.946. ②Reappraisal and Proper voicing could positively predict interpersonal adaptation, peace of mind and perceived social support. Moreover, the positive effect of proper voicing on the female interpersonal adaptation was better than reappraisal. ③Suppression could negatively predict their interpersonal adaptation，and the male scores in Suppression were significantly higher than the female. Conclusion: Indigenizing Emotion Regulation Questionnaire is a suitable instrument to assess the strategies of emotion regulation in Chinese mainland college students. And proper voicing is an emotion regulation strategy suitable for Chinese culture and conducive to improving individual physical and mental adaptation.

Keywords：Emotion refinement; Reappraisal; Suppression; Proper voicing; Psychometric properties

自我概念清晰性对网络喷子行为的影响：有调节的中介模型

田佳旭[1](通讯作者)
1 贵州师范大学心理学院，贵阳，550025，2407887300@qq.com

摘 要　网络喷子行为是指个体故意破坏网络正常交流，从而引发其他网络用户的消极情绪反应，进而体验到愉悦感的一种行为方式。先前研究大多探讨个体因素(如，性别、年龄、人格特质等)对网络喷子行为的预测作用，缺乏环境因素及其交互效应对网络喷子行为的影响研究。根据一般压力理论的观点，自我概念清晰性与网络反社会行为密切相关。此外，孤独感不仅显著预测网络喷子行为，也是衡量自我概念清晰性所影响个体社会适应的指标之一。而去个性化则是匿名网络环境中影响个体采取反社会行为的关键因素之一。因此，本研究依据个体–环境交互作用模型，考察了自我概念清晰性对网络喷子行为的影响及其作用机制。以 1014 名大学生为被试，采用自我概念清晰性量表、孤独感量表、去个性化量表、网络喷子行为量表进行施测，结果发现：(1) 自我概念清晰性与孤独感、去个性化、网络喷子行为均呈显著负相关；孤独感、去个性化、网络喷子行为两两呈显著正相关。(2) 孤独感在自我概念清晰性与网络喷子行为之间起中介作用。(3) “自我概念清晰性–孤独感–网络喷子行为”这一中介路径的后半段受到去个性化的调节。这表明，低自我概念清晰性通过增强孤独感影响网络喷子行为的产生，但低去个性化会削弱自我概念清晰性与孤独感对网络喷子行为的促进作用。

关键词　大学生，网络喷子行为，自我概念清晰性，孤独感，去个性化

The Effect of Self-Concept Clarity on Internet Trolling: Moderated Mediating Effect

Jia-Xu Tian[1*]

School of psychology, Guizhou Normal University, Guiyang 550025, China

***Abstract*：** Internet trolling refers to a behavior pattern in which individuals deliberately disrupt normal communication on the Internet to trigger negative emotional reactions of other Internet users, and then experience the pleasure. Most previous studies have explored the predictive effects of individual factors (such as sex, age, personality, etc.) on Internet Trolling, but lack the impacts of environmental factors and their interactive effects on Internet Trolling. According to the General Strain Theory, self-concept clarity is closely related to antisocial behaviors. In addition, loneliness not only significantly predicts Internet Trolling, but also is one of the indicators that measured the impact of self-concept clarity on individual's social adaption. Deindividuation is one of the key factors that influence individuals to adopt antisocial behaviors in an anonymous network environment. Therefore, based on the individual-environment interaction model, this study examines the influence of self-concept clarity on Internet Trolling and its mechanism. A sample of 1014 college students were assessed with Self-Concept Clarity Scale, Loneliness Scale, Deindividuation Scale and Internet Trolling Scale. The results showed that: (1) Self-concept clarity was significantly negatively correlated with loneliness, deindividuation and Internet Trolling. But there was also a significant negative correlation between deindividuation and Internet Trolling. (2) Loneliness partially mediated the relationship between self-concept clarity and Internet Trolling. (3) Deindividuation moderated the effects of self-concept clarity and loneliness on Internet Trolling. It indicates that Low self-concept clarity can affect the generation of Internet Trolling by enhancing loneliness, but low deindividuation can weaken the promoting effects of self-concept clarity and loneliness on Internet Trolling.

***Keywords*：** College students, Internet Trolling, Self-concept clarity, Loneliness, Deindividuation

社会比较倾向和多维竞争特质的关系以及它们对多领域冒险行为的预测作用

王羽茜[1] Andrew J. Elliot[3]，李岩松[1,2]（通讯作者）

1 南京大学社会学院心理系，南京，210023

2 南京大学脑科学研究院，南京，210023

3 Department of Psychology, University of Rochester, United States

摘 要 近年来，社会比较取向与竞争特质之间的关系以及它们对个体风险行为的预测引起了广泛关注。然而，仍有一些问题需要进一步澄清。本研究在前人研究的基础上更新和扩展了相关内容。社会比较被定义为个体倾向于将自身的能力和观点与他人进行比较，这可能导致竞争态度和竞争行为的产生。尽管有关社会比较的研究很多，但对社会比较与竞争之间的关联了解仍然有限。竞争特质可能在社会比较与风险行为之间起到中介作用，但需要注意的是，竞争特质并非单一维度概念，不同的竞争维度（如超竞争倾向和自我发展竞争倾向）可能在社会比较与风险行为的关系中起到不同作用。

本研究旨在探索超竞争倾向和自我发展竞争倾向与社会比较倾向和风险承担之间的关系。超竞争倾向是指个体总是努力超越他人的倾向，这表明个体具有强烈的比较动机。而自我发展竞争倾向则侧重于个人

的发展和成长，同时关注他人的福祉，相对而言对心理健康的风险较低。

本研究通过两个相关研究对以上关系进行了实证检验，分别使用了大学生样本（N = 622）和成年工作人群样本（N = 717）。研究结果显示，社会比较-能力与超竞争倾向和自我发展竞争倾向呈正相关。社会比较-能力正向预测了总体风险行为以及其他领域的风险行为。两个研究结果在大体上一致，但在超竞争倾向和自我发展竞争倾向对风险行为的预测中存在一些差异。

具体而言，在研究一中，超竞争倾向对整体冒险行为以及娱乐、伦理和赌博领域的冒险行为产生显著的间接效应，而自我发展竞争倾向对娱乐和健康/安全领域的冒险行为产生显著的间接效应。研究二发现，超竞争倾向对整体冒险行为和伦理领域的冒险行为产生显著的间接效应，而自我发展竞争倾向对整体冒险行为和娱乐领域的冒险行为产生显著的间接效应。

综上所述，本研究在整合社会比较和竞争特质文献的基础上，扩展了风险行为的前因研究，对我们理解社会比较、竞争特质和风险行为之间的关系具有重要的学术和实践意义。
关键词　社会比较取向，特质竞争性，风险行为，中介效应，大学生

Social comparison orientation and multidimensional competitiveness: their influence on overall and domain-specific risk-taking

, Yuqian Wang, Andrew J. Elliot, Yansong Li[1, 2]

1 Institute for Brain Sciences, Nanjing University, China

2 Reward, Competition and Social Neuroscience Lab, Department of Psychology, School of Social and Behavioral Sciences, Nanjing University, China

3 Department of Psychology, University of Rochester, United States

Abstract： The relation between social comparison orientation and trait competitiveness, and how they predict individuals' risk-taking behavior is receiving growing attention. However, there are still a few issues that remain to be clarified. The present study provided an update and extension of previous research by examining how two types of social comparison orientation (SCO-ability and SCO-opinion) predicted two dimensions of trait competitiveness (hypercompetitive orientation (HCO) and self-development competitive orientation (SDCO)) and further investigating their utility in predicting both overall and domain-specific risk-taking in two correlational studies using college student (N = 622) and adult worker (N = 717) samples. The results revealed that SCO-ability positively predicted HCO and SDCO. SCO-ability positively predicted overall risk-taking and risk-taking in social investment and ethical risk-taking domains,

The findings were largely consistent across studies, with some variation within risk-taking domain. SCO-ability positively predicted HCO and SDCO, but the reciprocal relation was not observed. SCO-ability positively predicted overall risk-taking and risk-taking in the recreational, ethical, gambling, and health/safety domains across studies. Specifically, in Study 1, hypercompetitive orientation had significant indirect effects on overall risk-taking, as well as risk-taking in the domains of recreational, ethics, and gambling. Self-development competitive orientation had significant indirect effects on risk-taking in the domains of recreational and health/safety. In Study 2, hypercompetitive orientation had significant indirect effects on overall risk-taking and risk-taking in the ethics domain. Self-development competitive orientation had significant indirect effects on overall risk-taking and risk-taking in the recreational domain. This research furthers integration of the social

comparison and competition literatures, and expands the literature on antecedents of risk-taking behavior.

Keywords：Social comparison, Competitiveness, Multidimensional competitiveness, Domain-specific risk-taking

探究自我损耗状态下自我谈话的注意效应

——一项飞镖运动的眼动研究

耿璐[1] 洪晓彬[2]

1 武汉体育学院运动医学院，武汉，430070

2 武汉体育学院心理学系，武汉，430070，471780693@qq.com

摘 要　以往研究发现，在自我损耗状态下自我谈话可以提升注意并促进运动表现。正式比赛中阻碍运动表现的因素错综复杂，当人们的资源耗尽时运动表现将受到极大影响。如果在自我损耗状态下抵御分心干扰，此时的自我谈话是否依然可以提高被试注意功能和运动表现呢？为此，本研究注重生态学效度，在真实的运动场景中引入听觉分心刺激，尝试使用便携式眼动仪来考察运动员自我损耗状态下自我谈话的注意效应。

本研究选取 43 名体育专业学生，均为右利手，视力正常，无任何飞镖经验。采用单因素随机分组前后测设计。被试在前测阶段佩戴眼动仪进行飞镖任务，随后被随机分到自我谈话组和控制组；为期三天的干预阶段只有自我谈话组接受自我谈话训练；后测阶段，两组被试佩戴眼动仪在自我损耗状态下抵御听觉分心刺激进行飞镖任务。将特质自我控制和前测结果作为协变量加以控制。

结果如下：（1）自我谈话组被试在飞镖任务中注意力更集中。相比控制组被试，自我谈话组被试在飞镖盘近中心区域的眼动指标，例如：注视时长、访问时长、首注视时长更长，而在飞镖盘外区域的注视时长、访问时长和首注视时长更短；同时，自我谈话组被试在飞镖盘上的注视次数和访问次数也更多；（2）自我谈话组被试在飞镖投掷过程中注意力更稳定更集中，表现在热点图上飞镖盘的近中心区域的红色分布更多。并且，自我谈话组被试的眼动轨迹更集中分布于飞镖盘区域，而控制组被试的眼动轨迹显得更杂乱、更分散；（3）自我谈话干预未能对被试的飞镖成绩产生显著的提升作用。但相比控制组被试，自我谈话组被试的飞镖成绩发挥较为稳定。

综上，本研究结论为：（1）自我谈话作为一种心理训练技术，可能需要对被试进行长时间的干预才会达到提升运动表现的明显效果；（2）自我谈话有利于被试在自我损耗状态下抵制分心干扰，并提高对任务目标的注意程度。

关键词　自我损耗，自我谈话，飞镖，眼动

Exploring the Attention Effect of Self-Talk in the State of Ego Depletion

—Darts of the Eye Movement Research

Lu Geng[1]　Xiaobin Hong[2]

1 School of Sports Medicine, Wuhan Sports University, Wuhan

2 Department of Psychology, Wuhan Sports University, Wuhan

Abstract: Previous research found that self-talk can improve attention and athletic performance in a state of ego depletion. The factors hindering the race are intricate while people's resources are insufficient, their physical

performance will be significantly effected. If people resist distractions in a state of ego depletion, self-talk at this time still can improve the subjects' attention and performance? Therefore, the research focuses on ecological validity, incorporating auditory distractions into real sports situations, and attempting to use a portable eye tracker to investigate the attention effect of self-talk in athletes under self-depletion. The study selected 43 students majoring in sports, all of whom were right-handed, had normal vision, and had no experience with darts. Adopting a single-factor randomized pre-posttest design. During the pre-test phase, participants wore an eye tracker for dart tasks, and were then randomly assigned to a self-talk group and a control group; During the three-day intervention phase, only the self-talk group received self-talk training; In the post-test stage, two groups of participants wore eye trackers to resist auditory distractions and engage in dart missions in a state of ego depletion. Control trait self-control and pre-test results as covariates.

The results are as follows:(1)The self-talk group in the dart mission was more focused than the control group. Compared with the control group, the self-talk group had eye movement indicators in the near center area of the dart disk, such as longer gaze duration, interview duration, and first gaze duration, while the gaze duration, interview duration, and first gaze duration outside the dart disk were shorter; At the same time, the self-talk group also had more fixations and visits on the dart board; (2) The self-talk group showed more stable and focused attention during the dart throwing process, with more red distribution in the near center area of the dart disk on the hot spot map. Moreover, the eye movement trajectories of the self-talk group were more concentrated in the dart disk area, while the eye movement trajectories of the control group were more chaotic and dispersed; (3) Self-talk intervention did not significantly improve the subjects' dart performance. However, the self-talk group exhibited more stable dart performance compared to the control group.

In summary, the conclusions of the study are: (1) Self-talk, as a psychological training technique, may require long-term intervention on the subjects to achieve a significant effect on improving exercise performance; (2) Self-talk is beneficial for participants to resist distractions and increase their attention to task goals in a state of self depletion.

Keywords: ego depletion, self-talk, darts, eye movement

消费者自主选择情境中服务机器人拟人化对消费者社会评价的影响

钱一铭 宛小昂（通讯作者）

清华大学社会科学学院心理学系，北京，100084，wanxa@mail.tsinghua.edu.cn

摘 要　服务机器人已广泛应用于各类服务领域，而在应用场景中，采用拟人化设计的机器人变得越来越常见。拟人化是指将类似于人类的特征、特性和行为赋予非人类的主体。以往研究表明拟人化设计虽然具有一定优势，但需要考虑的是消费者并不总是需要拟人化的机器人。本研究探讨了服务机器人的拟人化程度对消费者使用意愿和社会评价的影响，并进一步确定了该效应的边界条件。由于机器人已逐渐具有社会角色属性，以及消费者的自主性会影响其消费行为和评价，因此本研究考虑了机器人社会角色和消费者自主性的影响。在本研究中，我们通过机器人的外观特征来操纵其拟人化程度，被试被随机分配到机器人的社会角色是伙伴或助手的组别中。每组中一半的被试具有高自主性，即可以选择先接受高拟人化还是低拟人化机器人的服务，而另一半被试具有低自主性，即不能选择机器人的类型。所有被试都需要对高拟人化和低拟人化机器人的使用意愿、能力感知和温暖感知进行评分。结果显示，与低拟人化服务机器人相比，被试对高拟人化服务机器人表现出了更高的使用意愿以及能力和温暖感知。同时，拟人化的效果会受到社会角色的调节，即在助手角色组中，高拟人化和低拟人化机器人之间的差异比在伙伴角色组中的差异更为显著。此外，这种调节作用只在被试可以自由选择机器人类型的情境中显著。总的来说，本研究揭示了拟人化设计能够提高消费者对服务机器人的使用意愿和社会评价，但这种积极作用会受到机器人所扮演的社

会角色和消费者自主性的影响。本研究的结果确定了机器人拟人化设计的影响的边界条件，也为机器人外观设计和角色定义方面提供了实践启示，在增强服务环境中的人机交互方面具有较好的理论意义。
关键词　服务机器人，拟人化，社会角色，消费者自主性，社会评价

The Influence of Anthropomorphism of Service Robots on Consumers' Social Evaluation in the Context of Providing Consumers with Choice

Yiming Qian, Xiaoang Wan*
Department of Psychology, School of Social Sciences, Tsinghua University, Beijing, 100084

Abstract： Service robots have been widely used in various service fields, and robots with anthropomorphic designs are becoming more and more common in application scenarios. Anthropomorphism refers to the process of attributing humanlike features, traits, and behaviors to non-human agents. Previous research has shown that despite anthropomorphism offers several advantages, it is important to consider that consumers do not always need robots with anthropomorphic characteristics. Here we report a study designed to investigate the influence of anthropomorphism of service robots on consumers' usage intentions and social evaluations, and to determine its boundary conditions. Participants were randomly assigned to the group receiving service from either companion-role robots or assistant-role robots. Within each group, half of the participants had high autonomy, that is, they were given the choice to determine whether to receive service from a high or low anthropomorphism robot first, whereas the others had low autonomy, that is, they could not choose the type of robot. All participants were asked to rate their intention to use and the competence and warmth perception of the high and low anthropomorphism robots. The results revealed that participants showed higher intention to use and higher perception of competence and warmth for high anthropomorphism service robots than for low anthropomorphism service robots. The results also revealed that the effects of anthropomorphism were moderated by social role, with the difference between high and low anthropomorphism being more significant in the assistant-role group than in the companion-role group. Moreover, this moderating effect was significant only when participants had free choices. In conclusion, the findings of the present study revealed that anthropomorphic design can increase consumers' intention to use and social evaluation of service robots, whereas the positive effect can be influenced by the social role played by the robot and consumer autonomy. These findings demonstrate the boundary conditions for the influence of anthropomorphic design of service robots, and provide practical insights in terms of robot appearance design and role definition. The findings also provide valuable insight to enhance human–robot interaction in service settings.

Keywords： service robot, anthropomorphism, social role, consumer autonomy, social evaluations

网络分析技术下地域认同对心理应激的影响：适应性的中介作用和人际关系的调节作用

张磊[1,2]，汪洋[1]，杨海波[1]（通讯作者）
（1 天津师范大学心理学部，天津市 300074,通讯作者邮箱 yanghaibo@tjnu.edu.cn）
（2.青岛中学，山东青岛 266000）

摘 要　已有研究证明，过高的应激水平会造成个体适应性降低，并且容易引发人际关系困扰。社会身份是个体应对应激状态的重要因素，社会认同是社会身份的重要方面，为了探讨社会认同中地域认同与心理应激的关系，本研究以地域认同量表、大学生心理应激感量表、适应性量表、人际关系综合诊断量表作为测量工具，对来山东省某市 6 所大学的 1145 名学生数据（平均年龄为 20.2，其中男性 525 人，女性 620 人）进行调查，并通过网络分析技术探讨地域认同和心理应激的核心内容。通过数据分析，研究结果如下：（1）相关分析：地域认同与心理应激、人际关系困扰程度存在负相关，与适应性存在正相关；心理应激与适应性存在负相关，与人际关系困扰程度存在正相关；适应性与人际关系困扰程度存在负相关。（2）有调节的中介模型：在结构方程模型分析中，地域认同能够显著负向预测心理应激；适应性在模型中起到部分中介作用，人际关系困扰程度在模型中起到调节作用。（3）网络分析：通过网络分析技术发现，地域认同量表中，最核心的内容为项目 3（我非常关心家乡的发展）；心理应激量表中，最核心的内容为项目 17（受到城市同学的歧视感到愤怒和自卑）；合并网络分析中，心理应激量表中的项目 17（受到城市同学的歧视感到愤怒和自卑）是个体心理应激最大的来源，这在一定程度上解释了地域认同对于个体心理应激的影响作用。研究结果说明了大学生个体的地域认同对于心理应激的影响作用，同伴关系与适应性也成为影响大学生心理应激的重要因素，在维护大学生心理健康状态时需要充分考虑以上多种影响因素。
关键字　地域认同,心理应激,适应性,人际关系困扰程度,网络分析

The effects of geographical identity on psychological stress under network analysis techniques: the mediating role of adaptation and the moderating role of interpersonal relationships

Lei Zhang[1,2], Yang Wang[1], Haibo Yang[1] (Corresponding author)
(1Faculty of Psychology, Tianjin Normal University, Tianjin 300074, China)
(2 Qingdao Academy, Shandong, 266000, China)

Abstract: It has been proven that high stress levels reduce individuals' adaptability and often lead to interpersonal relationship difficulties. Social identity is a crucial factor in coping with stress, and one important aspect of social identity is geographic identity, which comprises five types: group, cultural, geographical, occupational, and status identity. To investigate the relationship between geographic identity and psychological stress within social identity, this study utilized the Geographic Identity Scale, the Psychological Stress Scale for College Students, the Adaptability Scale, and the Comprehensive Diagnostic Scale for Interpersonal Relationships as measurement tools. The data from 1,145 students (average age: 20.2) from six universities in China were analyzed, including 525 males and 620 females. The study employed network analysis techniques to explore the core components of geographic identity and psychological stress. The results of the study are as follows:1 Correlation analysis: Geographical identity exhibits a negative correlation with the degree of psychological stress and interpersonal relationship distress, and a positive correlation with adaptability. Psychological stress demonstrates a negative correlation with adaptability and a positive correlation with the degree of interpersonal relationship distress. Adaptability exhibits a negative correlation with the degree of interpersonal relationship distress.2 Moderated mediation model: In the structural equation model analysis, geographic identity significantly predicts psychological stress in a negative manner. Adaptability partially mediates the relationship in the model, while the degree of interpersonal relationship distress moderates the relationship.3 Network analysis: Through network analysis techniques, it was observed that item 3 ("I care a lot about the development of my hometown") is the most

central element in the geographic identity scale, whereas item 17 ("Feeling angry and experiencing low self-esteem after being discriminated against by urban classmates") is the most central element in the psychological stress scale. In the merged network analysis, item 17 of the psychological stress scale is identified as the primary source of psychological stress for individuals. This finding partially explains the influence of geographic identity on individual psychological stress.The results of this study demonstrate that geographic identity among college students impacts psychological stress. Peer relationships and adaptability are also significant factors influencing the psychological stress experienced by college students. These findings highlight the importance of considering these factors in maintaining the psychological health of college students.
Keywords： Geographical identity, Psychological stress, Adaptability, Interpersonal relationships, Network analysis

孤独感对青少年问题性手机使用的影响：上行社会比较和错失恐惧的链式中介作用以及自我认同感的调节作用

邵思洋　崔丽霞（通讯作者）
首都师范大学心理学院，北京市“学习与认知”重点实验室，北京，100048，clx668@163.com

摘 要　青少年问题性手机使用现象广泛存在，严重影响其身心健康和未来发展，这引起了研究者们的广泛关注。在青少年所面临的主要情绪问题中，孤独感已被发现是问题性手机使用的重要影响因素之一，然而其内在机制尚不明确。因此，本研究基于负强化情绪加工模型、补偿性互联网使用理论、自我决定理论以及人-影响-认知-执行模型等，构建了一个有调节的链式中介模型，探讨上行社会比较和错失恐惧在孤独感和问题性手机使用之间的链式中介作用，以及自我认同感在其中的调节作用。本研究采用孤独感量表、上行社会比较量表、错失恐惧量表、青少年自我认同感量表和青少年问题性手机使用量表-中国版。在北京市三所中学，以随机整群抽取的方式选择 466 名青少年（M_{age}=14.94±1.88；男生 208 人，女生 258 人）施测上述五种问卷，通过路径分析对该假设模型进行检验。结果表明：该模型拟合度较好，X^2/df = 2.35，CFI = 0.98，NFI = 0.97，TLI = 0.95，RMSEA = 0.05。进一步的路径分析表明：（1）孤独感显著正向预测青少年问题性手机使用（β= 0.23, p < 0.001）；（2）上行社会比较与错失恐惧在孤独感和青少年问题性手机使用间发挥链式中介作用（β= 0.11， p < 0.001，95%CI = [0.06, 0.16]）；（3）自我认同感在其中发挥调节作用，自我认同感水平较高时，上行社会比较和错失恐惧之间呈显著负相关（β= -0.35， p < 0.001），自我认同感水平较低时，上行社会比较和错失恐惧之间呈显著正相关（β= 0.20， p < 0.001）。以上结果表明，孤独感影响青少年问题性手机使用，上行社会比较与错失恐惧在二者间具有链式中介作用，自我认同在其中发挥调节作用。本研究根据情绪、认知和行为间的互相影响，不仅揭示了青少年问题性手机使用的内在心理机制，而且强调了关注青少年自我认同感的发展是帮助其适应数字化时代的关键，对青少年问题性手机使用的预防和干预具有重要的指导意义。
关键词　问题性手机使用，孤独感，上行社会比较，错失恐惧，自我认同

Adolescents' Loneliness and Problematic Smartphone Use: The Sequential Mediating Role of Upward Social Comparison and Fear of Missing Out and the Moderating Role of Self-identity

Siyang Shao, Lixia Cui
Department of Psychology, Key Laboratory of Learning and Cognition, Capital Normal University, Beijing, 100048

***Abstract*：** The widespread phenomenon of problematic smartphone use among adolescents, which seriously affects their physical and mental health and future development, has attracted extensive attention from researchers. Among the prominent emotional issues faced by adolescents, loneliness has been identified as a crucial contributing factor to problematic smartphone use; however, its underlying mechanisms remain unclear. Therefore, based on the Affective Processing Model of Negative Reinforcement, Self Determination Theory, Compensatory Internet Use Theory, and Interaction of Person-Affect-Cognition-Execution, this study constructed a moderated serial mediation model to explore the sequential mediating role of upward social comparison (USC) and fear of missing out (FOMO) on the relationship between loneliness and problematic smartphone use, as well as the moderating role of self-identity. This study used the Loneliness Scale, the Upward Social Comparison Scale, the Fear of Missing Out Scale, the Self-Identity Scale, and the Problematic Smartphone Use Scale for Chinese Adolescents. In three middle schools in Beijing, 466 adolescents were selected by random cluster sampling to test the above five questionnaires (M_{age}=14.94±1.88; 208 males and 258 females), and path analysis was used to test the hypothesis. Analysis yielded a good fit, X^2/df = 2.35, CFI = 0.98, NFI = 0.97, TLI = 0.95, and RMSEA = 0.05. Further path analysis showed that: (1) loneliness significantly positively predicted adolescents' problematic smartphone use (β= 0.23, p < 0.001); (2) upward social comparison and fear of missing out served as sequential mediating factors in the relationship between loneliness and problematic smartphone use (β= 0.11, p < 0.001, 95%CI = [0.06, 0.16]), and (3) self-identity played as a moderating role between upward social comparison and fear of missing out. The simple slope tests revealed a negative correlation between USC and FOMO at high levels of self-identity (β= -.35, p < .001). At low levels of self-identity, there was a positive correlation between USC and FOMO (β= .20, p < .001). The above results suggest that loneliness affects adolescents' problematic smartphone use and that upward social comparison and fear of missing out have a sequential mediating role between them, in which self-identity plays a moderating role. Based on the reciprocal influence between emotions, cognition, and behavior, this study not only reveals the underlying psychological mechanisms of problematic smartphone use among adolescents but also highlights the importance of focusing on self-identity development as a key factor in helping adolescents adapt to the digital age. These findings have significant implications for the prevention and intervention of problematic smartphone use among adolescents, providing important guidance in this area.

***Keywords*：** Problematic Smartphone Use, Loneliness, Upward Social Comparison, Fear of Missing Out, Self-Identity

感恩对网络人际行为的影响：一项为期 10 天的干预研究*

郑文峰　张建卫（通讯作者）　姜蕴珊　刘入瑗
北京理工大学人文与社会科学学院，北京　100081，通讯作者 E-mail：jianweizhang@bit.edu.cn

摘　要　互联网已经成为大学生生活和学习不可或缺的一部分，其引发了不同的网络人际行为（即网络偏差行为和网络亲社会行为）。随着积极心理学的兴起，研究者开始关注感恩干预与一系列积极结果（如亲社会行为）之间的关系，忽视了对偏差行为等消极结果的影响。更鲜见有研究致力于寻找一种可操作的机制来减少消极的网络偏差行为，同时增加网络亲社会行为。此外，以往大多数研究忽视了感恩干预如何影响个体行为及影响时效的关键问题。因此，本研究基于发现-提醒-联结理论，旨在开发和验证一种整合式感

* 基金项目：国家社会科学基金重点项目 (22AZD026)

恩干预方法（感恩日志、感恩表达及感恩沉思），探索其既可以作为网络亲社会行为的心理助推器，也可以作为网络偏差行为阻抑剂的有效途径。具体来说，本研究通过为期 10 天的整合式干预考察了感恩干预何以减少网络偏差行为并促进网络亲社会行为，以及关系能量在上述关系间的中介作用，并进一步考察了这种影响的即时和延时效应（一个月后）是否有差异。结果表明：（1）感恩干预对网络亲社会行为有即时与延时正向预测效应；（2）感恩干预对网络偏差行为具有即时与延时负向预测效应；（3）关系能量在感恩干预与网络亲社会行为的即时与延时关系中均起中介作用；（4）关系能量仅在感恩干预与网络偏差行为的延时关系中起中介作用。研究发现为学校教育工作者提供了一条简单而有益的实践途径，即通过整合式感恩干预促进网络亲社会行为，预防或减少网络偏差行为。
关键词　感恩干预，关系能量，网络偏差行为，网络亲社会行为，发现-提醒-联结理论

What Happened Online When College Students Become More Grateful? A 10-day Integrative Study*

Wenfeng Zheng, Jianwei Zhang (Corresponding Author)[9], Yunshan Jiang, Ruyuan Liu
School of Humanities and Social Sciences, Beijing Institute of Technology, Beijing 100081,
jianweizhang@bit.edu.cn

Abstract: The Internet has become indispensable to the life and learning of college students, eliciting different online behaviors (i.e., online deviant and prosocial behaviors). Previous studies associated gratitude interventions with a host of positive outcomes. However, there is little research regarding the impact of such interventions on both online behavior, or with a specific focus on online deviant behavior. In addition, most studies on gratitude interventions have overlooked the key issues of how gratitude intervention affects behavior and the impact of timeliness. When students purposefully cultivate feelings of gratitude, interpersonal energy is strengthened and online prosocial behaviors are more frequent while online deviant behaviors are more sporadic. In this study, we examined the effectiveness of a 10-day integrative online gratitude intervention in decreasing online deviant behavior and increasing online prosocial behavior among university students. Additionally, we propose and test a mediator model with relational energy based on the find-remind-and-bind theory. We then discussed the implications of theoretical contributions for future research and suggested a simple and helpful path for university educators, whereby gratitude interventions foster online prosocial behavior and prevent or attenuate online deviant behavior. We encourage further investigation to enrich our understanding of how gratitude can benefit the development of online interpersonal behavior among college students.

Keywords: gratitude intervention, relational energy, online deviant behavior, online prosocial behavior, find-remind-and-bind theory

失智患者家庭照护者的社会网络及其对照护体验的影响研究—基于混合社会网络分析视角

王俊[1]　刘玮楚[1] 李雪连[1] 马应卓[1] 赵庆华[1] 吕洋[1] 肖明朝[1]（通讯作者）

* The research was supported by the Key Project of National Social Science Foundation of China (22AZD026)

1 重庆医科大学附属第一医院，重庆，400016
通讯作者邮箱 xmz.2004@163.com

摘 要　社会网络对个体健康至关重要，在照顾失智患者的家庭照护者中更是如此。本研究旨在探讨失智患者家庭照护者的社会网络类型、影响因素以及对照护体验的影响。本研究采用混合研究设计，定量部分对 237 名失智患者及家庭照护者进行问卷调查：(a)个人和情境信息；(b)社会网络，使用 Lubben 社交网络量表；(c)照护体验采用 Zarit 负担访谈简表评估照护负担，照护者积极感受量表评估获益感。定性部分采用最大差异化抽样对 12 名家庭照护者进行半结构化访谈。定量部分采用潜在类别分析和多元回归分析，定性部分进行混合社会网络分析和归纳内容分析法。三种社会网络类型——家庭限制型网络（n=39，16.46%）、家庭主导型网络（n=99，41.77%）和多样型网络（n=99，41.77%）——在失智患者和家庭照护者的年龄和性别、失智程度和每周照护时间上差异有统计学意义（P<0.05）。家庭主导型网络中的照护者比家庭限制型网络中的照护者的照护负担更轻（β= -0.299，P= 0.003）、获益感程度更高（β= 0.228，P= 0.021）。家庭照护者在社会网络可及性（时间空间限制、无用的帮助、在线社交媒体的便捷）、互惠性（害怕麻烦、病耻感、社会参与）和信任性（失智照护的不信任、良好的关系质量）方面存在获取支持的障碍因素和促进因素，感知到社会支持包括经济支持、工具性支持、情感支持和正式支持。失智患者家庭护理者有不同的社会网络类型，在社会文化背景中有很大的差异，从社交网络中感知到各种类型的支持。稳固的家庭网络和多元化的社会网络在改善照护体验上至关重要。
关键词　社会支持，照护负担，获益感，痴呆，混合研究

Research on the Social Networks of Family Caregivers for Individuals with Dementia and Its Impact on Caregiving Experience - From the Perspective of Mixed-methods Social Network Analysis

Wang Jun[1]　Liu Weichu[1] Li Xuelian[1] Ma Yingzhuo[1] Zhao Qinghua[1] Lü Yang[1]　Xiao Mingzhao[1]
1The First Affiliated Hospital of Chongqing Medical University，Chongqing，400016

Abstract：Social networks (SNs) are crucial to personal health, particularly among caregivers of individuals with dementia (IWD). This study aims to depict dementia caregivers' SN types, related factors, and impact on the caregiving experiences. A Mixed-methods study was designed. A questionnaire-based survey was conducted with a total of 237 family caregivers of IWD: (a) personal and situational information; (b)SN, using the Lubben Social Network Scale; (c) caregiver burden, using the short-form Zarit Burden Interview; (d) positive aspects of caregiving (PAC), using nine-item Positive Aspects of Caregiving Scale. Additional semi-structured interviews was conducted with 12 caregivers. A quantitative analysis was performed using latent class analysis (LCA), and multivariate regression analysis. A mixed-methods social network analysis (MMSNA) and an inductive content analysis were performed on the qualitative data. The three SN types—family-limited (n=39, 16.46%), family-dominant (n=99, 41.77%) and diverse network (n=99, 41.77%)—differed in age and sex of caregivers and IWD, stage of dementia, and caregiving intensity. Caregivers in family-dominant networks had a lower caregiver burden (β= -0.299, P= 0.003) and greater PAC (β= 0.228, P= 0.021) than those in family-limited networks. Three themes, including accessibility (i.e., time-and-space restriction, useless help, convenience of online social media), reciprocity (i.e., fear of troubling, stigma, social participation), and reliance (i.e., distrust in providing dementia care, good relationship quality), emerged as facilitators and barriers when asking for support. Caregivers mentioned the objective, subjective, and formal support provided by SNs. Family caregivers of IWD have different

SN types that vary considerably among socio-cultural contexts and perceive various types of support from SN. Solid family network and diverse SNs play vital roles in improving the caregiving experience.

Keywords：Social support, caregiver burden, positive aspects of caregiving, dementia, mix-methods study

教师成长型思维对中学生学业投入的影响：学生成长型思维的中介作用及其干预研究

方作之[1,2] 罗扬眉[2]（通讯作者）

1 北京大学心理与认知科学学院，北京，100871

2 陕西师范大学心理学院，西安，710062，yangmeiluo@snnu.edu.cn

摘 要 教育是一个国家和民族最为重要的事业，教师作为教育的主体在教育过程中 扮演着重要角色。教师的成长型思维影响着教师自身是否有自己的教学能力可以 通过努力提高的信念。青少年是未来国家和社会的主体与创造者，他们所处的人 生阶段是自我发展的关键期。在这个关键时期，教师在青少年阶段的发展中有着 举足轻重的作用。那么，教师的思维模式在教室文化环境下是否通过影响青少年 的思维模式从而影响其学业投入呢？

本研究从科学实证地角度，研究教师的成长 型思维影响中学生学习投入的内部机制，对该问题的研究，不仅有利于促进中学 生的学习投入，也能为教师如何促进学生学习投入提供理论指导和实践支持。 鉴于此，本研究基于成长型思维理论，开展了如下三个研究，研究一使用公共数据库《中国家庭追踪调查》，进行学生成长型思维与学业投入的纵向追踪的交叉滞后研究设计，考察中学生成长型思维与学业投 入的因果关系。研究二对中学生的成长型思维进行短时程干预训练，使用配对样本 t 检验的前后测量方法检验干预效果。研究三采用问卷调查方式，选取初一至高二 51 个班级的班主任教师及学生，以教师成长型思维、教师固定型思维分别为自变量，学生成长型思维为中介变量，学生学习投入为因变量，使用跨水平模型分析，探讨教师成长型思维对学生学习投入的影响及其内部机制。三个研究结果表明：

1. 成长型思维正向预测学业投入；
2. 成长型思维可以通过短时程干预得到提升，学业投入也随之提升；
3. 教师成长型思维总体处于中等偏上水平；
4. 教师成长型思维显著正向预测学生成长型思维与学习投入；
5. 学生成长型思维在教师成长型思维与中学生学习投入的关系中起到完全中介作用。

本研究结果揭示了教师成长型思维会影响学生成长型思维，进而提升学生学 业投入，该研究为成长型思维与学业投入之间的因果关系提供了较为充分的实证 研究的支持，丰富了成长型思维和学业投入的相关研究，也为教师和学生的成长 型思维的干预研究提供了思路。

关键词 教师成长型思维,学生成长型思维,学习投入,中学生,跨水平模型

The Influence of Teachers' Growth Mindset on Middle School Students' Academic Engagement: The Mediating Effect of Students' Growth Mindset and Intervention Research

Zuozhi Fang[1]

School of Psychological and Cognitive Sciences,Peking university,BeiJing,100871

Shchool of Psychology,Shaanxi normal university,Xi An,710062

Yangmei Luo[2]

Shchool of Psychology,Shaanxi normal university,Xi An,710062

***Abstract*:** Education is the most important cause of a country and a nation, and teachers, as the main body of education, play an important role in the education process. Teachers' growth mindset affects whether teachers have their own beliefs that their teaching ability can be improved through hard work. Adolescents are the subjects and creators of the future country and society, and their life stage is a critical period for self-development. During this critical period, teachers play a pivotal role in the development of adolescents. So, does the teacher's thinking mode affect the academic engagement of adolescents by influencing the thinking mode of adolescents in the classroom culture environment?

From the perspective of scientific evidence, this research studies the internal mechanism of teachers' growth mindset affecting middle school students' learning engagement. The research on this issue will not only help to promote middle school students' learning engagement, but also provide theoretical guidance and guidance for teachers on how to promote students' learning engagement. Practice support. In view of this, this study carried out the following three studies based on the growth mindset theory. Study 1 used the public database "Chinese Family Tracking Survey" to conduct a cross-lag research design of longitudinal tracking of students' growth mindset and learning engagement, and investigated the growth of middle school students. The causal relationship between growth mindset and academic engagement. Study 2 conducted a short-term intervention training on the growth mindset of middle school students, and used t test to test the intervention effect. Research 3 used questionnaires to select head teachers and students from 51 classes from junior one to senior two . Teachers' growth mindset and teachers' fixed mindset were used as independent variables, students' growth mindset as an intermediary variable, and students' learning engagement as a dependent variable. , using a cross-level model analysis to explore the impact of teachers' growth mindset on students' learning engagement and its internal mechanism. The results of three studies found:

1. A growth mindset positively predicts learning engagement;

2. Growth mindset can be improved through short-term intervention, and learning engagement will also increase accordingly;

3. Teachers' growth mindset is generally at the upper-middle level;

4. Teachers' growth mindset significantly positively predicts students' growth mindset and learning engagement;

5. Students' growth mindset plays a completely mediating role in the relationship between teachers' growth mindset and middle school students' learning engagement.

The results of this study reveal that teachers' growth mindset will affect students' growth mindset, thereby enhancing students' learning engagement. This study provides sufficient empirical research support for the causal relationship between growth mindset and learning engagement, enriching the The relevant research on mindset and learning engagement also provides ideas for the intervention research of growth mindset of teachers and students.

Keywords：Teacher's growth mindset,Students' growth mindset, Learning engagement, Middle school student,Multilevel model;

基于微博文本数据的抑郁倾向检测研究

穆易[1]　　李强[1]（通讯作者）

1 南开大学周恩来政府管理学院社会心理学系，天津，300350

摘要　社交网络应用中的“抑郁症社区”是一种为社区成员提供信息发布和社交互动的平台。成员活动产生的大量媒体信息及成员间的互动痕迹为网络社会中抑郁倾向的检测与识别提供机遇。基于机器学习技术构建的分类模型，采用有监督学习（Supervised Learning）的方法，以人工标注的方式实现对社交网络中与抑郁症症状、情绪等相关的帖子进行分类、识别。本研究主要工作：（1）抽取新浪微博在 2018-2022 年公开发布在“抑郁症社区”的帖子 285826 条，编制了一个全新的社交网络抑郁倾向标注方案，为社交网络中存在抑郁倾向的帖子提供更好的匹配。（2）由两名心理咨询领域研究者根据标注方案标注部分数据集，采用深度学习（Deep Learning）训练，对已标注数据构建文本分类模型，实现了抑郁倾向帖子的检测、识别，最后对其识别准确率做出评估。（3）采用文本分析（Text Analysis）技术，统计发帖频率及对应时间区间的词频，以时间为单位呈现了抑郁症社区中发帖数量随时间波动的变化。结果发现，深度学习模型具有较高的检测准确率；抑郁症社区近五年的帖子发布频率呈先增长后下降的趋势，并于 2020、2021 年间趋于平稳，继而在 2022 年初极速增长并达到高峰，此外，研究还发现除了自我情绪表达相关词汇以外，“别人”、“大家”和“朋友”等词汇出现频率较高。结论：基于深度学习的分类模型具有较好的预测效果，社交媒体数据可以对个体的抑郁倾向进行有效预测；人际关系是抑郁症社区成员活动痕迹中较为重要的一个因素；抑郁症社区成员的活动随时间节点具有特定变化规律，未来需要进一步探索与其结果的关系和背后的机制。

关键词　抑郁倾向检测，微博抑郁症社区，深度学习，文本分析

Research on Depression Tendency Detection Based on Weibo Text Data

Yi Mu[1]　　Qiang Li[1*]

1 School of Social Psychology, Zhou Enlai School of Government, Nankai University, Tianjin, 300350.

Abstract：The "Depression Community" in social networking applications is a platform that provides community members with information sharing and social interaction. The abundance of media information generated by member activities and the traces of interactions among members present opportunities for detecting and identifying depression tendencies in the online social network. A classification model based on machine learning techniques is constructed, using supervised learning to achieve classification and identification of posts related to depression symptoms and emotions in the social network through manual annotation. The main work of this research includes: (1) Extracting 285,826 posts publicly published in the "Depression Community" on Sina Weibo from 2018 to 2022 and devising a new social network depression tendency annotation scheme to better match posts with depression tendencies. (2) Two psychological counseling researchers annotated a portion of the dataset according to the annotation scheme and trained a deep learning model to achieve the detection and identification of posts with depression tendencies, evaluating its recognition accuracy. (3) Using Text Analysis technology, the frequency of

posts and corresponding word frequencies within specific time intervals were analyzed. The study presents the fluctuation of the number of posts in the depression community over time.The results showed that the deep learning model had a high detection accuracy. The posting frequency in the depression community showed an increasing trend in the past five years, then decreased and stabilized during 2020 and 2021， and rapidly increased to a peak at the beginning of 2022. Furthermore, the study found that in addition to vocabulary related to self-expression of emotions, words such as "others," "everyone," and "friends" appeared frequently. In conclusion, the deep learning-based classification model has a good predictive effect, and social media data can effectively predict individuals' depression tendencies. Interpersonal relationships are an important factor in the activity traces of depression community members. The activities of depression community members exhibit specific patterns over time, and further exploration is needed to understand the relationship and mechanisms behind these results.

Keywords：Depression tendency detection, Weibo depression community, Deep learning, Text analysis

家庭复原力与心理健康问题的关系：一项多水平元分析

李睿[1] 李莹[1]（共同第一作者） 米亭霓[1] 吴东宏[1] 任志洪[1]（通讯作者）

1 青少年网络心理与行为教育部重点实验室，华中师范大学心理学院，湖北省人的发展与心理健康重点实验室，武汉，430079，ren@ccnu.edu.cn

摘 要 心理健康问题在日常生活中普遍存在，尤其是焦虑和抑郁，对个人、家庭和整个社会产生深远影响。家庭复原力指一个家庭在逆境中适应和发展的能力，以及促进家庭功能积极发展的力量。过去的一些研究表明家庭复原力与焦虑、抑郁之间存在一定的关系，但研究结果却存在差异，而且，尚不完全清楚调节效应对其关系的影响。目前缺乏元分析分析来探讨家庭复原力与这两类心理健康问题之间的关系。因此，当前研究采用多水平元分析方法检验效应量的可靠性，并通过调节效应分析考察性别、年龄阶段、教育程度、文章发表年份、文章发表类型、东西方地区、心理健康问题类型、心理健康问题和家庭复原力测量工具的调节作用。在系统地搜索了 2023 年 7 月之前发表的文献后，当前元分析确定了 11 项初始研究，包括 10213 名被试，共计 89 个效应量。结果发现：(1)家庭复原力与心理健康问题存在显著负相关(主效应: $r = -0.308$， $p < 0.001$)；(2)心理健康问题量表存在显著调节作用。与其他心理健康问题量表($r = 0.353$)相比，广泛性焦虑量表(GAD-7)与家庭复原力($r = -0.369$)之间的负相关更强；(3)调节效应检验发现年龄阶段具有显著的调节作用。与青少年($r = 0.164$)相比，成人($r = 0.320$)与家庭复原力和心理健康问题之间的相关更强；(4)教育程度(大学及以上)($r = -0.286$)也会调节家庭复原力和心理健康问题之间的关系。但性别、文章发表年份、文章发表类型、东西方地区、心理健康问题类型和家庭复原力测量工具的调节作用不显著。研究结果表明家庭复原力与心理健康问题的关系密切，以往研究结果的不一致可能源于心理健康测量工具、年龄阶段和教育程度的影响。

关键词 家庭复原力，心理健康问题，多水平元分析，焦虑，抑郁

The relationship between family resilience and mental health issues: a multilevel meta-analysis

Li Rui[1], Li Ying[1] (Co-first author), Mi Tingni[1], Wu Donghong[1], Ren Zhihong[1] (Corresponding author)

1 Key Laboratory of Adolescent Cyberpsychology and Behavior (CCNU), Ministry of Education;

School of Psychology, Central China Normal University; Key Laboratory of Human Development and Mental Health of Hubei Province, Wuhan, China

Abstract： Mental health issues, particularly anxiety and depression, are pervasive in everyday life and have a profound impact on individuals, families and society as a whole. Family resilience refers to a family's ability to adapt and grow in adversity, as well as the strengths that promote positive family functioning. Previous research has indicated a certain relationship between family resilience and anxiety and depression, but the findings have been inconsistent, and the influence of moderating effects on this relationship remains unclear. Currently, there is a lack of meta-analytic analysis exploring the relationship between family resilience and the two mental health issues. Therefore, the present study adopted a multilevel meta-analytic approach to examine the reliability of effect sizes and investigate the moderating effects of gender, age stage, education level, year of article publication, type of article publication, region, category of mental health issues, and the moderating effects of measurement instruments of mental health issues and family resilience. After systematically searching literature published before July 2023, the current meta-analysis identified 11 initial studies comprising 10,213 participants and a total of 89 effect sizes. The results revealed the following: (1) There was a significant negative correlation between family resilience and mental health issues (main effect: $r = -0.308$, $p < 0.001$); (2) The measurement for mental health issues had a significant moderating effect, with a stronger negative correlation observed between the Generalised Anxiety Scale (GAD-7) and family resilience ($r = -0.369$) compared to other mental health scales ($r = 0.353$); (3) Age stage was found to have a significant moderating effect. Adults ($r = 0.320$) showed a stronger association between family resilience and mental health issues compared to adolescents ($r = 0.164$); (4) Education level (college and above) ($r = -0.286$) also moderated the relationship between family resilience and mental health issues. However, gender, year of article publication, type of article publication, region, type of mental health issues, and the measurement related to family resilience did not show significant moderating effects. The study's findings suggest a close relationship between family resilience and mental health issues. The inconsistency in previous research results may be attributed to the effects of mental health issues scale, age stage, and education level.

Keywords： family resilience, mental health issues, multilevel meta-analysis, anxiety, depression

6.3“教育心理学”分组展贴报告

英语背景乐对汉语母语大学生持续性注意的影响

董梦瑶[1] 李峰[1] 王学森[1] 姚玉洁[1] 宋爽[2]（通讯作者）

1 沈阳城市学院 应用心理系，辽宁 沈阳，110112

2 辽宁教育学院，辽宁 沈阳 110032 通讯作者 E-mail:song555777@126.com

摘 要 现如今在各个大学的图书馆和自习室，学生一边听音乐一边学习习以为常。已有研究表明，背景音乐对阅读起干扰作用。而其作用机理，是否为背景乐影响个体的持续性注意还知之甚少。因此，本研究采用 AX-CPT 实验范式，目的在于考察汉语和英语这两种不同语种音乐背景下，母语为汉语的大学生在 AX-CPT 任务上的正确率和反应时是否存在差异，进一步探讨中英语背景乐对母语为汉语的大学生持续性注意的影响。实验采用单因素被试间实验设计,将 60 名被试随机均分为两组(英语背景乐组、汉语背景乐组), 并基于 AX-CPT 范式设计持续性注意测验任务作为实验任务,考察不同组被试实验成绩的差异。

研究结果表明：(1) 不同音乐背景下的持续性注意实验正确率差异显著，英语背景乐的正确率显著高于汉语背景乐的正确率。(2) 不同音乐背景下的持续性注意实验反应时差异显著，英语背景乐的反应时显

著快于汉语背景乐和无背景乐的反应时。(3) 英语背景乐下不同性别被试的持续性注意实验正确率差异显著，男生正确率显著高于女生正确率。(4) 英语背景乐下不同性别被试的持续性注意实验反应时差异显著，男生反应时显著快于女生反应时。结果表明，汉语母语大学生的持续性注意，相比于英语背景乐，更容易受到汉语背景乐的影响。性别差异方面，相比于男生，英语背景乐更能影响女生的的持续性注意。
关键词　持续性注意，背景乐，AX-CPT 任务

The influence of Chinese and English background music on the sustained attention of Chinese college students

DONG Mengyao[1]　LI Feng[1]　WANG Xuesen[1]　YAO Yujie[1]　SONG Shuang[2]
1 Shenyang City University, Shenyang 110112,China
2 Liaoning Institute of Education, Shenyang 110032 , China

Abstract：Nowadays, in libraries and study rooms of various universities, students often listen to music while studying. Previous studies have shown that background music has an interfering effect on reading. It is unclear whether the mechanism of its action is due to the influence of background music on individuals' sustained attention. Therefore, this study adopts the AX-CPT experimental paradigm to investigate whether there are differences in the accuracy and reaction time of native Chinese college students on the AX-CPT task under the music backgrounds of Chinese and English, and further explore the impact of Chinese and English background music on the sustained attention of native Chinese college students. The experiment adopts a single factor inter subject experimental design, with 60 participants randomly divided into two groups (English background music group and Chinese background music group). Based on the AX-CPT paradigm, a sustained attention test task is designed as the experimental task to investigate the differences in experimental results among different groups of participants.

The research results show that: (1) There are significant differences in the accuracy of continuous attention experiments under different musical backgrounds, and the accuracy of English background music is significantly higher than that of Chinese background music; (2) There are significant differences in the response time of the continuous attention experiment under different music backgrounds. The reaction time of English background music is significantly faster than that of Chinese background music and no background music; (3) There is a significant difference in the accuracy of continuous attention experiment of subjects of different genders in English background music. The correct rate of boys is significantly higher than that of girls; (4) There is a significant difference in the response time of sustained attention experiments between genders under English background music, with male students responding significantly faster than female students. The results indicate that the sustained attention of Chinese native language college students is more susceptible to the influence of Chinese background music compared to English background music. Compared to boys, English background music can more affect girls' sustained attention.

Keywords：continuous attention, background music, AX-CPT task

累积生态风险对留守高中生自杀意念的影响：生命意义感和心理痛楚的链式中介作用

崔爱琳　张珊珊（通讯作者）　王泓懿
1 沈阳师范大学，沈阳，110034

2 沈阳师范大学教育科学学院，沈阳，110034， zhangxiaobai2@163.com

摘 要 高中阶段是个体心理问题的频发期，自杀意念是其中的一种典型表现。在自杀发生之前，自杀意念是其早期的预警信号，也是预测个体自杀实施的最重要的风险变量。根据累积情境风险模型观点，经历越多的风险事件，个体就越可能迸发自杀意念，而留守高中生多数寄养在亲属家或寄宿在学校，他们体验到更加强烈的心理冲突，出现各类问题行为的可能性会更高，因而关注留守高中生自杀意念在当下显得尤为重要。为了探究留守高中生累积生态风险与自杀意念的关系，以及生命意义感和心理痛楚在其中的作用，本研究使用累积生态风险问卷、心理痛楚量表、生命意义感量表以及自杀意念自评量表对 444 名留守高中生进行问卷调查。运用 SPSS 27.0 和 Mplus8.3 软件对收集到的数据进行统计处理及分析。结果显示：累积生态风险对留守高中生自杀意念的直接效应和间接效应均显著。间接效应包括三条路径：一是生命意义感的单独中介作用；二是心理痛楚的单独中介作用；三是生命意义感和心理痛楚的序列中介作用。研究最终梳理出一条“累积生态风险→生命意义感→心理痛楚→自杀意念”的理论作用机制。因此，教师可以通过主题团体心理辅导，生命教育讲座等相关活动来增强留守高中生积极心理品质成长，以此用积极因素去缓冲留守高中生所面对的风险因素的侵蚀。

关键词 累积生态风险,生命意义感,心理痛楚,自杀意念,留守高中生

The effect of cumulative ecological risk on suicidal ideation of left-behind high school students: sense of life meaning: The chain mediating effect of and psychological pain

CUI Ailin , ZHANG Shanshan, WAGN Hongyi

1 College of Education Science, Shenyang Normal University, Shenyang, 110034

2 College of Education Science, Shenyang Normal University, Shenyang, 110034

Abstract：High school is a period of frequent individual psychological problems, and suicidal ideation is one of the typical manifestations. Prior to suicide, suicidal ideation is an early warning signal and the most important risk variable for predicting individual suicide. According to the cumulative situational risk model, the more risk events experienced, the more likely the individual is to burst out suicidal ideation. Most of the left-behind high school students are fostered in relatives ' homes or boarding in schools. They experience more intense psychological conflicts and are more likely to have various types of problem behaviors. Therefore, it is particularly important to pay attention to the suicidal ideation of left-behind high school students at present. In order to explore the relationship between cumulative ecological risk and suicidal ideation of left-behind high school students, and the role of meaning in life and psychological pain in it, this study used the cumulative ecological risk questionnaire, psychological pain scale, meaning in life scale and suicidal ideation self-rating scale to conduct a questionnaire survey on 444 left-behind high school students. SPSS 27.0 and Mplus8.3 software were used for statistical processing and analysis of the collected data. The results showed that the direct and indirect effects of cumulative ecological risk on suicidal ideation of left-behind high school students were significant. The indirect effect includes three paths: one is the independent mediating role of the sense of life meaning; the second is the separate mediating role of psychological pain; the third is the sequence mediating effect of life meaning and psychological pain. The research finally sorted out a theoretical mechanism of ' accumulating ecological risk, meaning of life, psychological pain, suicidal ideation. Therefore, teachers can enhance the positive psychological quality growth of left-behind high school students through thematic group psychological counseling, life education lectures and

other related activities, so as to buffer the erosion of risk factors faced by left-behind high school students with positive factors.
Keywords：Cumulative ecological risk, sense of life meaning, psychological pain, suicidal ideation, left-behind high school students

校园人际谣言与高中生相对剥夺感、心理僵化的关系：一项追踪研究

王泓懿　张珊珊（通讯作者）　崔爱琳
沈阳师范大学教育科学学院，沈阳，110034，E-mail:zhangxiaobai2@163.com。

摘 要　近年来，校园欺凌引发公众广泛的关注与思考，防治校园欺凌已成为学校教育的重心，校园人际谣言也属于校园关系欺凌的一种，然而这种方式具有隐蔽性，往往在校园生活中被解读成是学生互相交流的形式，所以欺凌的实质容易在这种“交流”的掩盖下被忽视。个体因校园人际谣言遭受到负面评价的攻击的同时，他们的人际关系也可能受到破坏，受到同学与教师的远离、甚至孤立。同时校园环境是青少年关系框架形成的重要语境，在校园人际谣言环境下高中生很难对当下经验保持灵活、自发的注意。相对剥夺感并非客观上的绝对缺乏，而是一种主观体验，而心理僵化也是主体在认知上对客观事实的回避、混淆，据此可以推测两者之间具有一定的内在联系，两者间可能存在相互影响的关系。本研究采用追踪研究，考察校园人际谣言对高中生相对剥夺感、心理僵化的影响及其性别差异。采用校园人际谣言量表、相对剥夺感问卷、青少年回避与融合问卷以沈阳市 322 名高中生为被试，进行间隔半年的两次测查。结果发现：（1）校园人际谣言能够正向预测 T1 相对剥夺感和 T1、T2 的心理僵化；（2）控制性别后，T1 相对剥夺感显著正向预测 T2 心理僵化，T1 心理僵化也能够显著正向预测 T2 相对剥夺感；（3）校园人际谣言对相对剥夺感、心理僵化的相互作用具有跨性别一致性。研究结果对干预校园人际谣言和促进高中生心理健康具有启示意义。
关键词　校园人际谣言，相对剥夺感，心理僵化，高中生，追踪研究

The relationship of Negative school gossip, relative deprivation, psychological inflexibility in highschool students: A longitudinal study

Hongyi Wang, Shanshan Zhang, Ailin Cui
College of Education Science, Shenyang Normal University, Shenyang

Abstract：In recent years, campus bullying has aroused extensive public concern and thinking, and the prevention and control of campus bullying has become the focus of school education. In the campus life, Negative school gossip is often interpreted as a form of communication between students, so the essence of bullying is easy to be ignored under the cover of “Communication”. While individuals are attacked by negative school gossip, their interpersonal relationships may be damaged, and they may be isolated from their classmates and teachers. At the same time, the campus environment is an important context for the formation of the adolescent relationship framework, it is difficult for high school students to keep flexible and spontaneous attention to current experiences in negative school gossip. In addition, the sense of relative deprivation is not an objective absolute lack, but a

subjective experience, and psychological inflexibility is also the subject's cognitive avoidance of objective facts, confusion, it can be inferred that there are certain internal relations between the two, and there may be a relationship of mutual influence. The study used a longitudinal design to investigate the associations among negative school gossip, relative deprivation and psychological inflexibility of high school students, and examine whether there existed gender differences. A total sample of 322 high school students were recruited from Shenyang province using the Negative School Gossip Questionnaire (NSGQ), the Relative Deprivation Scale (RDS),the Avoidance and Fusion Questionnaire for Youth (AFQ-Y8). Two waves of data collections were conducted with an interval of half a year. Results showed that: (1) Negative school gossip significantly and positively predict relative deprivation at wave 1 and psychological inflexibility at wave 1 and wave 2; (2) Relative deprivation in wave 1 significantly positive predicted psychological inflexibility in wave 2, and psychological inflexibility in wave 1 also significantly positive predicted relative deprivation in wave 2 when controlling for gender; (3) There was cross-gender consistency in associations among negative school gossip, relative deprivation and psychological inflexibility. The results of the study have implications for the intervention of negative school gossip and the promotion of high school students' mental health.

Keywords ： Negative school gossip, relative deprivation, psychological inflexibility, high school students, longitudinal study

粗暴养育对高中生抑郁的影响：

侵入性反刍和情绪调节自我效能感的作用

张靖淇[1]　张珊珊[2]（通讯作者）　王泓懿[2]

1 沈阳师范大学教育硕士研究生院，辽宁沈阳，110034；

2 沈阳师范大学 教育科学学院，辽宁沈阳，110034，zhangxiaobai2@163.com

摘 要　高中生处于身心迅猛发展阶段，在面对学业、人际等多方压力，容易产生一系列心理困扰，其中抑郁就是高中生比较普遍产生的内化问题，抑郁不仅会消极地影响正常生活，甚至会危机身心健康。根据以往研究，粗暴养育是引起高中生抑郁的重要诱因，然而，探讨粗暴养育如何影响高中生抑郁的研究目前尚少，仍需更深入探讨。其中侵入性反刍和情绪调节自我效能感都是极易被粗暴养育影响且对抑郁具有重要影响作用的变量，极有可能构成粗暴养育与抑郁的影响机制。因此，本文采用粗暴养育量表、事件相关反刍沉思量表、情绪调节自我效能感量表和流调中心用抑郁量表对 575 名高中生进行问卷调查。基于生态系统理论、控制理论和自我效能感理论，以探讨粗暴养育与抑郁的关系以及侵入性反刍的中介作用、情绪调节自我效能感的中介作用和侵入性反刍与情绪调节自我效能感的链式中介作用。研究结果发现：（1）粗暴养育对抑郁有显著的正向预测作用；（2）侵入性反刍和情绪调节自我效能感分别在粗暴养育与抑郁关系间起中介作用；（3）侵入性反刍和情绪调节自我效能感在粗暴养育和抑郁的关系间起链式中介作用。该结果揭示了父母粗暴养育对高中生抑郁的重要作用以及其中的作用机制，为预防高中生抑郁提供了参考。

关键词 高中生，粗暴养育，侵入性反刍，情绪调节自我效能感，抑郁

The Effect of Harsh Parenting on Depression among High School Students:

The Role of Invasive Rumination and Regulatory Emotional

Self-efficacy

ZHANG Jing-Qi[1], ZHANG Shan-Shan[2], WANG Hong-Yi[2]
1 Master of Education Graduate School,Shenyang Normal University, Shenyang110034
2 School of Education Science, Shenyang Normal University,Shenyang, 110034,
zhangxiaobai2@163.com

Abstract **：** High school students are in the stage of rapid physical and mental development. Faced with academic and interpersonal pressures, they are prone to a series of psychological troubles, among which depression is a common emotional disorder of high school students. Depression will not only negatively affect normal life, but even endanger physical and mental health. According to previous studies, harsh parenting have an negative impact on high school students' depression.However, there are limited research on how harsh parenting affects high school students' depression, which still need further discussion.Invasive rumination and regulatory emotional self-efficacy, which are highly susceptible to harsh parenting and often have a significant impact on depression.Thus, 575 high school students were invited to finish the Harsh Parenting Scale, the Event Related Rumination Scale, the Regulatory Emotional Self-efficacy Scale and the Center for Epidemiologic Studies Depression Scale. The survey studied the influence of the harsh parenting on high school students' depression and the mediating effort of invasive rumination and regulatory emotional self-efficacy based on ecological system theory, control theory and self-efficacy theory. The results showed that: (1)harsh parenting has a significant and positive predictive effect on depression; (2)invasive rumination and regulatory emotional self-efficacy separately mediated the relationship between harsh parenting and depression; (3) invasive rumination and regulatory emotional self-efficacy mediated the relationship between harsh parenting and depression sequentially.
Keywords **：** high school students; harsh parenting; invasive rumination; regulatory emotional self-efficacy; depression

师生冒犯在课堂上对学生共情的影响：宽恕的中介作用和师生关系的调节作用

于美琪[1] 王淑茵[2] 葛琼[2] 卢家楣[2]（通讯作者）
1 中国计量大学现代科技学院，金华，322002
2 上海师范大学教育学院，上海，200234，lujiamei@vip.163.com

摘 要 共情作为一种重要的人际情感现象，一直以来都备受研究者们的关注。重视“以情优教”的情感教学理论特别强调了共情在教学领域中的独特作用。该理论认为教师在将教材中带有情感的内容传递给学生的过程中，会涉及到学生对其中所包含的情绪情感的理解与共鸣。因此学生在课堂上对教师的共情是情感教学顺利开展和实施的必要条件，也是培养学生情感素质的关键。然而由于师生之间交往频繁，冒犯事件时有发生。以往研究发现人际冒犯的出现不仅会阻碍双方的人际交往，还会破坏双方的情感交流。因此，有必要重视师生冒犯对学生在课堂上的情绪情感，特别是对共情所造成的不良影响。然而这方面的研究却相

对匮乏。师生冒犯发生后，学生在课堂上对教师的共情会如何变化？造成这种变化的潜在机制是什么？这种不良变化又该如何被消除？针对这些问题，本研究从认知和情感两个方面来全面考察师生冒犯会如何影响课堂上学生对教师的共情，并通过构建有调节的中介模型来进一步探讨其内在影响机制。

本研究以 60 名初中生为被试（M = 13.05 岁，SD = 0.68；女性 36 名），采用 2（冒犯强度：低，高）×2（师生关系：好，差）的被试内实验设计。被试需要将自己代入到不同强度的师生冒犯情景中，在这些情景中被试作为受害者，受到了来自与他们有着不同师生关系的教师的冒犯。随后被试需要自我报告对教师的宽恕意愿，以及在教师授课时对教师的共情水平。结果显示：（1）宽恕在冒犯强度与学生对教师的认知和情感共情间起到中介作用；（2）师生关系在学生对教师进行积极共情时，在冒犯强度与认知共情间起到调节作用。这表明较强的宽恕意愿和良好的师生关系能够有效缓解师生冒犯对学生共情所造成的不良影响。本研究不仅丰富了师生冒犯、宽恕与共情的相关研究，为情感教学的相关理论提供了实证依据，还为学生不良共情变化的妥善干预提供了实际指导方向。

关键词 共情；宽恕；师生冒犯；师生关系

The Effect of Teacher-student Offense on Students' Empathy in Class: The Mediating Role of Forgiveness and the Moderating Role of Teacher-student Relationship

Meiqi Yu[1], Shuyin Wang[2], Qiong Ge[2], Jiamei Lu[2] (Corresponding author)

1 China Jiliang University College of Modern Science and Technology, Jinhua, 322000

2 Shanghai Normal University Education School, Shanghai, 200234, lujiamei@vip.163.com

Abstract: As an important interpersonal emotion phenomenon, empathy has long been of great interest to researchers. The theory of affective teaching, which emphasizes 'teaching with emotion,' particularly emphasizes the unique role of empathy in the field of teaching. The theory suggests that teachers' delivery of emotionally charged content contained in the teaching materials to students involves students' understanding and sharing of those emotions. Therefore, students' empathy for teachers in class is essential for the successful development and implementation of affective teaching and learning, as well as for the development of students' emotional qualities. However, due to the frequent interactions between teachers and students, incidents of offense occur from time to time. Previous research has found that the presence of interpersonal offense not only hinders interpersonal interactions between the two parties, but also disrupts their emotional communication. Thus, it is necessary to pay attention to the negative effect of teacher-student offense on students' emotions in class, especially on their empathy. However, there is a lack of relevant research. How do students' empathy toward teachers change in class after teacher-student offense occurs? What are the underlying mechanisms that cause such changes? And how should such negative changes be eliminated? To address these questions, the present study examined how teacher-student offense affects students' empathy toward teachers in class from both cognitive and affective aspects, and further explored the underlying mechanisms by constructing a moderated mediation model.

The present study recruited sixty middle school students as participants (M_{age} = 13.05, SD = 0.68; 36 females), and used a 2 (offense intensity: low, high) × 2 (teacher-student relationship: good, bad) within-subjects experimental design. Participants were required to substitute themselves into teacher-student offense scenarios with different intensities. In these scenarios, they acted as victims who were offended by their teachers with whom they had different relationships. Then, participants were asked to self-report their willingness to forgive the teacher and their level of empathy for the teacher in class. Results showed that: (1) forgiveness mediated the relationship

between offense intensity and students' cognitive and emotional empathy for the teacher; (2) the teacher-student relationship mediated the relationship between offense intensity and cognitive empathy when students were positively empathizing with the teacher. This suggests that a strong willingness to forgive and a good teacher-student relationship can effectively mitigate the negative effects of teacher-student offense on students' empathy. The present study not only enriches the research on teacher-student offense, forgiveness, and empathy, provides an empirical basis for theories of affective teaching, but also provides practical guidance for appropriate interventions for changes in students' poor empathy changes.
Keywords：Empathy; Forgiveness; Teacher-student offense; Teacher-student relationship

观察他人执行与思维一致的动作可以促进思维：物体呈现和观察方式的影响

岳亚奇[1]　王丽娟[1]

1 东北师范大学心理学院，长春，130024，通讯作者 wanglj699@nenu.edu.cn

摘 要　身体的感觉或行为会影响思维，这种现象被广泛地称为“具身认知”。尽管之前的研究显示与思维一致的动作可以促进个体的思考，但批评者认为这也可能被解释为参与者因执行动作而提升了他们的动机或兴趣导致他们有着更好的任务表现。因此，本研究在参与者实际执行与思维一致的动作的基础上增加了观察他人执行动作的条件。这么做的目的是为了避免个体产生实际的运动，同时又能通过对动作的观察在个体的头脑中保留动作的图式或表征。实验 1 对比了观察组和实际执行动作组两组儿童在一致和较少一致动作的条件下完成加法任务的正确率和反应时，结果发现两组儿童都在使用与对象数量匹配的离散一对一动作时，比使用与相加的和数量匹配的离散动作时表现得更好。观察组儿童的成绩要略好于实际执行动作组的儿童。在实验 1 的基础上，实验 2 进一步探究了观察方式的改变（直接观察或间接观察）和观察他人操作的过程中是否呈现物体对个体思维表现的影响，结果发现参与者在有物体条件下的任务表现要好于无物体的情况。直接观察的效果要好于间接观察。这些结果表明身体的感觉运动系统对高级认知过程的形成有着因果和构成作用，并且，这些因果和构成角色也可以由他人的身体所扮演。本研究的结果支持了具身认知理论。
关键词　动作，思维，具身认知

Observing Others Performing Thought-Consistent Actions Promotes Thinking: The Effects of Object Presentation and Observation Mode

Yue Yaqi[1] Wang Lijuan[1]

1 School of Psychology, Northeast Normal University, No.5268 Renmin Street, Changchun 130024, China

Abstract：Every day, it seems there is yet another demonstration of yet another surprising way that sensations or actions of the body affect thinking, phenomena broadly known as embodied cognition. Although previous studies

have shown that individual execution of actions consistent with thinking can promote thinking, there is no research exploring the impact of observing others' actions on thinking. Experiment 1 used a 2 (grouping: operation group vs observation group) x2 (consistency of action: consistent vs less consistent) mixed experimental design to examine this issue. We found that the two groups of children performed better when performing actions consistent with thinking than when performing fewer consistent actions. This shows that the higher the consistency of action and thinking, the more thinking is promoted. The observation group of children performance slightly better than the operation group. Experiment 2 used a 2 (observation method: direct or indirect) x2 (object: present or absent) mixed experimental design to explore the influence of observation modes and observing whether the object was presented in others' operation on thinking. The results showed that direct observation and object presentation had stronger effects. These results suggest that the sensorimotor system of the body has causal and constitutive effects on the formation of higher cognitive processes, and that these causal and constitutive roles can also be played by the bodies of others. These results support embodied cognition theory.
Keywords：Action, Thinking, Embodied cognition

敬畏对大学生抑郁的影响：自我超越和生命意义感的中介作用

丁亚童 张海 姜温君 桑明磊 陈英敏（通讯作者）

山东师范大学心理学院，济南，250399，通讯作者 cc8030306@163.com

摘 要 《2022 国民抑郁症蓝皮书》显示，我国 18-24 岁抑郁症患者占总人数的 35.32%。与此同时，新型冠状病毒肺炎的爆发使人们经历着严重的心理困扰。Meta 分析对疫情前后大学生抑郁症状进行调查发现，疫情后大学生抑郁症状的检出率为 35.7%，高于疫情前的 30.9%。可见，当前大学生抑郁问题凸显，因此探究影响大学生抑郁的因素以及有效降低大学生抑郁风险是当前极具现实意义且亟待解决的问题。近年来关于敬畏的研究方兴未艾，研究指出敬畏对抑郁的改善有潜在治疗作用，但相关证据不足；且以往研究大多将敬畏作为整体进行考察，更多关注其积极效应（如主观幸福感……等），得出的结果不够全面细致。本研究拟以中国大学生为被试，结合敬畏的不同分类（特质敬畏；积极/消极敬畏），全面细致考察敬畏与抑郁的关系，并进一步探讨自我超越和生命意义感在其中的可能机制作用。具体包括两个研究：研究一采用问卷法初步探讨特质敬畏和抑郁的关系，以及自我超越和生命意义感的中介作用，结果发现：特质敬畏显著负向预测大学生抑郁，自我超越和生命意义感在其中起多重中介作用。研究二采用实验设计，具体采用视频诱发方式探讨不同效价（积极/消极）的状态性敬畏对抑郁的影响及其中介机制。结果表明（1）积极敬畏体验下个体抑郁水平更低；而消极敬畏体验下产生更高的抑郁情绪；（2）自我超越和生命意义感在积极敬畏和抑郁的关系中发挥链式中介作用，即积极的敬畏体验有助于提升个体的自我超越能力与生命意义感从而有助于抑郁缓解；（3）生命意义感在消极敬畏和抑郁的关系中起中介作用，即消极敬畏通过削弱个体的生命意义感，进而增加了个体的抑郁体验。本研究结果为降低大学生抑郁风险提供了新思路，通过培育大学生的积极敬畏体验，可以增强其自我超越与生命意义感，进而降低或减少大学生抑郁的发生，维护其心理健康。
关键词 敬畏，自我超越，生命意义感，抑郁

The Impact of Awe on College Students' Depression: The Mediating Role of Self-Transcendence and Sense of Meaning in Life

Ding Yatong Zhang Hai Jiang Wenjun Sang Minglei Chen Yingmin

School of Psychology, Shandong Normal University, Jinan, 250399,

Corresponding Author cc8030306@163.com

Abstract:《the 2022 Blue Book of National Depression》 indicated that，patients with depression aged 18-24 in China account for 35.32% of the total number. At the same time, the outbreak of the novel coronavirus pneumonia has caused people to experience serious psychological distress. The meta-analysis investigated the depressive symptoms of college students before and after the epidemic, and found that the detection rate of depressive symptoms in college students after the epidemic was 35.7%, higher than that before the epidemic was 30.9%. It can be seen that the depression problem of college students is prominent at present, so exploring the factors affecting depression of college students and effectively reducing the risk of depression of college students is a problem of great practical significance and urgent solution. In recent years, the research on awe is on the rise, and the research points out that awe has a potential therapeutic effect on depression, but the relevant evidence is insufficient. And most of the previous studies examined awe as a whole, paying more attention to its positive effects (such as subjective well-being... Etc.), the results obtained are not comprehensive and detailed. In this study, Chinese college students were selected as subjects, and different categories of awe (trait awe; Positive/negative awe), comprehensively and carefully examine the relationship between awe and depression, and further explore the possible mechanisms of self-transcendence and sense of meaning in life. Specifically, two studies are included: Study 1 uses questionnaire method to preliminarily explore the relationship between trait awe and depression, as well as the mediating role of self-transcendence and sense of meaning of life. The results show that trait awe significantly negatively predicts depression among college students, and self-transcendence and sense of meaning of life play multiple mediating roles. In the second study, an experimental design was used to explore the effects of different titers (positive/negative) of state awe on depression and its mediating mechanism. The results showed that (1) the depression level was lower under the positive awe experience; The negative awe experience resulted in higher depression. (2) Self-transcendence and sense of life meaning play a chain mediating role in the relationship between positive awe and depression, that is, positive awe experience helps to enhance individual self-transcendence ability and sense of life meaning, thus contributing to depression relief; (3) Sense of meaning of life plays a mediating role in the relationship between negative awe and depression, that is, negative awe increases the depression experience of individuals by weakening their sense of meaning of life. The results of this study provide a new way to reduce the risk of depression in college students. By cultivating the positive awe experience of college students, it can enhance their sense of self-transcendence and life meaning, thus reducing or reducing the occurrence of depression in college students and maintaining their mental health.

Keywords: awe，self transcendence; sense of meaning of life, depressed

追踪手势对学习的影响：来自两项三水平元分析的证据

冷晓雪 匡子翌 王福兴（通讯作者） 乔沛桦

华中师范大学心理学院，武汉，430079，通讯作者 Email: fxwang@ccnu.edu.cn

摘 要 追踪手势是指学习者在学习过程中使用手指或者鼠标等追踪学习材料的动态过程。以往研究探究了追踪手势对学习效果和认知负荷的影响，但尚未得出一致结论；同时，追踪手势效应的边界条件尚不清晰。本研究采用两项三水平元分析，将抽样方差、研究内方差和研究间方差共同作为方差来源，探究学习者追踪手势对学习效果和认知负荷的影响，并考察潜在的调节变量。本研究在学习效果和认知负荷上分别生成63 个和 53 个效应量。剔除异常值和离群值后，元分析共纳入 55 个效应量(学习效果)和 51 个效应量(认知负荷)。结果发现，学习者追踪手势显著促进了学习表现(g = 0.382)，同时也降低了认知负荷(g = -0.296)。本研究将被试年龄段、文化背景、材料类型、学习测验类型和测验阶段作为调节变量进行调节效应检验。在学习效果上，调节效应分析发现：材料类型调节了追踪手势对学习效果的影响(F(1, 53) =4.09, p = .048)，相

比于非空间材料，被试在学习空间材料时追踪手势的效果更强；学习测验类型具有显著调节效应($F(1, 53) =7.7430, p = .008$)，即追踪手势在迁移测验中的效果更强；测验阶段的调节效应显著($F(1, 53) = 19.7135, p < .001$)，即相比于掌握阶段，追踪手势更多地影响后测阶段的学习成绩；被试年龄段与文化背景没有显著调节效应，ps>.05。在认知负荷上，无任何显著调节效应，ps>.05。结论认为，追踪手势可以促进学习者学习表现，同时降低认知负荷；追踪手势对学习效果的影响受到材料类型、测验类型和测验阶段的调节。
关键词　追踪手势，认知负荷，三水平元分析

The effects of tracing gesture on learning outcomes and cognitive load: Evidence from two three-level meta-analyses

Leng Xiaoxue, Kuang Ziyi, Wang Fuxing, Qiao Peihua
School of Psychology, Central China Normal University, Wuhan

***Abstract*:** The tracing gesture refers to the dynamic process in which learners use their fingers or mouse to trace on learning materials during the learning process. Previous studies have explored the effects of tracing gesture on learning outcomes and cognitive load, but no consistent conclusions have been drawn; meanwhile, the boundary conditions of the tracking gesture effect remain unclear. The present study used two three-level meta-analyses, in which sampling variance, within-study variance, and between-study variance were jointly used as sources of variance, to explore the effects of learners' tracing gestures on learning outcomes and cognitive load, and to examine potential moderate variables. This study generated 63 and 53 effect sizes on learning outcomes and cognitive load, respectively. After removing outliers, a total of 55 effect sizes (learning outcomes) and 51 effect sizes (cognitive load) were included in the meta-analysis. The results found that tracing gestures significantly facilitated learning performance ($g = 0.382$) and also reduced cognitive load ($g = -0.296$). In this study, subjects' age, culture, material type, test type, and test phase were tested as moderate variables. In terms of learning outcomes, moderation effect analyses revealed that: material type moderated the effect of tracing gestures ($F(1, 53) = 4.09, p = .048$), indicating that tracing gesture was more effective when learning spatial materials compared to non-spatial materials. There was a significant moderating effect of test type ($F(1, 53) = 7.7430, p = .008$), which means that the tracking gesture was stronger in the transfer test; there was a significant moderating effect of test phase ($F(1, 53) = 19.7135, p < .001$), which means tracking gestures affected learning performance more in the test phase than in the acquisition phase. There was no significant moderating effect of subjects' age and culture, ps > .05. There was no significant moderating effect on cognitive load, ps > .05. It was concluded that that tracing gestures can promote learner performance while reducing cognitive load; the effects of tracing gestures on learning outcomes were moderated by material type, test type, and test phase.
***Keywords*:** tracing gesture, cognitive load, three-level meta-analysis

加工指令和项目价值对词对学习中情境效应及其元认知监测影响

周皓文俊[1]　马慧慧[1]　王勋[2]（通讯作者）
浙江师范大学心理学院，金华，321000，wangx@zjnu.cn

摘　要　情境效应是指当编码时的情境和检索时的情境相同或相似时，情境信息将有利于记忆的检索。情

境效应的稳定性受到情境类型和情境内容等因素的影响，这在认知领域已经得到大量研究的支持。当前的研究关注更高水平的认知加工过程——元认知，并进一步探究元认知领域中情境效应。本研究将自然场景图片作为情境信息，单词对作为目标信息，探究情境信息能否作为元认知判断的线索进而影响元认知监测效果和情境效应产生的内部机制问题。

本研究由 3 个实验组成。实验 1 为 2(词对类型：具体、抽象)×4(情境类型：重复、重新匹配、新异、无)两因素被试内设计，考察了词对学习中不同情境类型对学习判断的影响过程。实验 2 采用 2(被试间：加工编码：有、无)×3(情境类型：重复、重新匹配、新异)两因素混合设计，重点考察了抽象词对中编码指令对不同情境类型中学习判断的影响。实验 3 在实验 2 的基础上采用价值线索进一步探究情境信息和项目信息的整合效果，采用 3(项目价值：高、中、低)×3(情境类型：重复、重新匹配、新异)两因素被试内设计。

综合本研究结果，可得出以下结论：

（1）在自然场景图片中学习词对，同样存在学习判断的情境效应和回忆上的情境效应，且抽象词对中更加显著；

（2）加工指令对情境信息和项目信息绑定具有影响，表现为学习判断间差异，但这一效果会受到项目中额外信息的干扰。

（3）相比较加工指令，项目价值通过特定性增加情境信息和项目信息整合中的熟悉度，有选择的使用情境信息，从而产生情境效应。

关键词　加工指令，项目价值，情境效应，元认知监测

CONTEXT EFFECTS OF PROCESSING INSTRUCTIONS AND ITEM VALUES ON WORD PAIR LEARING AND ITS METACOGNITIVE MONITIORING EFFECTS

Abstract：Context effect means that contextual information will facilitate memory retrieval when the context at the time of encoding and the context at the time of retrieval are the same or similar. However, the stability of the context effect is influenced by factors such as the type of context and contextual content, which has been supported by a large body of research in the cognitive domain. Current research focuses on higher-level cognitive processing, metacognition, and further explores context effects in the metacognitive domain. In this study, pictures of natural scenes were used as contextual information and word pairs were used as target information to investigate the question of whether contextual information can serve as a cue for metacognitive judgments and thus influence the effect of metacognitive monitoring and the internal mechanism of context effects.

This study consisted of three experiments. The experiment 1 used a 2 (word pair type: concrete, abstract)×4 (context type: repetition, re-match, novel, none) Two-factor- within-subjects design. The process of the influence of different context types on learning judgments in word pair learning was examined in Experiment 1. Experiment 2 used a 2 (between-subjects: processing coding: yes, no)×3 (context type: repetition, re-match, novel) Two-factor-mixed design, focused on the effect of coding instructions on learning judgments in different context types. Experiment 3 further explored the effect of integration of contextual and item information by using value cues on the basis of Experiment 2. A 3 (item value: high, medium, low)×3 (context type: repetition, re-match, novel) Two-factor-within-subject design was used.

Based on the results of this study, the following conclusions can be drawn:

(1) The same context effects on learning judgments and context effects on recall were present for learning word pairs in natural scene pictures, and they were more significant in abstract word pairs.

(2) Processing instructions have an effect on contextual and item information binding, but this effect is disturbed by additional information in the items.

(3) Compared to processing instructions, item value increases familiarity in the binding of contextual and item information through specificity and selective use of contextual information.

Keywords：Processing Instructions, Item Values, Context Effects, Metacognitive Monitoring

学习困难学生执行功能的抑制控制研究

梅新新[1] 向友余[2]

1 无锡市新吴区特殊教育学校，无锡，214000

2 重庆师范大学特殊教育系，重庆，401331，1405538119@qq.com

摘 要　在我国，学习困难学生的数量巨大，面临的学业困扰颇深，学习困难学生的学业发展需要自身、教师及家长共同的努力。数学困难和阅读障碍作为学习困难学生占比最大的两种亚型，具有不同的表现。数学困难学生主要表现为数学能力的缺损，在数量关系、计算、空间能力、问题解决等方面存在缺陷。阅读障碍学生在阅读成绩方面显著落后于其年龄和智力所应该达到的水平。执行功能与人的高级心理功能密切相关，是个体生理、心理健康、工作、学习、生活成功的必备技能，影响着个体在语言、行为、认知、社会情感、社会适应等多方面的发展，对个体未来的发展影响重大。抑制控制作为执行功能的主要成分之一，对学生的学业发展具有很好的预测作用。抑制控制缺陷是造成学生学习困难的重要原因。本研究以数学困难和阅读障碍学生为研究对象，以数字、汉字和图形为实验材料，探究两类学习困难学生的抑制控制特点和差异。

实验一采用视觉搜索中的预览搜索实验，通过多因素混合实验设计，探究普通学生和两类学习困难学生的干扰抑制控制特点和差异。结果表明，普通学生与两类学习困难学生均不存在对汉字的干扰抑制缺陷；阅读障碍学生存在对汉字的干扰抑制缺陷，且对汉字的干扰抑制能力显著差于其他两种实验材料。在三种实验材料下，阅读障碍学生的障碍主要表现在汉字上，数学困难学生的障碍主要表现在数字上。

实验二采用 GNG 范式探究两类学习困难学生的反应抑制特点和差异。结果表明，两类学习困难学生均存在反应抑制控制缺陷；与普通学生相比，数学困难学生对数字的反应抑制控制能力最弱，阅读障碍学生对汉字的反应抑制控制能力最弱。

综上，两类学习困难学生均存在抑制控制缺陷，数学困难学生表现在对数字的抑制控制上，阅读障碍学生表现在对汉字的抑制控制上。

关键词　学习困难；数学困难；阅读障碍；执行功能；抑制控制；视觉搜索

Inhibitory control of executive function in students with learning difficulties

Xinxin Mei[1] Youyu Xiang[2]

1Wuxi Xinwu District special education school，Wuxi City

2Chongqing Normal University，Chongqing Municipality

Abstract： In our country, the number of students with learning difficulties is huge, and they are faced with profound academic troubles. The academic development of students with learning difficulties needs the joint efforts of themselves, teachers and parents. Mathematics difficulty and dyslexia, as the two subtypes with the largest proportion of students with learning difficulties, have different performances. The students with

mathematical difficulties mainly show the defects of mathematical ability, and there are defects in quantitative relation, calculation, spatial ability and problem solving. Students with dyslexia lag significantly behind their age and intelligence in reading achievement. Executive function is closely related to people's higher psychological function, and is a necessary skill for individual's physiological and mental health, work, study and life success. It affects individual's development in language, behavior, cognition, social emotion, social adaptation and other aspects, and has a significant impact on individual's future development. As one of the main components of executive function, inhibitory control has a good predictive effect on students' academic development. The inhibition control defect is an important cause of students' learning difficulties. In this study, students with mathematical difficulties and dyslexia were selected as the research objects, and numbers, Chinese characters and graphics were used as experimental materials to explore the characteristics and differences of inhibitory control in students with two kinds of learning difficulties.

In experiment 1, the preview search experiment in visual search was used to explore the characteristics and differences of interference suppression control between ordinary students and two kinds of students with learning difficulties through multi-factor mixed experimental design. The results show that neither the ordinary students nor the two kinds of students with learning difficulties have the defects of interference suppression of Chinese characters; The dyslexic students have the defect of inhibiting the interference of Chinese characters, and the ability of inhibiting the interference of Chinese characters is significantly worse than that of the other two experimental materials. Under the three experimental materials, the dyslexic students' obstacles were mainly manifested in Chinese characters, and the math students' obstacles were mainly manifested in numbers.

In experiment 2, GNG paradigm was used to explore the characteristics and differences of response inhibition in two kinds of students with learning difficulties. The results show that both kinds of students with learning difficulties have response inhibition control defects; Compared with ordinary students, students with math difficulty had the weakest inhibitory control ability for numbers, and students with dyslexia had the weakest inhibitory control ability for Chinese characters.

To sum up, both kinds of students with learning difficulties have inhibition control defects. Students with math difficulties are manifested in the inhibition control of numbers, and students with reading disabilities are manifested in the inhibition control of Chinese characters.

Keywords **：** Learning difficulties,Difficulty in mathematics,Dyslexia,Executive function,Suppression control,Visual search

父母养育倦怠与初中生学业倦怠的关系：基于变量为中心和个体为中心的分析

张涵[1] 胡青[1] 毛艳婷[2] 赵金霞[1]（通讯作者）

1 临沂大学教育学院心理系，临沂，276000

2 临沂实验中学心理健康教育中心，临沂，276007

E-mail：zhaojinxia@lyu.edu.cn

摘 要 在生育支持政策体系尚未有效形成背景下，养育精细化和教育内卷化又同时对父母提出更高要求。然而，个体资源的有限性决定了他们在高要求与低精力的矛盾中极易出现失衡并被动陷入倦怠的境地，也让养育倦怠成为生育政策优化背景下的重要现实问题。养育倦怠不仅引发个体自身出现心理与行为障碍，其溢出效应还会蔓延至子女的身心及学业。现有相关研究侧重于采用变量为中心的研究思路考察父母养育倦怠对子女学业的影响，缺乏以个体为中心的视角。为弥补上述不足，本研究在家庭系统理论和社会学习

理论指导下，采用养育倦怠评估量表、父母低头行为量表、意向性自我调节问卷和学业倦怠量表对 871 名初中生及其主要照顾人（仅限父亲或母亲）开展问卷调查。为达到研究目的，本研究将以变量为中心和个体为中心的分析思路相结合。一方面，通过链式中介模型考察父母养育倦怠与初中生学业倦怠的关系及作用路径。另一方面，根据父母养育倦怠和低头行为两个指标，通过潜在剖面分析探究潜在类别，并应用方差分析比较不同潜在类别在对意向性自我调节和学业倦怠影响上的差异。研究结果发现：（1）父母养育倦怠不仅能直接预测初中生学业倦怠，还通过父母低头行为和意向性自我调节的链式中介作用预测初中生学业倦怠（中介效应占 44.7%）；（2）对父母养育倦怠和低头行为的得分进行潜在剖面分析，可将父母分为低倦怠-低低头型（69.3%）、中倦怠-高低头型（18.4%）和高倦怠-中低头型（12.3%）。（3）在低倦怠-低低头型父母养育下的初中生意向性自我调节得分显著高于其他两种类型，学业倦怠得分显著低于其他两种类型，而中倦怠-高低头型和高倦怠-中低头型父母养育下的初中生在意向性自我调节和学业倦怠得分上的差异不显著。上述研究结果表明父母养育倦怠、父母低头行为和意向性自我调节在预防和干预初中生学业倦怠中的重要作用，为从父母和个体角度开展相关工作提供了理论依据。
关键词　养育倦怠，学业倦怠，低头行为，意向性自我调节，初中生

Relationship between Parental Burnout and Secondary School Students' Academic Burnout: Evidence from Variable-oriented and Person-oriented Analyses

Han Zhang[1] Qing Hu[1] Yanting Mao[2] Jinxia Zhao[1]
1 Department of Psychology, School of Education, Linyi University, Linyi, 276000, zhaojinxia@lyu.edu.cn
2 Center for Mental Health Education, Linyi Experimental Middle School, Linyi, 276007

Abstract： In the context of fertility support policy system has not been effectively formed, the refinement of parenting and the internalization of education place higher demands on parents. However, the limited resources determine that parents are prone to imbalance and passively fall into burnout in the contradiction between high demands and low energy, which also makes the coexistence of parental burnout an important reality in the context of fertility policy optimization. Parental burnout not only triggers psychological and behavioral disorders in individuals, but also has spillover effects on children's physical, mental health and academic performance. Existing studies have focused on the impact of parental burnout on children's academic performance using a variable-centered approach, lacking an individual-centered perspective. To fill in this gap, based on family system theory and social learning theory, this study used the Parental Burnout Assessment Scale, the Parental Phubbing Scale, the Intentional Self-Regulation Questionnaire, and the Academic Burnout Scale to survey 871 secondary school students and their primary caregivers (only father or mother). To achieve the research objectives, this study combined variable-centered and individual-centered analyses to examine the relationship between parental burnout and academic burnout. A chain-mediation model was used to study the pathways from parental burnout to academic burnout. We also explored patterns using Latent Profile Analysis (LPA) based on parental burnout and phubbing, and applied ANOVA to compare the differences between potential categories on their effects on intentional self-regulation and academic burnout. The findings revealed that (1) parental burnout not only directly predicted secondary school students' academic burnout, but also predicted their academic burnout through the chain-mediating effect of parental phubbing and intentional self-regulation (mediating effect accounted for 44.7%);

(2) According to the LPA of parental burnout and phubbing, we identified three latent profiles: low parental burnout-low phubbing type (69.3%), medium parental burnout-high phubbing (18.4%), and high parental burnout-medium phubbing type (12.3%). (3) The intentional self-regulation scores of middle school students under low parental burnout-low phubbing parenting were significantly higher than the other two types, and their academic burnout scores were significantly lower than the other two types, while the differences between medium parental burnout-high phubbing and high parental burnout-medium phubbing type on intentional self-regulation and academic burnout scores of secondary school students were not significant. These findings suggest the important roles of parental burnout, parental phubbing, and intentional self-regulation in preventing and intervening with academic burnout in secondary school students, and provide a theoretical reference for related work from both parental and individual perspectives.

Keywords：parental burnout, academic burnout, phubbing, intentional self-regulation, secondary school student

小学生同伴依恋与学校适应的关系：变量为中心和个体为中心的分析

朱琳[1] 邓小平[12]（通讯作者）

[1]赣南师范大学教育科学学院，赣州，341000

[2]赣南师范大学教育科学学院，赣州，341000，dxp1984@gmail.com

摘 要 2021年“双减”政策的出台合旨在减轻义务教育阶段学生的作业负担以及校外培训的负担，“双减”政策不仅意味着教育模式发生了重大的调整，也意味着教育理念发生了重大的变革。小学生生活节奏也因此发生了巨大变化，同时,考虑到学校是小学生主要的活动场所,本研究选择学校适应作为心理社会发展的指标。学校适应主要表现为学生对学校生活适应的焦虑、与同龄人人际关系的压力、自我展示和表达时的恐惧等。生态系统理论指出，同伴是微观系统的重要组成部分，同伴依恋的质量是影响其学校适应的重要因素。自我概念清晰性指的是自我概念清晰性的整合，以及社会个体对自己有相对清晰、内部一致和稳定的自我意识的程度，以往研究表明在对小学生的自我认知描述进行研究时发现，适应状态较好的小学生自我概念清晰性水平也较高。本研究旨在考察同伴依恋，自我概念清晰性与小学生学校适应的关系。采用同伴依恋量表、自我概念清晰性量表以及学校态度调查问卷对1246名小学生进行调查，采用变量中心和个体中心的方法进行分析。结果发现：（1）结构方程模型分析表明，自我概念清晰性在同伴依恋与小学生学校适应之间起部分中介作用，即，同伴依恋可以通过自我概念清晰性这个中介变量对学校适应发生作用;（2）对同伴依恋—自我概念清晰性得分进行潜在剖面分析，可分为4种类别:低同伴依恋—低自我概念清晰性、低同伴依恋—高自我概念清晰性、高同伴依恋—低自我概念清晰性、高同伴依恋—高自我概念清晰性;（3）不同潜在类别小学生学校适应水平得分差异具有统计学意义。结论:同伴依恋可以通过自我概念清晰性间接影响小学生学校适应能力;小学生同伴依恋—自我概念清晰性水平的得分可以分为具有异质性的4种亚组，同伴依恋可以通过自我概念清晰性这个中介变量对学校适应发生作用。

关键词 同伴依恋,自我概念清晰性,学校适应,小学生

The relationship between peer attachment and school adaptation in

primary school students: Evidence from variable-oriented and person-oriented analyses

Zhu Lin[1] Deng xiaoping[1](Corresponding author)
[1] School of Educational Science,Gannan Normal University,Ganzhou,341000

Abstract： The introduction of the "double reduction" policy in 2021 aims to reduce the homework burden of students in the compulsory education stage and the burden of off-campus training. The "double reduction" policy not only means that the education model has undergone a major adjustment, but also means that the education concept has undergone a major change. Therefore, the pace of life of primary school students has also changed greatly. At the same time, considering that school is the main activity place of primary school students, this study chooses school adaptation as an indicator of psychosocial development. School adaptation is mainly manifested as students' anxiety about school life adaptation, the pressure of interpersonal relationship with peers, and the fear of self-presentation and expression. The ecosystem theory points out that peer is an important part of the microsystem, and the quality of peer attachment is an important factor affecting their school adaptation. Self-concept clarity refers to the integration of self-concept clarity and the degree to which social individuals have a relatively clear, internally consistent and stable self-awareness of themselves. Previous studies have shown that when studying the self-cognitive description of primary school students, it is found that primary school students with a better adaptive state also have a higher level of self-concept clarity. The purpose of this study was to investigate the relationship between peer attachment, self-concept clarity and school adjustment. The peer attachment scale, self-concept clarity scale and school attitude questionnaire were used.A variable-oriented and individual-oriented approach was used to analyze 1246 primary school students. The results show that: (1) Structural equation modeling analysis showed that self-concept clarity plays a partial mediating role between peer attachment and school adaptation, that is, peer attachment can have an effect on school adaptation through the mediating variable self-concept clarity; (2) The potential profile analysis of peer attachment-self-concept clarity score can be divided into four categories: low peer attachment-low self-concept clarity, low peer attachment-high self-concept clarity, high peer attachment-low self-concept clarity, high peer attachment-high self-concept clarity; (3) The scores of school adaptation level of primary school students in different potential categories were statistically significant. Conclusion: Peer attachment can indirectly affect primary school students' school adaptation through self-concept clarity; The scores of peer attachment and self-concept clarity can be divided into four sub-groups with heterogeneity. Peer attachment can have an effect on school adaptation through the mediating variable of self-concept clarity.

Keywords： peer attachment,self-concept clarity,school adaptation,primary school students

提取形式和问题类型对阅读成绩和元理解监测的影响

王树康[1] 王双[2] 王勋（通讯作者）
浙江师范大学心理系，金华，321000，wangx@zjnu.cn

摘要

要想学生能够有效地完成阅读任务，记忆、理解阅读材料的内容，教师需要引导学生采用恰当的学习策略对阅读理解过程实行有效的学习和监测。那么，哪种策略有助于学生阅读理解的学习与监测呢？提取练习效应表明对所学内容进行提取练习比再次学习更有助于长时记忆保持，不仅如此，提取练习还有助于监测阅读理解的过程，即能提高元理解监测的准确性。因此，提取练习可能是一种更为有效的学习策略。

然而，如今对提取练习的研究已不局限于低阶学习层面，提取练习效应已拓展到高阶学习中。长时记忆主要有回忆和再认两种提取形式，提取形式的不同往往时影响提取练习效应的重要变量。因此，本文旨在探讨提取形式对不同层次学习的阅读成绩及元理解监测的影响。

本研究由三个实验组成，均采用提取练习研究范式。实验 1a 为单因素被试内实验设计，在采用口头汇报作答的前提下，探讨记忆学习上不同学习策略对阅读成绩及元理解监测的影响，验证记忆学习上的提取练习效应及提取的元认知优势。实验 1b 为单因素被试内实验设计，在初始提取就呈现高阶问题的前提下，探讨推理学习上不同学习策略对阅读成绩及元理解监测的影响，考察推理学习上的提取练习效应及提取的元认知优势。根据长时记忆提取形式的不同，在真实的教育情境中往往采取选择题、简答题的形式，因此，实验 2 采用 2(提取形式：选择题式、简答式)×2(问题类型：记忆、推理)的两因素被试内实验设计，探讨不同提取形式对不同层次学习的阅读成绩及元理解监测的影响。本研究结论如下：

（1） 提取策略适用于高、低阶学习，在不同层次学习的元认知层面上也具有优势。

（2） 高阶推理学习上，简答式提取相对于选择题式提取的学习保持优势才能体现。但不论哪种学习，简答式提取的元认知优势更大。

关键词　提取练习效应；提取形式；问题类型；元理解监测

The Inflence of Reitrieval Formal and Question Type on Reading Performance and Meta-comprehention Monitoring

Wang Shukang, Wang Shuang, Wang Xun (corresponding author)
ZHEJIANG NORMAL UNIVERSITY Department of Psychology，Jin Hua，321000，
wangx@zjnu.cn

***Abstract*:**

For students to be able to effectively complete reading tasks, memorize, and comprehend the content of reading materials, teachers need to guide students to use appropriate learning strategies to implement effective learning and monitoring of the reading comprehension process. So, which strategies help students learn and monitor reading comprehension? The Retrieval Practice Effect suggests that extracting what has been learned is more useful for long-term memory retention than relearning it, and not only that, retrieval practice also helps to monitor the process of reading comprehension, i.e., it can improve the accuracy of metacomprehension monitoring. Therefore, retrieval practice may be a more effective learning strategy. However, today's research on extraction practice is not limited to the lower-order learning level; the retrieval practice effect has been expanded to higher-order learning. Long-term memory has two main forms of retrieval: recall and recollection. Different forms of retrieval are often important variables affecting the Retrieval Practice Effect. Therefore, the purpose of this paper is to investigate the effect of retrieval form on reading performance and metacomprehension monitoring at different levels of learning.

The present study consisted of three experiments, all of which utilized the Retrieval Practice Effect Paradigm. Experiment 1a was a one-factor within-subjects experimental design, which explored the effects of different learning strategies on memory learning on reading performance and metacomprehension monitoring under the premise of using verbal debriefing responses, and verified the effect of extraction practice on memory learning and the metacognitive advantage of extraction. Experiment 1b was a one-factor within-subjects experimental design to explore the effects of different learning strategies on inferential learning on reading performance and metacomprehension monitoring under the premise of presenting higher-order problems at initial extraction, and to examine the retrieval practice effect on inferential learning and the metacognitive advantage of

extraction. According to the different forms of long-term memory extraction, which often take the form of multiple-choice and short-answer questions in real educational contexts, Experiment 2 adopts a two-factor within-subjects experimental design of 2 (extraction form: multiple-choice style, short-answer style) × 2 (question type: memorization, inference) to explore the effects of different extraction forms on reading achievement and metacomprehension monitoring at different levels of learning. The findings of this study are as follows:

(1) Retrieval strategies are applicable to both higher and lower order learning, and are also advantageous at the metacognitive level of different levels of learning.

(2) The learning retention advantage of short-answer extraction over multiple-choice extraction can only be realized on higher-order reasoning learning. Regardless of the type of learning, however, the

metacognitive advantage of short-answer extraction is greater.

KEY WORDS：Retrieval Practice Effect; Retrieval Format; Question Type; Meta-comprehension Monitoring

时空背景变化对情景记忆结构组织的影响——一项眼动研究

秦楠[12]　高媛[12]　莫雷[12*]（通讯作者）

1 华南师范大学心理应用研究中心，广州，510631, molei@scnu.edu.cn

2 华南师范大学心理学院，广州，510631, molei@scnu.edu.cn

摘 要　情景记忆分离一直以来是学术界研究的热点问题。大量研究表明，背景变化（事件边界）损害时间方面的情景记忆，直接促进了连续的记忆经验被提取为有意义且离散的情节或事件。然而，时空信息作为情景记忆中的经验构建的重要维度，是否能够影响情景记忆分离仍然未有定论。需要采用时间背景与空间背景变化作为事件边界来体现人类情景记忆在时空情境中时间与非时间结构的关系，以进一步考察时空背景变化对情景记忆结构组织的影响，以及情景记忆分离的神经机制。据此，本研究基于事件边界范式共设计 3 个实验进行研究。结果发现：（1）时间背景变化会损害情景记忆的时间记忆：跨边界项目对的时间顺序记忆更差，且时间距离被主观夸大；（2）空间背景变化对情景记忆的时间与非时间方面记忆影响存在权衡现象：损害情景记忆的时间方面记忆，增强源记忆；（3）背景变化对情景记忆的非时间方面记忆影响存在权衡现象：增强项目来源记忆，损害项目本身的内容记忆；（4）背景变化能够引发生理唤醒反应，即边界处的瞳孔直径更大，情景记忆的时间记忆和项目记忆也与瞳孔扩张的不同时间特征以及唤醒状态的时间稳定性有关。综合而言，时空背景稳定性在情景记忆的结构组织中起到关键作用，是情景记忆分离效应的主要原因；而生理唤醒可能是情景记忆整合和分割的重要生理指标。

关键词　情景记忆，事件边界，时间背景，空间背景，眼动

The influence of spatio-temporal background changes on the structure organizations of episodic memory: An Eye-tracking Study

Nan Qin, Yuan Gao, Lei Mo

Center for Studies of Psychological Application, South China Normal University, Guangzhou, 510631

School of Psychology, South China Normal University, Guangzhou, 510631

Abstract：There has been intense interest in the separation of episodic memory. Increasing research suggests that

contextual changes, that is, event boundaries impair the temporal memory of episodic memory, directly facilitating the extraction of continuous experiences into meaningful and discrete episodes or events. However, as an important dimension of experiences construction in episodic memory, whether spatiotemporal information can affect the separation of episodic memory remains unknown. It is necessary to use the change of temporal background and spatial background as the event boundaries to reflect the relationship between the temporal and non-temporal structure of human episodic memory in the spatio-temporal context, so as to further investigate the influence of spatio-temporal background changes on the organizational structure of episodic memory and the neuromechanisms of episodic memory separation.

Therefore, three experiments were conducted based on the event boundary paradigm. The results showed that: (1) temporal background changes can impair temporal memory of episodic memory: temporal order memory was significantly impaired for boundary-spanning pairs relative to same-context pairs, and boundaries elicited a subjective time expansion effect in memory. (2) The influence of spatial background changes on temporal and non-temporal features of episodic memory is trade off: boundaries impaired the temporal structure of memory but enhanced source memory. (3) There was mnemonic trade-off effect between source memory and item memory: event boundaries enhanced source memory but damaged the content memory of the item itself. (4) Changes in context, or event boundaries, elicited a burst of autonomic arousal: pupil dilation was significantly greater for boundary items than for same-context items. The temporal and item memory of episodic memory are also related to the distinct temporal characteristics of pupil dilations as well as the temporal stability of arousal states. In addition, spatiotemporal background stability which plays a key role in the structure organizations of episodic memory is the main reason for the separation effect of episodic memory. Physiological arousal may be a crucial physiological index of episodic memory integration and segmentation.

Keywords：Episodic memory, Event boundary, Temporal context, Spatial context, Eye-movement

中职生成就目标定向、坚毅品质与学习投入的关系及干预研究

陈庆华[1,2]（通讯作者）陈玉融[1] 姚本先[1,2]

1 合肥师范学院教育与心理科学学院，合肥，230601

2 安徽省学生心理健康教育指导中心，合肥，230601

通讯作者 E-mail：873498616@qq.com

摘 要 职业教育是与经济社会联系最为紧密的一类教育，它不仅可以推动教育改革的创新，而且还能够促进经济社会的可持续发展，中等职业教育则是其中重要的组成部分。研究表明，大部分中职生学习成绩较差，学习效率较低，究其原因主要是中职生的学习投入不足。因此，本研究深入调查中职生学习投入水平，并探究其影响因素，颇具重要意义。研究一采用《学习投入量表》、《成就目标定向量表》和《坚毅自评量表（中文版）》调查 1744 名中职生，结果发现：（1）中职生学习投入、成就目标定向与坚毅品质均略低于中等水平；中职生成就目标定向、坚毅品质与学习投入在性别、专业上均存在显著差异；在年级上，成就目标定向与坚毅品质存在显著差异。（2）中职生成就目标定向、坚毅品质与学习投入两两相关，成就目标定向与坚毅品质都能够显著预测学习投入。（3）坚毅品质在成就目标定向与学习投入之间起部分中介作用。研究二选取所调查的其中一所中职学校得分较低的两个班级为研究对象，设计科学系统的心理健康教育干预方案。运用课程干预的形式进行干预。通过前后测调查数据对比分析结果表明：实验组后测得分相较于前侧得分在学习投入、成就目标定向与坚毅品质三方面均有显著性提高，心理健康教育课程干预对提升中职生学习投入水平具有一定的效果。

关键词 中职生，成就目标定向，坚毅品质，学习投入，干预

A Study of the Relationship and Intervention of Goal Orientation, Perseverance Quality and Learning Commitment among Secondary School Students

Chen Qinghua[1,2] (Corresponding author) , Chen Yurong[1], Yao Benxian[1,2]
1 School of Education And Psychology, Hefei Normal University, Hefei, 230601
2 Anhui Mental Health Education and Guidance Center for Student，Heifei，230601
Corresponding Author，E-mail：873498616@qq.com

Abstract：Vocational education is the type of education that is most closely linked to the economy and society, which can not only promote the innovation of education reform, but also promote the sustainable development of the economy and society, and secondary vocational education is an important part of it. Research shows that most professional students have poor academic performance and low learning efficiency, which is mainly due to the lack of learning input of secondary students. Therefore, it is of great significance for this study to investigate in-depth the level of professional students' academic engagement and to explore its influencing factors. Study 1 used the academic engagement Scale, Achievement Goal Orientation Scale and grit Self-Assessment Scale (Chinese version) to investigate 1,744 professional students, and found that: (1) professional students ' academic engagement, achievement goal orientation and grit were all slightly lower than the intermediate level; there were significant differences between professional students' achievement goal orientation, grit and academic engagement in terms of gender and major; and there was a significant difference between achievement goal orientation and grit in terms of grade level. There is a significant difference between Achievement Goal Orientation and grit. (2) Achievement goal orientation, grit and academic engagement are significantly related, and both achievement goal orientation and grit can significantly predict academic engagement. (3) The grit partially mediated the relationship between achievement goal orientation and academic engagement. On the one hand, this study provides a theoretical basis for the achievement goal orientation, grit and academic engagement of professional students, which helps to further improve and develop the theoretical and empirical research on adolescents' academic engagement, so as to better guide the educational practice, and on the other hand, it provides a certain revelation for the educational and teaching work of the schools, and at the same time, it provides empirical bases and strategic suggestions for promoting the academic engagement of professional students, which has a positive practical significance.In Study 2, two lower-scoring classes in one of the schools were selected to design a scientific and systematic mental health education intervention programme. The intervention was carried out in the form of curriculum intervention. Comparative analysis of the pre- and post-test data showed that the experimental group's post-test scores were significantly higher than the pre-test scores in terms of academic engagement, achievement goal orientation and grit, and that the mental health education curriculum intervention had a certain effect on improving the level of academic engagement of the professional students.

Keywords：professional students, achievement goal orientation, grit, academic engagement, intervention

新生代教师职业认同、职业使命感对工作投入的影响：基于聚类分析的实证研究

章诗毓[1] 李云霞[1] 王菲[1] 李东斌[1](通讯作者)
1 赣南师范大学教育科学学院，赣州，341000，lidongbin@gnnu.edu.cn

摘 要 习近平总书记在全国政协十三届四次会议中指出：“教师是教育工作的中坚力量。有高质量的教师，才有高质量的教育。”而 80 后、90 后的年轻教师作为新生代教师，更应该以在教育工作中“挑大梁，担大任”为自己的行动指南和正确奋斗方向。近来出现一些现象，新生代教师在工作几年后，工作的热情呈现下降的趋势，对职业的认同不高，职业使命感不强。因此，对新生代教师的高质量培养就显得格外重要，提高新生代教师队伍的认同感、使命感以及工作投入，成为亟待解决的现实问题。且以往关于新生代教师的研究多为把其视为整体进行探究，关注的是其整体性问题，并未对新生代教师之间的异质性进行探究。因此，本研究试图区分和识别新生代教师潜在群体类型，探究不同类型职业认同-职业使命感新生代教师对其工作投入的影响。

本研究采用随机抽样的方式在全国各省市抽取 5657 名新生代教师进行问卷调查，通过以 K-means 聚类分析方法对新生代教师职业认同以及职业使命感进行分类，之后采用方差分析以及事后比较的方法探讨不同类别的职业认同—职业使命感教师与其工作投入的关系。研究结果表明：(1)新生代教师的职业认同的聚类可为高层次职业认同组(48.21%)、中层次职业认同组(37.92%)以及低层次认同组(13.88%)；(2)新生代教师职业使命感的聚类可为高层次职业使命感(51.79%)、中层次职业使命感(38.73%)、低层次职业使命感(9.47%)；(3)把新生代教师的职业认同和职业使命感根据组间的差异显著性检验进行组合得到四种类型的聚类分别为：类型 1 双高组(46.33%)，类型 2 次高组(32.03%)，类型 3 次低组(16.85%)，类型 4 双低组(4.79%)；(4)不同职业认同—职业使命感聚类在工作投入上的得分差异均具有统计学意义。研究结果揭示了新生代教师职业认同和职业使命感存在共同发展路线且职业认同和职业使命感共同对新生代教师的工作投入产生影响。本研究区分和识别新生代教师潜在群体类型，有利于优化教师培养机制、分类施策，是提升教师工作投入的重要突破口。

关键词 职业认同，职业使命感，工作投入，聚类分析，新生代教师

The Effects of new generation teachers ' Professional Identity and Professional Mission on Work Engagement : An empirical research based on Cluster Analysis

Zhang Shiyv[1] , Li Yunxia[1], Wang Fei[1] , Li Dongbing[1](correspondence)
1 Educational Science School, Gannan Normal University, Ganzhou, Jiangxi China

***Abstract*:** Only with high-quality teachers can we have high-quality education. As the new generation of teachers, the young teachers of the post-80 s and post-90 s should take ' picking the big beams and taking the big responsibilities ' in the education work as their own action guide and correct direction of struggle. Recently, there have been some phenomena. After working for several years, the enthusiasm of the new generation of teachers has shown a downward trend, their professional identity is not high, and their sense of professional mission is not strong. Therefore, it is particularly important to cultivate the high quality of the new generation of teachers. Improving the sense of identity, mission and work engagement of the new generation of teachers has become an urgent problem to be solved. In the past, most of the research on the new generation of teachers regarded it as a whole to explore, focusing on its integrity, and did not explore the heterogeneity between the new generation of

teachers. Therefore, this study attempts to distinguish and identify the potential group types of the new generation of teachers, and explore the influence of different types of professional identity-professional mission of the new generation of teachers on their work engagement.

In this study, a random sampling method was used to select 5657 new generation teachers in various provinces and cities across the country to conduct a questionnaire survey. The K-means clustering analysis method was used to classify the new generation teachers ' professional identity and professional mission. After that, variance analysis and post-hoc comparison methods were used to explore the relationship between different types of professional identity-professional mission teachers and their work engagement. The results show that : (1) The clustering of professional identity of the new generation of teachers can be divided into high-level professional identity group (48.21 %), middle-level professional identity group (37.92 %) and low-level identity group (13.88 %) ; (2) The clustering of the new generation of teachers ' professional mission can be divided into high-level professional mission (51.79 %), middle-level professional mission (38.73 %) and low-level professional mission (9.47 %). (3) Combining the professional identity and professional mission of the new generation of teachers according to the significance test of the differences between the groups, four types of clusters are obtained : type 1 double high group (46.33 %), type 2 high group (32.03 %), type 3 low group (16.85 %), type 4 double low group (4.79 %) ; (4) The scores of different occupational identity-occupational mission clustering in work engagement were statistically significant. The research results reveal that the new generation of teachers ' professional identity and professional mission have a common development path, and professional identity and professional mission have an impact on the work engagement of the new generation of teachers. This study distinguishes and identifies the types of potential groups of the new generation of teachers, which is conducive to optimizing the teacher training mechanism and classifying policies, and is an important breakthrough to improve teachers ' work engagement.

***Keywords*:** Professional Identity, Professional Mission, Job Engagement, Cluster Analysis, The new generation of teachers

家庭教养方式与积极青少年发展的关系：系列元分析

唐甜[1]　王雨[1]　陈宁[2]（通讯作者）

1 上海师范大学心理学系，上海，200234

2 上海师范大学心理学系，上海，200234，chenning@shnu.edu.cn

摘 要　**研究目的：**积极青少年发展观是青少年发展研究中最具影响力的理念之一，其聚焦青少年发展的潜在优势和发展轨迹的可塑性，强调个体与环境的互动对青少年发展的重要作用。以往元分析研究更多考察了家庭教养方式对青少年积极发展结构中单一变量的影响，未见有研究探讨家庭教养方式对青少年积极发展整体性构念的影响，拟对家庭教养方式对青少年积极发展的整体性构念进行系列元分析，以揭示其对青少年积极发展的影响具体为何。**研究方法：**本研究基于积极青少年发展观视角，纳入学业成就、自尊、复原力和心理健康四个变量进行系列元分析，检索时学业成就变量需同时包含关键词“家庭教养方式/家庭教养方式/教养方式/养育方式”+“学业成就/学习成绩”；自尊变量需同时包含关键词“家庭教养方式/家庭教养方式/教养方式/养育方式”+“自尊”；复原力需同时包含关键词“家庭教养方式/家庭教养方式/教养方式/养育方式”+“复原力/心理弹性/心理韧性/耐挫力”；心理健康需同时包含关键词“家庭教养方式/家庭教养方式/教养方式/养育方式”+“心理健康/心理问题”，在中文数据库中进行检索和筛选，共纳入了原始文献 276 篇文献，包含 2503 个效应值，被试总量达到 155683。**研究结果：**家庭教养方式不同类型与青少年积极发展 4 个核心构念均总体呈显著相关，积极家庭教养方式与青少年积极发展的总体呈中等相关（$r = 0.188$,其中，$r_{学业成}$

就 = 0.182, $r_{自尊}$ = 0.317,$r_{复原力}$ = 0.432,$r_{心理健康}$ = -0.156),消极家庭教养方式与青少年积极发展的总体呈低相关（r = -0.041,其中，$r_{学业成就}$ = -0.095, $r_{自尊}$ = -0.156,$r_{复原力}$ = -0.168,$r_{心理健康}$ = 0.22），且性别、年龄阶段的调节效应显著。上述结果对全面、深刻认识家庭教养方式的发展资源价值、促进青少年积极发展具有重要的借鉴意义。
关键词　家庭教养方式, 学业成就, 自尊, 复原力, 心理健康, 元分析

The relationship between parenting styles and positive adolescent development: a series of meta-analytic studies

Tian Tang, Wang Yu, Ning Chen*
Shanghai Normal University, Education

***Abstract*：** Research Purpose: The concept of positive adolescent development is one of the most influential concepts in adolescent development research, which focuses on the potential strengths of adolescent development and the plasticity of developmental trajectories, and emphasizes the important role of individual-environmental interactions on adolescent development. Previous meta-analytic studies have examined the effects of family parenting styles on single variables in the structure of positive adolescent development, and no study has explored the effects of family parenting styles on the holistic conceptualization of positive adolescent development. It is proposed to conduct a series of meta-analyses on the holistic conceptualization of positive adolescent development in order to reveal the specifics of the effects of family parenting styles on positive adolescent development. Research methods: Based on the perspective of positive adolescent development, this study included four variables: academic achievement, self-esteem, resilience, and mental health in a series of meta-analyses, and the academic achievement variable was searched for by including the keywords "family upbringing/family parenting style/parenting style/parenting styles "+ "academic achievement/academic achievement/academic achievement" + "academic achievement/academic achievement/academic achievement". "Academic achievement/academic performance"; self-esteem with the keywords "family upbringing/family rearing/parenting/parenting style" + "self-esteem"; resilience The variable of self-esteem should contain the keywords "self-esteem"; resilience should contain the keywords "family upbringing/family upbringing/upbringing/parenting" + "resilience/mental resilience/mental toughness/endurance"; mental health should contain the keywords "family upbringing/family upbringing/upbringing/parenting"; and mental health should contain the keywords "family upbringing/family upbringing/parenting/parenting". Parenting styles/family parenting styles/parenting styles/nurturing styles" + "mental health/psychological problems", were searched and screened in Chinese databases, and a total of 276 pieces of original literature were included, containing 2503 effect sizes, and the total number of subjects amounted to 155,683. The results of the study were summarized as follows: Different types of family parenting styles were significantly correlated with the four core constructs of positive adolescent development in general, and positive family parenting styles were moderately correlated with positive adolescent development in general (r = 0.188, of which, $r_{\text{Academic Achievement}}$ = 0.182, $r_{\text{Self-esteem}}$ = 0.317, $r_{\text{Resilience}}$ = 0.432, and $r_{\text{mental health}}$ = -0.156). The overall correlation between negative family parenting styles and positive adolescent development was low (r = -0.041, of which, $r_{\text{academic achievement}}$ = -0.095, $r_{\text{self-esteem}}$ = -0.156, $r_{\text{resilience}}$ = -0.168, and $r_{\text{mental health}}$ = 0.22), and the moderating effects of gender and age stage were significant. The above results have important implications for a comprehensive and profound understanding of the developmental resource value of family parenting styles and the promotion of positive adolescent development.

Keywords：family parenting styles, academic achievement, self-esteem, resilience, mental health, meta-analysis

家庭教养方式与积极青少年发展的关系：系列元分析

唐甜[1]　王雨[1]　陈宁[2]（通讯作者）

1 上海师范大学心理学系，上海，200234

2 上海师范大学心理学系，上海，200234，chenning@shnu.edu.cn

摘 要　**研究目的：**积极青少年发展观是青少年发展研究中最具影响力的理念之一，其聚焦青少年发展的潜在优势和发展轨迹的可塑性，强调个体与环境的互动对青少年发展的重要作用。以往元分析研究更多考察了家庭教养方式对青少年积极发展结构中单一变量的影响，未见有研究探讨家庭教养方式对青少年积极发展整体性构念的影响，拟对家庭教养方式对青少年积极发展的整体性构念进行系列元分析，以揭示其对青少年积极发展的影响具体为何。**研究方法：**本研究基于积极青少年发展观视角，纳入学业成就、自尊、复原力和心理健康四个变量进行系列元分析，检索时学业成就变量需同时包含关键词“家庭教养方式/家庭教养方式/教养方式/养育方式”+“学业成就/学习成绩”；自尊变量需同时包含关键词“家庭教养方式/家庭教养方式/教养方式/养育方式”+“自尊”；复原力需同时包含关键词“家庭教养方式/家庭教养方式/教养方式/养育方式”+“复原力/心理弹性/心理韧性/耐挫力”；心理健康需同时包含关键词“家庭教养方式/家庭教养方式/教养方式/养育方式”+“心理健康/心理问题”，在中文数据库中进行检索和筛选，共纳入了原始文献 276 篇文献，包含 2503 个效应值，被试总量达到 155683。**研究结果：**家庭教养方式不同类型与青少年积极发展 4 个核心构念均总体呈显著相关，积极家庭教养方式与青少年积极发展的总体呈中等相关（r = 0.188,其中，$r_{学业成就}$ = 0.182, $r_{自尊}$ = 0.317,$r_{复原力}$ = 0.432,$r_{心理健康}$ = -0.156),消极家庭教养方式与青少年积极发展的总体呈低相关（r = -0.041,其中，$r_{学业成就}$ = -0.095, $r_{自尊}$ = -0.156,$r_{复原力}$ = -0.168,$r_{心理健康}$ = 0.22），且性别、年龄阶段的调节效应显著。上述结果对全面、深刻认识家庭教养方式的发展资源价值、促进青少年积极发展具有重要的借鉴意义。

关键词　家庭教养方式, 学业成就, 自尊, 复原力, 心理健康, 元分析

The relationship between parenting styles and positive adolescent development: a series of meta-analytic studies

Tian Tang, Wang Yu, Ning Chen*

Shanghai Normal University, Education

Abstract： Research Purpose: The concept of positive adolescent development is one of the most influential concepts in adolescent development research, which focuses on the potential strengths of adolescent development and the plasticity of developmental trajectories, and emphasizes the important role of individual-environmental interactions on adolescent development. Previous meta-analytic studies have examined the effects of family parenting styles on single variables in the structure of positive adolescent development, and no study has explored the effects of family parenting styles on the holistic conceptualization of positive adolescent development. It is proposed to conduct a series of meta-analyses on the holistic conceptualization of positive adolescent development in order to reveal the specifics of the effects of family parenting styles on positive adolescent development. Research methods: Based on the perspective of positive adolescent development, this study included four variables:

academic achievement, self-esteem, resilience, and mental health in a series of meta-analyses, and the academic achievement variable was searched for by including the keywords "family upbringing/family parenting style/parenting style/parenting styles "+ "academic achievement/academic achievement/academic achievement" + "academic achievement/academic achievement/academic achievement". "Academic achievement/academic performance"; self-esteem with the keywords "family upbringing/family rearing/parenting/parenting style" + "self-esteem"; resilience The variable of self-esteem should contain the keywords "self-esteem"; resilience should contain the keywords "family upbringing/family upbringing/upbringing/parenting" + "resilience/mental resilience/mental toughness/endurance"; mental health should contain the keywords "family upbringing/family upbringing/upbringing/parenting"; and mental health should contain the keywords "family upbringing/family upbringing/parenting/parenting". Parenting styles/family parenting styles/parenting styles/nurturing styles" + "mental health/psychological problems", were searched and screened in Chinese databases, and a total of 276 pieces of original literature were included, containing 2503 effect sizes, and the total number of subjects amounted to 155,683. The results of the study were summarized as follows: Different types of family parenting styles were significantly correlated with the four core constructs of positive adolescent development in general, and positive family parenting styles were moderately correlated with positive adolescent development in general (r = 0.188, of which, $r_{\text{Academic Achievement}}$ = 0.182, $r_{\text{Self-esteem}}$ = 0.317, $r_{\text{Resilience}}$ = 0.432, and $r_{\text{mental health}}$ = -0.156). The overall correlation between negative family parenting styles and positive adolescent development was low (r = -0.041, of which, $r_{\text{academic achievement}}$ = -0.095, $r_{\text{self-esteem}}$ = -0.156, $r_{\text{resilience}}$ = -0.168, and $r_{\text{mental health}}$ = 0.22), and the moderating effects of gender and age stage were significant. The above results have important implications for a comprehensive and profound understanding of the developmental resource value of family parenting styles and the promotion of positive adolescent development.

Keywords：family parenting styles, academic achievement, self-esteem, resilience, mental health, meta-analysis

社会支持对青少年创伤后应激障碍的影响：反刍思维的中介作用

姚本先[1,2]（通讯作者） 梁筱宇[1]

1 合肥师范学院教师教育学院，合肥，230061，通讯作者 E-mail:ybx7756@126.com

2 安徽省学生心理健康教育指导中心

摘 要 在创伤心理学领域，创伤后应激障碍（PTSD）被视为最常见和最具代表性的创伤后心理反应。创伤后应激障碍是一种创伤后病理性反应，具体表现为侵入性症状、回避性症状、警觉性增高症状、负性认知和情绪改变症状，在新冠疫情这一突发公共卫生事件下的青少年群体中具有较高的发生率。以往研究发现，社会支持与创伤后应激障碍显著相关，但是社会支持和创伤后应激障碍之间的潜在机制仍不清楚。基于个体—环境交互作用理论，社会支持可能会提高青少年的反刍思维，进而促使其能更好的应对创伤后应激障碍。本研究将通过反刍思维来研究社会支持对青少年创伤后应激障碍的影响机制。研究采用领悟社会支持量表（PSSS）、反刍反应量表（RRS）、创伤后应激障碍症状核查表（PCL-5）对 687 名青少年进行问卷调查。采用相关分析和 Hayes（2013）开发的 PROCESS 程序进行中介效应检验。结果显示：（1）社会支持与创伤后应激障碍呈显著负相关；（2）社会支持与反刍思维呈显著负相关；（3）反刍思维与创伤后应激障碍呈显著正相关；（4）反刍思维在社会支持与创伤后应激障碍的关系中起部分中介作用。结论：社会支持可以直接对青少年创伤后应激障碍产生影响，也可以通过反刍思维的中介作用对青少年的创伤后应激障碍产生影响。本研究可以为青少年的心理危机干预提供一定的启示，一定要注重社会支持对青少年心理的影响，为其提供温暖有力的支持系统,帮助其建立良好的心理弹性，降低疫情对学生心理健康的影响。

关键词 社会支持，创伤后应激障碍，反刍思维，青少年

The Impact of Social Support on Post-traumatic Stress Disorder in Adolescents : The Mediating Role of Ruminant Thinking

Yao BenXian[1,2] (Corresponding author) Liang XiaoYu[1]
1 Hefei Normal University, HeFei, AnHui, 230061, China
2 Anhui Mental Health Education and Guidance Center for Student

***Abstract*:** In the field of trauma psychology, post-traumatic stress disorder (PTSD) is regarded as the most common and representative post-traumatic psychological response. PTSD is a post-traumatic pathological response manifested by intrusive symptoms, avoidance symptoms, heightened alertness symptoms, negative cognitions and mood altering symptoms, and has a high prevalence in the adolescent population . Previous studies have found that social support significantly affects PTSD, but little is known about the potential underlying mechanisms. Based on the theory of individual-environment interaction, we propose that social support may increase the ruminant thinking of adolescents, and thus help them to better cope with PTSD. A total of 687 adolescents completed the Perceived Social Support Scale (PSSS), the Ruminative Responese Scale (RRS) and the Post-Traumatic Stress Disorder Symptom Checklist (PCL-5). Correlation analyses and the PROCESS procedure developed by Hayes (2013) were used to test for mediating effect. The results showed that (1) social support was negatively related to PTSD; (2) social support was negatively related to ruminant thinking; (3) ruminant thinking was positively related to PTSD; and (4) ruminant thinking partially mediated the negative relationship between social support and PTSD. Conclusion: Social support can have a direct impact on adolescents' PTSD, and affect the PTSD indirectly through ruminant thinking. These finding can provide some insights into the psychological crisis intervention of adolescents under the pandemic. For example, we need to provide adolescents with a warm and strong support system, help them to build up good ruminant thinking, and thus reduce the negative impact of pandemic on their mental health.

***Keywords*:** social support, post-traumatic stress disorder, ruminant thinking, adolescents

大学生目标感问卷的编制及信效度检验

蔡景雪[1]，连 榕[2]（通讯作者）
1 福建技术师范学院，福州，350300）
2 福建师范大学，福州，350117，lianrong1122@126.com

摘 要 目标感是指个体对要达到的目标的自我感受与调控，反映的是个体对目标的自我意识程度。为了测评大学生对自身目标的感受水平，本研究编制大学生目标感问卷并检验其信效度。研究一采用质性研究构建大学生目标感结构模型。首先，采用目的性抽样，在网络上搜索自 2018 年以来以“国奖风采”、“国奖优秀事迹”、“国奖专访”、“国奖获得者”为关键词，有关优秀本科大学生获得国奖后的相关报道及自述文本作为质性分析原始资料，根据扎根理论三阶段编码程序对这些原始资料进行开放式登录、关联式登录和核心式登录形成初步理论模型；然后，对 12 名大学生进行半结构化访谈，审查其是否达到“理论饱和”。研究二编制大学生目标感问卷并检验其信效度。首先，在质性研究的基础上，编制初始问卷；然后，以 504 名大学生为被试进行项目分析和探索性因素分析；以 1390 名大学生为被试进行验证性因素分析。结果获得的大学生目标感问卷共有 14 个题项，包括目标意识、目标认同和目标策略三个维度。验证性因素分析各项拟合

指标良好（χ^2/df = 3.743，*CFI* = 0.942，*TLI* = 0.929，*RMSEA* = 0.044，*SRMR* = 0.035），问卷及维度得分与校标问卷分数显著相关，问卷的内部一致性系数为 0.85，重测信度为 0.98。大学生目标感问卷具有良好的信效度，适用于我国大学生目标感的调查及相关研究。
关键词 质性研究，目标感，信度，效度，大学生

Development and Validation of the College Students' Sense of Purpose Questionnaire

Cai Jingxue[1], LianRong[2]
1Fujian Polytechnic Normal University，Fuzhou，350300
2 Fujian Normal University, Fuzhou, 350117, lianrong1122@126.com

Abstract：The sense of purpose refers to the individual's self-perception and regulation of the purpose to be achieved, which reflects the individual's self-awareness of the purpose. In order to evaluate the perception level of college students on their purposes, this study compiled a questionnaire of college students' sense of purposes and tested its validity. In study 1, quality research was used to construct the structure model of college students' sense of purpose. First of all, using purpose sampling, search on the Internet since 2018 with "national award style", "national award", "national award interview", "national award winner" as the key words, and the qualitative analysis of the original data, according to the open login, correlation login and core login to form the preliminary theory model; then, the 12 college students semi-structured interview, to review whether it reached "theoretical saturation". In study 2, prepare the questionnaire of college students' sense of purpose and test its reliability and validity. Firstly, the initial questionnaire was prepared based on the qualitative research; item analysis and exploratory factor analysis for 504 college students and 1390 college students. There were 14 questionnaire items, including three dimensions of purpose awareness, purpose identification and purpose strategy. For the good fitting indicators（χ^2/df = 3.743，*CFI* = 0.942，*TLI* = 0.929，*RMSEA* = 0.044，*SRMR* = 0.035）, the questionnaire and dimension scores were significantly correlated with the calibration questionnaire scores. The internal consistency coefficient of the questionnaire was 0.85 and the test-retest reliability was 0.98. The questionnaire of college students has good reliability and validity, and is suitable for the survey and related research of college students in China.
Keywords：qualitative research, sense of purpose, reliability, validity, college students

阅读策略训练对小学生阅读理解能力的作用：一项基于阅读障碍风险儿童的干预研究

孙婷婷[1] 于金琦[1] 李璐[1] 黄亚[1] 刘荣[2]（通讯作者）
1 首都师范大学初等教育学院，北京，100101
2 首都师范大学初等教育学院，北京，100037，cnu_liurong@126.com

摘 要 阅读障碍风险（Reading disability at risk，下文简称“RD”）是指儿童已经表现出明显的句法困难，阅读及拼写能力落后于同龄儿童，但还未发展成真正的阅读障碍。研究者提出应该在儿童还未发展成真正的阅读障碍之前（即阅读障碍风险儿童）对其进行早期诊断并提前干预。研究者发现“RD”儿童的阅读理解水平低，阅读理解监控存在缺陷，但是进行教学干预后，他们的阅读理解水平有显著提高。本研究基于前人研究，从小学五年级学生中筛选“RD”儿童，考察他们阅读策略的使用特点，并考察对其进行阅读策略训练是否能够提升其阅读理解能力（即字面性理解、推论性理解、理解监控能力）。结果显示，“RD”儿童在四种阅读策略（即预测、澄清、提问、总结）使用上的成绩均显著差于对照组（*ps*<0.05）；在记叙文与说明文两种文体中，“RD”儿童在澄清、提问、总结策略上成绩显著差于对照组（*ps*<0.05），但预测策略无显著差异（*p*>0.05）。本研究对“RD”儿童进行阅读策略训练的干预后，发现“RD”儿童的阅读理解成绩显著高于干预前（*p*<0.05)，尤其在字面性理解和理解监控上的干预效果最佳，推论性理解成绩次之；并且，对记叙文的干预效果（成绩增长率 109%）优于说明文（成绩增长率 79%）。本研究结果表明，阅读障碍风险儿童对阅读策略的使用普遍弱于同龄儿童，但是经过阅读策略训练干预后，他们的阅读理解能力能够获得显著提升，其中对记叙文理解的提升效果更佳。
关键词 阅读障碍风险儿童，阅读策略干预，阅读理解能力

The role of reading strategy training on elementary school students' reading comprehension: an intervention study based on child of reading disability at risk

Sun Tingting[1] Yu Jinqi[1] Li Lu[1] Huang Ya[1] Liu Rong[2]（Corresponding author）

1 College of Elementary Education, Capital Normal University, Beijing, 100101

2 College of Elementary Education, Capital Normal University, Beijing, 100048, cnu_liurong@126.com

***Abstract*：** Reading disability at risk (hereafter referred to as "RD") is a condition in which a child has demonstrated significant syntactic difficulties and lags behind peers in reading and spelling skills, but has not yet developed true dyslexia. Researchers have proposed that early diagnosis and intervention should be made before a child develops true dyslexia (i.e., child of reading disability at risk). The researchers found that the "RD" children had low levels of reading comprehension and deficits in reading comprehension monitoring, but their reading comprehension levels improved significantly after instructional intervention. Based on previous research, this study screened "RD" children from fifth graders, examined the characteristics of their reading strategy use, and examined whether training them in reading strategies improved their reading comprehension (i.e., literal comprehension, inferential comprehension, and comprehension monitoring). The results showed that "RD" children performed significantly worse than the control group in all four reading strategies (i.e., predicting, clarifying, questioning, and summarizing) (ps<0.05); in both narrative and expository texts, "RD" children performed significantly worse than the control group in the strategies of clarifying, questioning, and summarizing (ps<0.05); and in the strategies of clarifying, questioning, and summarizing, they performed significantly worse than the control group in both narrative and expository texts. and summarization strategies (ps<0.05), but there was no significant difference in prediction strategies (p>0.05). After the intervention of reading strategy training for the "RD" children, it was found that the "RD" children's reading comprehension scores were significantly higher than those before the intervention (p<0.05), especially in literal comprehension and comprehension monitoring, with

inferential comprehension being the best, followed by inferential comprehension ($p<0.05$) scores were the next highest; and the intervention effect was better for narrative text (109% growth in scores) than for expository text (79% growth in scores). The results of this study indicate that child of reading disability at risk are generally weaker than their peers in the use of reading strategies, but their reading comprehension improves significantly after the intervention of reading strategy training, with a better improvement in comprehension of narrative text.
Keywords：Child of reading disability at risk, Reading Strategies Intervention, Reading Comprehension

高中生焦虑抑郁问题核心症状的时间特异性探索：基于交叉滞后网络分析模型

刘东禹[1] 俞美硕[2] 张馨予[1] 杨海波[1,3]（通讯作者）

1 天津师范大学心理学部，天津，300387

2 首都师范大学心理学院，北京，100048

3 天津师范大学心理与行为研究院，天津，300387，yanghaibo@tjnu.edu.cn

摘 要 **引言：**焦虑和抑郁问题存在较高共病，且随着时间的推移表现出不断发展变化的趋势。本研究基于网络分析（Network Models, NM）和交叉滞后网络分析（Cross-lagged Panel Network Models, CLPN），分别探讨焦虑抑郁问题的核心症状，以及焦虑抑郁问题核心症状随时间变化的特点，从而深入理解焦虑抑郁问题的发展过程。方法：本研究以山东省济宁市某高中 606 名非毕业年级学生为研究对象，分别在 2022 年 3 月（T1）、6 月（T2）和 9 月（T3）进行三次施测。采用最小绝对值收敛和选择算子（LASSO）计算回归系数。使用 R qgraph 以及 bootnet 程序包进行 NM 以及 CLPN 建立。通过 bootnet 程序包进行模型准确性和节点稳定性分析。在本研究中 NM 及 CLPN 均呈中等准确性，节点中心性的估计稳定。**结果：**（1）NM 结果表明，各模型两两之间边线系数均显著正相关，其中 NM_{T2} 的全局强度最高。（2）不同时间点呈现出不同的核心症状：在 NM_{T1}-NM_{T3} 中 GAD-7 的“不可控制的担忧”症状均具有较高的中心性；在 NM_{T1}、NM_{T3} 中 PHQ-9 的“无价值感”症状的中心性最高；在 NM_{T2} 中 GAD-7 的“广泛焦虑”症状具有较高中心性，且其他症状强度也相对较高。（3）CLPN 结果表明，$CLPN_{T1\text{-}T2}$ 与 $CLPN_{T2\text{-}T3}$ 网络的边线系数总体呈负相关，$CLPN_{T1\text{-}T2}$ 中“无价值感”症状的接受影响最高，PHQ-9 的“自杀意念”症状的发出影响最高。在 $CLPN_{T2\text{-}T3}$ 中，“不可控制的担忧”症状的接受影响最高，“无价值”症状的发出影响最高。**结论：**本研究结果表明焦虑抑郁问题网络具有较高稳定性，其中“不可控制的担忧”、“无价值感”和“广泛焦虑”是高中生焦虑抑郁问题的核心症状，且前两者的中心性在时间上保持相对稳定。根据交叉滞后网络分析的结果，“无价值感”症状对于前一时间点焦虑抑郁症状的影响敏感，同时对于之后的焦虑抑郁症状也有较高的预测作用。综上，本研究从横向和纵向的角度分别探索了焦虑抑郁问题的核心症状和不同症状之间相互影响的方向性，为高中生焦虑抑郁问题的预防和干预提供了理论干预靶点。

关键词 焦虑问题，抑郁问题，网络分析，交叉滞后网络分析

Time-specific exploration of core symptoms of anxiety and depression in high school students: A cross-lagged panel network

analysis

Dongyu Liu[1] Meishuo Yu[2] Xinyu Zhang[1] Haibo Yang [1,3](corresponding author)
1 Faculty of Psychology Tianjin Normal University Tianjin, 300387
2 School of Psychology, Capital Normal University, Beijing, China, 100048
3 Academy of Psychology and Behavior, Tianjin Normal University, Tianjin, 300387,
yanghaibo@tjnu.edu.cn

Abstract: This study aims to investigate the central symptoms of anxiety and depression and their developmental patterns over time using Network Models (NM) and Cross-lagged Panel Network Models (CLPN). By examining these processes, the objective is to gain a deeper understanding of the developmental trajectory of anxiety and depression. The study involved 606 non-graduating high school students from Jining City, Shandong Province, who participated in three assessments conducted in March (T1), June (T2), and September (T3) of 2022.

To analyze the data, regression coefficients were calculated using the Least Absolute Shrinkage and Selection Operator (LASSO). The R packages *glmnet* and *qgraph* were utilized to establish the NM and CLPN, respectively. Model accuracy and node stability were analyzed using the *bootnet* package. Both NM and CLPN demonstrated moderate accuracy and stable estimates of node centrality in this study. The results revealed several key findings. Firstly, the NM results indicated significant positive correlations in edge coefficients across different models, with the NM_{T2} model showing the highest global strength. Secondly, different core symptoms were observed at different time points. For instance, the "Uncontrollable worry" symptom of the GAD-7 exhibited high centrality in NM_{T1}-NM_{T3}, while the "Worthlessness" symptom of the PHQ-9 had the highest centrality in NM_{T1} and NM_{T3}. Additionally, the "Generalized worry" symptom of the GAD-7 displayed high centrality in NM_{T2}, along with relatively high intensity in other symptoms. Thirdly, the CLPN results indicated negative correlations in general edge coefficients between the $CLPN_{T1\text{-}T2}$ and $CLPN_{T2\text{-}T3}$. In the $CLPN_{T1\text{-}T2}$, the "Worthlessness" symptom had the highest in-expected influence, while the "Suicidal Ideation" symptom of the PHQ-9 had the highest out-expected influence. In the $CLPN_{T2\text{-}T3}$, the "Uncontrollable Worry" symptom had the highest in-expected influence, and the "Worthlessness" symptom had the highest out-expected influence. In conclusion, the findings suggest that the anxiety and depression network exhibit high stability. "Uncontrollable worry", "Worthlessness", and "Generalized worry" were identified as core symptoms of anxiety and depression in high school students, with the centrality of the first two symptoms remaining relatively stable over time. Furthermore, according to the results of the cross-lagged panel network analysis, the "Worthlessness" symptom is sensitive to the impact of the symptoms at previous time point and has a high predictive effect on subsequent symptoms. Overall, this study provides insights into the central symptoms of anxiety and depression and the directional effects between different symptoms from both a horizontal and vertical perspective, offering theoretical intervention targets for the prevention and treatment of anxiety and depression among high school students.

Keywords: anxiety, depression, network analysis, cross-lagged panel network analysis

家庭功能与中学生抑郁的关系：

总体自我价值感与行为自主决策的链式中介作用

罗静[1] 曾练平[2]（通讯作者）
贵州师范大学心理学院，贵阳，55001，E-mail：zenglianping@163.com

摘 要 探索中学生抑郁的影响因素，对学校发展和教学质量的提升有较大的现实意义，对基础教育的发展和进步也具有一定的促进作用。研究主要探讨家庭功能对中学生抑郁的影响，以及总体自我价值感、行为自主决策在家庭功能与中学生抑郁两者关系中的作用。采用家庭功能问卷、总体自我价值感问卷、青少年行为自主决策问卷、流调中心抑郁问卷，对贵州省某中学的中学生进行调查，删除未做完和规律作答的问卷，最终得到有效问卷 814 份。其中，男生 435 人，占比 53.4%；女生 375 人，占比 46.1%；初一有 329 人，占比 40.4%；初二有 281 人，占比 34.5%；初三有 204 人，占比 25.1%。结果表明：家庭功能与总体自我价值观、行为自主决策、抑郁呈显著正相关；总体自我价值观与行为自主决策、抑郁呈显著正相关；行为自主决策与抑郁呈显著正相关，总体自我价值感和行为自主决策在家庭功能和中学生抑郁之间的单独中介作用均显著；且总体自我价值感、行为自主决策的链式中介作用也显著。由此可知，总体自我价值感及行为自主决策会影响中学生的抑郁情况。家庭功能与中学生抑郁息息相关，培养中学生良好的自我价值感，以及拥有一定行为自主决策权，对中学生的身心健康发展至关重要。因此，中学可以通过促进家庭功能和培养中学生自我价值感和行为自主决策，不仅可以改善中学生的抑郁，还有助于身心健康的发展。
关键字 家庭功能，抑郁，总体自我价值感，行为自主决策，中学生

The relationship between family function and depression in middle school students: The chain mediating role of overall self-worth and behavioral autonomy

Jing Luo[1], Lianping Zeng[2] (Corresponding author)
Guizhou Normal University, Guizhou, China.

Abstract: Exploring the influencing factors of depression among middle school students has great practical significance for school development and the improvement of teaching quality, and also has a certain role in promoting the development and progress of basic education. This study mainly explores the influence of family function on depression in middle school students, and the role of overall self-worth and behavioral autonomy in the relationship between family function and depression in middle school students. A questionnaire on family functioning, a questionnaire on overall self-worth, a questionnaire on autonomous decision-making on adolescent behavior, and a questionnaire on depression in a center were used to survey middle school students in a middle school in Guizhou Province, and the questionnaires that were not completed and answered regularly were deleted, and 814 valid questionnaires were finally obtained. Among them, 435 were boys, accounting for 53.4%; 375 were girls, accounting for 46.1%; There were 329 people in the first year of junior high school, accounting for 40.4%; There were 281 people in the second year of junior high school, accounting for 34.5%; There were 204 students in the third year of junior high school, accounting for 25.1%. The results showed that family function was significantly positively correlated with overall self-worth, behavioral autonomy and depression. Overall self-worth was significantly positively correlated with behavioral autonomy and depression. Behavioral autonomy was positively correlated with depression, and overall self-worth and behavioral autonomy played a significant role in the separate mediating roles between family function and depression in middle school students. Moreover, the chain mediating role of overall self-worth and behavioral autonomous decision-making is also significant. It can be seen that overall self-worth and behavioral autonomy affect the depression of middle school students. Family function is closely related to depression in middle school students, and cultivating a good sense of self-worth and having certain behavioral autonomy is crucial to the healthy development of middle school students. Therefore, secondary schools can not only improve depression in middle school students, but also contribute to the

development of physical and mental health by promoting family function and cultivating middle school students' sense of self-worth and behavioral autonomy.

Keywords: family functioning, depression, overall sense of self-worth, behavioral autonomy, middle school students

家庭功能与中学生抑郁的关系：总体自我价值感与行为自主决策的链式中介作用

罗静[1] 曾练平[2]（通讯作者）

贵州师范大学心理学院，贵阳，55001，E-mail：zenglianping@163.com

摘 要　探索中学生抑郁的影响因素，对学校发展和教学质量的提升有较大的现实意义，对基础教育的发展和进步也具有一定的促进作用。研究主要探讨家庭功能对中学生抑郁的影响，以及总体自我价值感、行为自主决策在家庭功能与中学生抑郁两者关系中的作用。采用家庭功能问卷、总体自我价值感问卷、青少年行为自主决策问卷、流调中心抑郁问卷，对贵州省某中学的中学生进行调查，删除未做完和规律作答的问卷，最终得到有效问卷 814 份。其中，男生 435 人，占比 53.4%；女生 375 人，占比 46.1%；初一有 329 人，占比 40.4%；初二有 281 人，占比 34.5%；初三有 204 人，占比 25.1%。结果表明：家庭功能与总体自我价值观、行为自主决策、抑郁呈显著正相关；总体自我价值观与行为自主决策、抑郁呈显著正相关；行为自主决策与抑郁呈显著正相关，总体自我价值感和行为自主决策在家庭功能和中学生抑郁之间的单独中介作用均显著；且总体自我价值感、行为自主决策的链式中介作用也显著。由此可知，总体自我价值感及行为自主决策会影响中学生的抑郁情况。家庭功能与中学生抑郁息息相关，培养中学生良好的自我价值感，以及拥有一定行为自主决策权，对中学生的身心健康发展至关重要。因此，中学可以通过促进家庭功能和培养中学生自我价值感和行为自主决策，不仅可以改善中学生的抑郁，还有助于身心健康的发展。

关键字　家庭功能，抑郁，总体自我价值感，行为自主决策，中学生

The relationship between family function and depression in middle school students: The chain mediating role of overall self-worth and behavioral autonomy

Jing Luo[1], Lianping Zeng[2] (Corresponding author)

Guizhou Normal University, Guizhou, China.

Abstract: Exploring the influencing factors of depression among middle school students has great practical significance for school development and the improvement of teaching quality, and also has a certain role in promoting the development and progress of basic education. This study mainly explores the influence of family function on depression in middle school students, and the role of overall self-worth and behavioral autonomy in the relationship between family function and depression in middle school students. A questionnaire on family functioning, a questionnaire on overall self-worth, a questionnaire on autonomous decision-making on adolescent behavior, and a questionnaire on depression in a center were used to survey middle school students in a middle school in Guizhou Province, and the questionnaires that were not completed and answered regularly were deleted, and 814 valid questionnaires were finally obtained. Among them, 435 were boys, accounting for 53.4%; 375 were

girls, accounting for 46.1%; There were 329 people in the first year of junior high school, accounting for 40.4%; There were 281 people in the second year of junior high school, accounting for 34.5%; There were 204 students in the third year of junior high school, accounting for 25.1%. The results showed that family function was significantly positively correlated with overall self-worth, behavioral autonomy and depression. Overall self-worth was significantly positively correlated with behavioral autonomy and depression. Behavioral autonomy was positively correlated with depression, and overall self-worth and behavioral autonomy played a significant role in the separate mediating roles between family function and depression in middle school students. Moreover, the chain mediating role of overall self-worth and behavioral autonomous decision-making is also significant. It can be seen that overall self-worth and behavioral autonomy affect the depression of middle school students. Family function is closely related to depression in middle school students, and cultivating a good sense of self-worth and having certain behavioral autonomy is crucial to the healthy development of middle school students. Therefore, secondary schools can not only improve depression in middle school students, but also contribute to the development of physical and mental health by promoting family function and cultivating middle school students' sense of self-worth and behavioral autonomy.

Keywords: family functioning, depression, overall sense of self-worth, behavioral autonomy, middle school students

父母监控与青少年亲社会行为的关系：有调节的中介模型

利振华　吴煜琪　何嘉杰　陈佳榕　陈沛　聂衍刚（通讯作者）

广州大学教育学院青少年心理与行为研究中心，广州，510006，

nie-yangang@gzhu.edu.cn

摘　要　亲社会行为是(prosocial behavior)是指人们在社会交往中展现出自愿、有益于他人和社会的行为，包括帮助、分享、捐赠、合作等。以往研究表明，亲社会行为与积极的发展结果密切相关，例如更高的学业成就、更强的幸福感以及更好的人际关系。家庭环境是影响青少年行为发展的重要因素之一，父母对孩子的有效监督和管教有助于孩子形成良好的行为品质。本研究从生态系统理论的角度出发，探讨父母监控与青少年亲社会行为的关系，并且考察自我控制的中介作用和同伴关系的调节作用。本研究选取3686名初高中学生进行测查，分别完成父母监控量表、自我控制量表、同伴关系量表以及亲社会行为量表。结果发现：（1）父母监控与自我控制、亲社会行为、同伴关系两两呈显著正相关。（2）在控制性别、年龄后，父母监控显著正向预测亲社会行为，自我控制显著中介了父母监控与亲社会行为的关系 (effect = 0.05, 95% CI = [0.04, 0.06])。（3）有调节的中介效应显示，同伴关系显著调节了父母监控与自我控制的关系以及自我控制与亲社会行为的关系。简单斜率分析发现，在高水平的同伴关系下，父母监控对自我控制以及自我控制对亲社会行为的作用更强。研究表明，父母对孩子的监督能够预测青少年良好的自我控制，而高自我控制的青少年倾向于表现出更多的亲社会行为。积极的同伴关系增强了父母监控对自我控制以及自我控制对亲社会行为的积极影响。本研究揭示了父母监控影响青少年亲社会行为的心理机制，对于培养青少年的亲社会行为具有重要参考价值。

关键词　青少年，父母监控，自我控制，亲社会行为，同伴关系

The Effect of Parental Monitoring on Adolescent Prosocial Behavior: A Moderated Mediation Model

Li Zhenhua　Wu Yuqi　He jiajie　Chen jiarong　Chen Pei　Nie Yangang*

Research Center of Adolescent Psychology and Behavior, School of Education, Guangzhou University, Guangzhou, 510006

Abstract: Prosocial behavior refers to people's behaviors that are voluntary and beneficial to others and society in social interactions, including help, sharing, donation, cooperation, etc. Previous research has shown that prosocial behavior is strongly associated with positive developmental outcomes, such as higher academic achievement, greater happiness, and better interpersonal relationships. The family environment is one of the important factors that affect the development of adolescent behavior. The effective supervision and discipline of parents help children to form good behavior quality. This study explores the relationship between parental monitoring and adolescent prosocial behavior from the perspective of ecosystem theory, and examines the mediating role of self-control and the moderating role of peer relationship. In this study, 3686 middle and high school students were selected to complete the parental monitoring scale, self-control scale, peer relationship scale and prosocial behavior scale. The results showed that: (1) Parental monitoring was positively correlated with self-control, prosocial behavior and peer relationship. (2) After controlling for gender and age, parental monitoring significantly positively predicted prosocial behavior, and self-control significantly mediated the relationship between parental monitoring and prosocial behavior (effect = 0.05, 95%CI = [0.04, 0.06]). (3) Moderated mediating effect showed that peer relationship significantly moderated the relationship between parental monitoring and self-control and the relationship between self-control and prosocial behavior. Simple slope analysis found that parental monitoring had a stronger effect on self-control and self-control on prosocial behavior at high levels of peer relationships. Studies have shown that parental supervision of children is able to predict good self-control in adolescents, and that adolescents with high self-control tend to exhibit more prosocial behaviors. Positive peer relationships enhance the positive effects of parental monitoring on self-control and self-control on prosocial behavior. This study reveals the psychological mechanism of parental monitoring affecting adolescents' prosocial behavior, which has important reference value for cultivating adolescents' prosocial behavior.

Keywords: adolescent, parental monitoring, self-control, prosocial behavior, peer relationship

教养方式对幼儿心理健康的影响——电子产品使用和性别的中介调节机制

李世菊 吴汶君 李秦宇 李 烨 仝 文（通讯作者）
山西师范大学教育科学学院心理学系，山西，030031，
E-mail：twaaa@126.com

摘 要 背景：俞国良等学者的调查结果显示我国幼儿心理健康总体状况不容乐观，幼儿心理健康相关问题检出率多在 11%以上；新时代下父母教养方式的转变、电子产品使用的普及和低龄化等因素对幼儿的心理健康产生了多重影响。目的：本研究通过分析 3-6 岁幼儿电子产品使用现状和心理健康状况及发展特点，探讨父母教养方式和电子产品使用在 3-6 岁幼儿与他们的心理健康问题之间的中介作用，以及性别的调节作用。从而分析父母教养方式对 3-6 岁幼儿心理健康的影响机制，并进一步寻找可行方案，为促进幼儿心理健康提出良好的建议。方法：综合运用文献资料和问卷调查等方法，使用父母教养方式问卷、电子产品使用量表、儿童行为问卷等工具，采取分层抽样法，以山西省两所幼儿园学生为研究对象，共发放 600 份问卷，回收有效问卷 510 份，有效回收率为 85%，其中年龄和性别比例大致平衡。采用 IBM SPSS26.0 统计软件分析父母教养方式、电子产品使用、幼儿心理健康相关系数，使用 SPSS 宏插件 PROCESS 相应的模型进行检验相关假设。结果：①权威型教养方式正向预测中幼儿心理健康问题；专制型教养方式负向预

测中幼儿心理健康问题；②父母教养方式在电子产品使用和幼儿心理健康问题之间起部分中介作用；③性别调节了父母教养方式影响电子产品使用的路径。结论：父母在教育孩子的过程中应尽可能多采用权威型的教养方式，给予幼儿足够的情感关注和进行合理的行为管控，同时要关注和规范幼儿使用电子产品间、频率和内容等，让不同幼儿都拥有良好的心理健康水平。
关键词　幼儿，电子产品，父母教养方式，心理健康

The Influence of Parenting Styles on young Children's Mental Health - Mediating Moderating Mechanisms of Electronics Use and Gender

Li Shiju　Wu Wenjun　Li Qinyu　Li Ye　Tong Wen
Department of Psychology, Shanxi Normal University, Taiyuan, 030031
E-mail：twaaa@126.com

Abstract： Background: The survey results of scholars such as Yu Guoliang show that the overall condition of children's mental health in China is not optimistic, and the detection rate of relevant problems in children's mental health is mostly above 11%. Factors such as changes in parenting styles in the new era, the prevalence and younger age of electronic product use have multiple effects on the mental health of young children. Objective: This study aims to explore the mediating effects of parenting styles and electronic product use on the mental health problems of 3-6 year old children, as well as the moderating effect of gender, by analyzing the current status and developmental characteristics of electronic product use and mental health problems in 3-6 year old children. Therefore, it analyzes the impact mechanism of parenting styles on the mental health of 3-6 year old children and further seeks feasible solutions to provide good suggestions for promoting children's mental health. Methods: Comprehensive methods were used, such as literature and questionnaire surveys, parenting style questionnaire, electronic product use scale, child behavior questionnaire, etc., adopting a stratified sampling method. 600 questionnaires were distributed to students in two kindergartens in Shanxi Province, and 510 valid questionnaires were collected, with an effective recovery rate of 85%, and the age and gender ratios were roughly balanced. IBM SPSS26.0 statistical software was used to analyze the correlation between parenting styles, electronic product use, and children's mental health, and the corresponding models were tested with the SPSS macro plugin PROCESS. Results: ① Authoritative parenting styles positively predicted children's mental health problems, while authoritarian parenting styles negatively predicted children's mental health problems; ② Parenting styles played a partial mediating role between electronic product use and children's mental health problems; ③ Gender moderated the path between parenting styles and electronic product use. Conclusion: Parents should adopt authoritative parenting styles as much as possible in the process of educating their children, giving children sufficient emotional attention and reasonable behavior management. At the same time, they should pay attention to and regulate the time, frequency, and content of children's electronic product use, so that children of different ages can have a good level of mental health.
Key words: Children, Electronics, Parenting styles, Mental health

弹幕对不同认知风格学习者视频学习的影响

邹明萱 [12]　慕德芳 [3]　陈英和 [4]（通讯作者）

1 陕西中医药大学公共卫生学院，西安，712046
2 空军军医大学军事医学心理学系，西安，710032，
3 天津商业大学心理学系，天津，300134
4 北京师范大学发展心理研究所，北京，100875，chenyinghe@bnu.edu.cn

摘　要　弹幕是一种新型的视频交互技术，已在部分在线教育平台得以使用，其在视频学习中的作用仍存在争议。基于多媒体学习认知理论和认知负荷理论，认知风格个体差异可能影响着弹幕视频的学习结果。因此，研究采用 2（学习视频中弹幕有无：有弹幕，无弹幕）×2（认知风格：场独立型，场依存型）被试间设计，以“人体体温与调节”视频课程（时长 4 分 44 秒）作为实验材料，结合眼动技术，对 84 名非生理学专业学生的视频学习结果（包括学习满意度，主观认知负荷和保持测验成绩）进行考察，来探讨弹幕对不同认知风格学习者视频学习的影响及机制。结果发现：（1）弹幕不影响两种认知风格者的视频学习满意度；（2）弹幕分散学习者的注意力，提高了场依存型学习者的认知负荷；（3）弹幕对场依存型学习者的视频学习保持测验成绩更具消极作用，弹幕视频条件下场依存型学习者的保持测验成绩显著低于无弹幕视频条件，场独立型学习者没有表现出显著差异。结果表明：弹幕不影响场独立型学习者的视频学习结果，但可能会使场依存型学习者出现认知负荷超载并降低其视频学习结果。研究结果支持了视频学习的认知负荷理论。

关键词　弹幕，认知风格，视频学习，眼动，认知负荷

The Effects of Bullet Screen on Video-based Learning for Learners with Different Cognitive Styles

Zou, Mingxuan[12]　Mu, Defang[3]　Chen, Yinghe[4]
1. Public Health School, Shaanxi University of Chinese Medicine, Xi’an, 712046
2. Department of Military Medical Psychology, Air Force Medical University, Xi’an, 710032
3. Department of Psychology, Tianjin University of Commerce, Tianjin, 300134
4. Institute of Developmental Psychology, Faculty of Psychology, Beijing Normal University, Beijing, 100875

Abstract　Bullet screen is a new video interactive technology, and its effectiveness in video-based learning is controversial. This study used eye-tracking technology to investigate the effects and mechanisms of bullet screen on video-based learning for learners with two different cognitive styles. Participants (*N*=84) were required to complete a post-test after watching the video course "Human Body Temperature and Regulation" under a 2 (bullet-screen: bullet-screen, bullet-screen-free) × 2 (cognitive style: field-independent, field-dependent) between-subjects design. The study found that the bullet screens did distract learners' attention and increased the cognitive load of field-dependent learners. As a result, the learning outcomes of field-dependent learners with bullet screens was significantly lower than those of learners with bullet-screen-free condition, while field-independent learners did not exhibit any significant differences. These results revealed that bullet screen has a negative impact on video learning outcomes for field-dependent learners, causing cognitive overload and reducing their learning outcomes.

Key words　bullet screen, cognitive style, video learning, eye movements, cognitive load

多巴胺系统基因与父母教养方式对青少年自我控制双系统的神经机

制——一项 fMRI 研究

陈沛　李瑞菁　聂衍刚（通讯作者）　李盛楠　窦凯
广州大学教育学院心理学系/青少年心理与行为研究中心，广州，510006，nie-yangang@gzhu.edu.cn

摘 要　为了解多基因分数与家庭环境影响青少年自我控制发展的神经机制，本研究选取广东省广州市某高校的 68 名大学生作为研究对象（$Mean_{age}$=19.84 岁，*SD*=1.38），采用功能磁共振（fMRI）技术考察多巴胺系统多基因累加分数（*DRD1*rs907094、*DRD2* rs1800497、*DRD2* rs6277、*DRD2* rs1799732、*DRD3* rs6280、*DRD4* rs1800955、*DAT1* rs27027、*COMT* Val158Met）与父母教养行为作用于青少年自我控制的神经机制。结果显示：（1）自我控制冲动系统与小脑灰质体积有关，冲动系统得分越高，其右侧小脑 4、5 区的灰质体积越小（Peak T=-3.73, cluster sizes = 4610, p<0.05），而控制系统与全脑灰质体积不存在显著相关；（2）冲动系统得分与右侧眶部额上回的大脑静息态低频振幅显著正相关（Peak T=3.87, cluster sizes =125, p<0.05）；控制系统得分与左侧小脑脚 1 区的大静息态低频振幅显著正相关（Peak T=3.76, cluster sizes =250, p<0.05），与右侧枕中回的大脑静息态低频振幅显著负相关（Peak T=-3.98, cluster sizes =273, p<0.05）；（3）多基因累加得分与父母消极教养交互共同预测右侧小脑 4、5 区的灰质体积，在具有高遗传和环境风险的人群中，右侧小脑 4、5 区的灰质体积越小，个体更有可能表现出冲动行为。本研究有助于深入理解青少年自我控制发展的神经机制并为教育干预提供参考价值。

关键词　多巴胺系统基因，父母教养方式，自我控制双系统，功能性磁共振成像（fMRI），青少年

Interaction between Dopaminergic Genetic and Parenting Styles on Neural Mechanisms of Adolescent Dual-Mode of Self-Control: An fMRI Study

Pei Chen　Ruijing Li　Yangang Nie　Shengnan Li　Kai Dou
Department of Psychology/Research Center of Adolescent Psychology and Behavior, School of Education, Guangzhou University, Guangzhou, 510006

Abstract: The aim of this study was to uncover the underlying neural mechanisms of dopaminergic genetic and parenting styles in the dual system of self-control. The current study recruited 68 teenagers ($Mean_{age}$=19.84 years, *SD*=1.38) in Guangzhou, Dongguan city. Functional magnetic resonance imaging (fMRI) was used to investigate the neural mechanism of the effects of polygenic accumulation scores of dopamine system (*DRD1*rs907094、*DRD2* rs1800497、*DRD2* rs6277、*DRD2* rs1799732、*DRD3* rs6280、*DRD4* rs1800955、*DAT1* rs27027、*COMT* Val158Met) and parenting styles on adolescent self-control. The results showed that: (1) The self-control impulse system is related to the volume of cerebellar grey matter; the higher the impulse system score, the smaller the volume of grey matter in the right cerebellar regions 4 and 5 (Peak T=-3.73, cluster sizes = 4610, p<0.05). (2) The score of the impulsive system was positively correlated with the low-frequency amplitude of the resting state of the brain in the right orbital superior frontal gyrus (Peak T=3.87, cluster sizes =125, p<0.05). The score of the control system was positively correlated with the large resting state low-frequency amplitude in the left cerebellar region 1 (Peak T=3.76, cluster sizes =250, p<0.05), and negatively correlated with the resting state low-frequency amplitude in the right middle occipital gyrus (Peak T=-3.98, cluster sizes =273, p<0.05). (3) Multi-gene cumulative scores and negative parenting interaction co-predicted the volume of gray matter in right cerebellar areas 4 and 5. In people

with high genetic and environmental risk, the smaller the volume of gray matter in right cerebellar areas 4 and 5, the more likely an individual was to exhibit impulsive behavior. This study is helpful to further understand the neural mechanism of adolescent self-control development and to provide reference for educational interferences.
Key words: dopaminergic genetic, parenting styles, the dual system of self-control, functional magnetic resonance imaging (fMRI), adolescent

认知卸载与项目难度对元认知监测的影响

刘昕悦　张振新　王勋（通讯作者）
浙江师范大学心理学院，金华，321000，wangx@zjnu.cn

摘 要 长期以来，人们一直试图通过认知卸载来减轻我们自身的认知负担，尤其在科技与生活不断融合的今天，认知卸载已成为帮助我们实现记忆目标的一种重要的方法和手段。在探究认知卸载的机制的过程中，研究者们发现元认知在其中起到了举足轻重的作用。Risko 等人在 2016 年提出了认知卸载的元认知模型，此后的许多研究也检验并证实了元认知在认知卸载决策中的作用。然而，做出认知卸载行为反过来会对我们本身的认知及元认知过程产生什么影响仍不够清楚。因此，本研究主要探讨在词对学习中做出认知卸载行为会如何影响人们的记忆及元认知监测过程，并结合不同难度的学习项目，来进一步探究认知卸载对元认知的影响的边界条件。本研究包括两个实验，实验 1 为单因素被试间设计，以非卸载组为对照组，采用认知卸载的多列表学习范式，来探究认知卸载行为对个体元认知监测的影响。结果发现：卸载组的被试在前三个列表上的自信心判断值显著高于控制组，即认知卸载会使个体对自己的记忆能力产生高估。实验 2 通过控制词对相关性以操控项目难度，采用 2（记忆方式：卸载，非卸载）×2（项目难度：高难度，低难度）混合设计，其中记忆方式作为被试间自变量，项目难度作为被试内自变量，主要探讨对不同难度的项目进行认知卸载时个体的记忆及元认知表现。结果发现：在高难度和低难度的条件下，卸载组的被试自信心判断值均显著高于非卸载组，然而相比于低难度项目来说，被试在学习高难度项目时的元认知监测的准确性更高。本研究的结果表明：（1）认知卸载容易致使学习者模糊自我记忆与外部储存工具之间的界限，对自己的记忆产生高估。（2）无论项目难度高低，认知卸载所导致的元认知偏差均存在。（3）难度影响认知卸载时的元认知监测准确性，高项目难度条件下个体的元认知监测的准确性更高。
关键词 认知卸载，项目难度，元认知监测，记忆

The Effects of Cognitive Offloading and Item Difficulty on Metacognitive Monitoring

Xinyue Liu, Zhenxin Zhang, Wang Xun (corresponding author)）
School of Psychology，Zhejiang Normal University, Jin Hua321000，
wangx@zjnu.cn

***Abstract*：** People have long tried to reduce our own cognitive load through cognitive offloading, which has become an important method and tool to help us achieve our memory goals, especially in today's world where technology is constantly merging with life. Risko et al. (2016) proposed a metacognitive model of cognitive offloading, and many studies since then have tested and confirmed the role of metacognition in cognitive offloading decisions. However, it is still not clear enough how making cognitive offloading behaviors in turn

affects our own cognitive and metacognitive processes. Therefore, the present study focuses on how making cognitive offloading behaviors in word pair learning affects people's memory and metacognitive monitoring processes, and incorporates learning items of different levels of difficulty to further investigate the boundary conditions for the effects of cognitive offloading on metacognition. The present study consisted of two experiments. memory type (offloaded, non-offloaded) was manipulated between participants as the only independent variable in Experiment 1. A multiple-list learning paradigm of cognitive offloading was used to investigate the effects of cognitive offloading behaviors on individual metacognitive monitoring. The results showed that subjects in the offloading group had significantly higher confidence judgment scores on the first three lists than those in the control group, i.e., cognitive offloading causes individuals to overestimate their memory capacity. Experiment 2 employed a 2 (memory type: offloading vs. Non-offloading) × 2 (Item difficulty: high vs. low) mixed design, with memory type used as a between-subjects variable and item difficulty as a within-subjects variable, to explore the memory and metacognitive performances of individuals when cognitively unloading on items of varying levels of difficulty. The results showed that subjects' confidence judgment values were significantly higher in the offloaded group than in the non-offloaded group in both the high and low difficulty conditions, yet the accuracy of metacognitive monitoring was higher when subjects were learning the high difficulty items compared to the low difficulty items. The results of this study suggest that (1) cognitive offloading tends to cause learners to blur the boundaries between self-memory and external cognitive tools and to overestimate their own memory. (2) The metacognitive bias caused by cognitive offloading exists regardless of item difficulty. (3) Difficulty affects the accuracy of metacognitive monitoring during cognitive offloading, and the accuracy of metacognitive monitoring is higher for individuals in the high item difficulty condition.

Keywords：Cognitive offloading, Item difficulty, Metacognitive monitoring, Memory

父母情绪智力与高中生主观幸福感的关系：自尊的中介作用

连培琴[1]　郭玉丹[2]　张佳琪[3]　冯喜珍[1]（通讯作者）

1 山西师范大学教育科学学院，太原，030000，517824719@qq.com

2 朔州师范高等专科学校，朔州，036001

3 山西师范大学现代文理学院，临汾，041000

摘 要　随着经济的发展，GDP 指数的提高，人们已不仅仅满足于解决温饱问题，而是更在意内在情感体验与生活质量，主观幸福感也成为多领域关注的话题。高中阶段，学生面临学业、生活、人际等众多问题，且是由青少年到成人的过渡期，也是自我发展的重要阶段，因此研究高中生的主观幸福感及其形成机制具有特殊意义。研究表明，高情绪智力的父母能够通过识别并指导孩子的情绪，促使孩子形成良好的情绪管理策略，进而获得更多积极情绪，具有较高的幸福感。自尊作为个体在社会化过程中获得的有关自我价值的积极评价与体验，会受到父母情绪智力的影响，即拥有较高/较低情绪智力的父母会增加孩子的积极情绪/消极情绪，导致孩子进行自我肯定/自我否定，从而提高/降低自尊水平；而高自尊的个体往往具有较高的主观幸福感，因此自尊可能在父母情绪智力与主观幸福感之间起到中介作用。基于此，本研究使用《情绪智力量表（EIS）》、《主观幸福感量表》以及《自尊量表》对 249 名高中生及其父母（290 名）进行问卷调查。结果显示：（1）父母情绪智力与自尊呈显著正相关，与主观幸福感各维度相关不显著；自尊与主观幸福感三个维度中的积极情感、生活满意度呈显著正相关，与消极情感呈显著负相关；（2）自尊在父母情绪智力与高中生主观幸福感之间起完全中介作用。研究表明：父母情绪智力无法直接影响高中生的主观幸福感，但是可以通过自尊的完全中介作用间接影响高中生的主观幸福感。研究启示，提升个体主观幸福感，不仅要注重诸如自尊等内部因素的加强，还要注重诸如父母情绪智力等外部因素的提高。

关键词　父母情绪智力，主观幸福感，自尊，高中生

The relationship between emotional intelligence of parents and subjective well-being of high school students: the mediating effect of self-esteem

Lian Peiqin[1],Guo Yudan[2],Zhang Jiaqi[3],Feng Xizhen[1] (Corresponding author)
1 Institute of Education Science, Shanxi Normal University, TaiYuan
2 Shuozhou Normal College,ShuoZhou
3 Modern College of Humanities and Sciences of Shanxi Normal University,LinFen

Abstract： With the development of economy and the improvement of GDP index, people are not only satisfied with food and clothing, but also pay more attention to their inner emotional experience and quality of life, Subjective well-being has also become a topic of concern in many fields. At the stage of senior high school, students are faced with many problems in their studies, life and interpersonal relations,and it is a transition period from adolescence to adulthood, and it is also an important stage of self-development,therefore, the study of high school students' subjective well-being and its formation mechanism has a special significance. Research shows that parents with high emotional intelligence can help their children develop good emotion management strategies by recognizing and guiding their children's emotions, which in turn can lead to more positive emotions and higher levels of well-being. Self-esteem, as a positive evaluation and experience of self-worth acquired by individuals in the process of socialization, is influenced by parents' emotional intelligence, that is, parents with higher/lower emotional intelligence will increase their children's positive/negative emotions, leading to their children's self-affirmation/self-denial, thus raising/lowering the level of self-esteem; individuals with high self-esteem tend to have higher subjective well-being, so self-esteem may play a mediating role between parents' emotional intelligence and subjective well-being. Based on this, 249 high school students and their parents (290) were investigated with the emotional intelligence scale , subjective well-being scale and self-esteem scale. The results showed that: (1) there was a significant positive correlation between parents' emotional intelligence and self-esteem, but no significant correlation between parents' emotional intelligence and subjective well-being; (2) self-esteem completely mediates the relationship between emotional intelligence of parents and subjective well-being of high school students. The results show that the emotional intelligence of parents can not directly affect the subjective well-being of high school students, but it can indirectly affect the subjective well-being of high school students through the full mediation of self-esteem. The research suggests that the enhancement of subjective well-being should not only focus on internal factors such as self-esteem, but also on external factors such as emotional intelligence of parents.

Keywords： emotional intelligence of parents,subjective well-being,self-esteem,high school students

大学生成就目标和课堂目标结构对学业求助的影响：

自我呈现成本的中介作用

张婷宜　马静薇　王恺芃　刘红瑞（通讯作者）
北京师范大学心理学部，北京，100875，hrliu@bnu.edu.cn

摘 要　学业求助对大学生学业表现和能力发展至关重要，探究影响大学生学业求助的内外因素具有重要价值。研究表明，个人成就目标（掌握趋近、表现趋近、表现回避）及其“外在情境对应物”即课堂目标结构对学业求助行为有预测作用，求助回避通常受到求助成本的影响。但至今为止，鲜有研究探讨自我呈现成本在成就目标发挥作用中的潜在角色，更少有研究基于表现趋近目标的混合结果而对其加以细化和区分。本研究同时考虑个人成就目标与课堂目标结构，探讨两者对大学生学业求助意向的影响以及自我呈现成本在其中的中介作用，并细化表现趋近目标的子类型。共包含 3 项子研究，其中研究 1a 采用问卷法测量了 280 名中国大学生的个人成就目标、自我呈现成本以及日常学业求助意向，以初步确定自我呈现成本在个人成就目标与学业求助间的中介作用；研究 1b 进一步将表现趋近目标分为规范型和表面型，通过 295 份自我报告数据探究两种表现趋近目标的分化效果；研究 2 对 212 名大学生的课堂目标结构进行实验操纵并测量个人成就目标与自我呈现成本，以验证控制个人成就目标后自我呈现成本在课堂目标结构与学业求助之间的中介作用。构建结构方程模型对数据进行分析。结果表明：（1）自我呈现成本部分中介个人成就目标和学业求助意向关系，即掌握趋近目标通过负向预测自我呈现成本而正向预测学业求助意向，表现回避目标则反之。（2）当重点关注规范型和表面型两种不同的表现趋近目标时，前者表现出与掌握趋近目标相似的特点，而后者则与表现回避目标相似。（3）在控制了个人成就目标后，课堂目标结构能够影响个体在求助前的自我呈现成本，进而影响个体的学业求助意向和求助行为。研究结果从动机与环境两个视角探究了学业求助的潜在影响因素，有助于深入了解学业求助困难背后的原因，并据此为后续教学实践与干预方案的设计提供科学依据。

关键词　学业求助，成就目标，课堂目标结构，自我呈现成本

The effects of achievement goals and classroom goal structures on academic help-seeking in college students: Mediating role of self-presentation costs

Tingyi Zhang, Jingwei Ma, Kaipeng Wang, Hongrui Liu*
Faculty of Psychology, Beijing Normal University, Beijing, 100875, China

Abstract：Academic help-seeking plays a crucial role in college students' academic performance and ability development. It is important to explore the internal and external factors influencing academic help-seeking. Previous studies have shown that achievement goals (mastery-approach, performance-approach, and performance-avoidance), and their external contextual counterpart, classroom goal structures, were predictive of academic help-seeking behaviors. In addition, help-seeking behaviors were also influenced by the cost of help-seeking. However, few studies have examined the potential role of self-presentation costs in the effects of achievement goals, and even fewer have refined and differentiated performance-approach goals, based on the mixed results of them. The present study considered both achievement goals and classroom goal structures,

explored their effects on academic help-seeking of college students, and the mediating role of self-presentation costs, as well as refined the subtypes of performance-convergent goals. Three sub-studies were included: Study 1a measured achievement goals, self-presentation costs, and daily academic help-seeking of 280 Chinese college students, to examine the mediating role of self-presentation costs between achievement goals and academic help-seeking; Study 1b collected 295 self-reported data, further distinguished normative and appearance performance approach goals, and explored the divergent effects of them; Study 2 experimentally manipulated the classroom goal structures of 212 Chinese college students, and measured achievement goals and self-presentation costs, to validated the mediating role of self-presentation costs between classroom goal structure and academic help-seeking after controlling achievement goals. Structural equation modeling was used to analyze the data. The results showed that (1) self-presentation cost partially mediated the effect of achievement goals on academic help-seeking. Specifically, mastery-approach goals negatively predicted self-presentation costs and positively predicted academic help-seeking through it, and vice versa for performance avoidance goals. (2) When focusing on two different performance-approach goals, normative goals showed similar characteristics with mastery-approach goals, while the appearance goals were similar to performance-avoidance goals. (3) After controlling achievement goals, classroom goal structures could influence individuals' self-presentation costs before help-seeking, which further affected the academic help-seeking. The results revealed the potential influences on academic help-seeking from the perspectives of motivation and environment, which helped to understand the reasons behind help-seeking difficulties, and provided empirical support for teaching practice and intervention programs.

Keywords：Academic help-seeking, Achievement goals, Classroom goal structures, Self-presentation costs

父母教育焦虑现状及其对父母教育行为的影响:一项城乡对比研究

黄传斌 李彤 刘尹婕 任菲菲 魏星（通讯作者）

青岛大学师范学院心理学系，青岛，266071，通讯作者 E-mail（weixing@qdu.edu.cn）

摘 要 在我国优质教育资源分布不均和阶层固化日益凸显的背景下，父母的教育焦虑成为社会的热点问题。为缓和父母教育焦虑，国家实施“双减”政策，但父母的焦虑情绪不减反增，仍有大量的父母在面临子女的教育问题时感到焦虑。目前有关父母教育焦虑的研究多集中于城市与中产阶级，难以反映我国城乡二元结构背景下父母教育焦虑的本质特征，且少有研究考察父母教育焦虑对父母教育行为的影响。基于资源保存理论和家庭压力模型，本研究采用自编父母报告的教育焦虑量表、父母学业压力量表、父母学业参与量表、心理控制和行为控制量表、父母严厉管教方式量表等测量工具，对青岛市 5 所学校的 3252 名父母及 736 对父母与儿童进行问卷调查。研究结果如下：(1)父母教育焦虑与焦虑症状呈显著正相关。教育焦虑与父母学业参与、行为控制存在显著负相关；教育焦虑与父母学业压力、体罚、心理控制、心理攻击呈显著正相关。(2)父母教育焦虑在父母性别与儿童性别、教育阶段和家庭社会经济地位等人口学变量上存在显著差异，特别是在城乡上存在显著差异。(3)城乡在父母教育焦虑与父母学业参与的关系中起调节作用，具体而言，城市父母的教育焦虑与父母的学业参与间存在显著的负向联系，而农村父母的教育焦虑与父母的学业参与关系不显著。本研究的结果丰富了父母教育焦虑的相关研究，同时也提示我们要关注农村父母教育焦虑现状及其背后的教育资源分配不均的问题。上述结果对于精准把握父母教育焦虑现状、推动教育政策有效实施具有重要意义。

关键词 父母教育焦虑，父母教育行为，城乡差异

The current situation of parental educational anxiety and the effect of parental educational anxiety on parental educational behaviour: a urban-rural comparative study

Chuanbin Huang, Tong Li, Yinjie Liu, Feifei Ren, Xing Wei (Correspondence author)
Department of Psychology, Normal College, Qingdao University, Qingdao, China

Abstract: Under maldistribution of high-quality education resources and the increasing trend of class solidification, educational anxiety become a social hot issue. In order to relieve parent's anxiety, the state introduced the "double reduction" policy but parents' anxiety increased rather than decreased. There are still plenty of parents feeling anxiety when they face with the educational problems of children. Existing researches on parental educational anxiety have been primarily focused on urban and middle-class parents which means the essential characteristics of parental educational anxiety, under China's Dual Urban-Rural Structure, has not been reflected and few studies explored the effects of parental educational anxiety on parental educational behaviour.

Based on conservation of resources theory and family stress model, the present study attempted to explore the present characteristics of parental educational anxiety in urban and rural areas and the relationship between parental educational anxiety and parental educational behavior. A sample of 3252 parents and 736 students and their parents in five primary and secondary schools in Qingdao completed the Education Anxiety Scale reported by parents, Self-rating Anxiety Scale, Parental Academic involvement Scale, Parental Academic Pressure Scale, Psychological Control and Behavioral Control Scale, Parent-Child Conflict Tactics Scale.

The results showed that: (1) parental educational anxiety was positively related to anxiety symptoms, parental academic pressure, physical assault, psychological control and psychological aggression and was negatively related to parental academic involvement and behavioral control. (2) parental educational anxiety showed significant difference regarding parents' gender and children's gender, educational stages and socioeconomic status and specially showed urban-rural differences. (3) Urban-rural moderated the relationships between parental educational anxiety and parental academic involvement behavior. Specifically, parental educational anxiety had negatively significant impact on parental academic involvement in urban while the relation between parental educational anxiety and parental academic involvement became non-significant in rural.

This study riches the related research on parental educational anxiety and this study also suggest that pay attention to the current situation of rural parents' educational anxiety and the problem of education resources' maldistribution behind it. The results have important significance for precisely grasping the current situation of parental educational anxiety and effectively promoting the implementation of the educational policy.

Keywords: parental educational anxiety, parental educational behaviour, urban-rural differences

中学生亲子冲突、自我概念和生命意义感的关系及其干预研究

姚本先[1,2]（通讯作者）　李俊仪[2]
1 安徽师范大学心理学系，芜湖，241000，ybx7756@126.com
2 合肥师范学院教育与心理科学学院，合肥，230601

摘 要　生命意义感是个体基于自身经历对个体本身的存在价值和人生意义的理解和感知，是衡量个体心理健康的基本要素之一。中学阶段是生命意义感形成的黄金期，中学生体验到的生命意义感的高低与其适应社会及迈向成熟密切相关。同时该阶段的学生正处于青春期，身心发展不平衡，与父母的冲突增多。本研究包括两部分：研究一使用《生命意义量表》、《亲子冲突量表》和《自我概念量表》对安徽省和山西省共1203名中学生进行调查，探讨亲子冲突、自我概念与生命意义感三者之间的关系。研究二以40名中学生为研究对象，采用团体心理辅导对其生命意义感进行干预，研究结果如下：

（1）中学生生命意义感总体水平处于中等偏上，在是否独生上差异显著，在性别、年级、所处地区上差异不显著。

（2）中学生亲子冲突频率、强度总体处于中等偏下水平，在性别上男生的亲子冲突略高于女生；随着年级的升高，亲子冲突有先升高后下降的趋势。

（3）中学生自我概念处于中等水平，在性别、是否独生上无显著差异；在年级、所在地上差异显著。

（4）中学生亲子冲突、自我概念与生命意义感两两间均存在相关。亲子冲突能负向预测生命意义感，自我概念在亲子冲突和生命意义感间起部分中介作用。

（5）团体心理辅导能够有效提高中学生的自我概念及生命意义感。

关键词　生命意义感，亲子冲突，自我概念，团体心理辅导

The relationship between parent-child conflict, self-concept and sense of life meaning of middle school students and its intervention

Yao Benxian (Corresponding author) [1, 2],Li Junyi [2]

1 Department of Psychology, Anhui Normal University, Wuhu 241000, China

2 School of Education and Psychological Sciences, Hefei Normal University, Hefei 230601, China

Abstract: The sense of meaning of life is an individual's understanding and perception of his own existence value and life meaning based on his own experience, and is one of the basic elements to measure individual mental health. Middle school is the golden period for the formation of the sense of meaning of life. The level of the sense of meaning of life experienced by middle school students is closely related to their adaptation to society and their maturation. At the same time, students at this stage are in adolescence, and the imbalance of physical and mental development and the conflict between parents are increasing. This study consists of two parts: Study 1:1203 middle school students in Anhui and Shanxi provinces were investigated by means of the Meaning of Life Scale, Parent-Child Conflict Scale and Self-concept Scale to explore the relationship between parent-child conflict, self-concept and sense of meaning of life. In the second study, 40 middle school students were selected as research objects, and group psychological counseling was used to intervene their sense of life meaning. The research results are as follows:

(1) The overall level of middle school students' sense of meaning of life is above the medium level, with significant differences in whether they are the only child, but no significant differences in gender, grade and region.

(2) The frequency and intensity of parent-child conflict of middle school students are generally at a lower level, and the parent-child conflict of boys is slightly higher than that of girls in terms of gender; With the increase of grade, parent-child conflict has a trend of increasing first and then decreasing.

(3) The self-concept of middle school students is in the middle level, and there is no significant difference in gender and whether they are only children. There were significant differences in grade and location.

(4) There is a significant positive correlation between parent-child communication, gratitude and interpersonal adaptation of left-behind children in rural areas. Parent-child conflict can negatively predict the sense of life meaning, and self-concept plays a partial mediating role between parent-child conflict and sense of life meaning.

(5) Group psychological counseling can effectively improve the self-concept and sense of life meaning of middle school students.

Keywords: Sense of life meaning, Parent-child conflict, Self-concept, Group counseling

以家庭为基础的青少年自杀预防干预：系统评价及 Meta 分析

王诗琪[1]　刘取芝[2]（通讯作者）　王晓航[3]

1 河海大学教育与心理研究所，南京，210098

2 河海大学心理健康教育与研究中心，南京，210098，6812930@qq.com

3 河海大学教育与心理研究所，南京，210098

摘 要　背景：自杀是一个全球性的公共健康问题。据世界卫生组织调查数据，每年约有 70 万人死于自杀；对 15-29 岁年龄阶段人群而言，自杀是第四大死亡原因。运用系统评价和元分析方法探究以家庭为基础的疗法干预青少年自杀预防的效果。方法：通过检索 Web of Science、Pubmed、APA、the Cochrane Library 等多个数据库中所有以家庭为基础干预青少年自杀的随机对照试验。文献纳入标准为：（1）研究类型为随机对照试验（randomized controlled trial, RCT），排除非随机对照试验的研究 （2）语言为英文，排除非英文书写的文献（3）研究对象是有自杀意向或自杀尝试的 25 岁以下青少年（4）干预措施是以家庭为基础（5）出版时间在 2013 年-2022 年（6）纳入经同行评审的期刊论文，排除综述、研究报告、学位论文等。共纳入符合标准的文献 15 篇，总样本量 N=2541，运用 Comprehensive Meta-Analysis Version 3.3.070（CMA 3.3.070）软件进行效应量合并及调节效应分析。结果：以家庭为基础疗法干预青少年自杀的合并效应量 g=-0.424（95%CI=-0.761~-0.087,P ＜ 0.05），其中对青少年自杀意念干预的效应量 SMD=-0.770（95%CI=-1.311~-0.229,P＜0.05），对青少年自杀尝试干预的效应量 OR=0.871（95%CI=0.681~1.114,P＞0.05）；调节效应分析结果显示，当仅考虑单因素的调节作用时，干预效果受到干预持续时间、干预方式、对照组的控制方式、脱落率 4 个因素的影响；多元回归结果中，干预持续时间、干预方式、脱落率显著调节干预效果。结论：以家庭为基础的疗法对青少年自杀预防的总体干预效果中等，对青少年自杀意念的疗效显著较好，未来可以探索以家庭为基础疗法在国内青少年自杀预防工作中的具体应用。

关键词　家庭，青少年，自杀预防，系统评价，Meta 分析

Family-based Suicide Prevention Interventions for Adolescents: a Systematic Review and Meta-analysis

Wang Shiqi[1], Liu Quzhi[2], Wang Xiaohang[3]

1 Institute of education and psychology, Hohai University, Nanjing, 210098, China

2 Mental Health Education and Research Center, Hohai University, Nanjing, 210098, China

3 Institute of education and psychology, Hohai University, Nanjing, 210098, China

***Abstract*:** Background: Suicide is a global public health problem. According to World Health Organization survey data, approximately 700,000 people die by suicide each year; suicide is the fourth leading cause of death for

people in the 15-29 age group. Systematic review and meta-analytic methods were used to explore the effectiveness of family-based therapy interventions for adolescent suicide prevention. Methods: All randomized controlled trials of family-based interventions for adolescent suicide were searched through multiple databases including Web of Science, Pubmed, APA, and the Cochrane Library. The inclusion criteria of the literature are (1) the type of study should be a randomized controlled experimental design (RCT), excluding studies that are not randomized controlled trials; (2) the language should be English, excluding literature written in non-English; (3) the subjects should be adolescents under 25 years of age with suicidal intent or attempts at suicide (4) the interventions are family-based; (5) the publication dates should be between 2013-2022; (6) peer-reviewed journal articles are included, excluding reviews, research papers, dissertations, etc. A total of 15 papers that met the criteria were included, with a total sample size of N=2541, and effect sizes were combined and moderated effects analyzed using Comprehensive Meta-Analysis Version 3.3.070 (CMA 3.3.070) software. Results: The combined effect sizes of family-based therapy interventions for adolescent suicide were g=-0.424 (95% CI=-0.761~-0.087,P<0.05), of which the effect size of the intervention for adolescent suicidal ideation was SMD=-0.770 (95% CI=-1.311~-0.229,P<0.05), and that for adolescent suicide attempts was OR=0.871 (95% CI=-1.311~-0.229,P<0.05), and that for adolescent suicide attempts was OR=0.871 (95% CI=-1.311~-0.229,P<0.05). OR=0.871 (95%CI=0.681~1.114,P>0.05); the results of moderated effect analysis showed that when only the moderating effect of single factor was considered, the intervention effect was influenced by four factors: intervention duration, intervention mode, control mode of the control group, and the rate of dislodgement; and in the results of multiple regression, intervention duration, intervention mode, and the rate of dislodgement significantly moderated the intervention effect. Conclusion: The overall intervention effect of family-based therapy on adolescent suicide prevention was moderate, and the efficacy on adolescent suicidal ideation was significantly better, and the specific application of family-based therapy in domestic adolescent suicide prevention can be explored in the future.

Keywords：family, adolescent, suicide prevention, systematic review, meta-analysis

家长多重教养行为对儿童发展的影响 ：协同而非单一

胡悠悠　杨宇涵　刘红瑞　吴心玥　肖露霞　姚梅林（通讯作者）
北京师范大学心理学部，北京，100875，mlyao@bnu.edu.cn

摘 要　已有研究显示，多重而非单一的家庭特征决定着儿童的发展，家长投入的作用效果依赖于其实施的具体方式。本研究同时关注家长投入、家长失败取向反应、家长社会比较倾向这三个在中国家庭中具有现实研究意义的教养行为，来深入探究它们对儿童发展的共同影响，并选取学业（自我设障、学业自我概念、成就目标、学业投入）、心理（生活满意度、控制感、自我调控）与社会化（社会比较方式、学业亲社会行为、社交焦虑）三个维度内的多个指标来综合反映儿童发展的现状。采用变量中心与个体中心法对744 名儿童数据进行分析，结果发现（1）家长投入与家长失败取向反应和家长社会比较倾向的预测作用基本相反，且家长投入对儿童学业自我设障、表现趋近目标和学业亲社会行为的预测作用依赖于家长失败取向反应或社会比较倾向；（2）存在 5 类家长教养行为剖面，即积极卷入组（高投入、较低失败取向反应和低社会比较倾向，30.2%）、平均组（高投入、中等的失败取向反应和社会比较倾向，23.5%）、相对脱离组（投入中等但相对最低、中等失败取向反应和低社会比较倾向，4.2%）、消极卷入组（均高组，18.8%）以及轻消极卷入组（高投入但失败取向反应与社会比较倾向稍低于消极卷入组，23.3%）；（3）积极卷入组儿童在学业、心理与社会化适应指标上表现最佳，相对脱离组儿童虽在大多数指标上表现欠佳但自我设

障与社交焦虑得分最低，消极卷入组与轻消极卷入组儿童在拥有高学业自我概念的同时，在非适应性指标上得分较高。研究显示，一味地增加家长投入可能并不总能起到预期的理想效果，家长在家庭教育中应注重给予子女积极、正向的反馈并避免将儿童与他人进行社会比较，从而更好地发挥家长投入的作用，促进儿童的全面发展。
关键词　家长投入，家长失败取向反应，家长社会比较倾向，个体中心

Parents' Multiple Parenting Behaviors and Child Development: Synergistic Rather than Single

Youyou Hu, Yuhan Yang, Hongrui Liu, Xinyue Wu, Luxia Xiao, Meilin Yao
Faculty of Psychology, Beijing Normal University, Beijing, 100875

***Abstract*：** It has been shown that multiple, rather than single, family characteristics determine children's development, and that the effects of parental involvement are dependent on the specific ways in which it is implemented. The present study focused on three parenting behaviors of relevance to Chinese families, namely, parental involvement, parental failure-oriented responses, and parental social comparison tendencies, to explore their common effects on children's development. Indicators from three dimensions, including academic (self-handicapping, academic self-concept, achievement goals, and academic engagement), psychological (life satisfaction, sense of control, and self-regulation), and socialization (social comparison style, academic prosocial behaviors, and social anxiety), were selected to reflect the current state of children's development. Analysis of data from 744 children using variable-centered versus person-centered methods revealed that (1) parental involvement was generally opposite to the predictive effects of parental failure-oriented responses and parental social comparison tendencies, and that the predictive effects of parental involvement on children's academic self-handicapping, performance-approach goals, and academic prosocial behaviors depended on either parental failure-oriented responses or parental social comparison tendencies.（2）There were five types of parenting behavior profiles, including Positively Involved Families (high involvement, low failure-oriented responses and low social comparison tendency, 30.2%), Average Families (high involvement, moderate failure-oriented responses and moderate social comparison tendency, 23.5%), Relatively Disengaged Families (parental involvement was moderate but lowest, moderate failure-oriented responses and low social comparison tendency,4.2%), Negatively Involved Families (high on all three indicators, 18.8%), Mlidly Negatively Involved Families (high involvement, failure-oriented response and social comparison tendency were slightly lower than that of the Negatively Involved Families, but higher than that of the other groups, 23.3%).（3）Children in the Positively Involved Families performed best on academic, psychological, and social adjustment indicators; and children in the Relatively Disengaged Families underperformed on most indicators but had the lowest scores on self-handicapping and social anxiety; and children in the Negatively Involved Families and Mlidly Negatively Involved Families scored higher on nonadaptive indicators while possessing high academic self-concepts. Research has shown that increasing parental involvement may not always have the desired effect, and that parents should focus on giving their children positive feedback and avoiding social comparisons in family education in order to better utilize parental involvement for the holistic development of the child.

***Keywords*：** parental involvement, parental failure-oriented response, parental social comparison tendency, person-centered

王美芳
湖州师范学院，浙江 湖州，300073

摘 要　手机依赖已成为当代大学生最主要的健康问题之一，不仅引发各种生理疾病，还会增加各类心理问题发生的频率。大学生作为国家发展的重要资源，手机依赖已成为其成长成才的主要障碍之一，对其开展相应研究刻不容缓。然而目前对于手机依赖大学生心理机制（如抑制控制和情绪加工等）等因素的研究尚需进一步完善。为探寻具有手机依赖行为大学生的内在心理机制及运动干预效果，在探索手机依赖大学生抑制控制和情绪加工特点的基础上构建手机依赖的心理机制模型，并设计相关运动干预方案，降低其手机依赖水平。首先进行预研究，在湖州市某高校选取 200 名大学生对其手机依赖情况进行调查并访谈，在随机条件下，将筛选出的手机依赖大学生 78 人（MAPI＞40）分成有氧运动干预组和对照组，并在干预前后分别施测，考察 18 周有氧运动对手机依赖大学生抑制控制和情绪加工的影响，并与非手机依赖组的大学生 78 人进行对比。结果显示 ：手机依赖大学生在手机振动铃声干扰下的抑制控制能力最差；相比较非依赖组，手机依赖大学生对悲伤情绪面孔觉察更快，在悲伤情绪启动后，手机依赖组将更多的中性刺激判断为消极情绪；经过 18 周的运动干预，大学生的手机依赖水平、抑制控制和情绪加工均有了不同程度的改善（$P<0.05$）。本研究在已有理论和实证基础上提出了手机依赖行为的维持模式，分析了手机依赖大学生抑制控制和情绪加工之间的相互关系。18 周的有氧运动有效提高了手机依赖大学生的抑制控制能力、减少手机依赖大学生对极度负性情绪和手机相关刺激的注意偏向，降低了手机依赖程度，提升其心理健康水平。
关键词　手机依赖，运动干预，抑制控制，情绪加工

The Construction of a Psychological Mechanism Model for Mobile Phone Dependence among College Students and the Study of Exercise Intervention Pathways

Wang Meifang
Huzhou Normal University，Huzhou Zhejiang,300073

***Abstract*：** Mobile phone dependence has become one of the main health problems for contemporary college students, not only causing various physiological diseases, but also increasing the frequency of various psychological problems. As an important resource for national development, college students' dependence on mobile phones has become one of the main obstacles to their growth and success, and corresponding research on them is urgent. However, the research on the psychological mechanism (such as Inhibitory control and emotional processing) of college students who rely on mobile phones still needs to be further explored. In order to explore the internal psychological mechanism of college students with mobile phone dependence and the effect of sports intervention, the psychological mechanism model of mobile phone dependence was constructed on the basis of exploring the characteristics of Inhibitory control and emotional processing of college students with mobile phone dependence, and relevant sports intervention programs were designed to reduce their mobile phone dependence. First of all, a pre study was carried out. 200 college students were selected from a university in Huzhou City to investigate and interview their mobile phone dependence. Under random conditions, 78 college students (MAPI>40) who were screened out to be mobile phone dependent were divided into an aerobic exercise intervention group and a control group. Before and after the intervention, tests were conducted separately to investigate the impact of 18 weeks of aerobic exercise on Inhibitory control and emotional processing of mobile phone dependent college students, And compared with 78 college students in the non mobile phone dependent

group. The results show that the ability of Inhibitory control of mobile phone dependent college students is the worst under the interference of mobile phone ringing vibration; Compared to the non dependent group, college students who rely on mobile phones perceive sad emotions more quickly. After sadness is activated, the mobile phone dependent group judges more neutral stimuli as negative emotions; After 18 weeks of exercise intervention, college students' mobile phone dependence, Inhibitory control and emotional processing have been improved to varying degrees (P<0.05). Based on the existing theories and empirical research, this study proposed a maintenance model of mobile phone dependence behavior, and analyzed the relationship between Inhibitory control and emotional processing of mobile phone dependent college students. The 18 week aerobic exercise effectively improved the Inhibitory control ability of college students with mobile phone dependence, reduced their attention bias to extreme negative emotions and mobile phone related stimuli, and thus improved their mental health.

Keywords：Mobile phone dependence, Exercise intervention, Inhibitory control, Emotional processing

校外实习指导老师支持与师范生教师职业认同的关系：一个有调节的中介模型

王青春[1]（通讯作者） 李风云[1] 冯李彤[1] 张婉如[1] 蔡筱萱[1]

1 河南师范大学教育学部心理学院，新乡，453007,111101@htu.edu.cn

摘 要 教师专业化是当前我国教师教育改革的重点问题，职业认同对教师专业化发展有着不可替代的作用，而教育实习是培养并构建教师职业认同的最主要途径之一。根据生态系统理论，实习指导教师作为微观环境中的重要他人，影响着师范生教师职业认同的形成与发展。基于此，本研究探讨校外实习指导老师的支持对师范生教师职业认同的影响，并提出一个有调节的中介模型，考察实习获得感的中介作用和实习态度的调节作用。方法：采用校外实习指导老师支持量表、实习获得感量表和师范生教师职业认同量表对 478 名参与教育实习的大三师范生进行问卷调查。结果：（1）普通本科生实习期间获得的教师支持及实习获得感均显著高于专升本大学生；在幼儿园的师范生获得的教师支持和实习获得感均显著低于在中小学实习的师范生；实习院校所在地为城市的师范生获得的教师支持显著高于县城；校外实习导师的教龄会影响师范生的教师支持，表现为 1-5 年、6-10 年教龄＜11 年及以上教龄。（2）校外实习指导老师支持与师范生教师职业认同、实习态度、实习获得感均呈显著正相关，实习获得感与师范生实习态度、教师职业认同均呈显著正相关。（3）校外实习指导老师支持既可以直接正向预测师范生教师职业认同，也可以通过实习获得感来间接正向预测师范生教师职业认同。（4）实习获得感在教师支持和教师职业认同之间的中介作用受到实习态度的调节。结论：（1）实习获得感在校外实习指导老师支持与师范生教师职业认同之间起到部分中介作用。（2）实习获得感在教师支持和教师职业认同之间的中介作用受到实习态度的调节。研究结果有利于教师教育工作者和实习导师更好的指导职前教师以及实习导师队伍的建设。

关键词 校外实习指导老师支持，教师职业认同，实习获得感，实习态度，师范生

The relationship between the support of off-campus internship instructors and teachers' professional identity of normal students: A

Moderated Mediation Model

Qingchun Wang[1] (corresponding author), Fengyun Li[1], Litong Feng[1], Wanru Zhang[1], Xiaoxuan Cai[1]

1 School of Psychology, Faculty of Education, Henan Normal University, Xinxiang 453007, 111101@htu.edu.cn

***Abstract*：** Teacher professionalization is a key issue in the current reform of teacher education in China. Professional identity plays an irreplaceable role in the development of teacher professionalization, and educational internship is one of the most important ways to cultivate and construct teachers' professional identity. According to the Ecological systems theory, as the Significant others in the micro environment, internship instructors affect the formation and development of normal students' professional identity. Based on these, this study explores the impact of off-campus internship instructors' support on teachers' professional identity among normal students, and proposes a moderated mediation model to examine the mediating effect of internship acquisition and the moderating effect of internship attitude. Method: A questionnaire survey was conducted on 478 junior normal students participating in educational internships using the Off-campus Internship Instructors Support Scale, Internship Acquisition Scale, and Teachers' Professional Identity Scale for Normal Students. Result: (1) During the internship period, undergraduate students received significantly higher levels of teachers' support and internship acquisition compared to university students upgraded from college; Normal students in kindergartens received significantly lower levels of teacher support and internship acquisition than those who interned in primary and secondary schools; Normal students with internship institutions located in cities receive significantly higher teacher support than those in county towns; The length of service as a teacher of off-campus internship instructors can affect the teachers' support of normal students, manifested as 1-5 years of the length of service as a teacher, 6-10 years<11 years or more. (2) The support of off-campus internship instructors is significantly positively correlated with the teachers' professional identity, internship attitude, and internship acquisition of normal students. Internship acquisition is significantly positively correlated with the teachers' professional identity and internship attitude of normal students. (3) The support of off-campus internship instructors can directly and positively predict the teachers' professional identity of normal students, or indirectly and positively predict the teachers' professional identity of normal students through internship acquisition. (4) The mediating effect of internship acquisition between teacher support and teachers' professional identity is moderated by internship attitude. Conclusion: (1) Internship acquisition plays a partial mediating role between the support of off-campus internship instructors and the teachers' professional identity of normal students. (2) The mediating effect of internship acquisition between teachers' support and teachers' professional identity is moderated by internship attitude. The research results are beneficial for teacher educators and internship instructors to better guide the construction of pre-service teachers and internship instructors.

***Keywords*：** the support of off-campus internship instructors, teachers' professional identity, internship acquisition, internship attitude, normal students

提示对学习者自我生成教学过程和学习效果的作用

黄宇　张洋　祝婉玲　冷晓雪　王福兴（通讯作者）

华中师范大学心理学院，武汉，430079，fxwang@ccnu.edu.cn

摘 要　自我生成教学是教育心理学中一种重要的生成性学习策略，能够促进学习者主动进行知识建构。它是指学习者在理解所学内容之后，以教师的角色把自己所学的知识讲给其他人听。然而，在自我生成教学过程，学习者并不能完整地检索到学习材料中所包含的所有概念单元，这会阻碍学习者的主动生成和最终的学习成绩。根据检索练习理论和生成学习理论，提示可以作为一种线索，激活学习者的检索和生成活动。因此，本研究旨在探讨不同类型的提示对自我生成教学过程和学习效果的影响。研究采用三个实验探讨了自我生成教学中不同类型的提示对学习效果和学习感知的影响。实验 1 设置了自我生成教学组和重复学习组(控制组)，发现自我生成教学组的学习效果好于重复学习组。实验 2 设置了图片提示组、文字提示组、关键词提示组和无提示组。结果发现图片和关键词提示均能促进学习者的知识保持，并且关键词提示还能促进知识迁移。实验 3 设置了关键词提示组、生成提示组和无提示组。结果发现，关键词提示组和生成提示组的保持测验成绩好于无提示组，生成提示组的迁移测验成绩好于无提示组。此外，实验 2 和实验 3 均发现关键词提示和生成提示可以促进学习者产生更多的概念单元，概念单元的数量在提示影响学习效果中起中介作用。结论认为：(1)在自我生成教学时提供图片提示能促进知识的保持，提供关键词提示能促进知识的保持和迁移；(2)相比于被动获得提示，学习者主动生成提示更有利于知识的迁移。(3)学习者产生的概念单元数量在提示影响学习效果中起中介作用。

关键词　自我生成教学，提示，检索练习，关键词，生成性学习

Prompts Affect Learning-by-Teaching Process and Learning Outcome in Multimedia Learning

HUANG Yu　ZHANG Yang　ZHU Wanling　LENG Xiaoxue　WANG Fuxing

(School of Psychology，Central China Normal University，Wuhan 430079)

Abstract：Learning by teaching is an important generative learning strategy which mainly promotes learners' knowledge building in educational psychology. It refers to learners teach others what they have learned as the role of a teacher after learning the materials. However, learners cannot fully retrieve all concept units contained in learning materials in the retrieval activities of learning by teaching, which hinders learners' active generation and final learning performance. According to the Retrieval Practice Theory (RPT) and Generative learning Theory (GLT), prompts can serve as a cue and activates learners' retrieval and generating activity. Therefore, the aim of current study was to explore the effects of different types of prompts on learning outcomes and subjective perceptions in learning by teaching.

In Experiment 1, fifty-six college students were randomly assigned to teaching group and control group. Participants in teaching group were told to explain the learning materials by making a lecture video, then complete a final exam. The control condition didn't include teaching process. In Experiment 2, Participants were one hundred and fourteen college students that were randomly assigned to picture-prompt group、text-prompt group、keyword-prompt group and non-prompt group. Four conditions all include teaching process. The difference between conditions is whether there is a prompt when learners are teaching. In Experiment 3, to compare the effects of learners' passive reception and active generation of prompts, eighty-seven college students were randomly assigned to keyword-prompt group, generated-prompt group and non-prompt group.

The results showed that: (1) the retention and transfer test performance of the teaching group were better than that of the control group; (2) picture and keyword prompts could effectively improve learners' retention test scores, while keyword prompts could also improve learners' transfer test scores; (3) the retention test performance of the

keyword-prompt group and the generated-prompt group were better than those of the non-prompt group, while the transfer test performance of the generated-prompt group were better than those of the non-prompt group; (4) Experiment 2 and Experiment 3 both found that the number of concept units plays a mediating role in the effect of prompts on learning performance.

The conclusions are as follows: (1) Providing picture prompts in the process of learning by teaching can promote knowledge retention, while providing keyword prompts can promote knowledge retention and transfer; (2) Compared to passively obtaining prompts, learners' active generation of prompts is more conducive to knowledge transfer. (3) The number of idea units generated by learners plays a mediating role in the effect of prompts on learning. Above all, the study verified the effectiveness of RPT and GLT in the process of learning by teaching in multimedia learning environment.

Keywords：learning by teaching, prompts, retrieval practice, keyword, generative learning

线上学习的媒体多任务与学业成绩：自我调节策略和心流体验的链式中介作用

樊利芳[1]　李士一[1,2]（通讯作者）

[1]天津师范大学心理学部，天津，300387

[2]天津师范大学心理与行为研究院，教育部人文社会科学重点研究基地，天津，300387，lishiyi@tinu.edu.cn

摘 要　随着“互联网+教学”的持续推进，线上教学以其便利性和灵活性展示出了独特的优势。与此同时，线上教学模式也面临着一些挑战，如缺乏有效监管会导致学生常在上网课过程中查看或回复手机消息，媒体多任务行为相较于线下教学时明显增加。媒体多任务是指个体同时进行两种或两种以上媒体活动或者在多种媒体活动之间快速切换。本研究基于自我控制的双系统理论，试图探究媒体多任务影响学习绩效的作用机制。另外，有研究认为任务相关性会影响多任务感知和任务绩效，因此可以将在线课堂中媒体多任务行为划分为学习有关媒体多任务和学习无关媒体多任务，分别探讨这两种类型的媒体多任务与学习绩效的关系。采用问卷法对 557 名连续 8 周以上进行在线学习的大学生进行调查。结果发现：1）学习有关媒体多任务与自我调节策略、心流体验、学习绩效呈显著正相关关系，学习无关媒体多任务与自我调节策略、心流体验、学习绩效的相关均不显著；2）自我调节策略和心流体验在学习有关媒体多任务与学习绩效的关系中起链式中介作用，但在学习无关媒体多任务与学习绩效的关系中链式中介作用不成立。以上研究结果表明经常进行与学习有关的媒体多任务的个体更能采取有效的措施调节自己的多任务行为，使注意力更加集中，从而带来更沉浸的学习体验，导致更佳的学习绩效。本研究分别探究了学习有关和无关媒体多任务与学习绩效的关系，发现两个维度与学习绩效的关系并不一致，为系统地理解媒体多任务行为的不同维度，抑制媒体多任务的负面后果提供了启发。

关键词　有关/无关媒体多任务，线上学习，元注意，心流体验，学习绩效。

media multitasking of online teaching and academic performance: the series mediating role of self-regulation strategies and flow experiences

Fan Lifang[2], Li Shiyi[1,2]

[1]Key Research Base of Humanities and Social Sciences of the Ministry of Education, Academy of Psychology and Behavior, Tianjin Normal University, Tianjin, China
[2] Faculty of Psychology, Tianjin Normal University, Tianjin, China

Abstract： As the online teaching model of "Internet Plus Teaching" continues to advance, online teaching has demonstrated its unique advantages in terms of convenience and flexibility. At the same time, there are also some challenges, such as the lack of effective supervision students often check or reply to social messages during online classes, and this media multitasking behavior in online classrooms has increased significantly compared with that in offline teaching. Media multitasking is typically known as simultaneously engaging in multiple media tasks or switching quickly between multiple media activities. Based on the dual systems theory of self-control, this study investigates the mechanism of action by which media multitasking affects academic performance. In addition, it has been suggested that task relevance affects multitasking perception and task performance, so media multitasking behaviors in the online classroom can be divided into on-task media multitasking and off-task media multitasking, and the relationship between the two different kinds of media multitasking and academic performance can be investigated separately. A questionnaire method was used to survey 557 college students who were engaged in online learning for more than 8 consecutive weeks. The results found that 1) learning-related media multitasking was significantly and positively correlated with self-regulation strategy, flow experience, and academic performance, and the correlations of off-task media multitasking with self-regulation strategy, flow experience, and academic performance were all non-significant; and 2) self-regulation strategy and flow experience acted as serial mediators in the relationship between on-task media multitasking and academic performance, but in the relationship between off-task media multitasking and academic performance the serial mediating role does not hold. The findings suggest that individuals who frequently engage in on-task media multitasking are better able to take effective measures to regulate their multitasking behaviors, resulting in more focused attention, a more immersive learning experience, and therefore better academic performance. The present study classified media multitasking into two dimensions, on-task/off-task media multitasking, and explored their relationships with learning performance separately. It was found that the relationships between the two dimensions and academic performance were inconsistent, providing inspiration for a systematic understanding of the different dimensions of media multitasking behaviors and inhibiting the negative consequences of media multitasking.

Keywords： on-task and off-task media multitasking, online learning, meta-attention, flow experience, academic performance

6.4“发展心理学专业委员会”分组展贴报告

青少年依恋系统类别及其对焦虑的影响

谢晓莹 李嘉琪 彭小凡（通讯作者）
贵州师范大学心理学院，贵州贵阳，550025，pengxf@gznu.edu.cn

摘 要 依恋是个体在成长过程中和重要他人(e.g., 父母)建立的一种特殊的亲密关系，它具有深层性、稳固性和持续性，是个体最为重要的人际支持。青少年并非生活在单一对象的依恋关系当中，而是父亲、母亲和同伴三者构成的依恋系统当中。现有研究都是分别探索父母或同伴，很少将两（三）者视为一个系统进行整体分析，因此也缺少清晰的类别划分。焦虑指的是个体在应对刺激事件时所产生的一系列主观且不愉

快的情绪体验，如紧张、忧虑、恐惧等负性情绪。青少年处在身心发展的过渡期，学业和人际压力显著增加，焦虑问题普遍且明显。为了解青少年三种依恋关系构成的系统类别及其与焦虑的关系，使用亲密关系体验-关系结构量表(ECR-RS)和广泛性焦虑量表(GAD-7)，对 2879 名中学生进行施测和潜在剖面分析。结果：(1)总体上，依恋可分为安全型(34.9%)、过渡型(19.2%)、亚健康型(15.8%)、焦虑型(6.4%)、回避型(23.9%)；男生中，依恋可分为安全型(44.8%)、亚健康型(22.3%)、焦虑型(6.4%)、回避型(23.9%)；女生中，依恋可分为安全型(37.7%)、父母矛盾型(5.5%)、亚健康型(17.8%)、焦虑型(11.5%)、回避型(27.6%)；(2) 各类别在焦虑上存在显著差异（χ^2 =309.59，P<0.001）；安全型焦虑水平最低，并显著低于其他非安全型；回避型焦虑水平最高；男生回避型的焦虑显著高于亚健康型和焦虑型；女生该型的焦虑只显著高于安全型。结论：(1) 青少年依恋类别存在 5 类，男生有 4 类，女生有 5 类；(2) 依恋各潜在类别与焦虑存在显著相关，在焦虑得分上存在显著差异。本研究发现了青少年三种新的依恋系统类别，即父母矛盾型、过渡型和亚健康型，丰富了当前的依恋研究，同时，当青少年面临人际冲突和亲子冲突时，教育工作者可以从依恋角度思考并干预。

关键词　青少年，依恋，焦虑，潜在剖面分析

The Adolescents' Attachment System Styles and its Effect on Anxiety

Xie Xiao Ying　Li Jia Qi　Peng Xiao Fan

Gui Zhou Normal University, Gui Zhou Gui Yang

Abstract：Attachment is a special kind of intimate relationship that individuals establish with significant others (e.g., parents) as they grow up, and it is deep, strong and continuous, and is the most important interpersonal support for individuals. Adolescents do not live in a single-object attachment relationship, but in an attachment system consisting of father, mother, and peers. Existing studies have explored parents or peers separately, rarely analyzing the two (three) as a system as a whole, and therefore lacking clear category delineation.Anxiety refers to a range of subjective and unpleasant emotional experiences such as nervousness, apprehension, fear, and other negative emotions that individuals experience in response to stimulus events. Adolescents are in a transitional period of physical and mental development, with significant increases in academic and interpersonal stress, and anxiety problems are common and pronounced.To understand the system styles of the three attachment relationship components in adolescents and their relationship with anxiety. To understand the systematic categories of the three attachment components in adolescents and their relationship with anxiety, the Intimacy Experience-Relationship Structure Scale (ECR-RS) and the Generalized Anxiety Scale (GAD-7) were administered and potentially profiled to 2879 secondary school students. Results: (1) Overall, attachment system can be categorized into secure (34.9%), transition (19.2%), subhealthy (15.8%), anxious (6.4%), and avoidant (23.9%) styles. For male adolesents, it can be categorized into secure (44.8%), subhealthy (22.3%), anxious (5.6%), and avoidant (27.3) styles. For female adolesents, attachment can be categorized into secure (37.7%), parental inconsistency (5.5%), subhealthy (17.8%), anxious (11.5%), and avoidant (27.6%) styles. (2) Style differences were found on messures of general anxiety（χ^2 =309.59，P<0.001）, validating the LPA classification. Secure style adolescents reported the lowest level of general anxiety, avoidant style reported the highest, male adolesents' avoidant style's anxiety was higher than the subhealthy and anxious styles, and female adolesents' avoidant style's anxiety was only higher than the secure style. Conclusion: Adolescent attachment can be categorized into five styles, while males exhibit four styles and females exhibit five styles. Moreover, there is a significant correlation between each latent attachment style and anxiety, with significant differences observed in anxiety scores between styles.This study identified three new categories of attachment systems for adolescents, namely parental

ambivalence, transition, and subhealth, which enriches current attachment research and also allows educators to think about and intervene from an attachment perspective when adolescents face interpersonal and parent-child conflicts.

Keywords：adolescent, attachment, anxiety, latent profile analysis

中国中学生和大学生人生观发展状况调查

王宏[1]　盖笑松[1]（通讯作者）　李松靓[1]

1 东北师范大学心理学院，长春，130024

1 东北师范大学心理学院，长春，130024，通讯作者 gaixs669@nenu.edu.cn

摘 要　中学生和大学生是人生观形成的关键时期，它决定着其努力的方向。拥有正确的人生观有助于中学生和大学生的积极发展和心理健康，同时可以降低中学生和大学生心理问题的出现。为了了解当今中学生和大学生的人生观发展状况。本研究采用生命意义感发展状态量表、人生目的取向量表、人生态度量表对全国 31 个省份的约 10 万中学生和大学生的人生观进行调查，最终有效被试为 94219 人，其中初中 36844 人（39.1%），高中 29828 人（31.7%），大学 27547 人（29.2%）；男生 27547 人（43.4%），女生 53336 人（56.6%）；年龄在 13~23 岁。运用描述统计、方差分析以及自我中心的方法对数据进行分析。结果发现：（1）在生命意义感方面，大部分的中学生和大学生处在寻求和建立的阶段，少部分处于过度寻求和扩散的阶段，极少的部分处在前思和早闭阶段。各阶段的比例并没有表现随年龄增长而变化的趋势。（2）在人生目的取向方面，中学生和大学生更重视的是家庭福祉和个人成长，其次是对个人福祉的追求较低，对社会促进的追求程度相对最低，这符合中国传统文化中以家为集体的观念，但是同时也提醒我们要重视对社会促进追求的培养。（3）在人生态度方面，中学生和大学生的人生态度整体上较为积极。具体表现在大部分认为应该自主掌控未来而不依赖环境和命运，要为自己的未来负责；能够以接纳之心面对人生中可能出现的各种挫折和困难，而不是过于固执；更关注人生过程的体验，而不是只在乎结果；能以积极乐观的态度面对生活。（4）16 岁是中学生和大学生人生观发展的重要转折点，需要教育工作者和家长的重视。

关键词　生命意义感，人生目的，人生态度

Development of Chinese secondary school and college students' outlook on life

Hong Wang[1], Xiaosong Gai[1],　Songliang Li[1]

1 School of Psychology, Northeast Normal College, Changchun, Jilin Province, China

Correspondence: Xiaosong Gai, School of Psychology, Northeast Normal College, No. 5268, Renmin Street, Changchun, Jilin Province, China. E-mail: gaixs669@nenu.edu.cn

Abstract：Secondary school and college students are at a critical time in the formation of their outlook on life, which determines the direction of their efforts. The right outlook on life contributes to the positive development and psychological well-being of secondary school and college students, and at the same time reduces the occurrence of psychological problems in secondary school and college students. In order to understand the development of the outlook on life of today's secondary school and college students. In this study, the State of Development of Sense of Meaning in Life Scale, Purpose Orientation Scale, and Attitudes toward Life Scale were

used to assess the outlook on life of approximately 100,000 secondary school and college students in 31 provinces across China. The final number of valid subjects was 94,219, including 36,844 (39.1%) in junior high school, 29,828 (31.7%) in senior high school and 27,547 (29.2%) in college; there were 27,547 (43.4%) males and 53,336 (56.6%) females; their ages ranged from 13 to 23 years. The data were analyzed using descriptive statistics, analysis of variance and person center methods. The results showed that: (1) In terms of meaning in life, the majority of secondary school and college students were in the "search" or "presence" stage, a small number were in the "ruminative exploration" or "diffusion" stage, and a very fewer number were in the "precontemplation" or "foreclosure" stages. The proportions of each stage show no tendency to change with age. (2) In terms of purpose orientation, secondary school and college students attach more importance to family well-being and personal growth, followed by a lower level of personal well-being pursuit, and a relatively lower level of social promotion pursuit, which is in line with the traditional Chinese cultural concept of the family as a collective, but at the same time reminds us to pay attention to cultivating the pursuit of social promotion. (3) In terms of attitudes toward life, secondary school and college students generally have more positive attitudes. This is reflected in the fact that most of them believe that they should be in charge of their own future rather than relying on their environment and fate and that they are responsible for their own future; that they are able to face the various setbacks and difficulties that may arise in life with acceptance rather than being overly stubborn; that they are more concerned with experiencing the process of life rather than just the outcome; and that they are able to face life with a positive and optimistic attitude. (4) The age of 16 is an important turning point in the development of secondary school and college students' attitudes to life and requires the attention of educators and parents.

***Keywords*:** meaning in life, purpose orientations, attitudes toward life

高中生心理健康素养的发展现状及其影响因素

董存梅[1]　苗欣荣[2]

1 河北师范大学教育学院，石家庄，050024

2 天津市西青区天易园小学，天津，300385

摘 要　研究一为了考察高中生心理健康素养的发展现状，首先采用李丹琳（2021）编制的《青少年心理健康素养评定量表》对河北省石家庄市 329 名高中生进行了问卷调查，因素分析的结果表明，高中生的心理健康素养包括知识、识别、态度和行为习惯、能力四个因子，然后采用由四个因子组成的问卷对 600 名高中生进行了测量。结果表明：（1）高中生心理健康素养水平存在性别差异，女生在识别、态度和行为习惯上的得分显著高于男生，而男生在能力上的得分显著高于女生；（2）高中生心理健康素养水平存在年级差异，高二年级学生的心理健康素养总体水平显著高于高一年级学生。

研究二依据生态系统理论，通过《系统家庭动力学自评问卷》、《特拉华校园氛围量表》探讨了家庭动力、学校氛围对高中生心理健康素养的影响，并通过《处理心理问题的自我效能量表》测量、分析了高中生处理心理问题的自我效能在其中的作用机制。结果表明：（1）高中生的家庭动力、学校氛围、处理心理问题的自我效能与其心理健康素养均存在显著正相关，家庭动力、学校氛围、处理心理问题的自我效能均能显著正向预测其心理健康素养水平。（2）高中生处理心理问题的自我效能在家庭动力和心理健康素养之间起到部分中介作用。具体表现为，家庭气氛、个性化既可以直接影响高中生的心理健康素养，也可以通过处理心理问题的自我效能来间接影响其心理健康素养。（3）高中生处理心理问题的自我效能在学校氛围和心理健康素养之间亦起到部分中介作用。具体表现为，师生关系、同学关系既可以直接影响高中生的心理健康素养，也可以通过处理心理问题的自我效能来间接影响其心理健康素养。

关键词　高中生，心理健康素养，家庭动力，学校氛围，处理心理问题的自我效能

The Development Status and Influencing Factors of High School Students' mental health literacy

Dong Cunmei Miao Xinrong
College of Education, Hebei Normal University, Shijiazhuang 050024
Tianyiyuan Primary School, Xiqing District, Tianjin 300385

Abstract: The purpose of study 1 was to investigate the development status of high school students' mental health literacy, 329 high school students in Shijiazhuang of Hebei were investigated by using the Questionnaire of Adolescent' mental health literacy by Li Danlin (2021). The results of factor analysis showed that the mental health literacy of high school students included four factors: knowledge, recognition, attitude and behavior habits, and ability, Then a questionnaire consisting of four factors was used to measure 600 high school students. The results were as follows: (1) There are gender differences in the level of mental health literacy of high school students. Girls' scores in recognition, attitude and behavior habits are significantly higher than boys', while boys' scores in ability are significantly higher than girls'; (2) There are grade differences in the level of mental health literacy of senior high school students, and the overall level of mental health literacy of senior high school students is significantly high.

Based on the Ecological systems theory, The purpose of study 2 was to investigate the impact of family dynamics and school climate on high school students' mental health literacy, by using the Questionnaire of System Family Dynamics and the Delaware school climate, and investigate the mechanism of high school students' self-efficacy in dealing with psychological problems by using Questionnaire of self-efficacy in dealing with psychological problems. The results were as follows: (1) High school students' family dynamics, school climate, self-efficacy in dealing with psychological problems and their mental health literacy were significantly positively correlated, and family dynamics, school climate, self-efficacy in dealing with psychological problems could significantly and positively predict their mental health literacy level. (2) The self-efficacy of high school students in dealing with psychological problems plays a partial mediating role between family dynamics and mental health literacy. Specifically, family atmosphere and individuation can not only directly affect high school students' mental health literacy, but also indirectly affect their mental health literacy through self-efficacy in dealing with psychological problems. (3) The self-efficacy of high school students in dealing with psychological problems also plays a partial mediating role between school climate and mental health literacy. Specifically, teacher-student relationship and classmate relationship can not only directly affect the mental health literacy of high school students, but also indirectly affect their mental health literacy through self-efficacy in dealing with psychological problems.

Keywords: High school students, mental health literacy, family dynamics, school climate, self-efficacy in dealing with psychological problems

幼儿在社会类别归纳推理中的选择偏好：基于类别信息还是相似性信息

江燕娟 刘婷（通讯作者）刘万伦

浙江师范大学心理学院，金华，321004，13551853471@163.com

摘 要 幼儿归纳推理研究常聚焦于幼儿归纳推理是依赖于类别信息还是相似性信息。有研究认为，幼儿归纳推理可能存在一个发展过程，即由基于相似性信息进行归纳推理逐渐过渡到基于类别信息。但这一结论在社会类别领域还缺乏探究，幼儿在这一领域的归纳推理，是更依赖于类别信息还是相似性信息以及这种偏好如何随年龄发生变化还尚不清楚。此外，由于社会类别的复杂性，除了由自然线索划分的社会类别外，还存在由社会线索划分的社会类别，研究需要对不同线索下的社会类别均进行考察。因此，本研究设计了两个实验，探究在社会类别领域中，幼儿归纳推理的发展特征及选择偏好，幼儿由相似性推理向类别推理发展的过渡年龄和影响幼儿归纳推理的认知因素。实验一分为实验 1A 和 1B，以 4-6 岁幼儿为被试，使用改良三角范式，采用 3(年龄:4 岁、5 岁、6 岁)*2(信息:类别标签、视觉相似性)的被试间设计，分别探究幼儿关于性别类别(自然线索)和贫富类别(社会线索)归纳推理的发展特征、选择偏好及两者之间的异同。实验二分为实验 2A 与 2B。其中，实验 2A 以 5 岁幼儿为被试，采用单因素(社会类别类型:性别类别，贫富类别)被试间设计，设计信息冲突情景，即目标刺激与推理刺激 A 视觉相似，而与推理刺激 B 属同一类别标签，要求幼儿做出推理判断,以探究幼儿由相似性推理向类别推理发展的过渡年龄。实验 2B 采用“白天黑夜 stroop 测试”对实验 2A 的被试进行测查，探究影响幼儿归纳推理的认知因素。总体实验结果表明：（1）4-6 岁幼儿既依赖于相似性信息也依赖于类别信息进行归纳推理。仅 4 岁幼儿受到知识经验的影响，对性别类别和贫富类别的推理偏好不同，在性别类别上更依赖于类别标签，在贫富类别上更依赖于视觉相似性；5 岁幼儿在两种类别上都更依赖于类别标签；6 岁幼儿已经能够灵活地利用两种信息进行归纳推理。（2）5 岁可能是幼儿由相似性推理向类别推理发展的过渡年龄，其归纳推理的发展与认知抑制有关。认知抑制功能发展越好，越倾向于类别推理。

关键词 幼儿,社会类别,归纳推理,类别标签,视觉相似性

CHILDREN’S CHOICE PREFERENCE IN SOCIAL CATEGORY INDUCTIVE REASONING: CATEGORY-BASED INFORMATION OR VISUAL SIMILARITY INFORMATION

Jiang Yanjuan,Liu Ting,Liu Wanlun
Department of Psychology, Zhejiang Normal University, Jinhua

***Abstract*：** Research on young children's inductive reasoning frequently focuses on whether young children's inductive reasoning relies on category or similarity information. The previous studies concluded that there may be a developmental process in which young children's inductive reasoning gradually transitions from inductive reasoning based on similarity information to inductive reasoning based on category information. However, the findings were only for the natural or artifact categories, and there is a lack of exploration of the social categories, that is, in the field of social categories, it is not clear whether children's inductive reasoning depends more on category information or similarity information and how this preference changes with age. In addition, due to the complexity of social categories, in addition to social categories divided by natural cues, there are also social categories divided by social cues. Therefore, the research in the field of social categories needs to investigate the social categories under different cues, so as to answer whether there are differences in the developmental characteristics of children's social category inductive reasoning under different cues. Thus, this study designed two experiments to explore the development characteristics and preferences of young children's inductive reasoning in

the field of social categories, the transition age of young children's development from similarity reasoning to category reasoning, and the cognitive factors that affect children's inductive reasoning. In Experiment 1 (divided into Experiment 1A and Experiment 1B) , children aged 4-6 years were used as participants, using a modified triangular paradigm, using a 3 (age: 4, 5, 6) X 2 (information: category label, visual similarity) between-subjects design to explored the development characteristics and preferences of young children's inductive reasoning about gender categories (natural cues) and rich-poor categories (social cues), and the similarities and differences between them. Experiment 2 was conducted, which was divided into Experiment 2A and Experiment 2B. Experiment 2A used 5-year-old children as participants and adopted a single-factor (social category type: gender category, rich-poor category) between-subjects design. Experiment 2A designed an information conflict scenario, that is, the target stimulus was visually similar to reasoning stimulus A, but belonged to the same category label as reasoning stimulus B, requiring children to make reasoning judgments. Experiment 2A explored the transition age of children's development from similarity reasoning to category reasoning. In Experiment 2B, the "day-night stroop test" was used to measure the participants in Experiment 2A to explore the cognitive factors that affect children's inductive reasoning. The following conclusions were drawn from this study: (1) Children aged 4-6 years old rely on both similarity information and category information for inductive reasoning. Under the influence of knowledge and experience, 4-year-old children have different reasoning preferences for gender categories and rich-poor categories, relying more on category labels for gender categories and visual similarity for rich-poor categories. Fiveyear-old relied more on category labels for both categories. By the age of six, children have reached the point where they have the flexibility to use both types of information for inductive reasoning. (2) 5 years old may be the transition age of children's development from similarity reasoning to category reasoning. The development of inductive reasoning is related to cognitive inhibition.

Keywords：Young Children,Social Category,Inductive Reasoning,Category Label,Visual Similarity

类别标签、知觉特征和功能特征对 4-6 岁幼儿归纳推理的影响

巩玉萍 万欣 刘万伦（通讯作者）

浙江师范大学心理学院，金华，321004，wlliu2008@zjnu.cn

摘要　归纳推理是从特定的事件、事实向一般的事件、事实推论的过程，它是幼儿产生新知识的有效工具。过去关于幼儿归纳推理的研究一直存在争议：幼儿基于类别的归纳推理是一种原始偏好还是逐渐发展的，以及在幼儿的归纳推理中是类别标签还是知觉特征占据主导地位。此外，幼儿在真实物品的环境中长大，真实物品的功能特征可能是幼儿对其形成表征的关键线索，但目前仍不清楚功能特征是如何影响幼儿归纳推理的。因此本研究旨在探讨幼儿归纳推理的发展特征及其背后的机制。

为了探究上述问题，本研究设计了两个实验。实验一采用 3（年龄：4 岁、5 岁、6 岁）x4（标签和特征类型：无标签、类别标签、知觉特征、功能特征）的被试间设计，考察了 4-6 岁幼儿归纳推理的发展特征，以及类别标签、知觉特征和功能特征对幼儿归纳推理的影响。实验一结果显示，4 岁幼儿难以基于类别归纳推理，前人研究证明，增加目标样例可以帮助幼儿基于类别分类，所以，实验二采用 2（目标样例数量：1 个、2 个）x3（标签和特征类型：无标签、类别标签、功能特征）的被试间设计，进一步探究目标样例数量对 4 岁幼儿基于类别归纳推理的影响。

本研究得出以下结论：（1）幼儿基于类别的归纳推理是逐渐发展的。4 岁幼儿主要基于相似性归纳推理，5-6 岁幼儿主要基于类别归纳推理。（2）知觉特征有利于 4-6 岁幼儿基于相似性归纳推理；类别标签有利于 4-6 岁幼儿基于类别归纳推理；功能特征有利于 6 岁幼儿基于类别归纳推理，但对 4-5 岁幼儿的影响不大。（3）当类别标签和知觉相似性相冲突时，4-6 岁幼儿都能够基于类别归纳推理；当功能特征和知觉相似性相冲突时，只有 6 岁幼儿能够基于类别归纳推理。（4）相比于知觉特征和功能特征，类别标签更

有利于幼儿基于类别归纳推理。（5）对于 4-5 岁幼儿，类别标签比功能特征更有利于幼儿基于类别归纳推理，而对于 6 岁幼儿，两者差异不大。（6）增加一个目标样例可以帮助 4 岁幼儿基于类别归纳推理。
关键词　归纳推理，类别标签，知觉特征，功能特征

The Influence of Category Labels、Perceptual Features and Functional Features on Inductive Reasoning in Children Aged 4-6 Years

Gong Yuping ,Wan Xin, Liu Wanlun
Department of Psychology, Zhejiang Normal University, Jinhua

Abstract：Inductive reasoning is a process that extend knowledge from known to novel instances, it is a effective tool for children to produce new knowledge. In the past, there has been a controversy about children's inductive reasoning: whether children's category-based inductive reasoning is a primitive preference or a gradual development, and whether category labels or perceptual features dominate children's inductive reasoning. Moreover, children grow up in the environment of real objects. Functional features of real objects may be the key clues for children to form the representation of real objects. However, how functional features affect children's inductive reasoning is still unclear. Therefore, this study aims to explore the developmental characteristics of inductive reasoning in young children and the mechanisms behind it.

In order to explore the above questions more fully, we designed two experiments. The experiment 1 was designed by using 3 (age: 4, 5, 6) ×4 (label and feature type: no label, category label, perceptual feature, functional feature) to examine the development trend of children's inductive reasoning, and the effects of category labels, perceptual features and functional features on children's inductive reasoning. The results of Experiment 1 show that it is difficult for 4-year-old children to make inductive reasoning based on categories. Previous studies have proved that adding target samples can help children classify based on categories. So, the experiment 2 was designed by using 2 (target sample number: 1, 2) ×3 (label and feature type: no label, category label, functional feature) to examine the effect of the number of target samples on category-based inductive reasoning in 4-year-old children.

This study draws the following conclusions:(1) Children's category-based inductive reasoning is gradually developing. 4-year-olds were mainly based on similarity to inductive reasoning, while 5-6-year-olds were mainly based on category to inductive reasoning.(2) Perceptual features are beneficial to the inductive reasoning based on similarity for children aged 4-6 years; category labels are beneficial to the inductive reasoning based on category for children aged 4-6 years; functional features are beneficial to the inductive reasoning based on category for children aged 6 years, but have little effect on children aged 4-5 years.(3) When category labels and perceptual similarities conflict, 4-6-year-olds can make inductive reasoning based on category; when functional features and perceptual similarities conflict, only 6-year-olds can make inductive reasoning based on category.(4) Compared with perceptual and functional features, category labels are more conducive to children's category-based inductive reasoning.(5) For 4-5-year-olds, category labels are more conducive to children's category-based inductive reasoning than functional features, while for 6-year-olds, there is little difference between them.(6) Adding a target example can help 4-year-old children to use category-based inductive reasoning.

Keywords：Inductive Reasoning, Category Labels, Perceptual Features, Functional Features

概念距离与操作物体移动对幼儿关系类别学习的影响

陈可琛　黄江峡　刘万伦（通讯作者）
浙江师范大学心理学院，金华，321004，wlliu2008@zjnu.cn

摘 要 关系类别是由实体或实体间的关系所定义的类别。以往研究发现，概念距离对幼儿关系类别学习具有一定影响。概念距离是指两组概念之间语义的强度，强度越大概念间距离越近。已有研究虽有涉及概念距离对幼儿关系类别学习的影响，然而所得结论并不一致，并且不同年龄段幼儿的掌握情况也尚不清楚。同时也有研究发现，静态的图片启动对幼儿位置关系类别学习具有一定促进作用，然而是否有更好的方法能够促进幼儿在概念距离下掌握关系类别也是一个值得探究的问题。因此，探讨关系类别学习以及概念距离的作用对于幼儿教育来说具有一定的重要意义。

本研究包含两个实验，共涉及五种关系类别：刀具、居住处、婴儿、食物和容器。实验一采用 2(概念距离：近、远)×3(年龄：4 岁、5 岁、6 岁)的混合实验设计，考察幼儿在概念距离条件下关系类别学习的发展特征。实验二增加操作物体移动，采用 2(概念距离：近、远)×2(操作物体移动：有、无) 的混合实验设计，进一步考察在概念距离条件下，操作物体的移动能否有助于 4 岁幼儿提高在关系类别学习中的表现。

本研究得出以下结论：（1）幼儿近远概念距离条件下关系类别学习存在差异，4-6 岁幼儿在近概念距离条件下关系类别学习效果好于远概念距离。（2）近概念距离条件下，5、6 岁幼儿都能掌握关系类别，4 岁幼儿不能掌握；远概念距离条件下，6 岁幼儿能够掌握关系类别，5 岁幼儿学习效果低于 6 岁幼儿，4 岁幼儿还无法掌握关系类别，5 岁幼儿可能处于转折期。(3)近远概念距离条件下的关系类别学习中，操作物体移动组中 4 岁幼儿学习效果好于无操作物体移动组。

关键词　幼儿关系类别学习，概念距离，操作物体移动，启动

The impact of conceptual distance and manipulated object movement on young children's learning of relational categories

Chen Kechen, Huang Jiangxia, Liu Wanlun (Corresponding author)
College of Psychology, Zhejiang Normal University, Jinhua, 321004

Abstract: Relational categories are categories defined by entities or by relationships between entities. Previous research has found that conceptual distance has an impact on young children's learning of relational categories. Conceptual distance refers to the semantic strength of the relationship between two sets of concepts, with the greater the strength the closer the distance between the concepts. Although some studies have addressed the effect of conceptual distance on children's learning of relational categories, the findings are inconsistent and mastery by age group is unclear. It has also been found that static picture activation facilitates the learning of positional relational categories, but it is worth investigating whether there are better ways to facilitate the acquisition of relational categories at conceptual distance. Therefore, it is important to explore the role of relational category learning and conceptual distance in early childhood education.

This study comprised two experiments involving a total of five relational categories: knife, dwelling place, baby, food and container. Experiment one used a mixed experimental design of 2 (conceptual distance: near, far) x 3 (age: 4, 5, 6 years) to examine the developmental characteristics of young children's relational category learning in the conceptual distance condition. Experiment 2 added manipulated object movement using a mixed experimental design of 2 (conceptual distance: near, far) × 2 (manipulated object movement: yes, no) to further examine whether manipulated object movement could help 4-year-olds improve their performance in relational

category learning under the conceptual distance condition.

The following conclusions were drawn: (1) There were differences in children's learning of relational categories in the near and far conceptual distance conditions, with 4-6 year olds learning relational categories better in the near conceptual distance condition than in the far conceptual distance condition. (2) In the near-conceptual distance condition, both 5- and 6-year-olds were able to master relational categories, while 4-year-olds could not; in the far-conceptual distance condition, 6-year-olds were able to master relational categories, while 5-year-olds learned less than 6-year-olds, 4-year-olds were not yet able to master relational categories, and 5-year-olds may be in a transitional period. (3) In the near and far conceptual distance condition, 4-year-olds in the manipulative object movement group learned better than those in the no manipulative object movement group.

Keywords: Early childhood relationship category learning, Conceptual distance, Manipulating object movement, Priming

幼儿轴对称关系类别学习的发展特征及线索提示的作用

吴宝敏（通讯作者）陈可琛 刘万伦

浙江师范大学心理学院，金华，321004，wubaomin1998m@163.com

摘 要　关系类别指的是有共同关系的成员所组成的类别。轴对称关系类别是指以轴对称关系这一共同特征作为分类标准，将对称事物归在一起形成的类别，属于感知关系类别的一种。首先，研究幼儿轴对称关系类别学习的发展特征能够揭示幼儿的认知发展过程；其次，轴对称属于几何知识的一种，本研究有助于揭示幼儿的几何能力发展状况；最后，探究线索提示在幼儿轴对称关系类别学习中的作用能够为线索提示效应的相关理论提供实验数据的支持。因此，本研究采用对称样本匹配范式（SMTS），通过两个实验探讨幼儿轴对称关系类别学习的发展特征以及线索提示的作用。实验一以 3 岁、4 岁、5 岁幼儿为被试，采用 3（年龄：3 岁、4 岁、5 岁）×3（轴对称类型：垂直、水平、倾斜）的混合实验设计，探究幼儿的轴对称关系类别学习的发展特征。实验二选取 3 岁、4 岁幼儿为被试，采用 2（年龄：3 岁、4 岁）×2（线索提示：有，无）×3（轴对称类型：垂直、水平、倾斜）的混合实验设计，探究线索提示的作用。实验研究结果表明：（1）幼儿的轴对称关系类别学习是个逐渐发展的过程，3 岁幼儿无法选择轴对称关系匹配，处于随机水平。5 岁幼儿已经能够掌握轴对称关系类别。4 岁处于基于相似性匹配到基于轴对称关系分类发展的关键期。（2）幼儿轴对称知觉的发展顺序是：垂直轴对称、水平轴对称、倾斜轴对称。（3）线索提示能够促进 3 岁、4 岁幼儿轴对称关系类别学习。（4）对于垂直轴对称关系类别学习和水平轴对称关系类别学习，线索提示能够促进 3 岁、4 岁幼儿较好掌握。对于倾斜轴对称关系类别学习，在线索提示条件下，4 岁幼儿能够较好掌握，3 岁幼儿的成绩显著高于随机水平。（5）幼儿的分类策略由基于相似性向基于类别转变。3 岁幼儿主要关注形状相似性，4 岁幼儿处于由基于相似性匹配到基于关系类别匹配发展的过渡期，5 岁幼儿能够克服形状相似性的诱惑，基于关系类别匹配。

关键词　关系类别，轴对称关系，发展特征，线索提示

Developmental characteristics and the role of cue in children's category learning of axisymmetric relationships

Wu Baomin, Chen Kechen, Liu Wanliu

School of Psychology, Zhejiang Normal University, Jinhua 321001

Abstract： A relational category is a category of members who have a common relationship. The category of axisymmetric relation refers to the category formed by grouping symmetric things together with the common feature of axisymmetric relation as the classification standard, which belongs to the category of perceptual relation. Firstly, the study of the developmental characteristics of the category learning of axisymmetric relationships can reveal the cognitive development process of young children. Secondly, axial symmetry is a kind of geometric knowledge, and this study is helpful to reveal the development of children's geometric ability. Finally, exploring the role of cueing in children's learning of axisymmetric relationship categories can provide experimental data support for the theory of cueing effect. Therefore, this study adopts the Symmetry-Match-to-Sample task (SMTS) to explore the developmental characteristics of children's categorical learning of axisymmetric relationships and the role of cuing through two experiments. In experiment 1, children aged 3, 4 and 5 were selected as subjects, and a mixed experimental design of 3 (age: 3, 4 and 5 years old) ×3 (axisymmetric type: vertical, horizontal and oblique) was adopted to explore the developmental characteristics of children's axisymmetric relationship category learning. In experiment 2, children aged 3 and 4 years old were selected as subjects, and a mixed experimental design of 2 (age: 3 years old, 4 years old) ×2 (cue cue: yes, no) ×3 (axisymmetric type: vertical, horizontal, oblique) was adopted to explore the role of cue cue. The experimental results show that: (1) Children's axisymmetric relationship category learning is a gradual development process, and 3-year-old children are unable to choose axisymmetric relationship matching and are at a random level. Children as young as 5 are already able to master the axisymmetric relationship categories. 4 years old is in the critical period of development based on similarity matching to axisymmetric relationship classification. (2) The developmental order of children's perception of axial symmetry is: vertical axial symmetry, horizontal axial symmetry, and oblique axial symmetry. (3) Cues can promote the learning of axisymmetric relationship categories in 3-and 4-year-old children. (4) For vertical axisymmetric relationship category learning and horizontal axisymmetric relationship category learning, cues can promote 3 - and 4-year-old children to better grasp. For the category learning of oblique axisymmetric relation, under the condition of cue cue, 4-year-old children can master it well, and 3-year-old children's achievement is significantly higher than random level. (5) Children's classification strategy has changed from similarity based to category based. Three-year-old children mainly focus on shape similarity, four-year-old children are in the transition from similarity-based matching to relationship-based matching, and five-year-old children can overcome the temptation of shape similarity and relationship-based matching.

Keywords：Relationship category, Axisymmetric relation，Development characteristics，cue

数字化时代背景下难度和价值对认知负载转移的影响：发展模式与机制探索

董肖肖[1] 刘岩[2](通讯作者) 胡亚欣[3]

1 广州大学教育学院，广州，510006

2 辽宁师范大学心理学院，大连，116029,psysabrina@126.com

3 惠济区艺术小学，郑州，450053

摘 要 随着数字化的发展和智能化时代的到来，将信息储存在外部媒介的行为越来越普遍，有研究者将这种行为定义为认知负载转移。已有研究表明，随着年龄增长，儿童能够根据任务难度使用认知负载转移，然而在日常学习过程中往往会存在难度和价值这两种调控方式，因此，只关注任务难度对使用认知负载转移的影响不足以全面地探讨认知负载转移的现象和机制。基于此，本研究从发展的角度通过三个实验探讨学习项目的难度和价值对认知负载转移策略的影响及其机制。实验 1 探讨难度和价值对儿童、青少年和成

年人使用认知负载转移的影响，其中，通过控制词对的相关性和不同的星值分别去操纵学习项目的难度和价值。结果表明，当难度线索和价值线索同时出现时，儿童只能根据难度线索使用认知负载转移，青少年可以同时利用难度线索和价值线索进行认知负载转移，而成年人则会使用价值线索进行认知负载转移。那么成年人在实验 1 中表现出来的策略选择模式是否是最优解呢？实验 2 通过改变呈现词对和星值的顺序增强成年人对难度的感知，考察当成年人利用难度和价值进行认知负载转移时，回忆成绩和最后得分与实验 1 的差异，以探索哪种模式是更优的选择。结果表明，相对于难度和价值两种线索下的认知负载转移，成年人只根据价值线索下的回忆成绩更好、得分更高；实验 3 在实验 1 的基础上进一步考察 10-12 岁儿童在认知负载转移过程中线索利用能力不成熟（如在两个线索同时呈现的时候，只能利用难度信息，忽视价值线索）背后的原因。实验 3 采用混合实验设计，分别在简单和困难条件下考察价值对儿童认知负载转移的影响。研究发现，在简单条件下，价值的高低并没有影响儿童使用认知负载转移；而在困难条件下，儿童在高价值的项目上选择认知负载转移的比例要显著高于低价值项目。
关键词 元认知；价值；难度；认知负载转移；儿童；青少年；成年人

The Influence of Difficulty and Value on Cognitive offloading in the Context of Digital Age: Exploration of Development Patterns and Mechanisms

Dong Xiaoxiao[1] Liu Yan[2] Hu Yaxin[3]
1 School of Education, Guangzhou University, Guangzhou,510006
2 School of Psychology, Liaoning Normal University, Dalian 116029
3 Zhengzhou Huji District Art Elementary School, Zhengzhou 450053
Corresponding author: psysabrina@126.com

Abstract: With the development of digitization and the arrival of the intelligent era, the behavior of storing information in external media has become increasingly common. Researchers have defined this behavior as cognitive offloading. Previous studies have shown that as children grow older, they can use cognitive offloading based on task difficulty. However, in everyday learning, there are often two regulatory modes, difficulty and value. Therefore, focusing only on the influence of task difficulty on the use of cognitive offloading is not sufficient to comprehensively explore the phenomenon and mechanism of cognitive offloading. Based on this, this study explores the influences and mechanisms of difficulty and value on cognitive offloading strategies from a developmental perspective through three experiments. Experiment 1 investigated the effects of difficulty and value on cognitive offloading in children, adolescents, and adults. The difficulty and value of learning tasks are manipulated by controlling the relevance of word pairs and different star number. The results show that when both difficulty and value cues were presented, children could only use cognitive offloading transfer based on difficulty cues, adolescents could use both difficulty and value cues simultaneously for cognitive offloading, while adults use value cues for cognitive offloading. Is the optimal strategy chosen by adults in Experiment1 ? In Experiment 2, adults' perception of difficulty was enhanced by changing the order of difficulty and value cues, and explored the differences in recall performance and final scores when adults use difficulty and value for cognitive offloading, to determined which mode was the better choice. The results showed that compared to cognitive offloading under both difficulty and value cues, adults have better recall performance and higher scores when using value cues only. Experiment 3 further investigated the reasons behind the immature clue utilization ability of 10-12-year-old children in the process of cognitive offloading (such as being able to use only difficulty information and ignore

value cues when both are presented simultaneously). In Experiment 3, a mixed experimental design was adopted to examine the influence of value on children's cognitive offloading under both easy and difficult conditions. The study found that under easy conditions, the value does not affect children's use of cognitive offloading, while under difficult conditions, children have a significantly higher proportion of choosing cognitive offloading for high-value items compared to low-value items.

Keywords: Metacognition; Value; Difficulty; Cognitive offloading; Children; Adolescents; Adults

儿童对情绪面孔注意偏向的动态特征及其与父母教养方式的关系

苏娃浔[1]　林德堃[1]　易振南[1]　尼格拉·阿合买提江[1]　韩卓[1]　王乾东[2]（通讯作者）

1 北京师范大学心理学部，北京，100875

2 北京师范大学心理学部，北京，100875，wangqd@bnu.edu.cn

摘 要　对情绪面孔的注意偏向指个体会更多地看有情绪色彩的面孔刺激，是早期社会情感发展的重要预测因素，受家庭环境的影响。因此，探究儿童对情绪面孔的注意偏向特征及其与父母教养方式的关系有助于进一步理解儿童情绪的社会化过程，实现高风险儿童的早期识别与干预。目前关于情绪注意偏向的研究结果并不一致，可能的原因是前期研究主要关注反应时或眼动的整体指标，忽视了注意在时间上的动态变化。本研究结合眼动仪与点探测任务，记录儿童在观看配对呈现的情绪面孔和中性面孔时的眼动特征（图1），基于时程分析和聚类的方法试图揭示儿童情绪注意偏向在时间进程上的变化特征，并识别出具有不同模式的亚型。另外，我们通过问卷及行为编码分别测量主观和客观的父母教养方式，并进一步使用机器学习的方法以不同情绪注意偏向的时程特征解码家长的教养方式来揭示两者的关系。本研究发现三个主要结果：首先，使用传统的总注视时间分析发现儿童加工生气和高兴面孔时的注视时间显著高于中性面孔，但悲伤面孔的注视时间与中性面孔没有显著差异（图 2）。时程分析发现对情绪性面孔的注意偏向（包括悲伤面孔）只在刺激呈现的前期(400 毫秒之前)出现，并非持续整个刺激呈现过程。只有对高兴面孔的注意偏向在刺激呈现的后期再次出现（图 3）。这种时程分析帮助聚焦情绪注意偏向出现的具体时间，分离出不同情绪注意偏向的微观特征。其次，数据驱动的聚类方法揭示了动态情绪注意偏向的三类亚型：单峰-维持型和单峰-下降型主要表现为早期注意偏向，但单峰-维持型的偏向幅度更大；双峰型同时表现早期和晚期注意偏向（图 4）。不同情绪注意的亚型可能与个体的情绪调节有关。最后，机器学习结果提示父母的积极教养方式（包括家长主观报告和客观行为编码）与儿童对悲伤面孔注意的时间动态特征有关（图 5）。本研究强调时程分析在揭示儿童情绪面孔注意偏向方面的重要作用，区分出注意偏向的微观特征，对进一步了解儿童情绪面孔注意偏向的影响因素具有重要的指导意义。

关键词　情绪注意偏向，教养方式，眼动技术，聚类分析，机器学习

Dynamic Patterns of Affect-biased Attention in Children and Its Relationship with Parenting

Waxun Su, Tak Kwan Lam, Zhennan Yi, Nigela Ahemaitijiang, Zhuo Rachel Han, & Qiandong Wang.

Faculty of Psychology, Beijing Normal University, Beijing, China

***Abstract*:** The affect-biased attention, which means prioritizing emotionally or motivationally salient stimuli, is

an important predictive factor of early socioemotional development and isshaped by early family environment.. Exploring the characteristics of children's affect-biased attention and its relationship with the early family environment is helpful to further understand the socialization process of children's emotional perception and identify children at risk of developing emotion related mental issues. The results of previous studies on affect-biased attention are inconsistent. The possible reason is that they focused on the reaction time or overall looking time, ignoring the temporal dynamics of attention. In this study, children completed a dot-probe task and we recorded children's eye-movement during the processing of emotional-neutral face pairs (Figure 1). We used temporal-course analysis and a data-driven-based cluster approach to analyze the data, aiming to identify the temporal characteristics of children's affect-biased attention. Furthermore, we measured parenting practices through questionnaires and third-party coding, and used the machine learning method to decode parenting practices through temporal characteristics of different affect-biased attention, to reveal the relationship between affect-biased attention and parenting practices. We found three main results. First, using the traditional indicator (overall looking time), we found that children looked more at angry and happy faces than neutral faces. However, the difference in looking time between sad and neutral faces was insignificant (Figure 2). Our temporal course analysis found that attention bias to emotional faces emerged early after the stimuli onset (before 400 ms), even for the sad faces. This bias did not hold for the entire stimuli presenting time, and only the attention bias to happy faces appeared again in the late stage (Figure 3). This temporal analysis helped to reveal the micromechanism of affect-biased attention and clarify its subtle differences across different encoding phases. Second, we applied a data-driven-based cluster approach to the temporal course of attention to emotional faces and revealed three subtypes of dynamic affect-biased attention. Single-peak Sustained subtype and Single-peak Declining subtype mainly showed early attention bias; Single-peak Sustained subtype had a higher early attention bias than Single-peak Declining subtype; Double-peak subtype showed both early and late attention biases (Figure 4). Different subtypes may be related to different emotional regulation abilities. Finally, the machine learning method revealed that parents' positive parenting was related to the temporal dynamic characteristics of children's attention to sad faces (Figure 5). Our study highlights the specific utility of temporal-course analyses to characterize the micromechanism of children's dynamic attention bias to emotional faces, which may further our understanding of the influence factors of children's affect-biased attention.

Keywords： Affect-biased attention, Parenting, Eye movement, Cluster analysis, Machine learning method

图 1 点探测范式

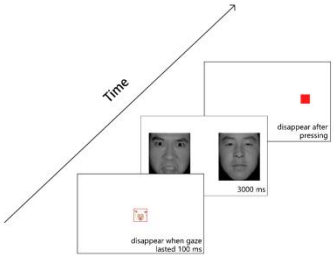


图 2 情绪面孔和中性面孔总注视时间的差异

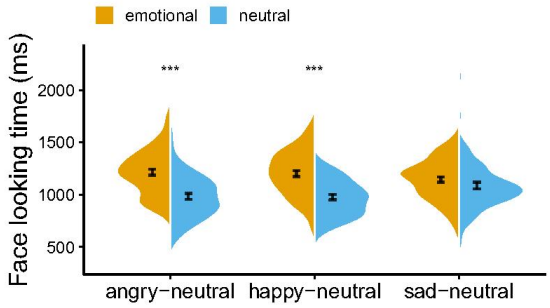


图 3 情绪面孔和中性面孔时程分析的差异

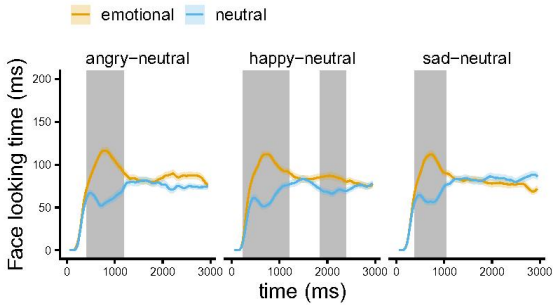


图 4 儿童对情绪面孔注意偏向的三种亚型

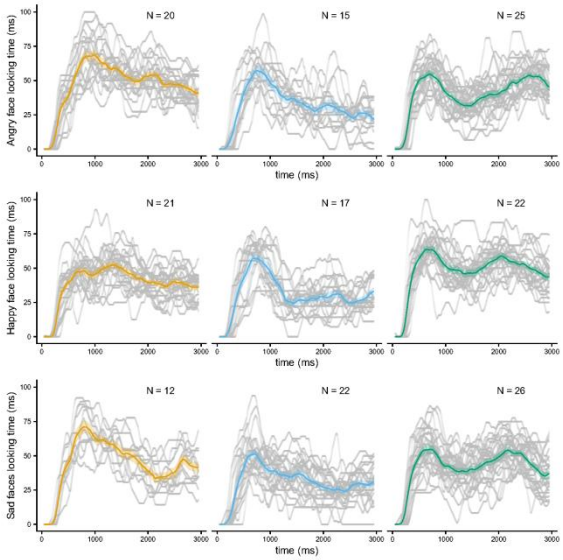
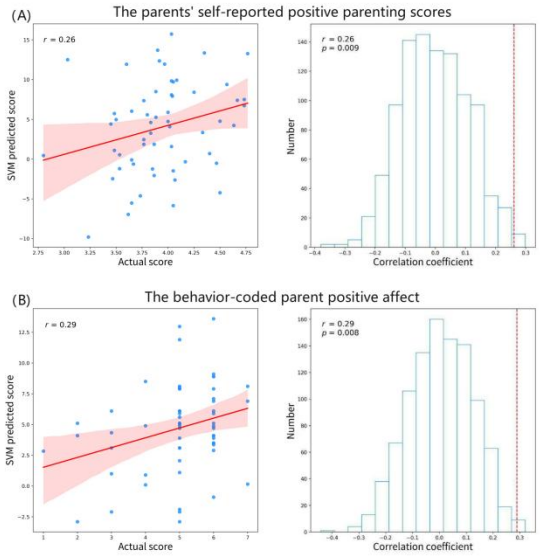


图 5 教养方式与儿童对情绪面孔注意偏向动态模式的关系



小学生隔代教养方式量表编制及适用性检验

于泽满[1]，范会勇[2]

渤海大学，辽宁锦州，121000,981721949@qq.com

摘 要 目的：编制小学生隔代教养方式量表(IPSS)，并检验其信度、效度与适用性。方法：研究一在父母教养方式的整体框架下，结合开放式访谈所收集的内容进行小学生隔代教养方式量表的初稿编制。对共计2135 名中高年级小学生施测后，使用 SPSS22.0 以及 AMOS24.0 进行项目分析、因素分析、信效度检验。研究二在研究一的基础上对样本二进行适用性检验，主要包括人口学差异检验与回归分析。结果：研究一结果表明小学生隔代教养方式量表共 16 道题目，包括 4 个维度，分别为情感支持、控制、偏爱以及过分保护。累计方差解释率在 50%以上；验证性因素分析显示各因子模型拟合效果良好，删除第 5 题和第 8 题后，模型拟合达到最佳。量表总分与父母教养方式问卷（EMBU）的总分以及六个维度呈显著正相关，GFI 值为 0.947、IFI 值为 0.922、CFI 值为 0.921；量表内部一致性信度为 0.803；本量表在不同的年级和性别水平上具有测量等值性；研究二结果证明小学生隔代教养方式量表存在显著的性别效应与年级效应，且男生得分显著高于女生，低年级学生得分高于高年级学生。结论：小学生隔代教养量表的信效度良好，能够有效预测学生接受隔代教养影响程度，是测量小学生隔代教养方式的有效工具。

关键词：小学生，隔代教养；量表编制；父母教养方式问卷

A Study of the validity and reliability of Primary School Intergenerational Parenting styles Scale:A psychometric evaluation and application

Yu Zeman,Fan Huiyong

Bohai University，981721949@qq.com

Abstract：Objective：To develop primary school students' Intergenerational Parenting Styles Scale(IPSS) and test its reliability, validity and applicability. Method： In study 1: under the overall framework of parents' Parenting styles, combined with the result of open-ended survey ,our study compile the first draft of IPSS.After conducting the test on a total of 2135 middle and high grade primary school students in sample 1 and sample 2, SPSS 22.0 and AMOS 24.0 were used for item analysis, factor analysis, and reliability and validity testing.Study 2 carried out the applicability test of sample 2 on the basis of study 1, which mainly including demography difference test and regression analysis. Results： The results of study 1 showed that the IPSS for primary school students had 16 questions, including four dimensions, including emotional support, control, preference and overprotection.The cumulative variance explanation rate was above 50%; The confirmatory factor analysis showed that the each factor model fits well. After deleting questions 5 and 8, the model fitting reached the best.The total score of the scale was significantly positively correlated with the total score of EMBU and the six dimensions. The GFI value was 0.947, the IFI value was 0.922, and the CFI value was 0.921;The internal consistency reliability of the scale is 0.803; This IPSS has measurement equivalence at different grades and gender levels; The results of study 2 prove that there are significant gender and grade effects in the IPSS, and boys' scores are significantly higher than girls', and lower grade students' scores are higher than higher grade students. conclusion： The the IPSS has good reliability and validity. IPSS as an effective tool to measure the intergenerational Parenting styles of primary school students, can effectively predict the impact of intergenerational parenting on students.

Keywords：Primary School Students,Intergenerational Parenting,Scale Development,EMBU

不同运算类型下的“减法”问题：影响学龄前儿童减法和未知加数运算发展的认知因素

任童颜[1]　王计悦意[1]　李明欣[1]　丁雪辰[1]　程琛[2]（通讯作者）

1 上海师范大学心理学系，上海，200234

2 香港科技大学社会科学部，香港，999077，通讯作者 E-mail：chencheng@ust.hk

摘 要　儿童可以使用近似数量系统表征项目集合的近似数量，并可使用近似数量系统进行近似算数的运算。一般认知能力与非符号算术技能的早期习得有关，但一般认知能力的不同成分在不同类型的算术问题上的表现之间的关系尚未得到探索。具体而言，非符号减法是基于两个已知的数量直接进行差值计算，而求解未知加数运算本质上需要儿童以先进行反向转换再作差。鉴于非符号减法和求解未知加数运算之间的异同，本研究对上海某幼儿园 88 名 4~5 岁学龄前儿童（平均年龄=4.9 岁）测量了非符号减法和求解未知加数运算中运算精度的发展，并检验可能导致这两种算术发展差异的因素。本研究测量了儿童两种不同的非符号减法运算，即一般减法和求解未知加数运算，以及儿童近似数量系统敏锐度和五种认知功能，包括工作记忆存储、言语工作记忆更新、空间工作记忆更新、抑制控制和计数能力。结果表明：（1）在所有条件下，儿童的表现都会随着工作记忆中存储的数组与比较数组之间的比率的降低而下降，这证实了儿童使用近似数量系统来进行运算；（2）学龄前儿童在近似数量系统敏锐度和非符号运算上的表现会随着年龄的增长而提高;（3）儿童的近似数量系统敏锐度可以显著预测非符号减法的表现，而抑制控制能力和工作记忆更新可以显著预测未知加数运算的表现。总体而言，儿童使用近似数量系统进行近似运算的能力在学龄前阶段有所发展,而在不同类型的非符号运算中的表现分别由不同认知能力所驱动。因此，本研究可以为学龄前儿童非符号运算和一般认知能力不同成分存在潜在关系提供解释，并为理解学龄前儿童近似数量系统和数学能力的发展提供了新的教育实践启示。

关键词　近似数量系统，表征精度，非符号运算，工作记忆更新

Approaching 'difference' differently: different factors underlie the development of Subtraction and Unknown-addend computations in pre-schoolers

Tongyan Ren [1], Jiyueyi Wang[1], Mingxin Li[1], Xuechen Ding [1], Chen Cheng[2]

1 Department of Psychology, Shanghai Normal University, Shanghai 200234, China
2 Division of Social Science, The Hong Kong University of Science and Technology, Hong Kong 999077, China

Abstract： Children can represent the approximate quantity of sets of items using the Approximate Number System (ANS), and can perform arithmetic-like operations over ANS representations. General cognitive ability is associated with the early acquisition of non-symbolic arithmetic skills, but the relationship between the performance and development of different components of general cognitive ability, on different types of arithmetic problems, has not been explored. Specifically, Subtraction is based on the direct computation of the difference between two known quantities, whereas Unknown-addend essentially require children to perform the reverse substitution before making the difference. Given the similarities and differences between Subtraction and Unknown-addend, we examined the development of computational precision in preschool children aged 4~5 years in Shanghai within non-symbolic subtraction and unknown-addend operations and identified factors that may contribute to differences in the development of these two arithmetic. We measured children two different non-symbolic arithmetic operations including Subtraction and Unknown-addend, as well as ANS acuity and five cognitive skills including Working memory storage, Verbal working memory updating, Spatial working memory updating, Inhibitory control and Counting knowledge. Results demonstrated that: (a) in all conditions, children's performance declined as the ratio between arrays stored in working memory and comparison arrays decreased, confirming that children were using the ANS, (b) children's performance in both ANS acuity and arithmetic increased with age when they were asked to perform non-symbolic operations, and (c) children performed better with Unknown-addend condition than with Subtraction. In particular, children's ANS acuity predicted performance in non-symbolic subtraction, and that Inhibitory control and Working memory updating effectively predicted performance in Unknown-addend. Overall, research has shown that children's ability to use the ANS for approximate arithmetic develops during the preschool years, and their performance in different types of non-symbolic arithmetic is driven by different cognitive abilities. Our findings provide insight into the relationship between general cognitive ability and non-symbolic approximate numerosities arithmetic in preschool children.

Keywords: Approximate number system, representational precision, non-symbolic arithmetic, working memory updating

青少年同伴依恋类型及其转变：潜在转变分析

谢晓莹 李嘉琪 朱蕾蕾 彭小凡（通讯作者）
贵州师范大学心理学院，贵州贵阳，550025，pengxf@gznu.edu.cn

摘 要 同伴依恋是指个体与亲密同伴建立起彼此支持与安慰的情感联结，它是个体从父母依恋向成人依恋拓展时的中间阶段。依恋理论包含焦虑和回避两个基本维度，反映在同伴依恋中也是截然不同的行为风格。孤独感是个体无法与重要他人建立良好情感纽带时所产生的消极情感，它是评价人际关系状况的重要指标之一，越低的孤独感证明青少年持有越安全的同伴依恋。此外，个体的依恋并非一成不变，曾有研究发现恋爱对象的变化可能导致依恋风格转变。相比于父母和恋人，青少年的同伴关系无疑更容易发生变化，一方面是因为择友空间有限，另一方面是因为交友对象容易更替。研究表明父母关系的好坏影响孩子的依恋质量，父母冲突是存在于父母之间的公开敌对关系，频繁的父母冲突会增加孩子的不安全感。以往研究大都从维度的角度描述依恋的特点，但无法确定个体整体的依恋类别特征，各类别青少年的社交状态仍有待考察，目前也缺乏具体的实证研究对同伴依恋的稳定性和转变情况加以确认，父母冲突对类别的形成和转变所施加的影响也尚未可知。综上，本研究以山东和贵州省三所中学的 1039 名中学生为被试($M_{年龄}$ = 14.52, SD = 1.67)，进行 6 个月的追踪研究。采用潜在剖面分析（LPA）和转变分析（LTA），探究青少年同伴依恋的类别及其转化规律，采用方差分析和多项式逻辑回归，考察不同类别间孤独感的差异和父母冲突及性别影响类别形成及转变的发生概率。结果发现：同伴依恋可分为三种类别，安全型占 44.6-55.3%、焦虑型占 34.1-38.8%和回避型占 10.6-20%；安全型稳定率在 57.3-59.2%，有中等概率向焦虑（21.9-23.3%）和回避型（18.9-19.4%）转变，焦虑型稳定率在 68-74.6%，有中等概率向安全型（16.9-21.3%）转变，回避型稳定率在 49.8-63.3%，有中等概率向安全型（22.5-27.5%）和焦虑型（14.2-22.7%）转变；回避型青少年的孤独感最高，安全型相反，焦虑型介乎中间；父母冲突越多，青少年越可能形成和转向不安全依恋，更难以转变为安全型；女生更大概率类属焦虑型，回避型男生比女生更难发生转变。研究结果丰富了依恋理论，同时为青少年的心理健康工作提供一定启示，如通过有意的安排，让不同依恋类型的青少年得到正向匹配，促进彼此向安全型转变。

关键词 青少年，同伴依恋，潜在剖面分析，潜在转变分析

The Adolescents' Peer Attachment Style and its Transition：A Latent Transition Analysis

Xie Xiao Ying Li Jia Qi Zhu Lei Lei Peng Xiao Fan
Gui Zhou Normal University, Gui Zhou Gui Yang

Abstract：Peer attachment is the emotional bond that individuals form with close peers, providing mutual support and comfort. It represents a transitional stage between parental attachment and adult attachment. Attachment theory encompasses two fundamental dimensions: anxiety and avoidance, which manifest in distinct behavioral styles within peer attachments. Loneliness, a negative emotion resulting from the inability to establish strong emotional bonds with significant others, stands as a critical indicator of interpersonal relationships. Lower levels of loneliness indicate stronger, more secure peer attachments among adolescents. Furthermore, attachment styles are not fixed. It has been found that changes in romantic partners can lead to shifts in attachment styles. Compared to their parents and romantic partners, adolescents experience more fluctuation in their peer relationships. This is partly due to limited friend selection opportunities and the inherent fluidity of friendships. Numerous studies reveal that the quality of parental relationships directly influences the quality of children's attachments. Frequent parental conflict, characterized by open hostility between parents, heightens children's feelings of insecurity. Prior research predominantly examined attachment from a dimensional perspective. However, it failed to determine

comprehensive characteristics of attachment categories for individuals as a whole. The social status of adolescents within each attachment category also remains unexplored. Moreover, there is a dearth of specific empirical studies confirming the stability and transition of peer attachment. Additionally, the influence exerted by parental conflict on category formation and transition has yet to be established. To bridge these gaps, this study was conducted with 1039 middle school students from three schools in Shandong and Guizhou provinces. Over a 6-month period, latent profile analysis (LPA) and transformation analysis (LTA) were employed to explore adolescent peer attachment categories and patterns of transformation. Analysis of variance (ANOVA) and polynomial logistic regression were utilized to examine differences in loneliness between attachment profiles and the impact of gender and parental conflict on category formation and transformation. The findings revealed that peer attachment could be profiled into three styles: secure (44.6-55.3%), anxious (34.1-38.8%), and avoidant (10.6-20%). The secure style displayed a stabilization rate ranging from 57.3% to 59.2%, with a moderate probability of transitioning to anxious (21.9-23.3%) or avoidant (18.9-19.4%) style. The anxious style exhibited a stabilization rate ranging from 68% to 74.6% and a moderate likelihood of shifting to secure (16.9-21.3%) style. The avoidant style demonstrated a stabilization rate ranging from 49.8% to 63.3%, with a moderate probability of transitioning to secure (22.5-27.5%) or anxious (14.2-22.7%) style. Adolescents exhibiting avoidant attachment style displayed the highest levels of loneliness, whereas those with secure attachment style showed the opposite, with anxious attachment style falling in between. Increased parental conflict heightened the likelihood of adolescents forming and transitioning towards insecure attachment styles, thereby rendering the transition to secure attachment style more challenging. Females had a higher propensity for belonging to the anxious attachment style, while males with avoidant attachment style faced heightened difficulties in transitioning compared to females. These research findings not only contribute to the advancement of attachment theory but also offer valuable insights for psychological interventions targeting adolescent mental well-being. For instance, intentional arrangements can be implemented to facilitate positive matching between adolescents of different attachment styles, thereby promoting the transition towards secure attachment style.

Keywords：adolescents, peer attachment, latent profile analysis, latent transition analysis

毕生发展视角下独处的适应功能：益处与代价的五轮博弈

阿尔升·海达别克[1]　周同[2]　喻洁[1]　丁雪辰[1]（通讯作者）

1 上海师范大学心理学系，上海，200234，通讯作者 E-mail：dingxuechen_psy@163.com

2 华东师范大学心理与认知科学学院，上海，200062

摘 要　独处是一种在真实和虚拟环境中个体与他人没有交流的开放状态，其普遍存在于人的一生之中，会在个体不同发展阶段带来不同的影响。因此，以毕生发展的视角探讨个体一生不同年龄阶段独处的益处（即积极影响）与代价（即消极影响）的博弈，可以更好地理解独处的长期动态变化与发展，解释独处对个体的意义所在，并能为提出发挥其积极作用的干预措施提供科学依据。本文通过梳理独处领域相关研究成果，提出毕生发展视角下独处益处与代价的博弈模型，发现独处的确是一把双刃剑，对于个体的发展同时具有益处与代价，且从童年期至老年期，呈现出一定的变化特点与不同的适应功能。具体而言，在童年期，儿童进行独自游戏是发展其社会交往功能的桥梁，但与此同时这也直接导致个体错失与同伴交往的机会，独处的代价崭露头角；在青少年期，尽管个体有更大的社交自主性，但其所面临的社会期许与规范增加，这时独处易产生多种内化行为问题且面临着同伴的压力，独处的代价达到顶峰；在成年早期，自我决定的独处有助于自我接纳和个人成长，独处的益处开始占据上风，但是因动机与态度的不一致，个体也可能会产生一些负面情绪；在成年中期，随着个体身份转变，对于独处有更高的需求和自主动机，但也面临不同的社会情感得失，此时独处的益处和代价难分胜负；到了老年期，个体对于独处具有很高的自主性并

且开始享受独处，但是这一阶段老年人可能会面对社交孤立，这会对个体认知、情感、生活带来极大的威胁，独处的代价又重新抬头。未来研究可以更多关注以个体为中心的研究，整合独处多维性，以毕生发展视角收集横纵向数据直接对比，丰富独处益处与代价的发展机制，结合文化背景理解独处的内涵，关注当代数字技术发展背景对于个体独处的影响，并思考独处在不同年龄段的实践意义。
关键词　独处，毕生发展观，适应功能，益处，代价

Understanding The Adjustment Functions of Solitude from Lifespan Development Perspective: A Five-Round Battle of Benefits and Costs

Aersheng Haidabieke[1], Tong Zhou[2], Jie Yu[1], Xuechen Ding[1]

1. Department of Psychology, Shanghai Normal University, Shanghai, 200234
2. School of Psychology and Cognitive Science, East China Normal University, Shanghai, 200062

Abstract： Solitude is an open state in which individuals have noncommunication with others in a real or virtual environment. It is as common throughout life, and will bring different effects at different stages of individual development. Therefore, exploring the battle between the benefits (positive impact) and costs (negative impact) of solitude in different age stages of an individual's life from the lifespan perspective can better understand the long-term dynamic change and development of solitude and explain its significance to individuals. In addition, it can provide scientific basis for the intervention measures to play its positive role. By combing the relevant research results in the field of solitude, this paper puts forward a battle model of the benefits and costs of solitude from lifespan perspective and finds that solitude is a double-edged sword, which has both benefits and costs for individual development, and shows certain characteristics and different adaptive functions from childhood to old age. Specifically, in childhood, children's solitary play is a bridge to develop their social interaction function, but at the same time, it directly leads to individuals missing the opportunity to interact with peers, and the cost of solitude comes to the forefront. In adolescence, although individuals have greater social autonomy, they are faced with increased social expectations and norms. At this time, solitude is prone to a variety of internalizing problems and peer pressure, and the cost of solitude reaches its peak. In early adulthood, self-determined solitude is conducive to self-acceptance and personal growth. The benefits of solitude begin to take hold, but individuals may also have some negative emotions due to inconsistent motives and attitudes. In the middle of adulthood, with the change of individual identity, there is a higher need for solitude and autonomous motivation, but they also face different social emotional gains and losses. At this time, the benefits and costs of solitude are difficult to determine. In the old age, individuals have a high degree of autonomy and begin to enjoy solitude. However, at this stage, the elderly may face social isolation, which will bring great threats to individual cognition, emotion and life, and the cost of solitude will rise again. To further develop our understanding of solitude, future studies could: 1) From a personal-oriented perspective, integrate the multi-dimensional and dynamic development of solitude. 2) Collect large amounts of horizontal and longitudinal data from a lifespan perspective. 3) Interpret the development process of solitude based on cultural background. 4) Pay attention to the impact of contemporary digital technology on the individual experience of solitude. 5) Think about the practical implications of solitude at different developmental stages.

Keywords： solitude, lifespan development perspective, adjustment function, benefit, cost

学习步调和装饰性材料相关性对学习成绩及元理解监测的影响

汪玉婷[1] 陈瑶鲜[1] 王勋[2]（通讯作者）
浙江师范大学心理学系，金华，321000，wangx@zjnu.cn

摘 要 在多媒体教学中，通常以有趣的装饰性材料来吸引学生注意力和激发学生的学习动机。然而，大多数研究表明，在教学材料中添加此类装饰性材料非但没有促进学习，反而阻碍学习并产生了装饰性材料效应。本研究以学习步调和装饰性材料相关性作为切入点，探讨二者对装饰性材料效应的影响。此外，在多媒体学习过程中学习者对文本的掌握情况以及阅读策略对学习的影响也是至关重要的。基于此，本研究首先考察了学习步调对装饰性材料效应的调节作用，并进一步从元认知角度探究在系统步调下，装饰性材料相关性和使用元认知策略对学习成绩及元理解监测的影响。

本研究共设计了 2 个实验。实验 1 为 2(学习步调：系统步调，学习者步调)×2(装饰性材料：有，无)两因素被试间设计，探究学习步调和装饰性材料对学习成绩及元理解监测的影响，考察学习步调在具有装饰材料的多媒体学习中的作用。实验 2 为 2(相关性：高，低)×2(相关性评定：评价组，非评价组)两因素被试间设计，采用经典的 JLR(learning-judgment-recall)范式，探究系统步调下相关性和元认知评价策略对学习成绩和元理解监测的影响。

综合本研究结果，可得出以下结论：

（1） 学习步调作为装饰材料效应的边界条件影响学习者的学习成绩，装饰材料对学习的影响主要体现在学生对知识点的识记方面，在具有装饰材料的条件下进行学习，学习者会感知到更大的认知负荷，由此掩蔽了多媒体优势信念。

(2) 在系统步调下，学习高相关性装饰材料的学习者取得了更差的学习成绩，相关性作为一种边界条件对学习者的学习成绩产生影响。

(3) 相关性评定作为一种元认知策略，对装饰材料效应有一定的缓解作用，并在一定程度上提升元理解监测能力。

关键词 元认知；元理解监测准确性；装饰性材料；装饰材料效应；多媒体学习。

THE IMPACET OF LEARNING PACE AND SEDUCTIVE DETAILS RELEVANCE ON LEARNING ACHIEVEMENT AND METACOMPREHESION MONITORING

Wang Yuting, Chen Yaoxian, Wang Xun（corresponding author）
ZHEJIANG NORMAL UNIVERSITY Department of Psychology，Jin Hua，321000，
wangx@zjnu.cn

Abstract： In multimedia teaching, textbooks and various learning materials usually use interesting seductive details to stimulate students' learning motivation. However, most studies show that adding such seductive details to teaching materials does not promote learning, but rather hinders learning and produces seductive details effects. This study takes the learning pace and the relevance of seductive details as the starting point to explore the impact

of the two on the effect of seductive details. In addition, in the process of multimedia learning, learners' mastery of the text and the impact of reading strategies on learning are also crucial. Based on this, this study first examined the regulatory role of learning pace on the effect of seductive details, and further explored the impact of the relevance of seductive details and the use of metacognitive strategies on learning achievement and metacognitive monitoring under the system pace from the perspective of metacognition.

Two experiments were designed in this study. Experiment 1 is 2 (learning pace: system pace, learner pace) × 2 (seductive details: yes, no) Two-factor inter-test design, to explore the impact of learning pace and seductive details on learning performance and metaunderstanding monitoring. Experiment 2 uses the classic JLR (learning-judgment-recall) paradigm to explore the impact of correlation and metacognitive evaluation strategies on learning performance and metacognition monitoring at a systematic pace. Experiment 2 is 2 (correlation: high, low) × 2 (correlation evaluation: evaluation group, non-evaluation group) two-factor inter-test design.

Based on the results of this study, the following conclusions can be drawn:

(1) The learning pace, as the boundary condition of the decorative material effect, affects the learning performance of learners. The influence of seductive details on learning is mainly reflected in the students' memorization of knowledge points. When learning with seductive details, learners will perceive greater cognitive load, thus masking the belief of multimedia superiority.

(2) At a systematic pace, learners who learn highly correlated seductive details have achieved worse learning results. Relevance, as a boundary condition, has an impact on learners' learning results.

(3) As a metacognitive strategy, correlation assessment can alleviate the effect of seductive details to a certain extent, and improve the ability of metacognitive monitoring to a certain extent.

Keywords：Metacognition, Metacomprehension monitoring accuracy, Seductive details, Seductive details effect, Multimedia learning

权力感和他人存在对青少年合作行为的影响

安彦东 张梦璇 马向真（通讯作者）

东南大学人文学院医学人文系，南京，211102，mxznj@hotmail.com

摘 要 合作行为是指个体为实现共同目标而进行的社会活动。作为常见的利他性行为之一，它是评估个体亲社会倾向的的重要指标。进入青春期后，青少年自我意识不断增强并表现出一定的权力感。如何引导青少年权力感发展，促进其对合作行为的影响，成为教育和研究关注的话题之一。与此同时，青春期的另一个重要特征是重视他人对自己的看法，他人存在会影响青少年的合作行为。据此，本研究旨在探讨权力感（状态权力感和特质权力感）和他人存在对青少年合作行为的影响。研究采用被试间设计，实验一以 137 名中学生（女性 71 名）为被试，首先，被试扮演老板（高权力感）或雇员（低权力感）角色并通过阅读相关实验材料来启动其状态权力感，完成操作性检验后给被试呈现眼睛线索（他人存在）或花朵线索（无他人存在）图片来创造他人存在情境，最后被试完成公共物品博弈任务，在该任务中被试投资到公共账户的金额被用来评估其合作行为水平。实验二招募了 138 名中学生（女性 62 名），采用一般权力感量表测量被试的特质权力感，实验过程和变量测量方法同实验一。研究发现：（1）两种权力感处于较高水平的青少年，其合作行为水平较高；（2）当他人存在时，青少年会表现出更高水平的合作行为；（3）无论是特质权力感还是状态权力感，在他人存在时，高权力感被试表现出更高水平的合作行为；在无他人存在时，不同权力感被试的合作行为水平无显著差异。本研究丰富了青少年权力感的研究，特质权力感和状态权力感可以被视作促进个体亲社会倾向的积极品质。此外，将权力感和他人存在有效结合能更好的培养青少年的合作行为，本研究为青少年合作教育提供了实践指导。未来还应进一步探究该影响的作用机制。

关键词 青少年，权力感，他人存在，合作行为

The Effect of Sense of Power and Presence of Others on Adolescents' cooperative Behaviors

Yandong An, Mengxuan Zhang, Xiangzhen Ma (corresponding author)
Department of Medical Humanities, College of Humanities, Southeast University, Nanjing, 211102, mxznj@hotmail.com

Abstract: Cooperative behavior refers to social activities performed by individuals to achieve common goals. As one of the common altruistic behaviors, it is an important indicator for assessing an individual's pro-social tendency. After entering adolescence, adolescents' sense of self is increasing and shows a certain sense of power. How to guide the development of adolescents' sense of power and promote its influence on cooperative behavior has become one of the topics of concern in education and research. At the same time, another important feature of adolescence is the importance of others' perceptions of oneself, and the presence of others can affect adolescents' cooperative behavior. Accordingly, this study aimed to investigate the effects of sense of power (state power and trait power) and presence of others on adolescents' cooperative behavior. The study utilized a between-participants experimental design. In Experiment 1, 137 middle school students (71 females) was recruited as participants. First, participants played the roles of boss (high sense of power) or employee (low sense of power) and initiated their sense of state power by reading relevant experimental materials, and then after completing the operant test, participants were presented with pictures of either eye cues (presence of other people) or flower cues (absence of other people's presence) to create the presence of other people context. Finally, the participants completed a public goods gaming task in which the amount of money participants invested into a public account was used to assess their level of cooperative behavior. Experiment 2 recruited 138 middle school students (62 females) and used the General Sense of Power Scale to measure the participants' trait sense of power, and the experimental process and variable measurement methods were the same as in Experiment 1. It was found that (1) adolescents with both types of power senses at a higher level have higher levels of cooperative behavior; (2) adolescents show higher levels of cooperative behavior when others are present; (3) whether it is trait or state power sense, high power sense participants show higher levels of cooperative behavior when others are present; in the absence of others, the level of cooperative behavior of participants with different power senses has no significant differences. The present study enriches the research on adolescents' sense of power in that trait and state sense of power can be viewed as positive qualities that promote individuals' pro-social tendencies. In addition, the effective combination of sense of power and presence of others can better cultivate adolescents' cooperative behaviors, and the present study provides practical guidance for adolescents' cooperative education. The mechanism of the effect should be further explored in the future.

Keywords: Adolescents, Sense of Power, Presence of Others, Cooperative Behaviors

汉语声调敏感性对英语词汇学习的影响

邢玉荣　时蒙　罗丽　辛紫菡　程冬阳　侯峥榕　李利平(通讯作者)
山西师范大学教育科学学院，太原，030031，liliping2092@163.com

摘 要　汉语中声调可以用来表达韵律信息，汉语声调包含阴平、阳平、上声和去声这四种类型，具有区别语义的作用。韵律结构有助于从心理词典中检索信息，为获取词汇表征提供线索，从而促进词汇识别、拓宽词汇广度。Goad 和 White（2004）提出的韵律迁移假说指出二语学习的水平会受到母语韵律表征的制约。依此可知，母语为汉语者的汉语声调敏感性可能会影响到其英语词汇的学习。在学习第二语言时，成年人可能也会使用基于母语节奏或韵律特征的策略来分割语音促进词汇学习，因此本研究欲探讨汉语声调敏感性对英语词汇的影响。对 139 名母语为汉语的大学生进行测查，其中包含语音意识测验、汉语声调测验、英语重音测验、英语词汇深度测验和英语词汇广度测验，结果显示：（1）汉语声调敏感性分别与英语重音敏感性（r=.303）、英语词汇深度（r=.260）、英语词汇广度（r=.330）相关显著；（2）在控制语音意识后，汉语声调敏感性对英语词汇广度的直接效应显著，β=.355，p=.0015，95% *CI* 为[.138～.571]；汉语声调敏感性通过英语重音敏感性对英语词汇广度的间接效应不显著β=.003，p＞.005，95% *CI* 为[-.048～.065]；（3）在控制语音意识后，汉语声调敏感性对英语词汇深度的直接效应不显著β=.376，p=.2651，95% *CI* 为[-.289～1.042]；汉语声调敏感性通过英语重音敏感性对英语词汇深度的间接效应也不显著β=-.042，p＞.05，95% *CI* 为[-.217～.173]。研究表明，汉语声调的韵律感知能促进英语词汇表层的识别，但对深度意义的区分影响甚微，汉语声调敏感性对英语词汇广度学习具有重要意义。
关键词　汉语声调敏感性，英语词汇广度，韵律意识

The Influence of Chinese Tone Sensitivity on English Vocabulary

Yurong Xing　Meng Shi　Li Lou　Zihan Xin
Dongyang Cheng　Zhengrong Hou　Liping Li(Corresponding author)
School of Education Science, Shanxi Normal University, Taiyuan, 030031

***Abstract*:** Tone in Chinese can be used to express prosodic information. There are four types of Chinese tones, namely Yin ping, Yang ping, upper tone and removed tone, which have the function of distinguishing semantic meaning. Prosodic awareness can help to retrieve information from psychological dictionaries, provide clues for lexical representation, and thus promote lexical recognition and broaden lexical breadth. The prosodic transfer hypothesis proposed by Goad and White (2004) points out that the level of second language learning is restricted by the prosodic representation of the native language. According to the prosodic transfer hypothesis, Chinese tone sensitivity may have an impact on English vocabulary learning. When learning a second language, adults may also use strategies based on the rhythmic or prosodic features of the native language to segment sounds to facilitate vocabulary learning. Therefore, this study aims to explore the influence of Chinese tone sensitivity on English vocabulary. 139 Colleges who are native Chinese were administered a battery of tests including phonological awareness, Chinese tone sensitivity, English stress sensitivity, English vocabulary depth and English vocabulary breadth. The results demonstrated: (1) Chinese tone sensitivity was significantly correlated with English stress sensitivity (r=.303), English vocabulary depth(r=.260) and English vocabulary breadth(r=.330); (2) After controlling phonological awareness, the direct effect of Chinese tone sensitivity on English vocabulary breadth was significant, β=.355, p=.0015， 95% *CI* =[.138～.571]; The indirect effect of Chinese tone sensitivity on English vocabulary breadth through English stress sensitivity was not significant, β=.003, p＞.005, 95% *CI*=[-.048～.065]; (3) After controlling phonological awareness, both the direct effect of Chinese tone sensitivity on English vocabulary depth (β=.376, p=.2651, 95% *CI*= [-.289～1.042]) and the indirect effect through English stress sensitivity (β=-.042, p＞.05, 95% *CI*= [-.217～.173]) were not significant. The research indicates that the Chinese tone sensitivity can promote the initial recognition of English vocabulary, and has a subtle impact on the meaning of English vocabulary. This study reveals the significance of the Chinese tone sensitivity on English vocabulary breadth.

***Keywords*:** Chinese tone sensitivity, English vocabulary breadth, prosodic awareness

父母冲突对幼儿电子媒体过度使用的影响：父母低头行为与亲子依恋的序列中介作用

宋快[1,2,3]　顾璋华[1,2]　尹洁莹[1,2]　徐巾巾[1,2]　范艳蓉[1,2]　周宗奎[1,2]（通讯作者）
1 华中师范大学心理学院，武汉，430079
2 青少年网络心理与行为教育部重点实验室，武汉，430079
3 湖北幼儿师范专科高等学校学前教育学院， 鄂州， 436032
通讯作者 E-mail zhouzk@ccnu.edu.cn

摘 要　父母低头行为是指父母低头玩手机而无暇顾及或冷落孩子的行为现象，这种现象广泛存在于婴幼儿的养育过程中，并会对家庭关系质量和儿童的发展适应带来广泛影响。父母在养育过程中过度使用手机会给婴幼儿的心理发展带来许多不可逆的消极影响。例如：父母低头族阻碍了亲子沟通，减少了身体接触及互动游戏，让婴幼儿感受到忽视甚至拒绝，进而产生愤怒、悲伤、孤独等消极情绪，不利于良好依恋风格和亲子关系的建立。父母低头行为可能导致婴幼儿超前接触、过度使用

电子媒介。一方面，低头行为使父母的情绪更加易怒缺乏耐心，一些父母会为婴幼儿提供电子媒介以减少孩子对自己的干扰；另一方面，父母低头行为对孩子造成了不良示范，婴幼儿模仿父母行为的同时缺乏自控能力，易出现过度使用、成瘾等问题。在父母低头行为产生的原因中，父母冲突是重要的风险因素。幼儿时期是个体成长发展的奠基期，是个体生理发育和心理发展最迅速的时期,这一阶段的个体发展结果对儿童期、青少年期乃至一生都有着重要且深远的影响。为探讨父母冲突对幼儿电子媒体过度使用的影响及其作用机制，研究采用父母关系量表、父母低头行为问卷、亲子依恋问卷和幼儿电子媒介使用程度问卷对 758 名幼儿家长进行调查。结果发现：（1） 父母冲突、父母低头行为、亲子依恋和幼儿电子媒体过度使用之间两两显著相关；（2）父母冲突对幼儿电子媒体过度使用不仅有直接预测作用，还能通过三条间接路径影响幼儿电子媒体过度使用：父母低头行为的中介作用；亲子依恋的中介作用；父母低头行为和亲子依恋的链式中介作用。结论：父母冲突不仅对幼儿电子媒体过度使用有直接影响，还能通过父母低头行为和亲子依恋的序列中介作用影响幼儿电子媒体过度使用。
关键词　父母冲突，幼儿，父母低头行为，亲子依恋，电子媒体过度使用。

The Impact of Parental Conflict on Electronic Media Overuse in Young Children: The Serial Mediating Role of Parental Phubbing Behavior and Parent-child Attachment

Kuai Song[a,b,c], Zhang-hua Gu[a,b], Jie-ying Yin[a,b], Jin-jin Xu[a,b], Yan-rong Fan[a,b], Zong-kui Zhou[a,b]

a School of Psychology, Central China Normal University, Wuhan, 430079
b Key Laboratory of Adolescent Cyberpsychology and Behavior (CCNU), Ministry of Education, Wuhan 430079
c School of Preschool education, Hubei Preschool Teachers College, Ezhou, 436032

Abstract Parental phubbing behavior refers to the behavioral phenomenon of parents phubbing to play mobile phones and have no time to take care of or neglect their children. This phenomenon widely exists in the raising process of infants and young children, and will have a wide impact on the quality of family relations and children's development and adaptation. Excessive use of mobile phones by parents in the process of rearing will bring many irreversible negative effects on the psychological development of infants and young children. For example, the parent-child phubs hinder parent-child communication, reduce physical contact and interactive games, and make infants feel neglected or even rejected, resulting in anger, sadness, loneliness and other negative emotions, which is not conducive to a good attachment style and the establishment of parent-child relationship. Parents' lower head behavior may lead to premature exposure and excessive use of electronic media. On the one hand, the lower head behavior makes parents more irritable and make infants feel neglected or even rejected, resulting in anger, sadness, loneliness and other negative emotions, which is not conducive to a good attachment style and the establishment of parent-child relationship. Parents' lower head behavior may lead to premature exposure and excessive use of electronic media. On the one hand, the lower head behavior makes parents more irritable and impatient. Some parents will provide electronic media for infants to reduce their children's interference; On the other hand, parents' lower head behavior has caused a bad model for children, and infants and young children lack self-control while imitating their parents' behavior, and are prone to overuse, addiction and other problems. Parental conflict is an important risk factor among the causes of parental phubbing behavior. Early childhood is the foundation period of individual growth and development, and it is the period of the most rapid physical and psychological development of individuals. The results of individual development at this stage have important and far-reaching influences on childhood, adolescence and even the whole life. In order to investigate the impact of parental conflict on children's excessive use of electronic media and its mechanism, 758 parents of young children were investigated by using parent relationship scale, parent phubbing behavior questionnaire, parent-child attachment questionnaire and children's electronic media use questionnaire. The results indicated: 1) There were significant pairwise correlations between parental conflict, parental phubbing behavior, parent-child attachment and children's overuse of electronic media; 2) Parental conflict not only directly predicts children's overuse of electronic media, but also influences children's overuse of electronic media through three indirect paths: the mediating role of phubbing behavior; The mediating role of parent-child attachment; The chain mediating effect of parental phubbing behavior and parent-child attachment. Conclusion: Parental conflict not only has a direct impact on children's overuse of electronic media, but also can affect children's overuse of electronic media through the serial mediating effect of phubbing behavior and parent-child attachment.
Keywords： parental conflict，young children, parental phubbing behavior, parent-child attachment, electronic media overuse

成人对不同表情婴儿面孔注意偏向加工的时间进程特点

陈加[1] 邹燕[1] 七十三[2] 潘运[1]（通讯作者）
1 贵州师范大学心理学院，贵阳，550025，panyun126@163.com
2 内蒙古师范大学心理系，呼和浩特，010010

摘 要 研究采用自由观看任务并结合眼动技术，在严格控制面孔刺激面孔结构的条件下，对不同表情（开心、悲伤、中性）

婴儿面孔注意偏向加工的时间进程特点进行研究。研究共招募 183 名大学生（男 93 名，女 90 名），要求被试自由观看配对的面孔图片，包括三种表情共 96 对图片，每对图片由同性别同表情的婴儿面孔和成人面孔组成，呈现时间为 5000ms。本研究在分析总时程 5000ms 的基础上，还以 500ms 为单位将其切分为 10 个时程以更好地观察注意加工的变化特征。总时程分析结果发现，相较于开心和悲伤的婴儿面孔，中性婴儿面孔注意偏向值最大，表现出最大化的效应。切分时程的分析结果发现，三种表情的注意偏向轨迹随着时间的增加分别呈现出不同的趋势。首先，在中性表情条件下，在注意加工初始阶段（0-500ms，500-1000ms）表现出对中性成人面孔的注意偏向，但在 1000ms 到 3000ms 之间注意偏向转向中性婴儿面孔，且在 1500-2000ms 下注意偏向值最大，表现出中性婴儿面孔注意偏向最大化效应。第二，在快乐表情条件下，注意偏向仅在 1500-2000ms 阶段偏向婴儿面孔，其余时程上均偏向成人面孔。第三，在悲伤表情条件下，注意偏向仅在 0-500 ms 阶段偏向婴儿面孔，其余时程中均偏向成人面孔。同时，女性对婴儿面孔的注意偏向更大，但女性和男性在表情上无显著差异。本研究结果表明，在注意加工的不同阶段，成人对婴儿面孔的注意偏向受表情的调节。具体来说，在早期的注意加工中会对悲伤婴儿面孔产生注意偏向；而在晚期注意维持的加工阶段对开心和中性婴儿面孔都存在注意偏向。但相较于其他表情，中性婴儿面孔注意偏向值最大，表现出最大化效应。本研究结果提示，成人对不同表情婴儿面孔注意偏向的加工是动态的，且在晚期注意加工中会出现中性婴儿面孔注意偏向最大化效应。
关键词 时间进程，注意偏向，面孔表情，婴儿面孔，眼动技术

The Characteristics of Time Course Processing of Adults' Attentional Bias Toward Infant Face with Different Expressions

Chen Jia[1], Zou Yan[1], ShiSan Qi[2], Pan Yun[1]
[1]School of Psychology, Guizhou Normal University, Guiyang, China, 550025
[2]School of Psychology，Inner Mongolia Normal University，Hohhot，010010

Abstract: The study investigated the characteristics of time course processing of attentional bias toward infant faces with different expressions (happy, sad, and neutral) using a free-viewing task combined with an eye-movement technique, under the condition of strictly controlling the face structure of the face stimuli. A total of 183 university students (93 males and 90 females) were recruited to the study, and were asked to freely view paired face pictures, including 96 pairs of pictures of three expressions, each pair of pictures consisted of an infant face and an adult face of the same sex and with the same expression, with a presentation time of 5,000 ms. In addition to analyze the total time course of 5,000 ms, the total time course of 5,000 ms was divided into 10 time courses by units of 500 ms in order to better observe the changing characteristics of attentional processing. The results of the total time course have found that attentional bias toward the neutral infant faces showed the strongest values of attentional bias compared to happy and sad infant faces, showing the strongest attentional bias effect of neutral infant facial expression. The results of the split time courses have found that the trajectories of attention bias of the three expressions showed different trends with the increase of time respectively. First, in the neutral expression condition, an attentional bias toward adult faces was shown in the initial stages of attentional processing (0-500ms, 500-1000ms), but the attentional bias was toward infant faces from 1000ms to 3000ms, and the value of the attentional bias was the strongest at 1500-2000ms, showing the strongest effect of attentional bias toward neutral infant faces. Second, in the happy expression condition, the attentional bias was toward infant faces only during the 1500-2000ms phase, and toward adult faces on the rest of the time courses. Third, in the sad expression condition, attentional bias toward infant faces was only in the 0-500 ms, but toward adult faces for the rest of the time course. Meanwhile, females showed a greater attentional bias toward infant faces, but there was no significant difference between females and males on expressions. The results of the present study suggest that adult attentional bias toward infant faces is moderated by expressions at different stages of attentional processing. Specifically, an attentional bias toward sad infant faces was observed during the early attentional processing; while an attentional bias toward both happy and neutral infant faces were showed during the late attentional maintenance stage of processing. However, compared to the other expressions, the neutral infant face had the strongest value of attentional bias, showing the strongest effect of neutral infant facial expression. The results of the present study suggest that the processing of adults' attentional bias toward infant faces with different expressions is dynamic and that the strongest effect of attentional bias toward neutral infant faces occurs in the late attentional processing.
Keywords：the time processing, attentional bias, facial expressions, infant faces, eye-tracking

向死而生：死亡提醒对炫耀性亲社会行为的影响

文倩[1] 彭雪映[1] 张溶坤[1] 马金良[1] 尹忠泽[1]
1 山西师范大学教育科学学院，太原，030000，1059328061@qq.com

摘 要　基于恐惧管理理论，当个体感受到死亡威胁时便会启动心理防御机制（文化世界观、自尊和亲密关系等）以减轻或消除由死亡威胁产生的焦虑感。以往研究中发现亲社会行为能有效缓解死亡焦虑，个体在经历死亡提醒后会更愿意从事亲社会行为，更加愿意参与有助于塑造个体在他人心目中的形象、能够向他人公开展示的炫耀性亲社会行为。本研究欲探讨死亡提醒对炫耀性亲社会行为有何影响。选取炫耀性亲社会行为中具有代表性的炫耀性捐赠行为来探讨死亡提醒对炫耀性亲社会具体行为的影响。实验采用 2（死亡提醒、牙痛提醒）×2（公开承认、不公开承认）的被试间实验设计，选取 18-30 岁之间的成人被试 130 名，自变量为死亡提醒启动情况和是否公开承认，因变量为被试的捐赠意愿和捐赠金额等。实验结果表明，在死亡提醒启动情况下，公开承认组被试的捐赠金额

(M=63.74,SD=23.98)高于不公开承认组(M=43.50, SD=21.89),且具有显著差异(F(1,123)=12.215, p=0.001)。死亡提醒使个体更愿意从事炫耀性捐赠行为，并且在捐赠行为被公开承认（具有炫耀性）时，经历死亡提醒的个体捐赠意愿更高且捐的钱更多。本研究结果表明，死亡提醒对个体的炫耀性亲社会行为有促进作用，死亡提醒会让个体经历痛苦，但也提供了可以重新审视自己行为和内心的机会，正确的面对生活中重大事故带来的死亡威胁。
关键词　死亡提醒，炫耀性亲社会行为，焦虑

Being Towards Death: The Influence of Mortality Salience on Conspicuous Prosocial Behavior

Wen Qian[1]　Xueying Peng[1]　Rongkun Zhang[1]　Jinliang Ma[1] Zhongze Yin[1]
1 College of Education Science, Shanxi Normal University, Taiyuan, 030000, 1059328061@qq.com

Abstract: According to terror management theory, people are anxious because they realize that death is inevitable, so they construct a series of defense mechanisms (cultural worldview, self-esteem, intimate relationships, etc.) to deal with death anxiety. These defense mechanisms are activated when individuals feel threatened by death in order to reduce or eliminate the resulting anxiety. The study found that prosocial behavior can effectively alleviate death anxiety, so experiencing mortality salience will affect individual prosocial behavior. We think that the prosocial behavior that helps to shape the image of the individual in the eyes of others and can be publicly displayed to others is conspicuous, and it is called conspicuous prosocial behavior. The purpose of this study is to explore the influence of mortality salience on conspicuous prosocial behavior. This study designed the experiment about conspicuous donation to study the influence of death reminder on conspicuous prosocial behavior , and to explore the influence of death reminder on conspicuous prosocial behavior.The experiment is a 2 (mortality salience vs control group) ×2 (public admission vs non-public admission) inter-subject experimental design,The independent variables were the activation of the death reminder and whether it was publicly acknowledged or not, and the dependent variables were the willingness to donate and the amount of donation.The experimental results showed that the donation amount of the public acknowledgment group(M=63.74, SD=23.98) was higher than that of the non-public acknowledgment group(M=43.50, SD=21.89) when the death reminder was initiated, and there was a significant difference(F (1, 123)=12.215, p=0.001).Death reminders make individuals more willing to engage in ostentatious donation behavior, and individuals who experience death reminders are more willing to donate and donate more money when the donation behavior is publicly acknowledged . The results of this study suggest that death reminders can promote individuals' conspicuous prosocial behavior. Death reminders can cause individuals to experience pain, but also provide an opportunity to re-examine their behavior and heart.

Keywords: mortality salience, conspicuous prosocial behavior,anxiou

家庭环境对研究生抑郁的纵向影响：家庭支持的调节作用与心理弹性的中介作用

任泯璇[1,2] 宋静静[1,2] 李林[1,2]（通讯作者）
1 中国地质大学（武汉）教育研究院心理学系，武汉，430074
2 中国地质大学（武汉）心理科学健康研究中心，武汉，430074，lilin@cug.edu.cn

摘 要 研究表明研究生群体的抑郁水平是普通人群的六倍之多，抑郁情绪不仅会影响研究生个体的生活质量，还会损害其社会认知功能。生态系统理论认为在微系统中，家庭对个体的影响力最大，持续时间较长，良好的家庭环境能对个体产生更多积极影响和较低的抑郁水平。在家庭环境对研究生群体抑郁情绪的影响过程中，以往的研究认为家庭支持和心理弹性或许可以分别作为一种保护因素和积极品质起缓冲作用，并具有一定的稳定性。基于此，本研究选取纵向追踪设计，以研究生群体为研究对象，采用家庭环境量表、抑郁自评量表、领悟社会支持量表和心理弹性量表收集两次间隔一年的数据，系统考察研究生家庭环境与抑郁之间的纵向联系、家庭支持在其中的潜在调节作用和心理弹性的潜在中介作用以及其作用是否存在跨时间的稳定性，有效的研究对象 1223 名（Mage=22.95,SDage=1.93,女性 593 人，博士研究生 136 人）。以两个时间点得到的数据分别检验家庭支持的调节作用和构建心理弹性的半纵向中介模型，结果显示：（1）研究生抑郁情绪随时间显著增加，家庭支持和心理弹性则显著降低；（2）家庭环境、家庭支持和心理弹性三者间显著正相关，分别与抑郁显著负相关；（3）家庭支持的调节作用在两个时间点上均显著，具体为 T1 家庭环境×T1 家庭支持对抑郁的负向预测作用显著(β=-0.056，p＜0.05)，T1 家庭环境×T2 家庭支持对抑郁的负向预测作用同样显著(β=-0.080，p＜0.01)，说明家庭支持的调节作用具有跨时间的稳定性；（4）半纵向中介模型拟合良好（χ^2 /df=12.321，CFI=0.98，TLI=0.93，RMSEA=0.096，SRMR=0.029），具体来说 T1 心理弹性的中介效应为 69.49%，T2 心理弹性的中介效应为 74.14%。研究结果说明对于研究生而言，良好的家庭环境能缓解个体抑郁水平，不良的家庭环境则会加重个体抑郁，同时家庭支持在其中起调节作用，心理弹性起中介作用。研究生个体通过发掘或培养自己的积极心理品质——心理弹性，能够提高积极情绪，增加个体内部资源和对自我的积极认知，缩短心理应激期，从而削弱不良家庭环境对抑郁情绪的消极影响。
关键词 家庭环境，研究生，抑郁，心理弹性，家庭支持

The longitudinal influence of family environment on depression in graduate students: the moderating role of family support and the mediating role of mental resilience

Ren M.[1,2] ,Song J.[1,2], Li L.[1,2(corresponding author)]
1 Department of Psychology, China University of Geosciences, Wuhan , China
2 Health Research Center of Psychological Sciences, China University of Geosciences, Wuhan, China

Abstract：Research shows that the level of depression in graduate students is six times higher than that in the general population. Depression not only affects the quality of life of graduate students, but also damages their social cognitive function. The Ecological Systems Theory holds that family has the greatest influence on individuals and lasts for a long time in Microsystems. A good family environment can produce more positive

influences on individuals and lower depression. In the process of the influence of family environment on the depression of graduate students, previous studies suggested that family support and psychological resilience may act as a protective factor and a buffer of positive qualities, respectively, and have a certain stability. Based on this, the longitudinal tracking design was selected in this study. The Family Environment Scale, Self-rating Depression Scale, Perceived Social Support Scale and The Connor-Davidson Resilience Scale were used to collect data one year apart for two times. The longitudinal relationship between family environment and depression of graduate students, the potential moderating role of family support and the potential mediating role of mental resilience, as well as whether its effects are stable across time, were systematically investigated. 1223 effective research objects (Mage=22.95,SDage=1.93, 593 women, and 136 doctoral students) were investigated. The data obtained at two time points were used to test the moderating effect of family support and construct a semi-longitudinal mediation model of mental resilience. The results showed that: 1) Depression increased significantly over time, while family support and mental resilience decreased significantly; 2) Family environment, family support and mental resilience were positively correlated with depression, and negatively correlated with depression; 3) The moderating effect of family support was significant at both time points, T1 family environment ×T1 family support (β=-0.056, $p < 0.05$) and T1 family environment ×T2 family support (β=-0.080, $p < 0.01$) both had a significant negative predictive effect on depression. It shows that the moderating effect of family support is stable across time; 4) The semi-longitudinal mediating model was well fitted ($\chi2$ /df=12.321, CFI=0.98, TLI=0.93, RMSEA=0.096, SRMR=0.029). Specifically, the mediating effect of T1 mental resilience was 69.49%, and that of T2 mental resilience was 74.14%. The results show that for postgraduates, a good family environment can alleviate the level of individual depression, while a bad family environment will aggravate the level of individual depression. Meanwhile, family support plays a moderating role and psychological resilience plays an intermediary role. By exploring or cultivating their own positive psychological quality -- psychological resilience, graduate students can improve their positive emotions, increase their internal resources and positive self-cognition, shorten the psychological stress period, and weaken the negative impact of bad family environment on depression.
Keywords：Family environment, Graduate students, Depression, Mental resilience, Family support

社会生态系统理论视角下脑卒中首发失能老年患者心理痛苦的质性研究

余豪如[1]　张玲玲[2]（通讯作者）　孙妞妞[1]　于雪姣[1]

1 河南科技大学护理学院，洛阳，471000

2 河南科技大学第一附属医院护理部，洛阳，471003，lingling7010@126.com

摘　要　**目的**　基于社会生态系统理论视角探讨脑卒中首发失能老年患者住院期间的心理痛苦，了解其影响因素，为制订针对性的护理决策提供参考。**方法**　采用现象学研究方法，基于社会生态系统理论制订访谈提纲，对 17 例脑卒中首发失能老年患者进行半结构式深度访谈，运用 Colaizzi 七步分析法进行资料分析及主题提炼。**结果**　脑卒中老年患者首发失能后心理痛苦体验及影响因素可归纳为 3 个主题，15 个亚主题：微观系统—心理应激与个人调适；中观系统—支持的双向作用；宏观系统—支持与需求构成反差。**结论**　脑卒中首发失能老年人存在心理痛苦且受到多方面的影响，未来可基于社会生态系统理论制订系统性干预策略，促进患者心理调适。

关键词　脑卒中，心理痛苦，老年人，首发失能，社会生态系统

Psychological distress among initial disabled elderly patients with stroke based on the society ecosystems theory: a qualitative study

YU Hao-ru [1] ZHANG Ling-ling [2]（Corresponding author） SUN Niu-niu [1] YU Xue-jiao[1]

1. School of Nursing, Henan University of Science and Technology, Luoyang Henan 471000, China;

2. Nursing Department of the First Affiliated Hospital of Henan University of Science and Technology, Luoyang henan 471003, China，lingling7010@126.com

***Abstract*：** **Objective** To explore the experience and influencing factors of psychological distress among initial disabled elderly patients with stroke during hospitalization based on the society ecosystems theory and to provide reference for targeted interventions. **Methods** Using phenomenological research method, Questions were set based on the society ecosystems theory before the interview，then a semi-structured interview was conducted on 17 initial disabled elderly patients with stroke. Data were transcribed and analyzed using Colaizzi's method. **Results** Three major themes and fifteen sub-themes were identified: microsystem-psychological stress and personal adjustment, mesosystem-the two-way role of support, macrosystem-a contrast between support and demand. **Conclusion** The initial disabled elderly patients with stroke have psychological distress and are affected by many aspects，In the future, systematic intervention strategies can be developed based on social ecosystem theory to promote psychological adjustment of patients.

***Keywords*：** stroke,psychological distress,elderly,initial disabled,society ecosystems theory

自闭症谱系障碍儿童的奖赏加工机制探索

赵雅倩 [1]

1.福建医科大学健康学院应用心理学系，福州 350108，zhaoyaqian@126.com

摘 要 自闭症谱系障碍(Autism Spectrum Disorder，ASD)是一种在婴幼儿时期就有所表现、以社会交往障碍为主要特征的神经发育障碍 ，主要表现为社会交往缺陷和刻板重复行为以及狭窄的兴趣、活动。社会动机假说认为，ASD 个体在社会动机方面存在早期缺陷，阻碍了他们关注和学习社会信息，导致无法获得社会经验，进一步破坏社会认知和社会技能的发展。关于 ASD 个体的奖赏加工缺陷是具有特异性，即奖赏加工缺陷仅仅表现在社会性刺激上；还是具有广泛性，即无论是对社会刺激还是非社会刺激均存在奖赏加工缺陷，存在一定的争论。无论是选择不同的年龄阶段的被试、不同认知需求的范式还是不同的奖赏材料，都可能会使结果存在差异。因此研究拟采用社会、金钱激励延迟范式结合近红外光谱成像（fNIRS）技术，探究学龄期 ASD 儿童奖励处理的大脑功能机制。基于前人研究，实验的创新点有：1.实验材料为动态视频，击中时社会性刺激为一个人表现出快乐的面部表情、竖起大拇指和口头表扬的视频。2.进一步检验奖赏加工的两个阶段，即预期和结果处理阶段是否在 ASD 个体中都存在缺陷。3.相较于其他脑成像研究技术，fNIRS 是一种非侵入式脑功能成像技术，且对运动噪声的容忍性强，更合 ASD 群体，且后期可以在真实社交情景下探讨 ASD 儿童对社会和非社会刺激的奖赏加工。4.有研究发现对金钱和社会奖励的预期对男性和女性大脑中边缘结构的激活是不同的，因此研究会注意对比 ASD 男孩和女孩的大脑激活情况。

关键词 自闭症谱系障碍，近红外光谱成像，激励延迟

Exploring reward processing mechanisms in children with autism spectrum disorders

Zhao Yaqian[1]
1. Department of Applied Psychology, School of Health,
Fujian Medical University, Fuzhou, 350108

Abstract：Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder that manifests itself in infancy and early childhood and is characterized by impairments in social interaction, which are characterized by deficits in social interaction and stereotyped repetitive behaviors, as well as a narrow range of interests and activities. The social motivation hypothesis suggests that individuals with ASD have early deficits in social motivation that prevent them from attending to and learning from social information, resulting in a failure to acquire social experiences that further undermine the development of social cognition and social skills. There is some debate as to whether reward processing deficits in individuals with ASD are specific, i.e., reward processing deficits are manifested only with social stimuli, or generalized, i.e., reward processing deficits are present for both social and nonsocial stimuli. Both the choice of subjects of different ages, paradigms with different cognitive demands, and different reward materials may make a difference in the results. Therefore, the study proposes to use a social and monetary incentive delay paradigm combined with near-infrared spectroscopic imaging (fNIRS) technology to investigate the functional brain mechanisms of reward processing in school-aged children with ASD. Based on previous studies, the innovations of the experiment include:1. The experimental material is a dynamic video with social stimuli at the time of hitting as a video of a person showing a happy facial expression, thumbs up, and verbal praise.2. To further test whether both stages of reward processing, i.e., the anticipation and the outcome processing stages, are deficient in ASD individuals.3. Compared to other brain imaging research techniques, fNIRS is a non invasive functional brain imaging technique compared to other brain imaging research techniques and is more tolerant of motion noise, making it more suitable for the ASD population and allowing for later exploration of reward processing of social and non-social stimuli in children with ASD in real social situations.4. It has been found that anticipation of monetary and social rewards activates limbic structures in the brains of males and females differently, and therefore attention will be paid to comparing the activation of the brains of boys and girls with ASD in the study.

Keywords：Autism Spectrum Disorder，fNIRS，Incentive to delay tasks

自闭症损害面孔知觉？自闭特质的不同子维度与类面孔错觉的关系

王珂瑜[1]　阮泳华[1]　石昕昱[1]　温喜云[1]　周柳芳[2]（通讯作者）　孟明[1]（通讯作者）
1 华南师范大学心理学院，广州，510631，mingmeng@m.scnu.edu.cn
2 上海外国语大学大学国际工商管理学院，上海，201620，liufang2022@shisu.edu.cn

摘 要　尽管自闭症人群存在面孔加工缺陷的这一问题被广泛讨论，但许多面孔加工相关的研究并未发现自闭症和正常人群在面孔加工能力上的显著差异。自闭症的异质性可能是导致这些冲突结果的一个关键混

淆因素，也是近年来备受关注和研究的话题。自闭症谱系问卷（Autism Spectrum Quotient，AQ）是最常使用的自闭特质自评量表，其二分性在临床和亚临床人群的心理测量学研究中得到了重复验证，具体表现为：使用 AQ 所测得的自闭特质可以被聚类或因子分析为社交特质（AQ-social）和刻板特质（AQ-rigidity）两部分，这为使用大样本研究自闭症不同子维度对面孔加工的影响机制提供了机会和工具。本研究创新性地使用面孔空想性错视，即在非面孔的物体中看到面孔的错觉，来研究不同自闭特质是如何影响面孔知觉的。研究结果表明，自闭特质的两个子维度与类面孔错觉之间的关系是相反的（N = 503）。在社会特质子维度得分较高的个体（在社交沟通方面自闭程度更高）更难看到虚幻的面孔（r = -.127, p < .001），而在刻板特质子维度得分较高的个体（在刻板性和模式化方面自闭程度更高）更容易受到面孔错觉的影响（r = .136, p < .001）。进一步地，中介模型分析结果表明，视觉表象这一高水平的认知能力在自闭特质和面孔知觉中起到中介作用，这表明自闭症在面孔加工相关过程中的不一致表现可能与一些潜在基础认知功能的失调有关。本研究暗示了自闭症异质性研究的重要意义，对自闭症亚型更为深入的分类研究将能够启发并推动自闭症的临床诊断和干预。

关键词　自闭特质，面孔认知，面孔空想性错视，视觉表象，自闭症异质性

Autism impairs face perception? Opposite associations between different subclusters of autistic traits and illusory face recognition

Wang Keyu[1]　Ruan Yonghua[1]　Shi Xinyu[1]　Wen Xiyun[1]　Meng Ming[1]　Zhou Liu-Fang[2]

1 School of Psychology, South China Normal University, Guangzhou, China, 510631

2 School of Business and Management, Shanghai International Studies University, Shanghai, China, 201620

Abstract：Despite the widely discussed notion that facial processing deficits are present in autism, many studies have failed to provide evidence for qualitative impairments. Individual differences within the autistic population are likely to be a key confounding factor. As the most commonly used self-report measure of autistic traits, the Autism Spectrum Quotient (AQ) has been repeatedly validated in psychometric studies among clinical and subclinical populations. The dichotomy of the AQ specifically manifests as two clusters or factors: social traits (AQ-social) and rigidity traits (AQ-rigidity), providing an opportunity to conduct large-sample research on how heterogeneous autistic factors affect face perception. In this study, we innovatively used face pareidolia, the illusion of seeing faces in non-face objects or places, to investigate how different autistic traits affect face perception. Our results showed that the relationship between two AQ subclusters and illusory face detection were in opposite directions (N = 503). Individuals with higher scores on AQ-social trait (more autistic in social and communication aspects) were less likely to see illusory faces (r = -.127, p < .001), whereas those with higher scores on AQ-rigidity trait (more autistic in rigidity and pattern aspects) were more susceptible to the face pareidolia illusion (r = .136, p < .001). Further model analysis showed that high-level cognitive abilities such as imagination could mediate the relationship between autistic personality and face perception, indicating that there are comprehensive mechanisms underlying the inconsistent manifestations of autism in face-related processes. This research highlights the significance of studying heterogeneity in autism. Further studies on subtypes of autism can inspire and advance clinical diagnosis and interventions for autism.

Keywords：Autistic traits, face recognition, face pareidolia, visual imagery vividness, heterogeneity of autism

家庭累积风险与初中生自伤行为：一个有调节的中介模型

赵晗序 齐冰（通讯作者）
河北大学教育学院，保定，071002，qibing@hbu.edu.cn

摘 要：目的：自伤作为自杀行为的重要预测因素之一，对个体发展具有较大的威胁性，且多发于初中阶段。基于人际风险模型，家庭因素在自伤行为发展中扮演重要角色，但其潜在机制还有待深入探讨。本研究基于累积风险模型和体验回避模型构建了有调节的中介模型，以探讨家庭累积风险与初中生自伤行为的关系，体验回避的中介作用及认知灵活性的调节作用。方法：采用累积家庭风险量表、接纳与行动问卷第二版、青少年自我伤害行为问卷及认知灵活性量表对 684 名初中生进行测查。结果：（1）自伤行为的性别差异显著，女生得分显著高于男生；（2）家庭累积风险与自伤行为、体验回避显著正相关,与认知灵活性显著负相关；（3）在控制性别和年级条件后，家庭累积风险对初中生自伤行为有显著的正向预测作用，体验回避在二者中间起中介作用；(4)认知灵活性调节了体验回避在家庭累积风险和自伤行为之间的中介效应，且前后半路径均有发生，即低认知灵活性群体中，这两种效应都更为显著。结论：家庭累积风险可通过体验回避影响初中生自伤行为，且认知灵活性对中介模型起到了调节作用。本研究证实了认知灵活性对体验回避和自伤行为干预的重要作用，研究结果为自伤行为的预防和干预提供新的视角。

关键词：初中生，家庭累积风险，自伤，体验回避，认知灵活性

The Effect of Cumulative Family Risk on Junior Middle School Students' Self-injury: A Moderated Mediating Model

ZHAO Han-xu, QI Bing
Hebei University, Baoding, 071002，China

Abstract: Self injury, as one of the important predictive factors for suicide behavior, poses a significant threat to individual development and is more common in middle school. Based on the Interpersonal risk model, Family factors play an important role in self-injury, but its potential mechanism still needs to be explore. Based on the cumulative family risk model and experiential avoidance model, this study designed a moderated mediation model to explore the relationship between cumulative family risk and self-injury in junior middle school students. Methods: 684 junior middle school students were investigated with the Cumulative Family Risk Scale, Acceptance and Action Questionnaire- II, Adolescent Self-Rating Life Events Check List and Cognitive Flexibility Inventory. Results:(1) self-injury scores had significant gender differences, girls scored significantly higher than boys.(2) Cumulative family risk was positively correlated with self-injury and experiential avoidance, negatively correlated with cognitive flexibility; (3) After controlling the gender and grade, cumulative family risk positively predicted self-injury among junior middle school students, experiential avoidance played a mediating role in the relationship between cumulative family risk and self-injury. (4) Cognitive flexibility moderated the mediating process of experiential avoidance between cumulative family risk and self-injury, and both front and back paths occurred. In the group with low cognitive flexibility, both effects are more significant. Conclusion: cumulative family risk affects self-injury through experiential avoidance, and cognitive flexibility moderated the the mediating effect.This study confirmed the important role of cognitive flexibility in intervening in experiential avoidance and self-injury. The results provide new ideas for the prevention and intervention of self-injury.

Keywords：Junior middle school students, Cumulative family risk, Self-injury, Experiential avoidance, Cognitive flexibility

网络受欺凌和青少年亲欺凌旁观行为的关系：焦虑抑郁和道德推脱的多重中介作用

徐梓唯[1] 于明申[1] 杨凌青[1] 鲍振宙[1]（通讯作者）
[1]赣南师范大学教育科学学院 赣州 341000 通讯作者 E-mail：baozhenzhou0819@163.com
*基金项目：教育部人文社会科学研究青年基金项目（编号：21YJC190001）；
江西省社会科学“十四五”（2021 年）基金项目（编号：21JY48）

摘 要 网络受欺凌是在网络上受到他人恶意伤害的重大压力事件，会使受害者产生焦虑、孤独和适应不良等问题。由于网络具有匿名性和间接性的特点，网络欺凌造成的负面后果相比实际欺凌更加严重。前人研究大多关注网络欺凌对个体情绪及认知的负面影响，但较少研究关注在欺凌情境中的角色转变。亲欺凌行为是指个体在目睹他人受欺凌时，煽风点火、协助欺凌和冷眼旁观等行为的总称，这直接增加欺凌的强度和持续时间。本研究基于挫折攻击理论，认为遭受网络欺凌的个体，会显著增加个体现实的攻击行为。而根据认知—情感路径和社会学习理论，遭受网络欺凌的个体会显著提升焦虑抑郁水平，同时会认为欺凌在道德上是正确的，从而降低自身道德水平，并在目睹欺凌事件时更多地做出亲欺凌行为。因此本研究纳入情感因素（焦虑抑郁）和认知因素（道德推脱），探讨网络受欺凌者向消极欺凌旁观者的转变机制。

本研究使用网络受欺凌问卷、焦虑抑郁量表、道德推脱问卷和亲欺凌行为问卷对安徽、江西等地 35 个班级 1233 名青少年（男生 571 人，占比 46.3%，M_{age} = 15.25，SD = 1.31）进行施测。结果显示：（1）网络受欺凌显著正向预测亲欺凌行为（$\beta = 0.291$，$p < 0.001$）；（2）焦虑抑郁和道德推脱在网络受欺凌和亲欺凌行为中起完全中介作用，具体路径为：（a）高网络受欺凌显著正向预测焦虑抑郁（$\beta = 0.601$，$p < 0.001$），而高焦虑抑郁显著正向预测亲欺凌行为（$\beta = 0.085$，$p = 0.006$），中介效应为 0.051，占总效应 18.3%；（b）高网络受欺凌显著正向预测道德推脱（$\beta = 0.622$，$p < 0.001$），高道德推脱显著正向预测亲欺凌行为（$\beta = 0.302$，$p < 0.001$），中介效应为 0.188，占总效应 67.6%；（c）高焦虑抑郁显著正向预测道德推脱水平（$\beta = 0.151$，$p = 0.008$），且焦虑抑郁与道德推脱在网络受欺凌和亲欺凌行为之间起链式中介作用，中介效应为 0.027，占总效应 9.8%。本研究探讨了网络受欺凌者向欺凌消极旁观者转变的潜在机制，对未来介入、预防欺凌事件，减少亲欺凌行为有一定参考意义。
关键词 网络受欺凌，焦虑抑郁，道德推脱，亲欺凌行为

The Relationship between Cyber-victimization on Adolescents' Pro-bullying Bystander Behavior: Multiple Mediating Effects of Anxiety Depression and Moral Disengagement

Xu Ziwei[1] Yu Mingshen[1] Yang Lingqing[1] Bao Zhenzhou[1] (Corresponding author)
School of Educational Science, Gannan Normal University, Ganzhou, 341000

Abstract Cyber-victimization is a significant stressful event of being maliciously victimized by another person on the Internet, which can cause anxiety, loneliness and maladjustment in the victim. Due to the anonymity and

indirectness of the Internet, the negative consequences of cyber-victimization are more serious compared to actual victimization. Most previous studies have focused on the negative emotional and cognitive effects of cyber-victimization on individuals, but fewer studies have focused on role change in bullying situations. Pro-bullying behavior is a general term for joining the bully, supporting the bully through cheering or laughing, and remaining uninvolved when individuals witness others being bullied, which directly increases the intensity and duration of bullying. Based on the frustration-aggression theory, this study proposed that individuals who are subjected to cyber-victimization significantly increase individual realistic aggressive behaviors. And based on the cognitive-affective pathway and social learning theory, individuals who suffer from cyber-victimization significantly increase their anxiety and depression, as well as perceive bullying as morally right, thus lowering their own morality, which in turn engaging in more pro-bullying behaviors when witnessing bullying incidents. Therefore, this study incorporated affective (anxiety-depression) and cognitive (moral disengagement) factors to explore the mechanism of cyber-victimization individuals' transition to negative bullying bystanders.

In this study, a questionnaire was administered to 1233 adolescents (571 boys, 46.3%, M_{age} = 15.25, SD = 1.31) in 35 classes in Anhui and Jiangxi. Cyber-victimization questionnaire, anxiety-depression scale, moral disengagement questionnaire, and pro-bullying behavior questionnaire were selected. Data was analyzed using SPSS 26.0 and Mplus 8.0. The results showed that: (1) cyber-victimization have insignificant direct effects on pro-bullying behaviors, but significant indirect effect; (2) anxiety-depression and moral disengagement mediated the association between cyber-victimization and pro-bullying behaviors, which contained three significant mediating pathways: the separate mediating effects of (a) anxiety-depression and (b) moral disengagement, and the chain mediating effect of (c) anxiety-depression and moral disengagement. The total effect of the model is 0.278 and the mediation effects were 0.051, 0.188, and 0.027 respectively. These indirect effects accounted for 95.68% of the total effect. Conclusion: The present study reveals the potential mechanisms of cyber-victimization individuals' shift to bullying passive bystanders, which is informative for future intervention and prevention of bullying incidents and reduction of pro-bullying behaviors.

Keywords: cyber-victimization, anxiety-depression, moral disengagement, pro-bullying behavior

儿童路线学习中的前向测试效应作用

李甜甜　马小凤（通讯作者）

甘肃省行为与心理健康重点实验室，西北师范大学心理学院，兰州，730070，psymaxiaofeng@126.com

摘 要　前向测试效应是指与学习后重复学习或未做任何事情相比，对先前学过的信息进行测试有助于新信息的编码和提取。相对于目标信息,对非目标信息的测试被称为前置测试。为检验前置测试是否可以促进儿童对新路线信息的学习，将 209 名一、三、五年级儿童随机分为有前置测试的实验组（测试组）和无前置测试的对照组（重复学习组）。采用 Sketchup 专业作图软件建模，Lumion 软件进行渲染和编辑，搭建三维视觉空间背景中的游乐园场景，场景包含 8 个游乐项目地标形成 4 条不同方向的路线信息。儿童分别学习场景中的 4 条路线信息，最终进行目标信息即路线 4 的地标序列测试。结果发现，相比重复学习，对路线 1-3 进行前置测试能够提高儿童对路线 4（新路线信息）的学习。非目标信息正确回忆率的趋势发现，前置测试不断提高儿童的正确回忆率，表明儿童路线学习中前向测试效应的作用。中介分析结果表明对五年级儿童而言，前置测试可能是通过减少前摄干扰和心智游移而增强对路线 4 学习的记忆。对一、三年级儿童而言，测试更有可能是通过减少心智游移而不是抑制前摄干扰来促进对路线 4 的学习，即心智游移在儿童的路线学习中作用更大。这与先前在词单信息材料的研究结果不同，表明路线学习中抑制前摄干扰的能力发展相对较晚。结果揭示了在不同发展阶段，前向测试效应在路线学习中存在不同的起效机制。

关键词　路线学习，前置测试，儿童，心智游移，前摄干扰

The forward testing effect in children's route learning

LI Tiantian, MA Xiaofeng
(*Key Laboratory of Behavioral and Mental Health of Gansu province, Lanzhou 730070, China*)
（*School of Psychology, Northwest Normal University, Lanzhou 730070, China*)

Abstract：The forward testing effect refers to the fact that testing previously learned information facilitates the encoding and extraction of new information, compared to relearning or doing nothing after learning. Testing of non-target information relative to target information is called interpolated testing. To test whether interpolated testing can promote children's learning of new route information, 209 children in grades 1, 3, and 5 were randomly divided into an experimental group with interpolated testing (test group) and a control group without interpolated testing (repeated learning group). Sketchup professional mapping software was used for modeling, and Lumion software was used for rendering and editing to build the amusement park scene in the three-dimensional visual space background. The scene contains 8 amusement project landmarks to form 4 routes in different directions. Children learn the four routes information in the scene respectively, and finally carry out the landmark sequence test of the target information route 4. It was found that interpolated testing routes 1-3 improved children's learning of route 4 (new route information) compared to repeated learning. The results of non-target information recall show that the interpolated testing can continuously improve the correct recall rate of children, indicating the role of forward test effect in children's route learning. The results of mediation analysis suggest that for fifth graders, interpolated testing may enhance the memory of Route 4 learning by reducing proactive interference and mind wandering. For first and third graders, the test is more likely to promote route 4 learning by reducing mind wandering than by suppressing proactive interference, i.e. mind wandering plays a greater role in children's route learning. This is different from previous learning results in the vocabulary information materials, suggesting that the ability to suppress proactive interference in route learning develops is a relatively late-maturing phenomenon. The results show that there are different mechanisms of forward testing effect in route learning at different developmental stages.

Keywords：Route learning, Interpolated testing, Children, Mind wandering, Proactive interference

02-P-027

摘 要

本综述旨在分析间歇性爆发障碍（IED）、注意力缺陷多动障碍（ADHD）和行为障碍（CD）之间的关联，尤其是共同风险因素在这些障碍发展过程中的相对重要性。按照《系统综述和元分析首选报告项目》的指导原则，我们从多个数据库中获取了至少研究了其中两种障碍的研究。在获得的 564 篇文献中，有 31 篇被保留下来进行深入分析。从每项研究中提取了研究特点、样本、目的和主要发现。总体而言，研究结果表明：(1)共同的风险因素包括一系列不良童年经历，包括童年时期遭受暴力、早期养育质量差、家庭结构混乱、社会经济背景不利以及教育环境中的问题行为；(2)IED 的发病和维持更多与环境因素而非遗传因素有关，尽管后者的重要性已得到认可；(3)与多动症和儿童发育迟缓症相比，有关 IED 的研究相对有限，留下了许多重大的研究空白。因此，必须倡导对 IED 进行更多的研究，提高人们对 IED 的认识，以弥补现有的差距，为患有这种疾病的人提供更好的支持。

Abstract

This review aims to analyse the associations between Intermittent Explosive Disorder (IED), Attention-Deficit

Hyperactivity Disorder (ADHD), and Conduct Disorder (CD), particularly regarding the relative importance of shared risk factors in the development of these disorders. Studies that examined at least two of these disorders were obtained from multiple databases, following the guidelines of Preferred Reporting Items for Systematic Review and Meta-Analysis. Of the 564 documents obtained, 31 were retained for in-depth analysis. The study characteristics, samples, objectives and main findings were extracted from each study. Overall, the results suggest that (1) the shared risk factors encompass a range of adverse childhood experiences, including childhood exposure to violence, poor quality early parenting, disrupted family structure, socioeconomically disadvantaged backgrounds, and problematic behaviours within educational settings, (2) the causes for the onset and maintenance of IED are more associated with environmental factors than genetic factors, although the importance of the latter is recognised and (3) compared to ADHD and CD, research studies on IED is relatively limited, leave a lot of significant research gaps. It is crucial to advocate for more research and awareness of IED to bridge the existing gaps and provide better support for individuals with this disorder.

基于网络分析的精神疾病症状与行为抑制/激活系统敏感性的关系研究

杨学钧[1]，蔡新璐[1]（通讯作者）

[1]杭州师范大学基础医学院脑科学研究所，杭州，310012

Email: caixinlu@hznu.edu.cn

摘 要　随着社会压力和生活压力的增加，精神疾病和心理障碍已成为一个重大的公共卫生问题。目前，由于客观评估标准不足和发病机制不清等问题，还存在许多的共病精神疾病患者，因此，探究共病患者中不同精神症状之间的关系仍是一个亟待解决的问题。近年来，较多研究表明行为抑制/激活系统（Behavioral Inhibition/Activation System，BIS/BAS）敏感性是许多心理障碍和精神疾病的有效预测指标。同时，网络分析（Network analysis, NA）作为一种新兴的统计测量学方法在心理、社会等学科领域得到广泛应用，它具有通过构建网络模型来探讨症状之间的相互激活关系，并以可视化的方式呈现这些关系的优势。因此，本研究旨在通过网络分析的方法探究 BIS/BAS 与各类精神疾病症状之间的关系。本研究共招募了 963 名大学生，所有被试均完成了 BIS/BAS 敏感性、自闭特质、强迫特质、抑郁症状、焦虑症状和分裂型特质的测量。采用高斯图形模型（Gaussian graphical model, GGM）和扩展贝叶斯信息准则（Extended Bayesian Information Criterion, EBIC）来构建网络模型，共有 21 个网络节点。结果显示，BIS/BAS 敏感性与上述自闭特质问卷、强迫特质问卷、抑郁症状问卷和焦虑症状问卷的各个分量表之间都存在相关关系，在网络中，BIS 和 BAS 分别与焦虑症状分量表“特质焦虑”和自闭特质分量表“对细节的注意力”相关性最强，自助法得到的边权估计值的准确性较好，相关稳定系数为 0.75 以上；特质焦虑症状具有最大的节点强度，是行为抑制/激活系统敏感性和抑郁症状的桥梁节点，两者之间存在间接的联系；在分裂型特质方面，没有发现与 BIS/BAS 有显著的相关性。综上所述，BIS/BAS 敏感性在不同精神疾病症状评估量表的子维度上都有着直接的联系，可以作为未来研究和有效的靶向干预目标，同时，在针对共病精神疾病患者的治疗上具有潜在的临床价值和实践意义。

关键词　行为抑制/激活系统，精神疾病症状，网络分析

Explore the relationship between behavioural inhibition activation system sensitivity and psychiatric symptoms using network analysis

Xue-Jun Yang [1], Xin-Lu Cai[1,*]

[1] *Institute of Brain Science, School of Basic Medicine, Hangzhou Normal University, 310012, Hangzhou*

Abstract:

With the increase in social and life pressures, mental disorders and psychological disorders have become major public health problems. Currently, due to the lack of objective assessment criteria and unclear pathogenesis, many patients still experience co-occurring symptoms of psychiatric disorders. Therefore, exploring the relationship between psychiatric symptoms in comorbid patients remains an urgent issue to be addressed. In recent years, numerous studies have shown that Behavioral Inhibition/Activation System (BIS/BAS) sensitivity is an effective predictor of various psychological disorders and psychiatric diseases, such as anxiety and depression. Meanwhile, network analysis (NA), as an emerging statistical measurement method, has been widely applied in disciplines such as psychology and social sciences. It has the advantage of exploring the mutual activation relationships between symptoms by constructing network models and presenting these relationships in a visualized manner. Therefore, this study aims to investigate the relationship between BIS/BAS and various types of psychiatric symptoms using the method of network analysis. A total of 963 college students were recruited for this study. All subjects completed measures of BIS/BAS sensitivity, autistic traits, obsessive-compulsive traits, depressive symptoms, anxiety symptoms, and schizotypal traits. Gaussian graphical model (GGM) and Extended Bayesian Information Criterion (EBIC) were used to construct the network model with 21 network nodes. The findings revealed significant correlations between BIS/BAS sensitivity and each subscale of the Autistic Traits Questionnaire, Obsessive-Compulsive Traits Questionnaire, Depressive Symptoms Questionnaire, and Anxiety Symptoms Questionnaire mentioned earlier. In the network, BIS and BAS are significantly correlated with the anxiety symptoms subscale "Trait Anxiety" and the autistic traits subscale "Attention to detail", respectively. Additionally, the self-help method demonstrated accurate estimation of marginal weights, with correlation stability coefficients of 0.75 and above. Trait anxiety symptoms were identified as a bridge node between the behavioural inhibition/activation system sensitivity and depressive symptoms, indicating an indirect link between the two. However, no significant correlations were found between BIS/BAS and schizotypal personality. In summary, BIS/BAS sensitivity exhibits direct associations across various sub-dimensions of different symptoms of psychiatric disorders assessment scales. These findings highlight the potential for BIS/BAS sensitivity to serve as a focal point for future research and targeted interventions, offering clinical value and practical relevance in addressing patients with co-morbid psychiatric disorders.

Key words:

Behavioral Inhibition/Activation System, Psychiatric symptoms, Network analysis

大学生社交网站自我呈现对错失恐惧的影响：基于潜增长模型和交叉滞后模型

井玉汝 [1] 王树青 [2]（通讯作者）

[12] 济南大学教育与心理科学学院，山东济南，250022，jingyr961211@163.com

摘 要　数字化时代，虚拟社交网站成为大学生人际互动交往的主阵地，社交网站的匿名性、便利性等特

点为大学生进行自我形象展示和自我形象塑造提供了契机，但也为身心发展尚未成熟的大学生带来了诸多问题，错失恐惧便是常见之一。错失恐惧(Fear of Missing Out, FoMO)是指个体因害怕错过他人的新奇经历或正性经验而产生的一种普遍焦虑。大量研究发现，错失恐惧会导致问题性社交网站使用(Boustead & Flack, 2021; Müller et al., 2020)，降低大学生的自尊、自我评价(Barry et al., 2020)，因此探讨错失恐惧的发展趋势及其影响因素对于维护大学生身心健康发展具有重要意义。自我呈现是大学生使用社交网站的主要动机之一（姚琦，2014），是指个体为了建立或维护自己的形象，通过在社交网站中发布文字、图片、视频等信息的方式，有意或无意改变他人对自己的印象的过程，大学生常用的自我呈现策略包括积极自我呈现和真实自我呈现。根据使用与满足理论、社会支持的主效应模型以及以往研究，积极自我呈现可以正向预测错失恐惧（李静，2020），但是关于真实自我呈现对错失恐惧的影响目前少有研究者探讨。

本研究运用整群抽样的方法选取山东省三所普通高校的 743 名大学生，采用错失恐惧问卷、社交网站自我呈现问卷进行了三次追踪，每次间隔半年，采用 SPSS 26.0 和 Mplus 8.4 进行数据处理。研究一建立潜增长模型，考察大学生错失恐惧在一年内的发展趋势；研究二建立交叉滞后模型，考察大学生社交网站自我呈现与错失恐惧之间的关系，并通过平行发展的潜增长模型进行验证，主要得出以下结论：

（1）大学生的错失恐惧水平在一年之内呈整体下降发展趋势，且存在两种不同的发展轨迹，分别为快速下降轨迹（错失恐惧的初始水平更高，且下降速率更快）和缓慢下降轨迹（错失恐惧的初始水平相对较高，且下降速率较慢）；

（2）交叉滞后模型发现，大学生前一时间点的社交网站积极自我呈现可以显著正向预测后一时间点的错失恐惧，但前一时间点的社交网站真实自我呈现对后一时间点的错失恐惧的预测作用不显著，即积极自我呈现可以正向影响错失恐惧，真实自我呈现对错失恐惧的影响不显著；

（3）平行发展的潜增长模型发现，大学生的积极自我呈现可以显著预测错失恐惧的初始水平和发展速率，但真实自我呈现只能预测错失恐惧的初始水平，对发展速率的预测不显著。即大学生积极自我呈现的发展轨迹可以显著正向影响错失恐惧，真实自我呈现的发展轨迹对错失恐惧的影响不显著。

关键词　错失恐惧，社交网站自我呈现，交叉滞后模型，潜增长模型，大学生

The impact of self-presentation on college students' fear of Missing out on social networking Sites: Based on latent growth model and cross-lagged model

Yuru Jing[1]　Shuqing Wang[2]

[12]School of Education and Psychological Science, University of Jinan, Jinan 250022, China

Abstract：With the advent of the digital age, virtual social networking sites have become the main places for college students to communicate with each other. The anonymity and convenience of social networking sites provide more opportunities for college students to show and build their self-image freely. However, it also brings a lot of problems to college students who are not mature physically and mentally. Fear of missing out is one of the common problems.Fear of missing out is characterized by the desire to stay continually connected with what others are doing. A large number of studies have found that the fear of missing out can lead to problematic use of social networking sites, and lower college students' self-esteem and self-evaluation.Therefore, it is of great significance to explore the development trend and influencing factors of the fear of missing out for maintaining the healthy development of college students. Self-presentation is one of the main motivations for college students to use social networking sites. It refers to the process in which an individual intentionally or unintentionally changes

others' impression of himself by publishing text, pictures, videos and other information on social networking sites in order to establish or maintain his own image. The commonly used self-presentation strategies of college students include positive self-presentation and true self-presentation. According to the use and gratification theory, the main effect model of social support, and previous studies, positive self-presentation can positively predict the fear of missing out . However, few researchers have explored the impact of true self-presentation on the fear of missing out.

In this study, we use the method of cluster sampling, taking the students of three universities in Shandong Province as the research objects.We used the Fear of Missing questionnaire and the social network self-presentation Strategy Questionnaire to measure these college students.The questionnaire was measured every six months and tested three times in total. Then SPSS 26.0 and Mplus 8.4 were used for data processing. First, a potential growth model was established to investigate the development trend of college students' fear of missing out in one year. In study 2, a cross-lagged model was established to investigate the relationship between college students' self-presentation and fear of missing out on social networking sites, and the following conclusions were drawn through the verification of the parallel development potential growth model.

(1) The level of college students' fear of missing out shows an overall downward trend within one year, and there are two different trajectrajectory, namely, the rapid downward trajectory (the initial level of fear of missing out is higher, and the decline rate is faster) and the slow downward trajectory (the initial level of fear of missing out is relatively high, and the decline rate is slower);

(2) The cross-lagged model finds that positive self-presentation on social networking sites at the pre-college time point can significantly and positively predict the fear of missing out at the post-college time point, but the real self-presentation on social networking sites at the pre-college time point has no significant predictive effect on the fear of missing out at the post-college time point, that is, positive self-presentation can positively affect the fear of missing out. The effect of true self-presentation on the fear of missing out was not significant;

(3) The parallel development potential growth model found that the positive self-presentation of college students could significantly predict the initial level and development rate of the fear of missing out, but the true self-presentation could only predict the initial level of the fear of missing out, and the development rate was not significant. That is, the development trajectory of positive self-presentation can significantly positively affect the fear of missing, while the development trajectory of true self-presentation has no significant impact on the fear of missing.

Keywords：Fear of Missing out, self-presentation on social networking sites, cross-lagged model, Latent Growth model, college students

2-4 岁儿童数字映射发展研究

朱俊[1,2] 杨环瑜[1] 王淳[1] 蔡雪姣[1] 潘运[1]（通讯作者）

1 贵州师范大学，贵阳，550025, 通讯作者 E-mail：panyun129@163.com

2 西昌学院，西昌，615000

摘 要 人们传递数字信息通常有三种形式，一种是非符号阵列(arrays)，另外两种是符号数，即言语数词(verbal number words)和书面阿拉伯数字(written digits)。Dehaene(1992)提出了“三重编码模型”与之一一对应，即类比编码、听觉言语数词编码和视觉阿拉伯数字编码。值得注意的是，目前数词与阿拉伯数字(假定为映射路径 1)、阵列与数词(路径 2)、阵列与阿拉伯数字(路径 3)之间映射路径的发展顺序仍存在争议。前人的研究主要得出了三种潜在的发展顺序：路径 1 和 2 先于路径 3，路径 2 和 3 先于路径 1，或路径 2 先于路径

1 和 3。然而，研究者在探讨学前儿童数字映射路径的发展顺序时未考虑到数字大小的影响。因此在这项研究中，我们从五所幼儿园招募了 128 名 2-4 岁的儿童参与了所有六项数字映射任务来探究数字映射路径的发展顺序，其中每项任务均区分了小数(1-3)和大数(4-6)。结果表明：（1）在小数范围内，2 岁儿童中大多数已经开始学习了路径 1 和 2 的映射，然二者无显著差异；到了 3 岁，儿童在映射路径 2 上表现最优，其次是路径 1，最后是路径 3；到了 4 岁，三种映射表现几乎到达顶峰，均无显著差异。（2）在大数范围内，儿童到了 3 岁才学到了路径 1 的映射，路径 2 和 3 几乎还未发展；而到了 4 岁，路径 2 和 3 得到了发展，表现为路径 1 优于路径 2，最后是路径 3。这些结果或许印证了数量表征的两种机制:“感数”（subitizing）和近似数量表征机制。在感数范围内(1-3 或 4)，3 岁儿童更容易学习阵列和数词之间的映射（路径 2），而在学习大于数字 3 的路径 2 映射时，要映射准确往往需要用到计数策略，这对他们来说相对较难。相反，中国大多数儿童从 3 岁开始就在幼儿园学习 10 以内数词和阿拉伯数字之间的映射（路径 1）。因此，在大数范围内，儿童到 4 岁时路径 1 的发展反而超越了路径 2。总之，这些结果提供了新的见解，即数字大小和阿拉伯数字教育的开始时间均会影响数字映射的发展顺序。
关键词 数字映射，阵列，数词，阿拉伯数字，学前儿童

Research on the development of numerical mapping for children aged 2-4

Jun Zhu[1,2], Huanyu Yang[1], Chun Wang[1], Xuejiao Cai[1] , Yun Pan[1,*]
1 Guizhou Normal University, Guiyang, China, Email: panyun129@163.com
2 Xi Chang University, Xi Chang, China

***Abstract*：** People usually transmit numerical information in three formats: one non-symbolic arrays and two symbolic formats (i.e., verbal number words and written digits). Correspondingly, Dehaene (1992) proposed a Triple-Code Model, which includes the analogical code, the auditory verbal number word code, and the visual Arabic digit code. It is worth noting that the developmental order of mapping between number words and digits (hypothesized mapping pathway 1), arrays and number words (pathway 2), arrays and digits (pathway 3) is still controversial. The results of previous studies have shown three potential developmental sequences: pathways 1 and 2 before pathway 3, pathways 2 and 3 before pathway 1, or pathway 2 before pathways 1 and 3. However, all of these studies focused on the developmental order of numerical mapping pathways for preschool children without considering the influence of number size. In the current study, we recruited 128 children aged 2-4 from five preschools to participate in all the six numerical mapping tasks distinguishing between small numbers (1-3) and large numbers (4-6) to explore the developmental order of numerical mapping pathways. The results suggest the following: (1) For small numbers, most of 2-year-old children began to learn mapping of pathways 1 and 2 without significant difference. By the age of 3, children performed best on pathway 2, followed by pathway 1, and finally pathway 3. By the age of 4, all three kinds of mapping almost met the ceiling without significant difference. (2) For large numbers, children didn't learn mapping of pathway 1 until 3 years old, and pathways 2 and 3 hardly developed. By the age of 4, children began to develop pathways 2 and 3, and pathway 1 was better than pathway 2, finally pathway 3. The results may confirm two mechanisms of number representation: subitizing and approximate magnitude representation. Within subitizing rage (1-3 or 4), it was easier for children aged 3 to learn mapping between arrays and number words (pathway 2). However, it was difficult for them to learn to map pathway 2 for numbers beyond 3, which needed a counting strategy to meet accuracy. On the contrary, most children from 3 years old have already begun to learn mapping between number words and digits (pathway 1) within 10 in

kindergartens in China. Therefore, when children reached the age of 4, the mapping development of pathway 1 went beyond pathway 2. Together, the results provide new insight that number size and the start time of Arabic digit education would influence the development of numerical mapping.

Keywords：numerical mapping, arrays, number words, digits, preschool children

情绪效价和一体化对年轻人和老年人联结记忆的影响

臧佩瑶[1] 刘鹏[2]（通讯作者）

山西师范大学心理学系，山西，030024，通讯作者 E-mail：shk1985@126.com

摘 要　联结记忆是对项目与项目、项目与其背景之间关系的记忆。以往研究发现情绪会影响年轻人的联结记忆并且一体化能够促进联结记忆并改善联结记忆损伤，但情绪对老年人联结记忆的影响尚无定论。本研究选取情绪项目-场景材料，探究情绪效价和一体化对年轻人和老年人联结记忆的影响。实验 1 采用 3（项目效价：负性、中性、正性）×2（年龄：年轻人、老年人）的混合实验设计，因变量为联结记忆校正正确率，探究情绪效价对年轻人和老年人联结记忆的影响。实验 2 和实验 3 采用 2（语义相关性：相关、不相关）×2（空间距离：远、近）×2（年龄：年轻人、老年人）混合实验设计，实验操纵语义相关性和空间距离远近来控制概念一体化和知觉一体化水平，实验材料为负性和正性情绪项目-场景图片对，探究一体化对不同年龄群体的情绪项目-场景联结记忆的影响。结果发现：（1）情绪效价主效应显著，相比中性项目材料，负性情绪损害联结记忆，正性情绪促进联结记忆。（2）年龄主效应显著，老年人的联结记忆较差；情绪效价和年龄的交互作用显著，负性情绪损害年轻人的联结记忆但促进老年人的联结记忆。（3）语义相关性和空间距离主效应显著，语义相关和空间距离近促进年轻人和老年人的联结记忆并且两者交互作用显著，对于负性材料，语义相关在空间距离较远时对联结记忆的促进作用更为显著。以上结果表明情绪效价影响年轻人和老年人的联结记忆并且存在年龄差异，概念一体化和知觉一体化能够促进年轻人和老年人的联结记忆并调节情绪效价对联结记忆的影响。

关键词　联结记忆，情绪效价，一体化，老年人

Effects of emotional valence and unitization on associative memory in young and old adults

Zang peiyao[1]　Liu peng[2]

Shanxi Normal University, Shanxi, 030024

Abstract: Associative memory is the memory of the relationship between items and items, items and their context. Previous studies have found that emotion affects young people's associative memory. Unitization can promote associative memory and improve associative memory impairment, but the impact of emotion on associative memory in the elderly is still inconclusive. This study selected emotional item-scene materials to explore the effects of emotional valence and unitization on the associative memory of young and old people. In experiment 1, a mixed experimental design of 3(valence of items: negative, neutral, positive) ×2 (age: young, old) was adopted, and the dependent variable was the correct correction rate of associative memory. This study explored the influence of emotional valence on the associative memory of young and old people. In experiment 2 and experiment 3, 2 (semantic correlation: relevant, irrelevant)×2 (spatial distance: far, near)×2 (age: young, old) . The experiment manipulated semantic correlation and spatial distance to control the level of conceptual unitization and perceptual unitization. The experimental materials were negative and positive emotional item-scene pictures.

These experiments explored the effect of unitization on the associative memory of emotional item-scene in different age groups. The results showed that: (1) the main effect of emotional valence was significant. Compared with neutral item material, negative valence impaired the association memory, and positive valence promoted the association memory. (2) The main effect of age was significant, and the associative memory of the elderly was poor; The interaction between emotional valence and age was significant. Negative valence damaged the associative memory of young people and preserved the associative memory of old people. (3) The main effect of semantic correlation and spatial distance were significant. Semantic correlation and spatial distance almost improved the associative memory of young and old people, and their interaction was significant. For negative materials, semantic correlation had a more significant effect on associative memory when the spatial distance is far. These results indicate that emotional valence affects the associative memory of young and old people. Valence affects young and old people differently. Conceptual unitization and perceptual unitization can promote the associative memory of young and old people, and they regulate the effect of emotional valence on associative memory.
Key words: associative memory, emotional valence, unitization, the elderly

汉语阅读中高低工作记忆群体的预测加工机制

李卓尔[1]　鲍凌珊[1]　刘静仪[1]　王嫔[1]　李琳（通讯作者）[1]

1 心理与行为研究院，天津师范大学心理学部，天津，300387，linpsy@outlook.com

摘 要　预测加工是大脑的基本工作模式，大脑通过不断地预测编码、计算预测误差来进行正确的信息推断(Wei Wei et al., 2023)。阅读过程中的语义的加工会受到工作记忆的影响，个体存储语境信息的不同容量，转换、更新信息的不同速度，可能会影响阅读中的预测加工。要从机制层面探讨工作记忆对预测加工的影响，就要考察被试在工作记忆等认知资源充足或贫乏的条件下，是否会存在预测误差成本。当前研究目的：考察高低工作记忆能力群体在限制性和非限制性语境下加重或保持正常的工作记忆负荷，是否会产生预测误差成本，采用不同的预测加工机制。

当前实验测量了 79 名大学生被试的工作记忆，取得分前 20 人和得分后 20 人进行工作记忆高低分组。实验设置三种条件：限制性语境可预测目标词条件(CP)、限制性语境不可预测目标词条件(CU)和非限制性语境不可预测目标词条件(NU)(见附件，实验材料举例)。采用随注视点变化的掩蔽文本范式的变式，在掩蔽条件下读者看过的内容会被※掩蔽阻碍注意焦点的重新锁定，从而增加被试的工作记忆负荷。得到的数据采用 R 语言进行成对比较，限制性语境可预测目标词(CP)和限制性语境不可预测目标词(CU)条件比较得到预测性效应，而限制性语境不可预测目标词(CU)和非限制性语境不可预测目标词(NU)条件的比较可以得到预测误差成本是否存在。

结果发现，不管是工作记忆高分组还是低分组的被试，都没有出现预测误差成本，这表明两组被试均采用了等级扩散激活方式。另外，高工作记忆组被试在限制性语境条件下加工不可预测词的时间短于非限制性语境条件下加工同一个词的时间，体现在早期眼动指标上。这表明，在工作记忆能力较强的情况下，进行等级扩散式的预测加工会促进词汇识别，即便是低预测词，进一步证实了工作记忆在预测加工中的作用。
关键词　工作记忆，汉语阅读，预测加工，预测误差成本

Predictive processing mechanism of high and low working memory groups in Chinese reading

Zhuoer Li[1] Lingshan Bao[1] Jingyi Liu[1] Pin Wang[1] Lin Li[1]
1 Academy of Psychology and Behavior, Faculty of Psychology, Tianjin Normal University, Tianjin, China, 300387, linpsy@outlook.com

***Abstract*：** The processing and retention of semantic information during reading is affected by the capacity of working memory. Individuals with different cognitive abilities have different capacities of storing contextual information and different speeds of converting and updating information, which may show different degrees of predictive processing. In order to explore the effect of working memory on prediction processing from the mechanism level, it is necessary to investigate whether there will be prediction error cost under the condition of sufficient or poor cognitive resources such as working memory. The purpose of the current study: To investigate whether increasing or maintaining normal working memory load in restricted and unrestricted contexts will produce prediction error costs for groups with high or low working memory ability, and to adopt different prediction processing mechanisms.

The experiment measured the working memory of 79 college students, and the first 20 people and the last 20 people were divided into the working memory level. Three conditions were set in the experiment: The constraining context–predictable target word (CP), the constraining context–unpredictable target word condition (CU) and the neutral context– unpredictable target word (NU) adopt the variation of the masked text paradigm with the change of fixation point. Under the masked condition, the content read by the reader will be masked and thus hinder the relocking of the focus of attention. Thus, the working memory load of the subjects was increased. The obtained data are compared in pairs using R language. The predictive effect can be obtained by comparing the conditions of the constraining context– predictable target word (CP) and the constraining context–unpredictable target word condition (CU) in constrained context, while the existence of prediction error cost can be obtained by comparing the conditions of the constraining context–unpredictable target word (CU) and the neutral context–unpredictable target word (NU). Preliminary results are being analyzed.

The results showed that no prediction error cost occurred in either the high or low working memory group, suggesting that both groups adopted the graded prediction. In addition, the processing time of unpredictable words in the high working memory group was shorter than the processing time of the same word in the constraining context, which was reflected in the early eye movement index. Suggesting that graded prediction processing can promote word recognition in the case of strong working memory ability, even for low prediction words, further confirming the role of working memory in prediction processing.

***Key words*:** working memory, Chinese reading, predictive processing, prediction error cost

学龄儿童汉字识别能力的研究：基于视觉拥挤理论

盛晗 龚明亮 （通讯作者）
江西师范大学，南昌，330022
江西师范大学心理学院，南昌，330022，gongml@jxnu.edu.cn

摘 要 汉字识别是一项极为重要的能力，对汉字识别能力的训练也是学校学习的重要组成部分。国内外研究均表明，视觉拥挤是影响字体识别和阅读的重要因素，而文字本身的属性会影响文本间的视觉拥挤。然而，目前的研究仍集中在拼音文字，对视觉拥挤如何影响汉字识别和阅读还知之甚少。另外，这些研究大多关注的是阅读障碍这一特殊群体，对于处于从“阅读初学者”到“阅读熟练者”转变关键期的正常学龄儿童研究反而较少。本研究以小学生低年级（二年级）和高年级（五年级）儿童为研究对象，探讨汉字属性如

何影响汉字间的视觉拥挤，进而影响阅读。实验一通过操纵目标汉字和干扰汉字的距离验证小学生在识别汉字时是否受视觉拥挤的影响，并对两个年级学生的拥挤特点进行初步了解；实验二三分别考察了字体类型、字体大小和字体复杂度、字体粗细等文字本身的属性对学龄儿童对汉字识别的影响。结果发现：（1）小学生在识别汉字时显著地受视觉拥挤的影响；（2）三个实验中，高年级儿童汉字识别的正确率都显著高于比低年级儿童；（3）字体类型、大小、复杂度和粗细主效应都显著。无论是高年级还是低年级学龄儿童，对黑体字的识别最好，宋体次之，楷体再次之，仿宋最低；随着字体的增大，识别的准确率也会更高；对加粗的和复杂度较低的字体的识别也比常规和复杂度较高的字体的识别更准确；（4）字体大小和字体类型交互作用显著，儿童在字体较小的情况下对宋体字的识别准确率较高，但在较大汉字的识别中，对于仿宋和楷体字的识别都比宋体字更加精确。本研究表明，相比于高年级儿童，低年级儿童受视觉拥挤的影响更大，这种差异不受汉字本身属性的影响；无论是高年级还是低年级儿童，对黑体字的识别都比其他字体更准确，对更大、更粗、更简单的字体识别得也更准确。
关键词　视觉拥挤，汉字识别，学龄儿童，汉字属性

Chinese character recognition ability in school-age children: A study based on the visual crowding theory

Han Sheng, Mingliang Gong (Corresponding author)
School of Psychology, Jiangxi Normal University, Jiangxi

Abstract：The ability to recognize Chinese characters holds immense importance aand training Chinese character recognition ability is also an integral part of school education. Extensive study, both domestically and internationally, has demonstrated that visual crowding is an important factor affecting text recognition and reading,and that the properties of the text itself affect the visual crowding between texts. However, previous studies have primarily focused on alphabetic scripts, leaving a notable gap in understanding the effects of visual crowding on Chinese character recognition and reading. Furthermore, most studies have concentrated on dyslexic children, while there is a dearth of research on school-age children who are in a critical period of transitioning from “beginning readers” to “proficient readers”. This study aims to investigate how the properties of Chinese characters affect visual crowding among Chinese characters, which in turn affects reading ,from low grades (second grade) to high grades (fifth grade). Experiment 1 validates the existence of visual crowding in Chinese characters and preliminarily explores the crowding characteristics of students in both grades by manipulating the distance between target characters and interfering characters. Experiments 2 and 3 respectively investigate the influence of character attributes, such as font type, font size, font complexity, and font thickness, on Chinese character recognition in school-age children. he results show that: (1) Elementary school students are significantly affected by visual crowding when recognizing Chinese characters. (2) Across all three experiments, high-grade children consistently exhibited significantly higher accuracy in Chinese character recognition compared to low-grade children. (3) The main effects of font type, font size, font complexity, and font thickness were all significant. School-age children recognized Hei fonts significantly better than Song font, followed by Kai font, and then FangSong font. As the font size increases, the recognition accuracy also improves. The recognition of bold and low complexity fonts is more accurate than that of regular and high complexity fonts. (4) The interaction between font size and font type was significant. Children displayed higher accuracy in recognizing Song font when the font was smaller, but when it came to larger Chinese characters, the recognition of FangSong font and Kai font was more accurate than Song font. This study indicates that low-grade children are more affected by visual crowding compared to high-grade children Both high-grade and low-grade children demonstrate greater accuracy

in recognizing Hei fonts compared to other fonts. Additionally, they exhibit greater accuracy in recognizing larger, bolder, and simpler fonts.

Keywords: visual crowding, Chinese character recognition, school-age children, Chinese character properties

师生关系与留守初中生学校适应的关系：心理弹性的中介作用及干预研究

马婉[1]　刘鹏[2]（通讯作者）

山西师范大学教育科学学院，太原，030000，631572060@qq.com

摘 要　学校适应是学生与学校环境交互作用的过程中，在学业和人际关系等领域所表现出的行为方式或能力。以往的研究主要关注了个体内部特质和外部环境对学校适应的影响，却忽视了留守初中生内外部因素的共同作用。研究发现，心理弹性和师生关系对留守初中生的学校适应起着重要作用。因此，本研究旨在从内外因素的交叉影响角度，探讨留守初中生的师生关系、心理弹性与学校适应之间的关系，并通过提升心理弹性水平来增强学生的学校适应能力。研究一以 510 名留守初中生为被试，填写了师生关系量表、青少年心理弹性量表和初中生学校适应量表。结果表明：(1)留守初中生师生关系、心理弹性和学校适应在性别、年级、是否班干部、是否独生子女和生源地上存在显著差异。(2)留守初中生师生关系、心理弹性和学校适应之间存在显著正相关，师生关系和心理弹性对学校适应具有正向预测作用。(3)留守初中生的心理弹性在师生关系和学校适应之间起到部分中介作用。研究二为干预研究，对心理弹性较低的 32 名留守初中生进行为期 8 次的团辅活动干预。其中 16 名参与了心理弹性团辅干预，而另外 16 名参与了非心理弹性团辅干预。结果显示，在团体心理辅导干预后，实验组和对照组的心理弹性水平存在显著差异，说明提升心理弹性的团体心理辅导能够有效改善留守初中生的学校适应。本研究探讨了留守初中生师生关系、心理弹性和学校适应的作用机制，并通过提升心理弹性水平来增强学生的学校适应能力。启示一线心理健康教育工作者，当学生个体的自变量不易调节时，可以直接作用于中介变量，进而影响因变量，即当留守初中生的师生关系不易直接影响时，也可以通过心理健康课程或团体心理辅导活动间接提升学生的心理弹性水平，从而增强留守初中生的学校适应能力。

关键词　留守初中生，心理弹性，师生关系，学校适应，团体心理辅导

The Relationship among Teacher-Student Relationship and School Adaptation of Left-Behind Middle School Students: the Mediating Role of Resilience and Intervention

MaWan[1],Liu Peng[2](Corresponding Author)

School of Educational Science, Shanxi normal University, TaiYuan,030000

Abstract：School adaptation is the behavior or ability of students in areas such as academic and interpersonal relationships in the process of interacting with the school environment. Previous studies mainly focused on the influence of individual internal characteristics and external environment on school adaptation but ignored the combined effect of internal and external factors on left-behind junior high school students. Studies found that resilience and teacher-student relationship play an important role in the school adaptation of left-behind junior high school students. Therefore, this study aims to explore the relationship between teacher-student relationship,

psychological resilience, and school adaptation of left-behind junior high school students from the perspective of cross-influence of internal and external factors, and to enhance students' school adaptability by improving their resilience level. Study 1 took 510 left-behind junior middle school students as the subjects, and filled in the teacher-student relationship scale, the adolescent resilience scale, and the school adaptation scale of junior middle school students. The results found that: (1) there are significant differences in the teacher-student relationship, resilience, and school adaptation in gender, grade, the class cadre, whether the only child and the source of students. (2) There is a significant positive correlation between the teacher-student relationship, resilience, and school adaptation of left-behind junior middle school students. The teacher-student relationship and resilience have a positive predictive effect on school adaptation. (3) The resilience of left-behind junior high school students plays a partial mediating role between the teacher-student relationship and school adaptation. The second study was an intervention study, which intervened for 32 left-behind junior high school students with low resilience 8 times. Sixteen participated in the resilience group intervention, while the other 16 participated in the nonpsychological resilience intervention. The results found that after the group psychological counseling intervention, the level of resilience was significantly different between the experimental group and the control group, indicating that the group psychological counseling to improve resilience can effectively improve the school adaptation of left-behind junior middle school students. The significance of this study is to explore the teacher-student relationship, resilience, and school adaptability of left-behind junior high school students, and to enhance students' school resilience by improving the level of resilience. For a line of mental health education workers, when the student's independent variable is not easy to adjust, can directly act on the intermediary variables, thus affecting the dependent variable, namely when the relationship between teachers and students is not easy to directly influence, can also be through mental health courses or group psychological counseling activities indirectly improve the students' psychological toughness level, to enhance the school of junior high school students.

Keywords：Left-behind junior high school students, Resilience, Teacher-student relationship, School adaptation, Group psychological counseling

道德认同对听力受损青少年面部情绪加工的影响：一项 ERP 研究

胡友松[1, 2] 夏骁凯[1, 2] 陈 俊[2]（通讯作者）徐光泉[3]

1 成都师范学院教育与心理学院，成都，611130；2 华南师范大学心理学院，广州，510631；广东省心理健康与认知科学重点实验室，广州，510631；华南师范大学心理应用研究中心，广州，510631

3 屏山县锦屏镇富荣九年一贯制学校，宜宾，645350

摘　要　个体根据其道德观选择接近或回避他人，而道德观是影响人们在社交场合中如何相互交往的重要因素。在青少年时期，听力受损显著影响人们在社交环境中的沟通，而这个阶段对于情感和社交发展至关重要。当前研究关注的重要问题是，他人的道德水平是否会影响听力受损青少年对面部情绪表达的识别，而这种影响是否同样存在于听力正常的青少年身上。本研究通过道德启动范式，研究了道德水平（高道德、低道德）对听力受损青少年对面部情绪（快乐、中性和愤怒）认知的脑机制。研究结果显示，听力正常的青少年在判断面部表情的情绪效价时与面孔的道德水平无关，而听力受损的青少年对低道德面孔的情绪效价评价低于高道德面孔。进一步的 ERP 分析显示，对于听力正常的青少年，道德水平信息的处理在面部情绪信息处理的早期阶段（N1、P1）有所反映，但在听力受损的青少年中，并未在这个阶段反映出来。然而，道德效应在听力受损的青少年面部情绪处理的中期（N2）和后期（LPP）显著，但在早期阶段没有显现出来。

关键词　听力受损青少年，听力正常青少年，面部情绪加工，道德效应

The effect of moral identity on facial emotion processing in

Adolescents with hearing loss: An ERP study

Yousong Hu[1] Xiaokai Xia[2] Jun Chen[2] (corresponding author) Guangquan Xu[3]

1 Chengdu Normal University, School of Education and Psychology, Chengdu, 611130

2 School of Psychology, South China Normal University, 55 West Zhongshan Road, Guangzhou, Guangdong, 510631, China; Guangdong Key Laboratory of Mental Health and Cognitive Science, South China Normal University, Guangzhou, China; Center for Studies of Psychological Application, South China University, Guangzhou, China

3 Furong Nine-Year Consistent School, Jinning Town, Pingshan County, Yibin, 645350

***Abstract*:** Individuals choose to approach or avoid others depending on their morality, and morality is a significant component that influences how people engage with one another in a social situation. Hearing impairments significantly affect how people communicate in social settings during adolescence, a vital period for people's emotional and social development. Significant issues of concern in the current study are whether the moral level of others influences the recognition of facial emotion expressions in adolescents with hearing loss and whether this effect is the same for the adolescents with typical hearing. The brain mechanisms underlying the impact of different moral levels (high moral, low moral) on the perception of facial emotions (happy, neutral, and angry) in adolescents with hearing loss have been studied using the moral priming paradigm. The findings showed that while adolescents with typical hearing judged the emotional valence of facial expression independent of the moral level of faces, adolescents with hearing loss rated the emotional valence of low moral faces lower than that of the high moral faces. Further ERP analysis revealed that the processing of moral level information was reflected in the early stage of facial emotion information processing (N1, P1) for adolescents with typical hearing, but it was not reflected in this stage for adolescents with hearing loss. However, the moral effect was significant in the middle (N2) and late stage (LPP) of the facial emotion processing for adolescents with hearing loss, but not in the early stage.

***Keywords*:** adolescents with hearing loss, adolescents with typical hearing, facial emotion processing, moral effect

不同未来时间洞察力手机使用者的抑制控制特点

赵思琦[1] 杨海波[1,2]

1 天津师范大学心理学部，天津，300387

2 天津师范大学心理与行为研究院，天津，300387，yanghaibo@tjnu.edu.cn

摘 要 随着技术发展，智能手机拥有量在全球范围内持续增加，手机使用给现代生活带来巨大的便利，同时也给个体和社会带来了严重的危害。已有研究发现，未来时间洞察力是影响手机使用行为的重要因素，并且手机成瘾个体通常具有较低的抑制控制能力。本研究旨在通过实验的方法探讨不同未来时间洞察力手机使用群体的抑制控制特点。研究选取大学生群体，采用未来时间洞察力量表和智能手机成瘾量表，将被试分为四组，即，高时间洞察力手机成瘾组、高时间洞察力非手机成瘾组、低时间洞察力手机成瘾组和低时间洞察力非手机成瘾组。实验采用 2（未来时间洞察力：高、低）*2（手机使用：成瘾组、非成瘾组）*2（任务：朝向眼跳、反向眼跳）的被试间设计，使用眼动追踪技术与眼跳任务相结合。结果分析发现:（1）在朝向眼跳任务中，未来时间洞察力和手机使用的主效应和交互效应均不显著；（2）在反向眼跳任务中，未来时间洞察力的主效应不显著，手机使用的主效应显著，具体表现为成瘾组具有较高的错误率且潜伏期长；（3）未来时间洞察力和手机使用的交互作用显著。进一步简单效应分析发现，在高未来时间洞察力条件下，成瘾组和非成瘾组的均具有较低的错误率，且潜伏期较短；在低未来时间洞察力条件下，相比非成瘾组，成瘾组具有更高的错误率和更长的潜伏期。这一结果表明，在高未来时间洞察力条件下，成瘾和非

成瘾群体均具有较好的抑制控制能力；但是当个体的未来时间洞察力较低时，抑制控制能力较差，其中成瘾组的抑制控制能力最差。
关键词　未来时间洞察力，手机使用，抑制控制

The Features of inhibitory control of Smartphone users with different future time perspectives

Siqi Zhao[1] Haibo Yang[1,2]
1 Faculty of Psychology, Tianjin Normal University, Tianjin, 300387
2 Academy of Psychology and Behavior, Tianjin Normal University, Tianjin, 300387,
yanghaibo@tjnu.edu.cn

***Abstract*:** With the development of technology, smartphone ownership continues to increase globally, and while smartphone use brings great convenience to modern life, it also leads to serious harm to individuals and society. Future time perspective has been found to be an important factor influencing smartphone use behavior and that individuals with smartphone addiction typically have poor inhibitory control. The purpose of this study was to explore the inhibitory control features of smartphone users with different future time perspectives through an experimental approach. College students were selected for the study and the subjects were categorized into four groups using Future Time perspective Scale and Smartphone Addiction Scale, i.e., High time perspective-Addiction Group, High time perspective-Non Addiction Group, Low time perspective-Addiction Group and Low time perspective-Non Addiction Group. The experimental design was a between-subjects design with 2 (future time perspective: high, low) * 2 (smartphone use: addicted group, non-addicted group) * 2 (task: pro-saccade, anti-saccade). Using eye tracking technology in conjunction with a saccade task. The analysis of the results revealed that:(1) The main and interaction effects of future time perspective and smartphone use were not significant in the pro-saccade;(2)in the anti-saccade, the main effect of future time perspective was not significant, the main effect of smartphone use was significant, and post hoc comparisons revealed that the addicted group had higher error rates and longer latency. (3)The interaction between future time insights and cell phone use is significant, simple effects analyses revealed that both the addicted and non-addicted group's had lower error rates and shorter latency in the high future time perspective condition; However, in the low future time perspective condition, the addicted group had higher error rates and longer latency compared to the non-addicted group. This result suggests that under high future time perspective conditions, both addicted and non-addicted groups had better inhibitory control ; however, inhibitory control was poorer when individuals had low future time insight, with the addicted group having the worst inhibitory control.

***Keywords*:** future time perspective, smartphone use, inhibitory control

小学儿童的道德提升感对社会善念的影响——心理理论的中介作用

叶舒瑶[1]　孙美荣[1]（通讯作者）

1 北京体育大学心理学院，北京，100091，leer@bsu.edu.cn

摘 要　社会善念是一种个体有意识地去关注、尊重并保护他人选择的需要和权利的亲社会行为。道德提升感是指个体由于看到或了解到他人积极的道德行为，欣赏、称赞他人的美德并引起个体对他人利益的关注，使个体产生亲社会认知变化及行为倾向的一种积极道德情绪。前人研究发现道德提升感的诱发能有效提升个体亲社会行为的倾向，而 9-12 岁的儿童的道德观正处于“服从权威者”向“关注该道德行为是否利人”转变的重要阶段，处于道德提升感培养的重要阶段，我们猜想，道德提升感会对该年龄段儿童的社会善念产生重要影响。此外，我们引入了前人研究中与二者均有显著正相关的心理理论这一变量，探索其在道德提升感与社会善念的关系中的作用。

本研究采用道德提升感问卷、社会善念的 SoMi 范式和卡通插画心理理论范式对 43 名小学儿童（10.5 ± 0.78 岁，男 22 人）进行了研究。结果发现，道德提升感问卷中“对自己的认知” ($p = 0.032$) 和“对他人的认知” ($p = 0.041$)两个维度，在性别上存在显著差异，女生比男生的道德提升感更强。在心理理论测试中，在情感心理理论维度上 4、5 年级之间呈现出了显著的差异($p = 0.043$)。相关分析结果显示，小学儿童道德提升感与社会善念呈显著正相关($r = 0.61$, $p = 0.004$)；心理理论与社会善念($r = 0.25$, $p = 0.028$)和道德提升感($r = 0.22$, $p = 0.008$)均呈显著正相关。此外，我们发现，小学儿童道德提升感、社会善念及心理理论三者的中介模型拟合较好：总效应显著($c = 0.476$, $t = 5.136$, $p = 0.006$)，中介效应占比达 29.83%。道德提升感对社会善念的直接效应显著($c = 0.334$，$t = 8.948$, $p = 0.004$)，心理理论的间接效应显著($c = 0.142$，$t = 1.222$, $p = 0.030$)。

总体而言，研究结果表明，小学儿童在道德提升感上存在性别和年龄差异，且年龄越大，心理理论能力越强。小学儿童的道德提升感对社会善念存在显著的正向预测作用，而心理理论在小学儿童道德提升感和社会善念间起部分中介作用。我们的研究提示，通过提高儿童的道德提升感和心理理论水平，可以培养儿童的社会善念，从而促进儿童的亲社会行为。

关键词　道德提升感，社会善念，心理理论，中介效应

The Influence of Primary School Children's Sense of Moral Elevation on Social Mindfulness: The Mediating Role of Mind Theory

Shuyao Ye[1]　Meirong Sun[1](corresponding author)

1 School of Psychology, Beijing Sport University, Beijing 10091, China

Abstract：Social mindfulness refers to the behavior that an individual consciously and actively considers the needs of others or leaves options for others when making a choice. The sense of moral elevation refers to a positive moral emotion in which an individual sees or understands the positive moral behavior of others, appreciates and praises the virtues of others, and arouses the individual's attention to the interests of others, resulting in prosocial cognitive changes and behavioral tendencies. Previous studies have found that the induction of the sense of moral elevation can effectively improve the tendency of individual prosocial behavior, and the moral view of children aged 9-12 is in an important transformation stage from "obeying authority" to "paying attention to whether the moral behavior is beneficial to others", which is also an important stage of the cultivation of the sense of moral elevation. We suspected that the sense of moral elevation has an important impact on the social mindfulness of children in this age group. In addition, we introduced a variable of mind theory, which has a significant positive

correlation with both of them in previous studies, to explore its role in the relationship between moral enhancement and social mindfulness.

A total of 43 primary school children (10.5 ± 0.78 years old, 22 males) were recruited using the moral enhancement questionnaire, the SoMi paradigm of social mindfulness and the cartoon illustration mind theory paradigm. The significant gender difference was showed in two dimensions of "self-awareness" ($p = 0.032$) and "awareness of others" ($p = 0.041$) in the sense of moral enhancement questionnaire. Girls had stronger sense of moral enhancement than boys. In the test of mind theory, grades 4 and 5 showed significant difference in the dimension of affective mind theory ($p = 0.043$). The results of correlation analysis showed that there was a significant positive correlation between primary school children's sense of moral improvement and social mindfulness ($r = 0.61$, $p = 0.004$). There was significant positive correlation between mind theory and social mindfulness ($r = 0.25$, $p = 0.028$) and moral enhancement ($r = 0.22$, $p = 0.008$). In addition, we found that the mediating model of primary school children's sense of moral enhancement, social benevolence and mind theory was well fitted: the total effect was significant ($c = 0.476$, $t = 5.136$, $p = 0.006$), and the mediating effect accounted for 29.83%. The direct effect of sense of moral elevation on social mindfulness was significant ($c = 0.334$, $t = 8.948$, $p = 0.004$), and the indirect effect of mind theory was significant ($c = 0.142$, $t = 1.222$, $p = 0.030$).

Overall, the results showed that there were gender difference in elementary school children's sense of moral enhancement, and the older the age, the stronger the mind theory ability. The sense of moral elevation of Elementary school children had a significant positive predictive effect on social mindfulness, and psychological theory played a partial mediating role between elementary school children's sense of moral elevation and social mindfulness. Our research suggested that by improving children's sense of moral elevation and mind theory, children's social mindfulness and children's prosocial behavior may be promoted.

Keywords： Sense of Moral Elevation, Social Mindfulness, Mind Theory, Mediating effect

父母关爱、父母鼓励自主与青少年物质主义价值观的关系：感恩和自我控制的并行中介作用

耿影慧 张野（通讯作者）
沈阳师范大学教育科学学院，沈阳，110034，zhangye_psy@163.com

摘 要 近年来，物质主义逐渐成为青少年群体的一种突出意识形态，财富经常在年轻人的生活愿望中名列前茅，盲目攀比、冲动消费、崇尚奢侈品的现象也屡见不鲜。物质主义(materialism)是一种个人价值观，它强调获取物质财富的重要性。从长远来看，物质主义价值观给青少年的身心健康带来诸多不良影响。研究发现，高物质主义青少年对学校持消极态度，学业成绩不佳，出现吸烟、喝酒、强迫性购买等问题行为以及因对物质财富的永不满足的追求而产生的环境枯竭。同时，物质主义价值观也是引发焦虑、抑郁等消极情绪重要因素之一。鉴于物质主义价值观导致的一系列负面结果，深入挖掘青少年物质主义价值观形成机制，对于引导青少年客观认识物质主义价值观，养成健康理性的消费心理和行为具有较重要的现实意义。本研究以广州、珠海 6 所高校共 1097 名青少年为研究对象，采用父母教养方式问卷、 感恩问卷、自我控制问卷以及物质主义量表考察父母教养方式(包括关爱、鼓励自主)与青少年物质主义价值观的关系，以及感恩、自我控制的中介作用。结果表明：(1)父母关爱、父母鼓励自主显著负向预测青少年物质主义价值观；(2)感恩和自我控制在父母关爱、父母鼓励自主与青少年物质主义价值观之间具有并行中介作用。研究结果提示积极教养方式的重要作用，提示父母要学会看见并接纳子女的情绪表达，及时提供信息反馈，减少控制策略，给予子女更多的情感支持等；同时学校应多举办实践活动，加强家校联系，根据学生的情况设计并举办公益活动，为青少年健康成长创造良好的学习生活环境。

关键词 父母关爱，父母鼓励自主，物质主义，感恩，自我控制

The Relationship Between Parental Care, Parental Encouragement of Autonomy and Adolescent Materialistic Values: The Parallel Mediating Role of Gratitude and Self-Control

Yinghui Geng, Ye Zhang
College of Education Science, Shenyang Normal University, Shenyang, 110034,
zhangye_psy@163.com

Abstract: In recent years, materialism has gradually become a prominent ideology among the youth population, with wealth often topping the list of young people's life aspirations, and the phenomenon of blind comparison, impulsive consumption, and reverence for luxury goods is not uncommon. Materialism (materialism) is a personal value that emphasizes the importance of acquiring material wealth. In the long run, materialistic values bring many adverse effects to the physical and mental health of adolescents. Studies have found that highly materialistic adolescents have negative attitudes toward school, poor academic performance, problematic behaviors such as smoking, drinking, and compulsive buying, as well as environmental depletion due to the insatiable pursuit of material possessions. At the same time, materialistic values are one of the important factors that trigger negative emotions such as anxiety and depression. In view of the series of negative outcomes caused by materialistic values, it is of greater practical significance to dig deeper into the formation mechanism of adolescents' materialistic values in order to guide adolescents to objectively understand materialistic values and to develop healthy and rational consumption psychology and behavior. In this study, a total of 1,097 adolescents from six universities in Guangzhou and Zhuhai were studied, and the relationship between parenting styles (including caring and encouraging autonomy) a

nd adolescents' materialistic values was examined by using the Parenting Styles Questionnaire, the Gratitude Questionnaire, the Self-Control Questionnaire, and the Materialism Scale, as well as the mediating roles of Gratitude and Self-Control. The results indicated that: (1) Parental care and parental encouragement of autonomy significantly and negatively predicted adolescents' materialistic values; (2) Gratitude and self-control had parallel mediating roles between parental care, parental encouragement of autonomy, and adolescents' materialistic values. The findings suggest the important role of positive parenting styles, suggesting that parents should learn to see and accept their children's emotional expressions, provide timely feedback, reduce control strategies, and give more emotional support to their children, etc. Meanwhile, schools should organize more practical activities, strengthen home-school contact, and design and organize public welfare activities according to the students' situations to create a good learning and living environment for adolescents to grow up healthily.

Keywords：Parental care, Parental encouragement of autonomy, Materialism, Gratitude, Self-control

延迟奖赏预期对青少年的激励效应消失

荣亚朝 1,2　董佳瑞 1　孙怡彤 1　魏萍 1（通讯作者）

1 首都师范大学心理学院，北京，100048
2 河南师范大学心理学院，新乡，453006
通讯作者 E-mail：aweiping@gmail.com

摘 要　奖赏预期对行为的激励效应随着奖赏交付时间延迟而减弱。根据可能获得的奖赏预期线索，投入认知努力从而获得期待的奖赏，需要脑内奖赏系统和认知控制系统的共同参与。这两个系统的交互作用如何受到年龄发展阶段和奖赏类型（例如初级奖赏 vs.次级奖赏）的影响仍不清楚。我们假设，青春期阶段奖赏加工系统的超前发展和认知控制系统的滞后发展可能导致个体偏向即时奖赏（vs.延迟奖赏），从而影响不同奖赏条件下的认知努力投入。本研究招募 160 名有效被试，采用 3×2×3 混合设计，通过操纵金钱激励延迟任务（monetary incentive delay，MID）的奖赏预期线索，探索了不同交付时间的初级奖赏和次级奖赏对不同年龄群体被试的行为激励效应。第一个因素是年龄：儿童（10.71 ± 0.61 岁）、青少年（13.93 ± 0.67 岁）和成人（22.67 ± 2.49 岁）；第二个因素是奖赏类型：初级奖赏和次级奖赏，是被试间变量，分别采用糖果和金钱（价值匹配）作为额外奖赏；第三个因素是交付时间：即时奖赏、延迟奖赏和无奖赏条件，是被试内变量，通过任务前线索进行操纵，该线索分别提示被试当前试次的额外奖赏是即时交付，还是延迟三个月后交付，或者是没有额外奖赏。对单试次数据进行线性混合模型分析显示，奖赏预期的激励效应（有奖赏条件减无奖赏条件的反应时）随交付时间的延迟而减弱、随年龄的增长而增强、次级奖赏强于初级奖赏。重要的是，结果表现出年龄和交付时间的交互效应：即时奖赏预期（相比于无奖赏和延迟奖赏条件）可以促进所有年龄群体被试的行为表现，然而，延迟奖赏预期（相比于无奖赏条件）仅能促进儿童和成人被试的行为表现，没有促进青少年被试的行为表现。这些结果表明延迟奖赏预期对青春期个体的动机激励效应减弱，甚至消失。青春期个体对延迟奖赏预期不敏感，较难对延迟奖赏的价值表征进行有效地自上而下认知控制，从而较少促进任务表现。该研究首次从发展角度探究交付时间对奖赏预期激励效应的影响，并从奖赏预期影响任务表现角度提供了青少年对延迟奖赏不敏感的证据。

关键词　青春期，延迟奖赏，奖赏预期，次级奖赏，金钱激励延迟任务

The incentive effect of delayed-reward expectation disappears in adolescents

Yachao Rong[1,2]　Jiarui Dong[1]　Yitong Sun[1]　Ping Wei[1*]
1 School of Psychology, Capital Normal University, Beijing 100048, China
2 School of Psychology, Henan Normal University, Xinxiang 453006, China

***Abstract*:** The incentive effect of reward expectations on behavior weakens as the reward delivery time is delayed. The engagement of cognitive effort to gain the expected rewards signaled by reward cues relies on the collaboration of the reward processing system and the cognitive control system. However, the influence of developmental stages and reward types (e.g., primary rewards vs. secondary rewards) on the interplay between these two systems remains unclear. We hypothesized that adolescents exhibit a stronger preference for immediate rewards over delayed rewards due to the advanced development of their reward processing system compared to

their cognitive control system, in turn, this preference may influence the cognitive effort invested by adolescents under different reward conditions. We manipulated the reward-expectation cues in the Monetary Incentive Delay (MID) task and employed a 3 × 2 × 3 mixed design in a sample size of 160 valid participants to investigate the behavioral incentive effects of primary and secondary rewards with different delivery time across various age groups, focusing particularly on adolescents. The first factor was age, included three groups: children (10.71 ± 0.61 years old), adolescents (13.93 ± 0.67 years old), and adults (22.67 ± 2.49 years old). The second factor was reward type, included primary and secondary rewards, which was a between-subject variable. Candy and Money (value matched) served as primary and secondary rewards, respectively. The third factor was delivery time, included immediate reward, delayed reward, and no reward conditions, which was a within-subject variable. The delivery time was manipulated with the pre-target cue for each trial, indicating whether participants would receive an additional reward immediately, after a delay of three months, or no additional reward. Based on the single-trial data, the linear mixed-effects model results revealed that the incentive effect of reward expectation (measured by the reaction time difference between reward and no-reward conditions) decreased with delivery time delays, increased with age, and was stronger for secondary than primary rewards. Importantly, the interaction effect between age and delivery time was observed: the incentive effects of the immediate reward condition (vs. delayed-, and vs. no-reward condition) were evident across all age groups. However, the incentive effect of the delayed reward condition (vs. no reward condition) was only evident in children and adults, not in adolescents. These findings suggested that the motivational effect from the expectation of delayed reward was weakened or even absent in adolescents. It is difficult for adolescents to exert effective top-down cognitive control over the value representation of delayed rewards, due to their lower sensitivity to the expectation of delayed rewards, resulting in fewer improvements in task performance. Our study was the first to explore the influence of delivery time on the incentive effects of reward expectation from a developmental perspective, and to provide evidence for the insensitivity of adolescents to delayed rewards with respect to the influence of reward expectation on task performance.

Keywords： adolescents, delayed reward, reward expectation, secondary reward, monetary incentive delay task

控制欲的悲伤：小学高年级学生的内化问题何以产生？

黄雅芬[1] 毕劲竹[1] 张榕岩[1] 桑青松[1]（通讯作者）

1 安徽师范大学教育科学学院，芜湖，241000，s7210qs1@ahnu.edu.cn

摘 要 内化问题是指向个体内部，表现出的情绪或情感紊乱为主，包括抑郁、焦虑和孤独等问题。内化问题的持续发展会对小学高年级学生的身心发展、学业成就和人际交往产生较大的负面影响，揭示内化问题的影响机制有助于促进小学高年级学生全面健康发展。依据生态系统理论、情绪调节理论和自我决定理论，父母采用心理控制的教养方式使小学高年级学生与父母的情感疏离，面对负性情绪事件小学高年级学生采用不适当的情绪调节策略如认知重评和表达抑制，压抑自身的情绪表达，自主性被破坏，基本心理需要得不到满足，进而引发焦虑、抑郁等内化问题。综上，本研究考察情绪调节策略和基本心理需要在父母心理控制和内化问题中的链式中介作用。本研究以 1014 名小学高年级学生为被试（平均年龄为 12.48±0.67 岁），使用父母心理控制问卷、内化问题量表、儿童青少年情绪调节问卷、基本心理需要量表，并通过 SPSS26.0、PROCESS 宏程序对中介模型进行检验。研究结果表明：（1）父母心理控制与小学高年级学生的表达抑制和内化问题呈显著负相关、与基本心理需要显著正相关；（2）认知重评与基本心理需要显著正相关，与内化问题显著负相关；表达抑制与基本心理需要显著负相关，与内化问题显著正相关；基本心理需要与内化问题显著负相关；（3）表达抑制、基本心理需要在父母心理控制影响小学高年级学生的内化问题中具有链式中介作用。研究提示，家庭环境中的父母心理控制，个体的情绪调节策略和基本心理需要都是影响小学高年级学生内化问题的重要因素。未来的家庭教育应关注父母教养方式对小学高年级学生发展的影响，个体在面对压力情境时要学会主动调节自身的情绪，努力提升个人的胜任感和自我效能感。

关键词 小学高年级学生，父母心理控制，内化问题，情绪调节策略，基本心理需要

Controlling Sadness: How does the internalization problem of senior primary school students arise?

Huang yafen[1] Bi jinzhu[1] Zhang rongyan[1] Sang qingsong[*1]

1Anhui Normal University School of Education Science，Wuhu，241000

*Correspondence：Sang qingsong，s7210qs1@ahnu.edu.cn

Abstract： Internalization problems refer to internal, emotional or emotional disorders, including depression, anxiety and loneliness. The continuous development of internalization problems will have a great negative impact on the physical and mental development, academic achievement and interpersonal communication of senior primary school students. Revealing the influence mechanism of internalization problems will help promote the comprehensive and healthy development of senior primary school students. According to the ecosystem theory, emotion regulation theory and self-determination theory, parents adopt psychological control parenting to alienate senior primary school students from their parents. In the face of negative emotional events, senior primary school students adopt inappropriate emotion regulation strategies such as cognitive reappraisal and expression inhibition, repress their emotional expression, destroys their autonomy, and fails to meet their basic psychological needs. This leads to internal problems such as anxiety and depression. In conclusion, this study examines the chain-mediating role of emotion regulation strategies and basic psychological needs in parental psychological control and internalization problems. In this study, 1014 senior primary school students (average age 12.48±0.67 years old) were used as subjects, using parental psychological control questionnaire, internalization problem scale, Children

and adolescents Emotional regulation questionnaire, basic psychological needs scale, and using SPSS26.0 and PROCESS macro program to test the mediation model. The research results found that: (1) parental psychological control was significantly negatively correlated with expression inhibition and internalization problems of upper primary school students,and significantly positively correlated with basic psychological needs； (2) cognitive reappraisal was significantly positively correlated with basic psychological needs and significantly negatively correlated with internalization problems; expression inhibition was significantly negatively correlated with basic psychological needs and significantly positively correlated with internalization problems; and basic psychological needs were significantly negatively correlated with internalization problems； (3) expression inhibition and basic psychology need to have a chain mediation role in the internalization problems of parental psychological control affecting upper primary school students. The study suggests that parental psychological control in the family environment, individual emotional regulation strategies and basic psychological needs are all important factors affecting the internalization problems of senior primary school students. In the future, family education should pay attention to the influence of parenting styles on the development of senior primary school students. Individuals should learn to proactively adjust their emotions in the face of stressful situations, and strive to improve their sense of competence and self-efficacy.

Keywords：Elementary students，Parental psychological control，Internalizing problems，Emotion regulation，Basic psychological need

中国新婚夫妻发展任务量表的编制

李清银 1，李嘉荷 2，陈子源 1，方晓义 1(通讯作者)

1 北京师范大学发展心理研究院, 北京, 100875, fangxy@bnu.edu.cn
2 北京师范大学外国语言文学学院，北京，100875

摘 要 **目的：**本研究旨在编制中国新婚夫妻发展任务量表。**方法：**通过文献分析、理论建构、个体访谈、专家讨论形成 40 个项目的初始问卷；以 662 名夫妻为被试进行项目分析和探索性因素分析，以另外 620 名夫妻为被试进行验证性因素分析和信效度检验，形成正式量表。此外，以 80 名夫妻为被试进行间隔两周的重测信度检验。**结果：**中国新婚夫妻发展任务量表共 23 个项目，李克特 1 到 5 点评分，包括 5 个因子：磨合差异、形成整体、融入对方家庭、建立规则、转化家庭角色。总量表及各维度的内部一致性信度在 0.62-0.85 之间，间隔两周重测信度在 0.56-0.91 之间。验证性因素分析表明五因子结构模型拟合良好($\chi^2/df = 2.626$, CFI = 0.916, TLI = 0.902, RMESA = 0.051, SRMR = 0.051)。量表总分与各因子得分显著相关(r =0.45~0.82)。量表总分及各因子得分与婚姻满意度(r =0.10~0.60)和婚姻稳定性(r =0.08~0.45)效标问卷显著正相关。**结论：**本研究编制的中国新婚夫妻发展任务量表信效度指标良好，可作为测量我国新婚夫妻发展任务的有效工具。

关键词 发展任务, 新婚夫妻, 量表编制, 信度, 效度

Development of the Developmental Tasks Scale for Chinese Newlywed Couples

Qingyin Li1, Jiahe Li2, Ziyuan Chen1, Xiaoyi Fang1
1 Institute of Developmental Psychology, Beijing Normal University, Beijing, 100875, fangxy@bnu.edu.cn
2 School of Foreign Languages and Literature, Beijing Normal University, Beijing, 100875

Abstract： Objective: The current study aimed to develop a scale for measuring the developmental tasks of

Chinese newlyweds couples. Method: The initial scale with 40 items was formed through literature analysis, theoretical construction, individual interviews, and expert discussions; item analysis and exploratory factor analyses were conducted with 662 couples, and validity and reliability tests were conducted with 620 couples to form the formal scale. Moreover, test-retest reliability was examined with 80 couples at two-week intervals. Results: The Chinese Newlywed Couples Developmental Tasks Scale consisted of 23 items, scored on a Likert scale of 1 to 5, including five factors: honing differences, forming a whole, integrating into each other's families, establishing rules, and transforming family roles. Internal consistency reliabilities for the total scale and dimensions ranged from 0.62 to 0.85, and retest reliabilities ranged from 0.56 to 0.91. Confirmatory factor analysis indicated a good fit of the five-factor structural model ($\chi 2/df = 2.626$, CFI = 0.916, TLI = 0.902, RMESA = 0.051, SRMR = 0.051). The total score was significantly correlated with each factor score ($r = 0.45 \sim 0.82$). The total score and each factor score were significantly and positively correlated with marital satisfaction ($r = 0.10 \sim 0.60$) and marital stability ($r = 0.08 \sim 0.45$), respectively. Conclusion: The Chinese Newlywed Couples Developmental Tasks Scale developed in this study has good reliability and validity and it can be used as a valid instrument to measure the developmental tasks of newlywed couples in China.

Keywords: developmental tasks, newlywed couples, scale development, reliability, validity

不同视角下自闭症谱系障碍儿童对情绪面孔的注意偏向

李友媛[1] 王怡帆[1] 张晓玉[1] 魏玲[1]（通讯作者）

1 福建医科大学应用心理学系，福州，350108，ysyang-78@163.com

摘 要 人类对威胁性刺激的注意被认为具有重要的适应价值。典型的“威胁优势效应”在人类婴儿早期就会出现，即面对复杂的环境刺激，个体倾向于尽快识别和加工威胁性刺激，存在对威胁性刺激的注意偏向，这有利于我们灵活应对威胁和避免伤害，具有重要的生物意义和社会意义。研究表明自闭症谱系障碍(Autism Spectrum Disorder, ASD)儿童在面孔加工和情绪识别方面存在困难，关于 ASD 儿童是否进化保存了和正常人一样对威胁性面孔的注意偏向，结果仍具有争议。并且有研究表明视角因素会影响 ASD 儿童对情绪面孔的注视，比起第一视角，ASD 儿童对第三视角下面孔的回避有所减少（第一视角指的是模特的面孔和视线都朝向前方，这时候 ASD 儿童处于当事人的视角，社会性和威胁感更强；第三视角指的是模特的面孔和视线方向都朝向侧面，这时 ASD 儿童处于旁观者的视角，社会性和威胁感减弱）。**目的：**本研究选用 ASD 儿童尝试探讨其是否进化保存了和正常个体一样的“威胁优势效应”以及视角（第一视角/第三视角）对其注视情绪面孔的影响。**方法：**本研究选取了 ASD 儿童和与 ASD 儿童言语智力相匹配的 TD 儿童各 32 名，给被试随机呈现愤怒（威胁性）、悲伤、快乐、中性的情绪面孔图片，结合自由观看范式和眼动追踪技术，收集记录被试的眼动数据。**结果：**1.ASD 儿童对情绪面孔的总注视时间（p<0.001）和首次注视时间（p<0.05）显著少于 TD 儿童；2.被试对愤怒情绪面孔的总注视时间显著多于开心（p<0.001）、中性（p<0.001）和悲伤（p<0.05）的情绪面孔，不存在组别差异；3.在第一视角下，ASD 儿童对所有情绪面孔的注视潜伏期均长于 TD 儿童（p<0.05），在第三视角下，ASD 儿童仅对中性面孔的注视潜伏期长于 ASD 儿童（p<0.05）。**结论：**ASD 儿童对面孔的加工存在异常；ASD 儿童存在对威胁性情绪面孔的注意偏向，进化保存了和正常人一样的“威胁优势效应”；视角会影响 ASD 儿童对情绪面孔的注视，第三视角促进了 ASD 儿童对情绪面孔的觉察。

关键词 自闭症谱系障碍儿童，情绪面孔，注意偏向，视角

Attentional bias toward emotional faces in children with autism spectrum disorders from different perspectives

Li Youyuan[1], Wei Ling[1]
1 Department of Applied Psychology, School of Health,
Fujian Medical University, Fuzhou, 350108, ysyang-78@163.com

***Abstract*:** Attention to threatening stimuli is thought to have important adaptive value in humans. Typically, the "threat superiority effect" occurs in early infancy, in which individuals tend to recognise and process threatening stimuli as quickly as possible in the face of complex environmental stimuli, and there is an attentional bias towards threatening stimuli, which is biologically and socially important for us to flexibly cope with threats and to avoid harm. Studies have shown that children with Autism Spectrum Disorder (ASD) have difficulties in face processing and emotion recognition, and the results are still controversial as to whether children with ASD have evolved to preserve the same attentional bias towards threatening faces as normal individuals. And it has been shown that the perspective factor influences ASD children's attention to emotional faces, with ASD children showing reduced avoidance of faces in the third-person perspective than in the first-person perspective (the first-person perspective refers to the model's face and line of sight being directed to the front, when the ASD child is in the person's perspective and is more social and threatening, and the third-person perspective refers to the model's face and the direction of the line of sight being directed to the side, when the (children with ASD are in the bystander's perspective, with a reduced sense of sociability and threat). **Objective**: In this study, children with ASD were selected in an attempt to examine whether they have evolved to retain the same "threat superiority effect" as normal individuals, and the effect of perspective (the first/third-person perspective) on their ability to look at emotional faces. **Methods**: Thirty-two children with ASD and 32 children with TD matched for verbal intelligence with ASD were randomly presented with pictures of angry (threatening), sad, happy, and neutral emotional faces, and eye-movement data were collected and recorded using a free-viewing paradigm and eye-tracking techniques. **Results**: 1. Children with ASD spent significantly less dwell time (p<0.001) and first fixation duration (p<0.05) on emotional faces than children with TD; 2. Subjects spent significantly more dwell time on angry emotional faces than on happy (p<0.001), neutral (p<0.001), and sad (p<0.05) emotional faces, with no group differences; 3. In the first-person perspective, children with ASD had longer gaze latencies than children with TD for all emotional faces (p<0.05), and in the third-person perspective, children with ASD had longer gaze latencies than children with ASD for neutral faces only (p<0.05). **Conclusion**: Children with ASD have abnormal processing of faces; children with ASD have an attentional bias towards threatening emotional faces and have evolved to preserve the same "threat superiority effect" as normal people; perspective affects children with ASD's attention to emotional faces, and the third-person perspective facilitates children with ASD's awareness of emotional faces.

***Keywords*:** Children with Autism spectrum disorders, emotional faces, attention bias, perspective

大学生拖延行为与焦虑的动态关系：基于日志法的研究

凌冬莲[1] 吴旻[2]（通讯作者）

1 赣南师范大学教育科学学院，赣州，341000

2 赣南师范大学学报编辑部，赣州，341000，gnsywm@126.com

摘 要 拖延行为在大学生群体中广泛存在，长期拖延对其身心健康、学习表现存在诸多消极影响，并形成负性结果与拖延之间的恶性循环，危害到个体的身心健康。焦虑常被视为拖延行为的前因或后果，两者间可能存在恶性循环。然而以往有关拖延行为和焦虑的研究几乎基于横断设计，能够在一定程度上解释个体间拖延行为与焦虑的关系，但对于两者的作用方向和因果结论具有局限性，也难以揭示短时间内个体内拖延行为与焦虑的动态变化。而密集追踪中的日志法调查不仅可以较好地捕捉短期内焦虑与拖延行为的动态变化，而且可以同时考察变量在个体内(within-person)、个体间(between-person)不同水平上的关系。综上，本研究从动态视角出发，基于三“A”理论和恶性循环模型，探究大学生拖延行为和焦虑在短期内的双向预测作用及其复杂的动态关系。研究采用一般拖延行为问卷和焦虑问卷对 294 名大学生进行连续 10 天、每天一次的日志问卷追踪调查，建立动态结构方程模型(DSEM)同时考察个体内、个体间两水平上拖延行为与焦虑的动态变化关系。结果发现：(1) 在个体内水平上，自回归表明前一天的焦虑(AN_{t-1})显著正向预测后一天的焦虑(AN_t)，前一天的拖延行为(PRB_{t-1})显著正向预测后一天的拖延行为(PRB_t)，同时，时间滞后分析发现前一天的焦虑(AN_{t-1})显著正向预测后一天的拖延行为(PRB_t)，前一天的拖延行为(PRB_{t-1})也能正向预测后一天的焦虑(AN_t)；(2) 在个体间水平上，前一天的焦虑水平(AN_{t-1})与后一天的焦虑水平(AN_t)存在正向预测作用，前一天的拖延行为(PRB_{t-1})对后一天的拖延行为(PRB_t)存在正向预测作用，前一天的焦虑水平(AN_{t-1})对后一天的拖延行为(PRB_t)存在显著正向预测作用，但前一天的拖延行为(PRB_{t-1})对后一天的焦虑(AN_t)没有影响。研究表明，大学生焦虑与拖延行为在个体内水平上之间存在双向互动，在个体间水平上不存在。本研究从动态视角揭示了大学生拖延行为与焦虑在短期内的动态关系，发现了打破焦虑与拖延行为之间的恶性循环可从个案着手，可通过团体辅导来降低大学生焦虑水平进而改善其拖延行为，对缓解大学生焦虑水平，改善其拖延行为具有一定启发。

关键词 拖延行为，焦虑，密集追踪，日志法，动态结构方程模型

The Dynamic Relationship between Procrastination Behavior and Anxiety in College Students: Research on Diary Method

Ling Donglian[1], Wu Min[2] (Corresponding author)

1 School of Educational Science, Gannan Normal University, Ganzhou, 341000

2 Editorial Department of Journal of Gannan Normal University, Ganzhou, 341000

Abstract: Procrastination behavior is widely present among college students. Long term procrastination has many negative effects on college students' physical and mental health, academic performance. And forms a vicious cycle between negative outcomes and procrastination, endangering individual physical and mental health. Anxiety is often seen as a precursor or consequence of procrastination behavior, and there may be a vicious cycle between them. However, previous studies on procrastination behavior and anxiety were almost based on cross-sectional design. To some extent, it can explain the relationship between procrastination behavior and anxiety between individuals. However, there are limitations to the direction and causal conclusions of them, and it is also difficult to reveal the dynamic changes in procrastination behavior and anxiety within individuals in a short period of time. The diary method in intensive longitudinal data can not only capture the dynamic changes of

anxiety and procrastination behavior in the short term, but also simultaneously examine the relationships between variables at different levels, such as within-person and between-person. In summary, based on the Three "A" Theory and the vicious cycle model, this study explored the bidirectional predictive effect and complex dynamic relationship between procrastination behavior and anxiety among college students in the short term from a dynamic perspective. 294 college students were investigated for 10 consecutive days, once a day by diary questionnaire, including the general procrastination behavior and anxiety. The dynamic structural equation model (DSEM) was established to investigate the dynamic relationship between procrastination behavior and anxiety, including within-person and between-person level.

A Dynamic Structural Equation Model (DSEM) was established to examine the dynamic changes in procrastination behavior and anxiety at both within-person and between-person. The results showed that: (1) At the within-person level, autoregressive analysis showed that anxiety from the previous day (AN_{t-1}) positively predicted anxiety from the following day (AN_t), and procrastination behavior from the previous day (PRB_{t-1}) positively predicted procrastination behavior from the following day (PRB_t). At the same time, time lag analysis found that anxiety from the previous day (AN_{t-1}) positively predicted procrastination behavior from the following day (PRB_{t-1}), and procrastination behavior from the previous day (PRB_{t-1}) also positively predicted anxiety from the following day (AN_t); (2) At the between-person level, there was a positive predictive effect between the anxiety of the previous day (AN_{t-1}) and the anxiety of the following day (AN_t). Procrastination behavior of the previous day (PRB_{t-1}) had a positive predictive effect on procrastination behavior of the following day (PRB_t). Anxiety of the previous day (AN_{t-1}) had a significant positive predictive effect on procrastination behavior of the following day (PRB_t), but procrastination behavior of the previous day (PRB_{t-1}) had no effect on anxiety of the following day (AN_t). Research showed that that there is a bidirectional predictive effect between anxiety and procrastination behavior among college students at the within-person level, while there is no bidirectional predictive effect at the between-person level. This study revealed that the dynamic relationship between procrastination behavior and anxiety among college students in the short term from a dynamic perspective. Research found that breaking the vicious cycle between anxiety and procrastination behavior can be started from individual cases, and group counseling can be used to reduce college students' anxiety and improve their procrastination behavior. This provided some inspiration for alleviating college students' anxiety and improving their procrastination behavior.

Keywords: procrastination behavior, anxiety, intensive longitudinal data, diary method, dynamic structural equation model

特质焦虑对青少年冒险行为的影响

张柯[1]　邓茂婷[1]　朱海东[2]（通讯作者）
1 石河子大学，新疆维吾尔族自治区，832000
2 石河子大学师范学院，石河子市，832000，86775709@qq.com

摘　要　有的研究认为焦虑是个体高冒险行为的预测因素，有的研究认为焦虑的个体会为了避免冒险的不确定性而减少冒险行为。这可能是因为焦虑影响了不同类型的冒险行为，即积极冒险行为和消极冒险行为。然而,已有的研究主要关注焦虑对青少年消极冒险行为的影响，相对忽视了焦虑对青少年积极冒险行为的影响。青少年社会情绪系统和认知控制系统发展的不平衡是其高冒险行为高发的重要因素，比起低自我控制的青少年来说，自我控制水平较高的青少年表现出更少的消极冒险行为和更多的积极冒险行为。鉴于此,本研究以新疆维吾尔族自治区的 1275 名青少年为被试，在分别考察特质焦虑、自我控制、积极冒险行为和消极冒险行为关系的基础上，进一步揭示了学校氛围在其中的调节作用。结果表明:(1)特质焦虑显著正向预测青少年消极冒险行为；特质焦虑对青少年积极冒险行为的直接预测作用不显著；(2)自我控制在特质焦虑对青少年消极冒险行为的影响中起中介作用；(3)学校氛围能够调节特质焦虑与青少年积极冒险行为之间的关系，在良好的学校氛围中，青少年焦虑能够显著正向预测其积极冒险行为。研究结果说明了特质焦虑对青少年不同类型冒险行为的重要影响以及自我控制的中介作用机制和学校氛围的调节作用机制，为增加青少年的积极冒险行为以满足其社会情绪发展的需求，提高青少年的认知控制能力以减少其消极冒险行为的发生提供实证支持，并进一步完善冒险行为理论，尤其是积极冒险行为的相关理论。

关键词　特质焦虑，冒险行为，自我控制，学校氛围，青少年

The influence of trait anxiety on risk-taking behavior in adolescents

Zhang Ke, Deng Maoting, Zhu Haidong
Normal college, Shihezi University, Xinjiang Uygur Autonomous Region, China, 832000

***Abstract*:** Some studies suggest that anxiety is a predictor of high risk behavior, while others suggest that anxious individuals reduce risk taking in order to avoid the uncertainty of risk taking. This may be because anxiety affects different types of risk-taking, namely positive risk-taking and negative risk-taking. However, existing studies mainly focus on the impact of anxiety on adolescents' negative risk-taking behavior, but relatively ignore the impact of anxiety on adolescents' positive risk-taking behavior. The imbalance between the development of adolescents' social-emotional system and cognitive control system is an important factor for their high risk behavior. Compared with adolescents with low self-control, adolescents with high self-control level show less negative risk behavior and more positive risk behavior. In view of this, this study took 1275 adolescents in Xinjiang Uygur Autonomous Region as subjects, and further revealed the moderating effect of school atmosphere on trait anxiety, self-control, positive risk-taking behavior and negative risk-taking behavior on the basis of examining the relationship between trait anxiety, self-control, positive risk-taking behavior and negative risk-taking behavior. The results showed that :(1) trait anxiety positively predicted adolescents' negative risk-taking behavior; The direct prediction effect of trait anxiety on adolescents' positive risk-taking behavior is not

significant; (2) Self-control plays a mediating role in the influence of trait anxiety on adolescents' negative risk-taking behavior; (3) School atmosphere can regulate the relationship between trait anxiety and adolescents' positive risk-taking behaviors. In a good school atmosphere, adolescents' anxiety can significantly and positively predict their positive risk-taking behaviors. The results demonstrate the important influence of trait anxiety on different types of risk-taking behaviors of adolescents, as well as the mediating mechanism of self-control and the regulating mechanism of school atmosphere, which provide empirical support for increasing adolescents' positive risk-taking behaviors to meet their needs of social emotional development and improving their cognitive control ability to reduce the occurrence of negative risk-taking behaviors. And further improve the theory of risk-taking behavior, especially the theory of positive risk-taking behavior.

Keywords：trait anxiety, risk-taking behavior, self-control, school climate, adolescents

夫妻压力感知与婚姻不稳定性的关系：不同沟通模式的中介作用及其跨婚龄一致性

王宵悦[1]　李清银[1]　陈子源[1]　方晓义[1]（通讯作者）
1 北京师范大学发展心理研究院，北京，100101，fangxy@bnu.edu.cn

摘 要　根据中国民政部调查，我国当前结婚率持续跌落，粗离婚率也持续出现下降趋势。考察婚姻不稳定的影响因素对维护婚姻和谐至关重要。随着生活节奏加快，生活中遭受的压力容易成为夫妻婚姻不稳定的导火索。本研究旨在考察痛苦压力情况和应对压力情况与婚姻不稳定性之间的关系，并进一步探索夫妻之间言语沟通和非言语沟通在该过程中的中介作用，同时探究该机制的跨婚龄一致性。采用压力感知问卷、日常沟通问卷、婚姻不稳定指数量表对新婚至空巢阶段的 668 对夫妻进行调查。研究结果显示：（1）丈夫感知到的痛苦压力在各个婚龄段都没有影响夫妻沟通质量；（2）除新婚时期外，其他婚龄丈夫的痛苦压力对婚姻稳定性没有影响，存在跨婚龄一致性；（3）与丈夫相反，新婚妻子的痛苦压力没有影响到婚姻稳定性。但在有子女后，开始产生作用并逐步通过影响夫妻沟通质量影响婚姻稳定；（4）除新婚时期外，丈夫的应对压力通过降低夫妻沟通质量进而使婚姻不稳定，该机制具有跨婚龄一致性；（5）妻子的应对压力主要通过降低夫妻言语沟通质量使婚姻不稳定，该机制具有跨婚龄一致性。本研究发现，夫妻在感知到痛苦和应对方面的压力时，很可能会通过影响夫妻之间的言语沟通或非言语沟通质量进而使婚姻不稳定，且该过程中存在跨婚龄一致性。研究提示各婚龄阶段夫妻尤其是在拥有子女之后，在面对生活中的压力时，都应该增加夫妻之间的沟通交流，互相扶持支撑，从而有助于婚姻稳定和关系和谐。本研究为探究婚姻不稳定性的影响因素及机制提供了理论支撑和实证基础，有利于未来对婚姻不稳定的有效干预以促进婚姻和谐。
关键词　痛苦压力，应对压力，夫妻沟通模式，婚姻不稳定性，跨婚龄一致性

The relationship between marital stress perception and marital instability: the mediating effect of different communication modes and their consistency across marital ages

Xiaoyue Wang[1]　Qingyin Li[1]　Ziyuan Chen[1]　Xiaoyi Fang[1]（corresponding author）
1 Institute of Developmental Psychology, Beijing Normal University, Beijing, China

Abstract：According to the Ministry of Civil Affairs of the People's Republic of China survey, the marriage rate in our country is continuing to fall, and the crude divorce rate is also continuing to decline. It is very important to study the influencing factors of marital instability to maintain marital harmony. With the quickening pace of life, the pressure in life can easily become the fuse of marital instability. The purpose of this study was to examine the relationship between distressing stressful situations/coping with stressful situations and marital instability, and to further explore the mediating role of verbal and non-verbal communication between couples in this process, as well as to explore the consistency of this mechanism across marital age. A stress perception questionnaire, a daily communication questionnaire, and an index of marital instability scale were used to survey 668 couples in the

newly married to empty nest stage. The results of the study showed that (1) the husband's perceived distressing stress did not affect the quality of couples' communication at all ages of marriage; (2) there is no effect of distress pressure from husbands at marriage age on marital stability, except during the newlywed period. There was cross-marital age consistency in the mechanism; (3) in contrast to husbands, the stress of distress in new wives did not affect marital stability. However, after having children, it begins to take effect and gradually affects marital stability by influencing the quality of the couple's communication; (4) except during the newlywed period, the husband's coping stress destabilizes the marriage by reducing the quality of spousal communication, and the mechanism is consistent across marital age; (5) Wives' coping stress destabilizes marriages mainly by reducing the quality of the couple's verbal communication, and the mechanism is consistent across marital age. This study found that couples who perceive stress in terms of distress and coping are likely to destabilize their marriages by affecting the quality of verbal or non-verbal communication between the couples and thus the marriage. Moreover, this process is consistent across couples at different stages of marriage. The study suggests that couples of all marital ages, especially after having children, should increase their communication and support each other in the face of life's pressures, thus contributing to marital stability and relationship harmony. This study provides theoretical support and an empirical basis for exploring the influencing factors and mechanisms of marital instability, which is conducive to the effective intervention of marital instability to promote marital harmony in the future.

Keywords： distress stress, coping stress, couple communication mode, marital instability, consistency across marital ages

6.5“理论心理学与心理学史专业委员会”分组展贴报告

概念结构研究的 ERAI 四阶梯框架模型的建构

王阳茜[1] 钱扬义[2]（通讯作者）

1 华南师范大学心理学院，广州，510631

2 华南师范大学化学学院，广州，510006，通讯作者 E-mail：qianyy@scnu.edu.cnqianyy@scnu.edu.cn

摘 要 概念及概念结构研究一直以来都是认知心理学和教育心理学研究的重点课题，此类研究旨在深入探究概念结构内部由哪些子概念构成，以及这些概念之间的组织规律和结构关系，以了解人类对事物的认知和知识组织方式。然而，在对国内外以往的概念结构研究进行系统性回顾后发现，由于概念结构具体表现形式的多元化（体现概念间中心、集聚、层级、方向、强度关系等多角度的表现形式），再加之形式研究方法的复杂性（体现概念结构不同形式及不同阶段下探究方法的各异），这两个特征均使得概念结构的研究仍然缺乏统一的研究框架和方法论。因此，为深化对社会性概念、逻辑性概念及学科概念等不同种类概念及其结构在探究框架上的一致性，需要在方法论上寻求更加综合和统一的研究路径，并在不同情景下灵活运用合理方法探究不同的形式表征。综上所述，本文从概念的引出（eliciting）、概念结构的表征（representing）、评价（assessing）及改善（improving）四个方面着手，首次提出概念结构研究的方法框架模型，即引出-表征-评价-改善的 ERAI 四阶梯框架模型；同时，将概念结构的不同表现形式及形式的探究方法集成于该模型下，对不同形式在该框架下的探究方法及其差异进行不同角度的阐述。文章旨在为未来概念结构研究提供系统的、科学的和完善的方法论框架模型，在此基础上理清概念结构的具体形式和探究方法，并对当前概念结构仍存在的研究问题及创新等方面的发展方向进行思考。

关键词　概念结构，模型建构，方法论，概念认知。

Constructing the ERAI four-step framework model for conceptual structure research

Yangqian Wang[1], Yangyi Qian[2]
[1] School of Psychology, South China Normal University, Guangzhou, 510631
[2] School of Chemistry, South China Normal University, Guangzhou, 510006

Abstract：Concepts and their concept structure research has been a prominent focus in the fields of cognitive psychology and educational psychology. Researchers seek to delve into the sub-concepts comprising the conceptual structure and the organizational principles between these concepts, thereby gaining insights into human cognition and knowledge organization about things. However, a systematic review of previous conceptual structure research, both domestically and internationally, has revealed that due to the diversity in the specific manifestations of concept structures and the complexity of research methods for studying these manifestations, both of these characteristics have resulted in a continued lack of a unified research framework and methodology for concept structure research. Therefore, in order to deepen our understanding of the consistency in exploring different types of concepts and their structures within a research framework, it is imperative to seek a more comprehensive and unified methodological approach. In summary, to address this gap, this paper presents the ERAI four-step framework model, which consists of four stages: inspiring, articulating, evaluating, and improving concepts. By integrating different forms of inquiry methods within this model, we aim to explore various manifestations and forms of conceptual structure in a comprehensive and unified manner. The aim of this article is to provide a systematic, scientific, and comprehensive methodological framework model for future concept structure research. Based on this foundation, it seeks to clarify the specific manifestations of concept structures and research methods, as well as contemplate the directions for development in current concept structure research, including existing research challenges and innovations.

Keywords：Conceptual structure, model construction, methodology, conceptual cognition

古诗词情景模拟对缓解大学生心理焦虑的作用

马涛（通讯作者）
1 山西师范大学教育科学学院，太原，030000，838361718@qq.com

摘 要　古诗词作为中华文化之瑰宝，凝结了千年来中国文人墨客的智慧，表达了诗人们对所处时代的各种情绪态度。从小到大接受大量传统文化洗礼的当代大学生，头脑中都具备一定的古诗词文化储备，但古诗词中背后的文化内涵和创作背景理解较浅。在这个后疫情时代，不确定的、未知的明天带给大学生面对生活的恐惧，产生心理焦虑，影响了他们正确面对作为学生和社会过渡期的大学生活，这也对之后步入社会产生了影响，需要全社会关注。而古诗词作为联结古今五千年的精神纽带，能够给予当代大学生精神支持，因此可以把古诗词作为一种缓解心理焦虑的情景模拟治疗手段，通过让大学生搭配背景音乐朗诵古诗词，播放古诗词创作背景故事视频，讲述古诗词作者人物生平，多角度调动大学生情绪感官，将存在于大学生脑海里的古诗词与身体中流淌的中华血脉产生共鸣，最大程度上激发出古诗词背后的情绪情感，身临其境地领略古诗词所表达的慷慨激昂，进一步使得大学生能够与作者共情，代入到古诗词创作情景，和古诗词人对话，领略古诗词人智慧，提升自身看待问题的方式方法，理解个人在时代洪流中的渺小，将目光放在当下，从而提高自身心理承受能力，缓解心理焦虑的影响，更加积极乐观地面对大学生活，拥抱未来的工作生活。

关键词　古诗词，心理焦虑，情景模拟

The Effect of Scene Simulation of Ancient Poetry on Alleviating Psychological Anxiety of College Students

Ma Tao
Institute of Education Science of Shanxi Normal University, Taiyuan, 030000, China

Abstract：As a treasure of Chinese culture, ancient poetry embodies the wisdom of Chinese literati and poets for thousands of years, expressing various emotional attitudes of poets towards their time. Contemporary college students who have been baptized by a large amount of traditional culture from childhood to adulthood have a certain cultural reserve in their minds, but their understanding of the cultural connotations and creative backgrounds behind ancient poetry is relatively shallow. In this post pandemic era, the uncertain and unknown tomorrow has brought fear and psychological anxiety to college students in the face of life, which has affected their ability to correctly face university life as students and the transitional period of society. This has also had an impact on entering society in the future and requires the attention of the whole society. As a spiritual bond connecting ancient and modern times for five thousand years, ancient poetry can provide contemporary college students with spiritual support. Therefore, ancient poetry can be used as a situational simulation therapy to alleviate psychological anxiety. By allowing college students to recite ancient poetry with background music, playing videos of the background story of the creation of ancient poetry, telling the life of the characters who wrote ancient poetry, and mobilizing college students' emotional senses from multiple perspectives, By resonating with the ancient poetry that exists in the minds of college students and the Chinese blood flowing in their bodies,

the emotional emotions behind ancient poetry can be stimulated to the greatest extent. By experiencing the impassioned expression of ancient poetry in person, college students can further empathize with the author, immerse themselves in the scene of ancient poetry creation, have conversations with ancient poetry poets, appreciate the wisdom of ancient poetry poets, and improve their own ways of viewing problems, Understanding an individual's insignificance in the current tide of the times, focusing on the present, in order to improve their psychological resilience, alleviate the impact of psychological anxiety, and have a more positive and optimistic attitude towards university life, embracing future work and life.

Keywords：Ancient poetry and lyrics，Psychological anxiety，Simulation

害群之马效应和群际敏感效应的本土化检验：群体认同的调节作用

宋柯柯（通讯作者） 李娜 黄亚博
山西师范大学教育科学学院心理系，太原，030031，1981151826@qq.com

摘 要 害群之马效应指对越轨的内群体成员的反应比对同样越轨外群体成员的反应更消极。群际敏感效应指当群外成员对群内成员提出批评时，群内成员的反应是消极的，而群内成员提出的相同批评则会得到更积极的回应。本研究旨在检验在我国一般群体条件下和最简单群体条件下的害群之马效应和群间敏感性效应。实验 1 采用 2(评价者身份：内群体、外群体)×2(评价目标：内群体、外群体)的被试间设计。采用学校作为现实形成的群体分类，以消极评价故事情境作为实验材料，通过测量被试对违规成员的积极态度和消极态度，来考察在一般群体条件下，被试对不同群体身份的消极评价的态度是否具有差异。预期结果：评价目标的主效应显著，人们对消极评价内群体的成员态度更消极。评价者身份和评价目标交互作用显著，被试对内群体成员评价内群体的态度比外群体成员评价外群体的态度更消极，呈害群之马效应；对内群体成员评价内群体的态度比外群体成员评价内群体更积极，呈群际敏感效应。实验 2 纳入变量群体认同，采用 2(评价者身份：内群体、外群体)×2(评价目标：内群体、外群体) ×2(群体认同：高、低)的被试间设计。运用最简群体范式中的颜色方块估计任务将被试随机分为不同群体，以想象的群际互动情境为实验材料，通过测量被试对违规成员的积极态度和消极态度，来探究在最简群体条件下，群体认同在其中的调节作用。预期结果：评价者身份和评价目标交互作用显著，同实验 1；害群之马效应在群体认同水平高的被试中效应更强。研究发现在集体主义文化中，群体间互动依旧存在害群之马效应和群际敏感效应，对相关研究具有一定的理论意义。

关键词 内/外群体，害群之马效应，群际敏感效应，群体认同

Indigenization of the black sheep effect and the intergroup sensitization effect: the moderating role of group identification

Song Keke, Li Na , Huang Yabo
Shanxi Normal University,Taiyuan,030031, 1981151826@qq.com

Abstract： The black sheep effect refers to a more negative reaction to an errant in-group member than to an equally errant out-group member. The intergroup sensitivity effect refers to the fact that when an outgroup member criticizes an in-group member, the in-group member will react negatively, while the same criticism from an in-group member will receive a more positive response. The aim of this study was to examine the black sheep effect and the intergroup sensitivity effect under the general population condition and the simplest population condition in China. In experiment 1, The inter-subject design of 2(identity of evaluator: in-group, out-group) × 2(evaluation objective: in-group, out-group) was adopted. The study uses the school as the group classification formed by reality, and the negative evaluation story situation as the experimental material. By measuring the positive attitude and negative attitude of the subjects to the offending members, it investigates whether the negative evaluation attitude of the subjects to different group identities is different under the general group condition. Expected result: The main effect of the evaluation goal was significant, and people had more negative attitudes toward the members of the negative evaluation group. There is a significant interaction between the

evaluator's identity and the evaluation goal. The subjects' attitude toward evaluation of in-group members is more negative than that of out-group members, showing a black sheep effect. The attitude of in-group evaluation by in-group members was more positive than that by out-group members, showing an intergroup sensitivity effect. In experiment 2, the variables group identity were included, and the inter-subject design of 2(evaluator identity: in-group, out-group)×2(evaluation objective: in-group, out-group)×2(group identity: high, low) was adopted. The color block estimation task in the minimalist group paradigm was used to randomly divide the subjects into different groups. The imaginary intergroup interaction situation was used as the experimental material, and the moderating effect of group identification was explored by measuring the positive and negative attitudes of the subjects towards the offending members under the minimalist group condition. Expected results: The interaction between evaluator identity and evaluation goal was significant, similar to experiment 1; The black sheep effect was stronger in subjects with higher group identification levels. It is found that in collectivist culture, there are still black sheep effect and intergroup sensitivity effect, which has certain theoretical significance for related research.
Keywords：In-group/Out-group, The black sheep effect, Intergroup sensitivity effect, Group identity

数字健康技术助力心理服务

夏秀娟（通讯作者）

渭南师范学院心理系 渭南 714099 2278879448@qq.com

摘 要 随着信息技术的高度发展，人类已经进入了数字化时代。数字健康是数字化时代之下产生的新概念，关于数字健康目前没有达成共识，但有学者将其描述为：使用信息技术或电子通信工具，提供医疗保健服务或促进更好的健康的服务或模式，其本质是根植于信息和通信技术在健康领域的应用。数字健康技术的引入呈爆炸式增长，如大数据、个性化医疗等领域都有体现。国内数字健康技术倾向于服务老年群体健康，在心理健康领域的应用尚有欠缺。当前国内心理健康问题形势愈加严重，从《2022 年国民抑郁症蓝皮书》可见一斑，数字健康技术能否为心理问题治理带来契机，可以从如下几点展开。

心理健康问题低龄化。从蓝皮书可见 50%的抑郁症患者为学生群体，所以青少年群体的心理问题急需关注。作为数字原住民，青少年群体对数字技术带有天然的亲昵感，数字健康技术在青少年群体中应用推广具有优势

心理问题污名化。污名化致使有心理服务需求的群体只能获得有限的帮助，调查表明个体寻求心理服务的概率很低，且在线服务高于校内服务。心理问题的早发性普遍性。数字健康技术可以减少寻求帮助的耻辱感，于学生而言具有易获得性、熟悉性、廉价性、保密性。

当前已有的数字健康技术更多体现为可穿戴设备和手机应用程序，然而具备心理服务能力的设备较少，数字健康技术在心理健康领域极大应用空间。提供简便的心理状况监测设备或程序，精准且私密的有效策略推送，以便个体进行初步自我管理。强化互动，很多心理问题的发生受所处时代和环境的影响，提供数字健康技术时同步同龄人相关症状的信息，给患者“我不是孤独的”感受以增强其疗愈信心。

数字健康技术为个体获得更多的医疗保健、心理服务的机会，但风险也同时存在。大数据或人工智能驱动的数字健康方案是否适合，不受监管的数字健康工具的扩散，个人健康信息隐私和安全的威胁也需要及时规范和防范。

关键词 数字健康技术，心理服务，污名化，信息健康

Digital Health Technology Helps Psychological Services

XIA Xiu Juan

WeiNan Normal university WeiNan city

Abstract：With the rapid development of information technology, humanity has entered the digital age. Digital health is a new concept emerging in the digital era. At present, there is no consensus on Digital health, but some scholars describe it as a service or model that uses information technology or electronic communication tools to provide medical care services or promote better health. Its essence is rooted in the application of information and communication technology in the health field. The introduction of Digital health technology has grown explosively, such as Big data, personalized medicine and other fields. Domestic Digital health technology tends to serve the health of the elderly, and its application in the field of mental health is still lacking. At present, the situation of mental health problems in China is becoming more and more serious. As can be seen from the Bluebook of National Depression in 2022, whether Digital health technology can bring opportunities for the treatment of mental problems can be launched from the following points.

Mental health issues are becoming younger. It can be seen from the Bluebook that 50% of depression patients are students, so the psychological problems of the adolescent group need urgent attention. As digital aborigines, young people have a natural affinity for digital technology, and Digital health technology has advantages in its application and promotion among young people

The stigmatization of psychological problems. The stigmatization results in groups with psychological service needs only receiving limited assistance. Surveys have shown that individuals have a low probability of seeking psychological services, and online services are higher than campus services. The early onset and universality of psychological problems. Digital health technology can reduce the stigma of seeking help, and it is easy to obtain, familiar, cheap and confidential for students.

At present, the existing Digital health technology is more embodied in wearable devices and mobile phone applications. However, there are few devices with psychological service capabilities. Digital health technology has great application space in the field of mental health. Provide simple psychological monitoring devices or programs, precise and private effective strategy push, for individuals to conduct initial self-management. Strengthen interaction. The occurrence of many psychological problems is affected by the era and environment. Provide information about synchronization of peer related symptoms when using Digital health technology, and give patients the feeling of "I'm not alone" to enhance their confidence in healing.

Digital health technology provides individuals with more opportunities for medical care and psychological services, but risks also exist. Whether Big data or AI driven Digital health solutions are suitable, the proliferation of unregulated Digital health tools, and threats to the privacy and security of personal health information also need to be regulated and prevented in a timely manner.

Keywords：Digital health technology, Psychological service, Stigmatization, Information health

6.6“普通心理和实验心理专业委员会”分组展贴报告

动作抑制对危险物体动作干扰效应的作用——基于启动目标抓握一致性判断任务的脑电实验证据

刘鹏[1]（通讯作者） 王永春[2] 王勇慧[2]

1 西北大学公共管理学院（应急管理学院），西安，710127，liupeng@nwu.edu.cn

2 陕西师范大学心理学院，西安，710062

摘 要 人类对危险物体具有回避本能。危险物体会干扰个体的动作执行，从而延迟个体对危险物体的反应。这种现象被称为危险物体引发的动作干扰效应。前人研究对动作抑制是否作用于动作干扰效应是有争议的。已有研究选用形状匹配的危险（如长方形或圆形锯片）和安全（如尺子或圆盘）物体作为目标刺激，并采用动作启动范式结合 Go/NoGo 任务或形状辨别任务对目标刺激进行按键反应。结果显示，反应时结果中动作干扰效应仅伴随危险条件下更正的 P2 和 P3 成分而出现，在动作抑制相关的额叶 N2 成分上并未发现危险和安全条件间的差异。另有研究发现动作抑制的出现可能受到任务类型的调节。与安全物体相比，危险物体在可及性判断任务（判断能否够着物体）中能增强动作抑制相关的 N2 成分波幅，但在属性辨别任务（判断目标刺激是人造还是自然物体）中则未发现 N2 效应。然而，目前仍不清楚任务类型为何会调节动作抑制的产生。我们推测，目标刺激承载动作信息（affordance）的激活强度可能是不同任务类型调节动作抑制产生的原因。为了验证这一假设，本研究设计了启动目标抓握一致性判断任务，启动刺激包括力量抓握和精细抓握的手势，目标刺激包括需要力量抓握和精细抓握的危险与安全物体，任务要求被试根据启动和目标刺激抓握方式是否匹配进行反应，如二者匹配被试需根据启动刺激出现位置按键反应，反之则不按键。结果显示，在高激活强度条件下（即目标刺激为力量抓握的物体），与安全目标相比，处理危险目标会引发更强的动作抑制（表现为额叶 N2 成分波幅增加），并在反应时指标中产生动作干扰效应；相反，在低激活强度条件下（即目标刺激为精确抓握的物体），与安全目标相比，处理危险目标反而加快了反应时间，且额叶 N2 成分在危险和安全条件下并未出现显著差异。综上，本研究通过设计启动目标抓握一致性判断任务，验证了目标刺激承载动作信息的激活强度是动作干扰效应中动作抑制能否产生的重要因素，研究推进了对动作干扰效应加工机制的认识。

关键词 危险物体，动作干扰效应，启动目标抓握一致性判断任务，动作抑制，事件相关电位

Motor Inhibition Impacts the Motor Interference Effect of Dangerous Objects: EEG Evidence Based on a Prime-Target Grasping Consistency Judgment Task

Peng Liu[1] (corresponding author) Yongchun Wang[2] Yonghui Wang[2]

1 School of Public Administration/School of Emergency Management, Northwest University, Xi’an, 710127, liupeng@nwu.edu.cn

2 School of Psychology, Shaanxi Normal University, Xi’an, China, 710062

Abstract: Humans have an instinct to avoid dangerous objects, which can interfere with their actions and cause a delay in their response, known as the motor interference effect of dangerous objects. However, previous research

on whether motor-inhibitory processing affects this effect has been controversial. Studies have used shape-matched dangerous (e.g., rectangular or circular saw blade) and safe (e.g., ruler or disc) objects as target stimuli, adopting a motor priming paradigm combined with a Go/NoGo task or a shape discrimination task for keystroke responses to the target stimuli. Results showed that motor interference effects in response times (RTs) only occurred with more positive P2 and P3 components in the dangerous condition. No differences between the dangerous and safe conditions were found for the frontal N2 component associated with motor inhibition. Other studies found that task type may modulate the emergence of motor inhibition. Dangerous objects enhanced the N2 component in a reachability judgment task (judging whether an object could be reached), but not in an attribute discrimination task (judging whether the targets were natural or man-made). However, it remains unclear why task type modulates the emergence of motor inhibition. We hypothesized that the affordance activation strength of the target stimulus might be responsible. To test this hypothesis, the present study designed a prime-target grasping consistency judgment task, where the prime stimuli included power grip and precision grip gestures, and the target stimuli included dangerous and safe objects afforded power and precision grasping. Subjects were required to respond based on whether the prime and target stimulus grasps matched. If they did match, subjects were required to press a key corresponding to the location where the prime stimulus appeared. Otherwise, no key press was necessary. The results showed that under the condition of high activation strength of the target affordance (i.e., power grip targets), processing dangerous targets evoked increased motor inhibition (reflected by a more negative frontal N2 component) compared to safe targets and produced a motor interference effect in RT. In contrast, under the condition of low target affordance activation strength (i.e., precision grip targets), processing dangerous targets facilitated RT compared to safe targets, with no difference found between the dangerous and safe conditions in the frontal N2 component. In summary, the present study verified that the affordance activation strength of the target stimulus is an important factor in whether motor inhibition can take effect in the motor interference effect. This study advanced the understanding of the mechanism of the motor interference effect by designing a prime-target grasping consistency judgment task.

Keywords：dangerous objects, motor interference effect, prime-target grasping consistency judgment task, motor inhibition, event-related potential

单次有氧运动对于不同特质焦虑个体错失焦虑影响

周子安[1] 张晓雨[1]（通讯作者）

[1]北京体育大学心理学院，北京，100084

通讯作者 E-mail：zxy0335@126.com

摘 要 错失焦虑是指个体因担心错失他人的新奇经历或正性事件而产生的一种弥散性焦虑。近年来随着居家办公学习频率的增高，个体对于手机或网络信息的依赖程度增加，表现为频繁地刷新手机或网络社交媒体，因担心自己错过于他人的精彩活动而感到恐惧和紧张,错失焦虑愈加明显。在此现象是背后，又存在个体间的差异。本研究拟使用有氧运动干预个体错失焦虑，且试图在高、低两种特质焦虑中探讨有氧运动对错失焦虑的干预效果。本研究选取大学生被试 61 名，采用两因素完全被试间设计，先对被试进行了错失焦虑的前测，后将被试分为高低特质运动组，高低特质非运动组，低特质运动组，低特质非运动组。运动组在跑步机上进行 30 分钟中等强度有氧运动，非运动组保持静息状态 30 分钟，随后进行错失焦虑后测。研究结果表明：有氧运动干预的主效应显著：有氧运动可以显著降低的错失焦虑；有氧运动与特质焦虑交互作用显著，并且错失焦虑仅在高特质焦虑下，运动干预效果显著，在其他组别不明显。对被试错失焦虑与本特质焦虑进行相关分析，研究结果表明：错失焦虑与特质焦虑呈现显著正相关，符合前人研究结果。研究为错失焦虑的干预提供了实证证据，也为拟定干预焦虑人群的运动处方提供了基础。

关键词 错失焦虑，干预，特质焦虑，中等强度有氧运动

The effect of a single aerobic exercise on Fear of Missing out in individuals with different trait anxiety

ZHOU Zian[1] ZHANG Xiaoyu[1]

Beijing Sport University,No. 48 Information Road, Haidian District, Beijing

***Abstract*:** Fear of Missing out is a kind of disseminated anxiety caused by an individual for fear of missing novel experiences or positive events of others. In recent years, with the increase of the frequency of home working and learning, individuals have increased their dependence on mobile phones or Internet information, which is manifested in frequently refreshing mobile phones or Internet social media, and feel fear and tension because of their mistakes over others' wonderful activities, and missing anxiety is more and more obvious. Behind this phenomenon, there are differences between individuals. This study intends to use aerobic exercise intervention for individual miss anxiety, and tries to explore the intervention effect of aerobic exercise on missed anxiety in both high and low trait anxiety. In this study, 61 college students were selected to adopt the two-subject design. The participants first had a pre-test of missed anxiety, and then divided them into high and low trait exercise group, high and low trait non-exercise group, low trait exercise group and low trait non-exercise group. The exercise group performed 30 min of moderate-intensity aerobic exercise on a treadmill, while the non-exercise group remained in a resting state for 30 min, followed by a missed anxiety post-test. The results show that the main effects of aerobic exercise intervention are significant: aerobic exercise can significantly reduce missed anxiety; aerobic exercise and trait anxiety interact significantly, and missed anxiety is significant only in high trait anxiety, but not in other groups.The correlation between miss anxiety and trait anxiety was analyzed, and the results showed that miss anxiety and trait anxiety showed a significant positive correlation, which is in line with the results of previous studies. This study provides empirical evidence for an intervention to miss anxiety and also provides a basis for the proposed exercise prescription for the intervention in anxious populations.

***Keywords*：** Fear of Missing out, intervene, trait anxiety, Moderate-intensity aerobic exercise

项目难度和学习方式对学习判断反应性的影响

陈璐瑶[1]　张振新[1]　王勋[2]（通讯作者）
1 浙江师范大学心理学院，金华，321000
2 浙江师范大学心理学院，金华，321000，wangx@zjnu.cn

摘 要　学习判断是元认知监测性判断的一种重要形式，通常被定义为在后续测试中对已经学习过的项目的预见性判断(Dunlosky & Metcalfe, 2009)。研究者发现要求被试判断他们的学习情况会改变正在进行的学习过程，使其随后的记忆成绩发生变化(Roediger & Karpicke, 2006; Spellman & Bjork, 1992)。这种变化被称为学习判断反应性（judgment of learning reactivity），即做出学习判断的行为在一定程度上影响了随后的记忆成绩，使学习判断组被试的记忆成绩和无学习判断组被试的记忆成绩之间出现了显著差异(Dougherty et al., 2005; Witherby & Tauber, 2017)。目前关于学习判断是否直接影响学习者的记忆表现仍存在争议。为贴近现实学习环境，本研究采用新颖的“英文单词—中文释义”形式的词对材料来探究学习判断对学习者记忆的影响及其发生条件。本研究共设计了两个实验。实验一采用 2（判断条件：有学习判断/无学习判断）×2（项目难度：容易/困难）的两因素混合实验设计。实验一发现仅在容易项目中产生了学习判断的反应性。鉴于 Ariel 等人（2021）发现做出学习判断可以增强对科学文本的理解，但前提是在 JOL 之前提示学习者进行公开提取。本研究在实验二中引入学习方式这一条件，探讨采取其他辅助学习策略（如提取练习）来引导学习者进行公开提取，更改学习方式是否会影响困难项目中学习判断反应性的产生。实验二采用 2（判断条件：有学习判断/无学习判断）×2（学习方式：持续学习/提取练习）的两因素混合实验设计。两个实验得出的结论如下：（1）在容易项目上出现了学习判断的反应性，即做出学习判断的容易项目的回忆成绩显著优于未做出学习判断的容易项目的回忆成绩；然而在困难项目上不存在学习判断的反应性，即无论是否做学习判断，不影响被试在困难项目上的记忆表现。（2）在提取练习的学习方式中，困难项目出现了学习判断的反应性，即在学习阶段使用了提取练习策略并做出学习判断的被试，其记忆成绩显著高于仅使用提取练习策略的被试；然而在持续学习条件中，困难项目不存在学习判断的反应性。

关键词　学习判断反应性，项目难度，学习方式，提取练习

Effects of item difficulty and learning mode on judgment of learning reactivity

Chen Luyao[1], Zhang Zhenxin[1], Wang Xun[2]（corresponding author）
1 School of Psychology, Zhejiang Normal University, Jinhua, 321000
2 School of Psychology, Zhejiang Normal University, Jinhua, 321000, wangx@zjnu.cn

Abstract：Judgment of learning is an important form of metacognitive monitoring judgment, which is typically defined as the prospective judgment of previously learned items during subsequent testing (Dunlosky & Metcalfe, 2009). Researchers have found that requiring participants to make judgments about their learning can influence the ongoing learning process and subsequently affect their memory performance (Roediger & Karpicke, 2006; Spellman & Bjork, 1992). This phenomenon is referred to as judgment of learning reactivity, wherein the act of making learning judgments partially influences subsequent memory performance, leading to significant differences

between the performance of participants who made learning judgments and those who did not (Dougherty et al., 2005; Witherby & Tauber, 2017). Currently, there is still some controversy regarding whether learning judgments directly affect learners' memory performance. To simulate real-life learning environments, this study employed a novel "English word—Chinese translation" paired materials to investigate the impact of learning judgments on learners' memory and the conditions under which it occurs. Two experiments were conducted in this study. Experiment 1 utilized a 2 (judgment condition: with learning judgments/without learning judgments) × 2 (task difficulty: easy/difficult) mixed factorial design. Experiment 1 revealed that learning judgment reactivity only occurred for easy items. Considering Ariel et al.'s (2021) finding that making learning judgments can enhance comprehension of scientific texts but requires prior retrieval practice before judgment of learning (JOL), Experiment 2 introduced the condition of learning mode to examine whether changing the learning mode by employing additional learning strategies (such as retrieval practice) to encourage learners' retrieval prior to making learning judgments would influence the occurrence of learning judgment reactivity for difficult items. Experiment 2 utilized a 2 (judgment condition: with learning judgments/without learning judgments) × 2 (learning mode: continuous study/retrieval practice) mixed factorial design. The conclusions drawn from the two experiments are as follows: (1) Judgment of learning reactivity was observed for easy items, with significantly better recall performance for easy items with learning judgments compared to those without learning judgments. However, no judgment of leaning reactivity was found for difficult items, indicating that making learning judgments did not affect participants' memory performance for difficult items, regardless of whether judgments were made. (2) In the retrieval practice learning mode, learning judgment reactivity occurred for difficult items, with significantly higher recall performance for participants who employed retrieval practice and made learning judgments compared to those who only used retrieval practice. However, in the continuous study condition, no learning judgment reactivity was observed for difficult items.

Keywords：judgment of learning reactivity, item difficulty, learning mode, retrieval practice

失眠障碍者的抑制控制功能受损：来自 ERPs 的证据

丁小斌[1]　何亮[1]（通讯作者）

1 西北师范大学心理学院，甘肃兰州，730070，18450052500@163.com

摘　要　失眠障碍(Insomnia disorder, ID)是最普遍和最常见的心理生理障碍之一，对个体的工作、学习都会造成严重负担。失眠障碍者常常伴随认知功能障碍，严重影响患者的生活质量。抑制控制(Inhibitory Control, IC)作为一种非常重要的认知功能，可以使个体抑制与任务无关的注意、行为或想法，以灵活适应当前的目标。然而，以往考察失眠障碍者抑制控制的研究仍存在许多不足之处，如多采用主观量表评估，客观评估较少。因此，本文将抑制控制细分为反应抑制和冲突抑制来探究失眠障碍者的抑制控制功能。通过双选择 Oddball 任务和颜色-词 Stroop 任务来探查失眠障碍者的反应抑制能力和冲突抑制能力，考察了失眠障碍与抑制控制能力的关系及其认知神经机制。行为结果发现，相比于健康睡眠者，失眠障碍者在执行双选择 Oddball 任务和颜色-词 Stroop 任务时的正确率更低、反应时更慢。ERP 结果发现，相比于健康睡眠者，失眠障碍者在执行双选择 Oddball 任务时的 P3 波幅显著更低，但两组被试的 N2 波幅差异不显著；失眠障碍者在执行颜色-词 Stroop 任务时的 N450 波幅显著低于健康睡眠者。上述研究结果表明，与健康睡眠者相比，失眠障碍者的抑制控制功能受损。失眠障碍者在反应抑制任务中可能具有更弱的冲突监控和运动抑制能力，在冲突控制任务中也具有弱的冲突监控能力。本研究从电生理的层面反映了失眠障碍与抑制控制能力的改善有一定的关联。改善失眠障碍者的抑制控制功能作为辅助治疗失眠的一种方式，是一项具有临床意义且值得探究的领域。

关键词　失眠障碍，抑制控制，事件相关电位

Impaired inhibitory control in insomniacs: evidence from ERPs

Ding Xiaobin[1] He Liang[1]
1 School of Psychology, Northwest Normal University, Lanzhou, China, 730070

***Abstract*：** Insomnia disorder (ID) is one of the most common and common psychophysiological disorders, which will cause a serious burden on the individual's work and study. Patients with insomnia are often accompanied by cognitive dysfunction, which seriously affects the quality of life of patients. As a very important cognitive function, inhibitory control (IC) can enable individuals to suppress attention, behavior or thoughts that are irrelevant to the task, so as to flexibly adapt to the current goal. However, there are still many deficiencies in the previous research on inhibitory control of insomnia patients, such as mostly using subjective scales for evaluation, and less objective evaluation. Therefore, this paper subdivides inhibitory control into response inhibition and conflict inhibition to explore the inhibitory control function of insomniacs. The double-choice Oddball task and the color-word Stroop task were used to explore the response inhibition ability and conflict inhibition ability of insomnia patients, and the relationship between insomnia disorder and inhibitory control ability and its cognitive neural mechanism were investigated. Behavioral results found that, compared with healthy sleepers, insomniacs performed the double-choice Oddball task and the color-word Stroop task with lower accuracy and slower reaction times. The ERP results found that compared with healthy sleepers, the P3 amplitude of the insomniacs was significantly lower when performing the double-choice Oddball task, but the difference in the N2 amplitude of the two groups was not significant; the insomniacs performed the color-word Stroop task The amplitude of N450 of sleepers was significantly lower than that of healthy sleepers. The above findings suggest that inhibitory control is impaired in insomniacs compared to healthy sleepers. Insomniacs may have weaker conflict monitoring and motor inhibition abilities in response inhibition tasks, and weaker conflict monitoring abilities in conflict control tasks. This study reflects from the electrophysiological level that there is a certain relationship between insomnia and the improvement of inhibitory control ability. Improving the inhibitory control function of patients with insomnia, as a way of adjuvant treatment of insomnia, is a field of clinical significance and worthy of exploration.

Keywords: insomnia disorder, inhibitory control, event-related potential

走神导致积极消极作用：影响因素及其机制

邵红涛　李蕊妍　任桂琴（通讯作者）
辽宁师范大学心理学院，大连，116029，renguiqin@126.com

摘 要　走神是我们在日常生活中经常遇到的一种现象。它指的是我们将注意力从当前的主要任务或外部任务中分散开来，而转向内部生成的思考和想法。近年来，对走神进行的研究逐渐增多。先前的研究表明，走神可能带来积极的影响，比如增强创造力和促进问题解决能力，但也可能带来消极的影响，比如增加车祸发生率和影响学业成绩。通过对以往研究的系统回顾，本研究首先整理了不同类型的走神、不同任务类型以及情绪状态等因素，以分析它们对走神产生积极和消极影响的作用。其次，结合走神的相关理论如感知解耦理论及执行控制失败理论等，探讨了走神导致积极和消极作用的机制。感知解耦理论认为，当心理过程开始与外部事件不直接相关时，心理过程被描述为解耦。感知解耦理论是指走神与对外部环境的注意力减少有关。执行控制失败理论则认为，走神可能是由于执行控制能力不足导致的，这可能与个体的认知负荷和任务难度有关。未来的研究可以进一步探索走神的机制，并开发出针对不同任务和个体的干预措施和工具。例如，针对那些容易走神的个体，可以使用注意力训练和工作记忆训练等干预方法，帮助增强注意力和执行控制能力。此外，针对不同任务类型，可以设计个性化的干预策略如正念，以提高个体在特定任务中的表现。

关键词　走神，积极作用，消极作用

The Effects of Mind Wandering on Positive and Negative Outcomes: Influencing Factors and Mechanisms

Hongtao Shao, Ruiyan Li, Guiqin Ren
College of psychology, Liaoning Normal University, Dalian 116029, China

Abstract：Mind wandering is a common phenomenon that we often encounter in our daily lives. It refers to the diversion of our attention from the current main task or external task towards internally generated thoughts and ideas. In recent years, there has been an increasing amount of research on mind wandering. Previous studies have shown that mind wandering can have positive effects, such as enhancing creativity and facilitating problem-solving abilities. However, it can also have negative effects, such as increasing the occurrence of accidents and impacting academic performance. This study first categorizes different types of mind wandering, different types of tasks, and emotional states through a systematic review of previous research to analyze their effects on mind wandering in terms of positive and negative outcomes. Secondly, it explores the mechanisms behind the positive and negative effects of mind wandering by combining relevant theories such as the mind-wandering and executive control failure theories. The mind-wandering theory suggests that mind wandering is related to a decreased focus on the external environment when mental processes become unrelated to external events. On the other hand, the executive control failure theory posits that mind wandering may be due to insufficient executive control, which could be influenced by cognitive load and task difficulty. Future research can further investigate the mechanisms of mind wandering and develop interventions and tools tailored to different tasks and individuals. For example, interventions such as attention training and working memory training can be used to enhance attention and executive control abilities for individuals who are prone to mind wandering.

Additionally, personalized intervention strategies, such as mindfulness, can be designed for different task types to improve individuals' performance in specific tasks.

Keywords：Mind wandering, positive effects, negative effects

警觉水平对错误后调整不同加工阶段的差异化调节

胡娜[1] 王晓曦[1] 马瑞敏[1] 龙泉杉[2]（通讯作者）

1 昆明学院学前与特殊教育学院，昆明，650500

2 云南师范大学教育学部，昆明，6502154,longquanshan33@163.com

摘 要 警觉 (Alertness)是指对个体外部刺激的唤醒和准备状态，是个体及时响应外部刺激变化以实现目标行为的重要基础。错误是一种典型的突显信号，它会引起个体的警觉和行为变化。最常见的错误后行为表现是错误后减慢 (Post-error slowing)，即个体犯错后行为反应速度减慢。研究者们认为错误后减慢是由个人在探测到错误信号后放慢反应速度以提高反应准确性导致，最近的研究显示错误后减慢可划分为不同的加工阶段。为探索个体的警觉水平对错误后调整的影响，本研究招募了 89 名大学生实验参与者 (年龄：20.48 ± 1.68 岁)，使用注意网络任务(Attention network test, ANT)和四选择 Flanker 任务考察个体的警觉水平和错误后反应，并使用三种反应刺激间隔 (Response stimulus interval, RSI)来考察个体错误后早期 (200 ms)，中期 (700 ms)和后期 (1200 ms)阶段的加工特征。本研究通过 ANT 计算出了个体的相位性警觉水平 ($RT_{alerting} = RT_{no\ cue} - RT_{double\ cue}$)，以 Flanker 任务内不同 RSI 下错误后试次的反应减去正确后试次的反应计算出错误后反应时和正确率的调整量。研究结果显示个体的警觉水平 (范围: 0.50 ~ 115.05)与 PES 呈现负相关 ($r = -0.25, p = 0.02$)，与 200ms-RSI 下的 PES 呈现负相关($r = -0.39, p < 0.001$)。此外，警觉水平与错误后正确率调整呈现负相关 ($r = -0.24, p = 0.02$)，与 700 ms- RSI 下 ($r = -0.32, p < 0.01$)和 1200 ms-RSI 下的错误后正确率调整 ($r = -0.38, p = 0.001$)呈现负相关。进一步地，本研究根据警觉水平将研究对象分为低警觉组 (30 人: 0.5 ~ 43.64)，中警觉组 (29 人: 43.53 ~ 59.14)和高警觉组 (30 人: 59.82 ~ 115.06)，并对不同组在错误后反应调整上的差异进行了分析。结果显示仅在 200 ms-RSI 下，组间效应显著 ($p < 0.01, \eta^2 = 0.12$)，并且低警觉组在 200 ms-RSI 下的 PES 显著大于中警觉组 ($p = 0.064$)和高警觉组 ($p = 0.01$)。在错误后正确率调整上，组间效应仅在 1200 ms-RSI 下显著($p < 0.01, \eta^2 = 0.13$)，并且高警觉组的错误后正确率调整显著低于其他两组。研究结果显示，个体的相位性警觉水平越低，在错误后加工早期非适应性行为越显著；而高警觉水平的个体则在错误后加工后期适应性调节不足。本研究表明警觉水平影响错误后调整，其调节方式受到错误后加工阶段的适应性的影响。

关键词 错误，错误后减慢，警觉，加工阶段

The various regulation of alertness level to different processing stages of post-error adjustment

Na Hu[1] Xiaoxi Wang[1] Ruimin Ma[1] Quanshan Long[2] (Corresponding author)

1 School of Preschool and Special Education, Kunming University, Kunming 650500, China

2 Department of Education, Yunnan Normal University, Kunming 6502154, China,longquanshan33@163.com

Abstract：Alertness refers to the state of arousal and preparation for external stimuli, and it is an essential basis for the individual to respond to the change of the external stimulus in time to achieve the goal behavior. Error is a typical salient signal that can cause individual alertness and behavioral changes. Post-error slowing (PES) is the most common behavior observed after error responses, which means the individual's behavioral response speed slows down after an error response. It is proposed that PES is caused by individuals slowing down their reaction

speed to improve reaction accuracy after detecting erroneous signals, and recent studies have shown different processing stages of post-error slowing. In order to explore the influence of alertness levels on post-error adjustment, 89 college students (age: 20.48 ± 1.68) were recruited in this study. An attention network test (ANT) and four-choice Flanker task were used to examine alertness level and post-error response in individuals. Three response stimulus intervals (RSIs) were used in the Flanker task to examine the characteristics of the early (200 ms), mid (700 ms), and late (1200 ms) processing stages after error responses. This study calculated the phase alertness level (RT alerting = RT no cue - RT double cue) through ANT. This study calculated the post-error adjustment in response time and accuracy by subtracting the response following the correct response from the response following the error response under different RSIs within the Flanker task. The results showed that the alerting score (Range: 0.50 ~ 115.05) was negatively correlated with PES (r = - 0.25, p = 0.02) and negatively correlated with PES at 200 ms-RSI (r = - 0.39, p < 0.001). In addition, the alerting score was negatively correlated with post-error accuracy adjustment (r = - 0.24, p = 0.02) and negatively correlated with post-error accuracy adjustment (r = - 0.32, p < 0.01) at 700 ms-RSI and 1200 ms-RSI (r = - 0.38, p = 0.001). Furthermore, this study divided the participants into a low alertness group (n = 30: 0.5 ~ 43.64), a medium alertness group (n = 29: 43.53 ~ 59.14), and a high alertness group (n = 30: 59.82 ~ 115.06) based on the alerting score, and analyzed the differences in post-error adjustment among these groups. The results showed that the Group effect was significant only at 200 ms-RSI (p < 0.01, η^2 = 0.12), and the PES of the low alert group at 200 ms-RSI was significantly larger than that of the medium alert group (p = 0.064) and the high alert group (p = 0.01). Regarding post-error adjustment in accuracy, the Group effect was only significant at 1200 ms-RSI (p < 0.01, η^2 = 0.13), and the post-error adjustment in accuracy of the high alert group was significantly lower than the other two groups. The results show that individuals with lower levels of phase alertness have slower responses in the early non-adaptive stages of post-error processing. At the same time, individuals with higher levels of alertness lack adaptive regulation in the late adaptive stages of post-error processing. The study manifests that the level of alertness affects post-error adjustment and is influenced by the characteristics of adaptation of the post-error adjustment stage.

Keywords： Error, Post-error slowing, Alertness, Process stage

匹配比较法测量视觉瞬时记忆的精度：一种“全或无”的保持形式

郑宇洁[1] 余依岚[1] 忻可云[1] 李峙[1*]（通讯作者）

1 浙江大学心理与科学行为系，杭州，310058, zli1@zju.edu.cn

摘 要 在物理刺激消失约半秒后，我们依靠视觉瞬时记忆来保留大量可用于后续处理的信息。然而，自视觉瞬时记忆的发现以来，文献对其描述通常模糊不清，如“逐渐衰减的残像”，而少有直接验证。直到最近Pratte（2018）将回溯线索（retro-cue）和色环连续报告法结合起来，支持了视觉瞬时记忆的“全或无”离散消失表征，与工作记忆“插槽模型”一致，但该结果与直觉相悖。此外，用连续报告法来探测瞬时记忆的可行性有待验证，因为测量过程难免受到工作记忆瓶颈的限制：回溯线索到报告时间间隔远超过瞬时记忆的保留时间，提取阶段很可能会受到色环中其他颜色的干扰，因此需要将信息巩固到工作记忆中。基于此，本研究创新了新测量方法，匹配比较法，直接测量视觉瞬时记忆的时间变化特性。该方法源自最近的一项研究（Li et al., 2019）发现，当搜索目标物在瞬时记忆中可供检查时，被试往往会回扫比较干扰项和目标，而不是花时间将目标巩固到记忆中；这一“再识别”假设表明，比较过程不一定需要将信息巩固到记忆中，还可以依赖于瞬时记忆中的表征。具体而言，实验 1 采用了与 Pratte（2018）类似的流程，发现增加视觉掩蔽（使被试只能依赖当前工作记忆表征）并不会影响测得的颜色记忆精度，这提示精度测量可能受到工作记忆瓶颈的限制。实验 2 在不同延迟时间下依次呈现一对匹配色块（具有不同的色环距离，即颜色相似度），要求被试将其与已经从屏幕消失、仅存在于瞬时记忆表征中的色块进行比较（该方法依赖知觉和视觉瞬时记忆，在反应阶段仅需判断是否相同，任务要求较小）。对判断色块是否相同的错误频率进行高斯拟合，我们获得了可觉察最小颜色差异（JND）作为精度指标。结果发现，在视觉瞬时记忆时间内（约 500 毫秒），颜色的记忆精度保持不变；而 500 毫秒后 JND 的下降与增加视觉掩蔽条件（需要使用工作记忆）一致（实验 3），这表明精度在工作记忆表征中衰减。总体上，我们的结果发现视觉瞬时记忆的精度在持续时间内保持稳定，支持了“全或无”离散型形式。

关键词 视觉瞬时记忆，视觉工作记忆，匹配比较法，连续报告法

Assessing the precision of iconic memory through the matching comparison method: An "all-or-none" maintenance representation

Yujie Zheng, Yilan Yu, Keyun Xin, Zhi Li

Department of Psychology and Behavioral Sciences, Zhejiang University

Abstract: After the physical stimuli disappear, iconic memory enables us to retain a substantial amount of information that can be utilized for subsequent processing within approximately half a second. Despite the long-known existence of iconic memory, the literature has provided vague descriptions, often referring to it as "fading traces," with limited direct validation. It was only recently that Pratte (2018)[10] made a novel contribution by combining retro-cues and the continuous reporting method employing a color wheel, which serves as a paradigm to assess the capacity and precision of visual working memory. Their findings unexpectedly supported the discrete "all-or-none" disappearance of iconic memory, aligning with the conceptual framework of the "slot model" in working memory. However, the viability of utilizing the continuous reporting method to detect iconic memory necessitates further investigation. This is due to the substantial time interval between cues and recall, exceeding the duration of iconic memory retention and thereby requiring consolidation into working memory. Moreover, the retrieval phase's representation is susceptible to interference from the color wheel, constraining

[10] Pratte, M. S. (2018). Iconic memories die a sudden death. *Psychological Science*, 29(6), 877–887. https://doi.org/10.1177/0956797617747118

measurements within the confines of working memory's limitations. Accordingly, our study introduced an innovative paradigm employing the matching comparison method to circumvent the reporting bottleneck of working memory and directly assess the temporal characteristics of iconic memory. This approach builds upon a recent study conducted by Li et al. (2019)[11], which discovered that participants, when the visual search target was accessible for inspection in iconic memory, compared it to the distractors without the need for consolidation into working memory or long-term memory. This "reidentification" hypothesis suggests that the comparison process may not rely on memory consolidation but rather depends on representations within iconic memory. To investigate further, Experiment 1 followed a similar procedure as Pratte (2018) and revealed that augmenting visual masking, which compelled participants to rely solely on current working memory representations, did not impact the capacity of color memory. This finding suggests that accuracy measurements may be constrained by the working memory bottleneck. In Experiment 2, pairs of matching color blocks were sequentially presented with varying intervals, and each pair of blocks had different color wheel distances (indicating different levels of similarity). Participants were required to compare the latter block with the one that had disappeared from the screen, existing solely in iconic memory representation. This matching comparison method relied on perceptual and iconic memory representations during the initial stages, with minimal task demands restricted to judging similarity during the response phase. To measure accuracy, the frequency of errors in determining whether the color blocks were identical was fitted with a Gaussian function to derive the just noticeable difference (JND). Results revealed a consistent color accuracy throughout the duration of iconic memory (approximately 500 milliseconds). However, the decrease in JND after 500 milliseconds aligned with increased visual masking condition (must use the representation in working memory), indicating a decline in accuracy associated with working memory (Experiment 3). These findings support the concept of an "all-or-none" discrete representation of iconic memory and emphasize its enduring accuracy over duration.

***Keywords*:** Iconic memory, Visual working memory, Matching comparison method, Continuous reporting method

[11] Li, Z., Xin, K., Lou, J., & Li, Z. (2019). Visual search may not require target representation in working memory or long-term memory. *Psychological Science*, 30(10), 1547–1555. https://doi.org/10/gf9tqq

工作记忆中汉字识别、刷新和保持的神经机制

李红利[2]　赵鑫[1,2]（通讯作者）

1 甘肃省行为与心理健康重点实验室，甘肃，兰州，730070

2 西北师范大学心理学院，甘肃 兰州，730070，通讯作者 E-mail：psyzhaoxin@nwnu.edu.cn

摘 要　汉字是由不同笔画组成的方框文字，加工起来具有高度的非线性视觉复杂性，汉字的复杂性也增加了表征信息所需的工作记忆资源。然而，对于汉字在工作记忆中是如何被识别、刷新和保持的了解还很匮乏，尤其对这一系列操作中大脑神经活动的模式知之甚少。因此，本研究主要考察工作记忆在汉字信息加工进程中的作用。通过采用汉字 N-back 任务范式，结合脑电技术，记录了 27 名 18–25 岁被试的脑电数据，并对数据进行了时域分析和频域分析，考察不同记忆负荷下汉字的识别、刷新和保持加工进程中的神经激活特征。结果发现，随着 N 值的增加，正确率降低，反应时增加。在时域 ERP 分析结果中发现，随着记忆负荷的增加，N2pc 和 P300 波幅减小，SW 波幅增加，这表明，更大的记忆负荷往往伴随着刷新阶段认知资源分配的减少，记忆保持阶段认知资源需求的增加。此外，在记忆保持阶段，额叶区域显示出的正慢波可能反映了对下一个刺激的准备过程，而在顶枕区域观察到的负慢波则与刺激存储的神经活动有关。在时频分析结果中发现，随着记忆负荷的增加，刺激呈现阶段的 delta 波的 ERD 增加，alpha 波的 ERD 增加，表明随着记忆负荷增加抑制无关刺激的能力减弱。而在信息保持阶段，额叶区域 delta 波和 theta 波的 ERS 减小，额顶叶区域 alpha 波的 ERS 增大，这可能反映了额顶区域神经活动的补偿机制，即当需要保持更多的记忆内容时，额顶叶区域 alpha 波的激活会不断增强，以帮助工作记忆保持更复杂的内容。相关分析结果显示，汉字 N-back 任务中各阶段的神经指标之间存在显著相关性，这表明，汉字刷新加工过程的神经激活模式可能符合“级联效应”，当用于汉字保持的认知资源越多，用于汉字刷新和注意分配的认知资源越少。脑-行为结构方程模型分析结果表明，刷新阶段的 P300 波幅以及保持阶段的 SW 波幅均显著预测了个体的反应时间，由此可见，刷新和保持阶段的 ERPs 指标能够显著预测个体的行为表现。

关键词　汉字，N-back 任务，N2pc，P300，慢波

Neural Mechanisms of Recognition, Updating, and Maintenance of Chinese Character in Working Memory

Hongli Li[2], Xin Zhao[1,2]

1 Key Laboratory of Behavioral and Mental Health of Gansu province, Northwest Normal University, Lanzhou, Gansu, 730070; 2 School of Psychology, Northwest Normal University, Lanzhou, Gansu, 730070

Abstract：Chinese characters are boxed characters composed of different strokes and processed with a high degree of nonlinear visual complexity, and this complexity of Chinese characters also increases the working memory resources required to characterize the object. However, there is a paucity of knowledge about how Chinese characters are continuously recognized, updated, and maintained in working memory. In particular, little is known about the patterns of neural activity during this sequence of operations. Therefore, the role of working memory in processing complex Chinese character information is the focus of this paper. Using the N-back task, we investigated how memory load influences the neural activity of the Chinese character cognitive subprocesses (recognition, updating, and maintenance) under different memory loads. Twenty-seven participants, aged 18–25

years old, completed the Chinese character N-back paradigm while having their event-related potentials were recorded. The study used time and frequency domain analyses of the EEG data. Results showed that accuracy decreased and response times increased with larger N values. For ERPs, the amplitude of N2pc and P300 decreased, and the amplitude of SW increased with greater memory load. This suggests that greater memory load is associated with a decrease in the allocation of cognitive resources during updating and an increase in cognitive resources during information recognition and maintenance. In addition, In the maintenance phase, the PSW in frontal regions may reflect the preparation process for the next stimulus, whereas the NSW in parieto-occipital regions may be related to the neural activity of the stimulus memory. For TFA, the ERD of the delta and the ERD of the alpha wave after stimulus onset increased with increasing memory load. This suggests a reduced ability to inhibit irrelevant stimuli as memory load increases. During the information maintenance phase, the ERS of delta and theta in frontal regions decreased and the ERS of alpha in frontoparietal regions increased as the memory load increased. This finding may be suggest a compensatory mechanism of neural activity in frontoparietal regions, i.e., the activation of alpha oscillations in frontoparietal regions is enhanced when more memory content must to be retained to help working memory retain more complex content. Correlations between neural activation during the Chinese character N-back task suggest that the Chinese character updating sub-process may be consistent with a "cascade effect": the more cognitive resources are used for Chinese character maintenance, the less cognitive resources are used for Chinese character attentional allocation and updating. Results of a brain-behavioral structural equation modeling analysis showed that P300 in the updating phase and SW in the maintenance phase predicted individuals' reaction times. For this, the ERP indicators in the updating and maintenance phases predicted behavioral performance.

Keywords：Chinese character，N-back task，N2pc，P300，slow wave

小鼠的面孔识别行为研究

陈艳虹[1]，国玲娜[2]，姜日[2]，周可[3]，赵旭东[2]（通讯作者），孟明[1]（通讯作者）
1 华南师范大学心理学院，广州，510631，mingmeng@m.scnu.edu.cn
2 中国科学院生物物理研究所，北京，100101，zhaoxudong@ibp.ac.cn
3 北京师范大学心理学部，北京，100000

摘 要　面孔相对其他物体的感知优势在人类和部分动物物种中已经得到充分证明。然而，小鼠是否表现出与灵长类动物相似的面孔识别能力尚不清楚。为此，本研究开展了视觉行为实验对小鼠面孔识别的能力进行了测试。具体而言，实验将 16 只野生型（WT）小鼠随机分入人脸组和鼠脸组分别接受行为训练和测试，每组各 8 只。人脸组小鼠需要辨别真实的人脸和物体照片；鼠脸组需要辨别自行拍摄的野生型小鼠脸的照片和物体照片。原始图像通过灰度变换转化为黑白图像，所有黑白图像在进一步的处理后具有相同的亮度、对比度和空间频率。小鼠被置入斯金纳箱内完成实验，箱内放置一块触摸屏，并通过隔板将屏幕一分为二。小鼠按键启动实验后，两边屏幕分别会呈现人脸/鼠脸图像和物体图像，当小鼠触摸了人脸/鼠脸图像，即可到斯金纳箱另一侧的奖励托盘领取食物颗粒；选择物体图像则给予亮灯提示，并以无食物奖励作为惩罚。所有小鼠每天均接受一次训练，持续 30 分钟。它们需在 30 分钟内完成尽可能多的试次，最多共 60 个试次。在训练阶段中连续两天选择人脸/鼠脸的正确率超过 75%的小鼠将进入测试阶段。在实验的测验阶段，在原有训练图像的基础上加入了与训练阶段在物理属性上等同的新的人脸、鼠脸和物体图像，新旧图像交替进行试验，评估小鼠对于面孔学习的泛化能力。实验过程中新加入的图像的试次将不再有奖励和亮灯提示。结果显示，所有小鼠在新图像的平均正确率均高于随机水平（50%），表明小鼠能够区分人脸/鼠脸图像和物体图像。通过研究小鼠面孔识别的行为表现，可以帮助理解面孔识别的基本机制，并为进一步的电生理实验打下基础，对于心理学和生物学具有重要的意义。

关键词　动物行为，小鼠，面孔识别，分类学习，斯金纳箱

A Behavioral Study of Face Recognition in Mice

Chen Yanhong[1], Guo Lingna[2], Jiang Ri[2], Zhou Ke[3], Zhao Xudong[2], Meng Ming[1]1 School of Psychology, South China Normal University, Guangzhou, China, 510631
2 Institute of Biophysics, Chinese Academy of Sciences, Beijing, 100101
3 school of psychology, Beijing Normal University,Beijing,100000

***Abstract*:** The perceptual advantage of faces over other objects has been extensively established in humans and certain animal species. However, it remains unclear whether mice demonstrate face recognition abilities similar to primates. The current study conducted visual behavioral experiments to assess face recognition in mice. Specifically, 16 wild-type (WT) mice were randomly assigned to either the human face group or the mouse face group for behavioral training and testing, with 8 mice in each group. The mice in the human face group were required to discriminate between real human faces and object images, while the mice in the mouse face group were required to discriminate between photographs of wild-type mouse faces taken in-house and object images. The original images were transformed into grayscale and further processed to ensure equal brightness, contrast, and spatial frequency. In the training stage, the mice were placed inside Skinner boxes, where a touch-sensitive screen

was installed and divided into two sections by a partition. After the mice initiated a trial by pressing a key, the screens presented face (human/mouse) images and object images on each side. When the mice touched the face image, a food pellet reward in a tray on the opposite side of the Skinner box was delivered, whereas selecting an object image resulted in a light cue and no food reward as punishment. All mice underwent daily training sessions, each lasting 30 minutes, during which they should complete as many trials as possible with a maximum of 60 trials. Mice that achieved a correct response rate exceeding 75% for two consecutive days during the training phase proceeded to the testing phase. In the testing phase of the experiment, new face (human/mouse) and object images, identical in low-level physical properties to those used in the training phase, were presented alternately with the original images to evaluate the mice's generalization ability in face learning. The new images presented during the testing phase were no longer accompanied by rewards or light cues. The results showed that the average correct response rates of all mice for the new images were above the chance level (50%). Our findings indicate that mice were able to discriminate between face (human/mouse) images and object images, which may shed lights on revealing face recognition mechanisms, laying the foundation for further electrophysiological experiments and holding significant implications for psychology and biology.

Keywords：Animal Behavior, Mice, Face Recognition, Classification Learning, Skinner Box

外源性定向和内源性定向对多感觉冗余信号效应的不同影响：颞上回与运动皮层的功能连接

吴英楠[1] 孙佳影[1] 高敏[1] 于洪涛[1] 唐晓雨[1]（通讯作者）

1 辽宁师范大学心理学院，大连，116029，tangyu-2006@163.com

摘 要 在现实生活中，我们的大脑每时每刻都在接收来自不同感觉通道的大量信息，包括视觉信息、听觉信息和触觉信息等等。为了形成一个可靠的感知，大脑需要将来自不同感觉通道的信息进行绑定。相比于单通道刺激(例如：视觉、听觉)，双通道刺激(例如：视听觉)可以触发更快、更准确的反应，即所谓的“多感觉冗余信号效应”。本研究使用功能性磁共振成像技术，通过正交诱导外源性和内源性空间注意定向探讨两种空间注意定向调节多感觉冗余信号效应的神经机制。行为学结果发现，外源性定向减弱冗余信号效应，而内源性定向增强冗余信号效应。神经学结果发现，在外源性和内源性定向过程中，与单通道视觉试次相比，双通道视听觉试次条件下双侧颞上回的神经活动显著增强。此外，心理生理交互作用分析发现，对于外源性定向，在外源性注意位置和非注意位置，相较于视觉加工在视听觉加工过程中双侧颞上回与中央前回和辅助运动区的神经耦合增加。然而，对于内源性定向，只有在内源性注意位置才发现，相较于视觉加工在视听觉加工过程中双侧颞上回与中央前回和辅助运动区的神经耦合增加。结果表明，颞上回和运动皮层之间的相互作用参与空间注意定向调节多感觉冗余信号效应。当前研究为探索大脑如何处理空间注意定向和多感觉信息之间的关系提供了一个新的视角。

关键词 内源性定向，外源性定向，心理生理交互作用，冗余信号效应，颞上回

Different effects of exogenous and endogenous orienting on multisensory redundant signals effect: The functional connectivity of the superior temporal gyrus with the motor cortex

Yingnan Wu[1] Jiaying Sun[1] Min Gao[1] Hongtao Yu[1] Xiaoyu Tang[1*]

1 School of Psychology, Liaoning Normal University, Dalian, 116029, tangyu-2006@163.com

Abstract： In real life, our brains receive large amounts of information from different sensory modalities every moment, including visual, auditory, and tactile information and so on. To form a reliable perception, the brain needs to bind information from different sensory modalities. Multisensory stimuli (e.g., audiovisual) can trigger a speed-up in response times compared to a unimodal target (e.g., visual, auditory), the so-called “redundant signals effect (RSE)”. The present study used functional magnetic resonance imaging (fMRI) to investigate the neural networks of exogenous and endogenous spatial orienting modulating RSE by orthogonally inducing the two orientations. Behavioral results showed that exogenous orienting decreased RSE, whereas endogenous orienting enhanced RSE. Neurally, the bilateral superior temporal gyrus (STG) showed significantly enhanced neural activity in the audiovisual trials compared with the visual trials for both exogenous and endogenous orienting. Psychophysiological interaction analysis found that in both exogenously attended and unattended conditions, the

bilateral STG showed significantly enhanced functional connectivity with the precentral gyrus and supplementary motor area in the audiovisual trials compared with the visual trials. However, only in the endogenously attended condition did the bilateral STG show significantly enhanced functional connectivity with the precentral gyrus and supplementary motor area in the audiovisual trials than in the visual trials. These results suggested that the interaction between the STG and motor cortex is involved in the spatial attention modulation of RSE. The current study provides a new perspective for exploring how the brain processes the relationship between spatial orienting and multisensory information.

Keywords**:** endogenous orienting, exogenous orienting, psychophysiological interaction, redundant signals effect, superior temporal gyrus

工作记忆中的空闲时间效应：来自单间隙范式的证据

陆若宇 徐一诺 徐继裕 王腾飞 李峙（通讯作者）
浙江大学心理与行为科学系，杭州，310007，zli1@zju.edu.cn

摘 要 工作记忆任务中，空闲时间常常能被用于提升记忆绩效。例如，对序列呈现的记忆项，增加各个项目间的空闲时间，能够提升回忆任务的正确率。但是，这种空闲时间效应到底是前摄的（即只影响后续的记忆项），还是回溯的（即只影响之前的记忆项），还是两者兼有？目前的研究仍未得出一致的结论。前人研究主要采用多间隙范式考察空闲时间效应，即同时改变所有记忆项之间的空闲时间。这种范式很难分别考察空闲时间效应的前摄成分和回溯成分。因此，本研究中，我们采用了单间隙范式，即在序列呈现的记忆项中，只改变其中两个项目之间的时间间隙，观察间隙长度对间隙之前/之后项目回忆绩效的影响。实验 1 中，我们测量了三种长短间隙组合（2500 ms / 100 ms，2500 ms / 500 ms，2500 ms/1000 ms）下的间隙长度效应（即间隙长度差异引起的记忆绩效差异）。结果发现，所有三种组合下，都存在前摄效应；但仅有两种组合（2500 ms / 100 ms，2500 ms / 500 ms）下，存在回溯效应。可见，空闲时间既能产生前摄效应，也能产生回溯效应。这一结果对一些采用单间隙范式的前人研究提出了挑战，这些研究中只发现了空闲时间的前摄效应。前摄、回溯效应并存的现象，可能是多种机制共同作用的结果，也可能是时间分组效应的结果。为了区分这两种假设，实验 2 中，我们再次考察了 2500 ms / 500 ms 的时间组合，并将记忆材料从字母（实验 1 中的记忆材料）变为单词。结果表明，记忆材料变为单词后，回溯效应的范围（即间隙前受到影响的记忆项的数量）增加。这一效应不能用时间分组来解释。综上，两个实验提供了汇聚性证据，表明工作记忆中的空闲时间可以产生独立于时间分组效应的前摄效应和回溯效应，空闲时间效应是由多种机制共同作用而成的。本研究也为工作记忆保持过程的机制提供了新视角：与部分研究者所反对的不同（如 Oberauer, 2019），本研究认为人们能够利用复述机制提升间隙前项目的记忆绩效；此外，人们可能还会利用空闲时间恢复被记忆编码所消耗的注意资源，以提升对间隙之后项目的记忆绩效。

关键词 工作记忆，空闲时间，单间隙范式，回溯效应，复述

Free Time Effects in Working Memory: Evidence from the Single-gap Paradigm

LU Ruoyu; XU Yinuo; XU Jiyu; WANG Tengfei; LI Zhi
Department of Psychology and Behavioral Sciences, Zhejiang University, Hangzhou 310007, China

Abstract： Free time in a working memory task has been shown to enhance memory performance. For instance, in an immediate serial recall task, increasing the free time between memory items can improve recall accuracy. However, it remains unclear whether this free time effect is purely proactive (i.e., affecting only subsequent memory items), purely retroactive (i.e., affecting only preceding items), or a combination of both. Previous studies have examined free time effects using a multiple-gap paradigm, where free time is manipulated simultaneously in all inter-item intervals. However, this paradigm does not allow for a separate examination of retroactive and proactive effects. Therefore, in the present study, we used a single-gap paradigm, in which the length of a single

inter-item interval is manipulated, while the other inter-item intervals are fixed. This paradigm allowed us to directly examine the retroactive and proactive components of the free time effect. In Experiment 1, we measured the gap-length effect (i.e., the difference in memory performance elicited by the gap-length difference) under three long-short gap combinations (i.e., 2500 ms / 100 ms, 2500 ms / 500 ms, 2500 ms / 1000 ms). Proactive effects have been observed in all the three combinations whereas retroactive effects have only been found in two of them (i.e., 2500 ms / 100 ms, 2500 ms / 500 ms). These results indicated the presence of both retroactive and proactive components in the free time effect. This challenged some previous studies using the single-gap paradigm, where only the proactive component was found in the free time effect. The coexistence of retroactive and proactive effects may result from a joint effect of multiple mechanisms, and can also be explained by temporal grouping effects. To distinguish these two hypotheses, in Experiment 2, the 2500 ms / 500 ms combination was re-tested, with the memory materials being changed from letters (the material used in Experiment 1) to words. The results showed that the range of the retroactive effect (i.e., the number of affected memory items prior to the gap) increased when the memory material changed from letters to words, which cannot be explained by temporal grouping. Taken together, the two experiments provided convergent evidence that free time in a working memory task can induce both retroactive and proactive effects independent of temporal grouping effects, and that the free time effects is a joint effect of multiple mechanisms. These findings also provided insight to the underlying mechanism of working memory maintenance. It is suggested that rehearsal can be used to improve memory performance of the preceding items, contrary to some researches that have argued against the benefit of rehearsal (e.g., Oberauer, 2019). Moreover, people may also use the free time to recover the attentional resources depleted by memory encoding, in order to enhance memory performance of the subsequent items.

Keywords：working memory, free time, single-gap paradigm, retroactive effect, rehearsal

动作能力与动作序列学习效果的关系：性别的调节作用

姚雨蓝[1] 吴迪[1] 丁黎亚[1] 刘莉蓉[1] 王杨[1] 张斌[2]（通讯作者）

1 上海体育大学心理学院，上海，200438

2 上海体育大学心理学院，上海，200438，suszhangbin@126.com

摘 要 动作序列学习是指通过练习将一系列动作元素组成一个毫不费力的整体来完成的过程，是日常活动的重要组成部分。Doyon 等人 2009 年提出动作序列学习功能可塑性的模型，认为皮质纹状体和皮质小脑回路在序列学习中发挥作用。在以动作障碍为主要特征的疾病，例如帕金森氏症、亨廷顿舞蹈症和肌张力障碍等中发现存在动作序列学习问题。本研究拟在更广泛的被试群体上验证动作能力与动作序列学习之间的相关性，为进一步探究二者之间神经结构相关性提供行为数据支持。研究共招募 19-21 岁的大学生 55 名(女生 n=33)。采用布尼氏动作熟练度测试-第二版(Bruininks-Oseretsky Test of Motor Proficiency-Second Edition，BOT-2)考察个体动作能力。BOT-2 是用于评估一般动作技能的常模参照测验，是目前最常用的成人动作能力与协调性测试。采用经典序列反应时间任务（serial reaction time task，SRTT）考察个体的动作序列学习能力，该实验范式涉及双手协调、手眼协调等与身体协调相关的元素。记录反应时和正确率，并将随机序列与最后一个规律序列的平均反应时之差作为序列学习效果的指标(SL)，将第一组规则序列的与最后一个规则序列的平均反应时之差作为一般动作技能学习指标（GL）。使用 SPSS26.0 对数据进行整理分析。结果表明，对于全部被试，BOT-2 总分与 SL 之间存在显著中等强度正相关，r=0.280，p=0.038*。以 SL 为因变量，BOT-2 总分为预测变量进行一元线性回归，结果显示回归系数 R^2=0.061，方差分析结果显示，R^2值显著大于 0，p=0.038*，提示 BOT-2 总分与 SL 之间存在显著线性关系，回归模型具有统计学意义，并由此建立回归方程：y=-64.438+0.466x。进一步分析发现，男女生动作能力与动作序列学习二者间相关模式不同。对于男生，年龄和 GL 相关显著，r=0.430，p=0.011*，BOT-2 总分和 GL 相关显著 r=0.305，p=0.048*，手部协调维度和 GL 相关显著，r=0.417，p=0.008**，手部协调维度和 SL 相关显著，r=0.381，p=0.016*；对于女生，仅年龄与身体协调维度得分显著相关，r=0.363，p=0.038*。该结果证明原假设：个体动作协调能力与动作序列学习之间存在显著的相关性，而这种相关性存在男女性别差异，未来研究可就这一问题及其原因进一步探讨。

关键词 动作能力，序列学习，性别差异，线性回归

The relationship between motor performance and motor sequence learning: the moderating role of gender

Yulan YAO[1] Di WU[1] Liya DING[1] Lirong LIU[1] Yang WANG[1] Binn ZHANG[2]*

[1]School of Psychology, Shanghai University of Sport, Shanghai, 200438

[2]School of Psychology, Shanghai University of Sport, Shanghai, 200438，suszhangbin@126.com

Abstract：Motor sequence learning, the process of completing a series of movement elements into an effortless whole through practice, is an important part of everyday activities. Doyon et al. 2009 proposed a model of functional plasticity in motor sequence learning, suggesting that cortical-striatum and cortico-cerebellar circuits play a role in sequence learning. Problems with motor sequence learning have been found in disorders characterised predominantly by movement disorders, such as Parkinson's disease, Huntington's chorea and dystonia. The present study intends to validate the correlation between motor performance and motor sequence learning on a wider group of subjects, and to provide behavioural data to support further investigation of the neurostructural correlation between the two. A total of 55 university students aged 19-21 (female n=33) were recruited for the study. Individual motor performance were tested using the Bruininks-Oseretsky Test of Motor Proficiency-Second Edition (BOT-2), a norm-referenced test for assessing general motor skills, which is the most commonly used test of motor performance and coordination in adults. The classical serial reaction time task (SRTT)

was used to examine the individual's ability to learn motor sequences, an experimental paradigm that involves elements related to physical coordination such as two-hand coordination and hand-eye coordination. Reaction time and correctness were recorded, and the difference between the average reaction time of the random sequence and the last regular sequence was used as an indicator of sequence specific learning (SL), and the difference between the average reaction time of the first set of regular sequences and the last regular sequence was used as an indicator of general motor learning (GL). The data were analysed using SPSS 26.0. The results showed that for all subjects, there was a significant moderate positive correlation between the BOT-2 total score and SL, r = 0.280, p = 0.038*. One-way linear regression with SL as the dependent variable and BOT-2 total score as the predictor variable showed that the regression coefficient R^2=0.061, and the ANOVA results showed that the value of R^2 was significantly greater than 0, *p*=0.038*, suggesting that there was a significant linear relationship between the BOT-2 total score and SL, and that the regression model was statistically significant, and the regression equation was established: y=-64.438+ 0.466x. Further analyses revealed that the pattern of correlation between the two was different for male and female. For male, age was significantly correlated with GL, r=0.430, *p*=0.011*, BOT-2 total score was significantly correlated with GL, r=0.305, *p*=0.048*, hand coordination dimensions were significantly correlated with GL, r=0.417, *p*=0.008**, and hand coordination dimensions score were significantly correlated with SL, r=0.381, p=0.016*; for female, only age was significantly correlated with the physical coordination dimension score, r=0.363, *p*=0.038*. This result supports the original hypothesis that there is a significant correlation between an individual's motor performance and motor sequence learning, and that there are gender differences in this correlation, which can be further explored in future research.

***Keywords*:** motor performance, sequence learning, gender differences, linear regression

跨通道知觉训练对老年人视听整合的影响

任艳娜　李燕　周振华　张莹　平航　段杰萍
贵州中医药大学人文与管理学院心理学专业，贵阳，550025，yanna052267213@163.com

摘 要　老年人的视力和听力随年龄增加而显著下降，视力和听力的逐渐衰退严重影响着老年人的健康和生活质量，甚至引发老年性痴呆。研究发现，老年人对单独视觉信息或听觉信息的感知能力显著低于年轻人，但其对视觉信息和听觉信息的整合能力却显著高于年轻人，是老年人构建的适应性代偿机制，是未来老年人认知干预的窗口。为探讨老年人视听整合代偿效率和效应大小是否能够通过特异性的知觉训练得到提升，本研究招募 40 名老年被试和 40 名年轻被试，并随机分为对照组和实验组，采用跨通道视听知觉训练对实验组被试进行连续 5 天干预。视听知觉训练第 1 天，训练开始前，要求训练组和对照组被试均完成视听辨别任务，即训练前评估（前测）。第 2~4 天，要求训练组被试完成他们个性化的训练计划，不与对照组接触。第 5 天，训练结束后，要求实验组和对照组被试均完成与第 1 天相同的训练评估任务，即训练后评估（后测）。结果发现，老年训练组后测对跨通道视听刺激的反应显著快于前测（$p = 0.008$），而年轻训练组后测对单通道视觉刺激和单通道听觉刺激的反应显著快于前测（$ps < 0.05$）。竞争模型分析显示，老年对照组、年轻对照组和年轻实验组被试在知觉训练前测和后测的视听整合没有明显差异，但老年训练组后测的视听整合高于前测。研究结果提示，跨通道知觉训练可以显著提高被试对信息的敏感性，但对于老年人和年轻人的神经机制存在显著差异，老年人主要通过提高对跨通道信息的敏感性而年轻人主要通过提高对单通道信息的敏感性实现。此外，跨通道知觉训练可以有效提升老年人视听整合能力。
关键词　知觉训练，老年人，视听整合，竞争模型

Effect of cross-modal perceptual training on audiovisual integration in older adults

Yanna Ren, Yan Li, Zhenhua Zhou, Ying Zhang, Hang Ping, Jieping Duan
Department of Psychology, College of Humanities and Management, Guizhou University of Traditional Chinese Medicine, Guiyang, 550025, yanna052267213@163.com

***Abstract*:** The vision and hearing of the older adults decrease significantly with the increasing of age, and the gradual decline of vision and hearing seriously affects their health and life quality, and even leads to senile dementia. The recent researches found that the perceptual ability of the older adults is significantly lower to unimodal visual information and unimodal auditory information, but the ability of audiovisual integration (AVI) was higher comparing with that of younger adults, which is regarded as adaptive compensation mechanism and a time widow for future cognitive intervention. To probe whether the compensatory effective and effect size of AVI was enhanced through cross-modal perceptual training, 40 older and 40 younger adults were recruited and divided into control and experiment groups to conducted 5-continuous interventions. In the 1^{th} day, before training, all participants were instructed to conduct an auditory/visual discrimination task (Pre-test). In the 2^{th}~4^{th} day, the experimental groups were instructed to complete their individual-schedule training but keep non-touch with control groups. In the 5^{th} day, after training, all participants were instructed to conduct the same task as pre-test (Post-test). The analysis for response time found that for older adults, the response to bimodal audiovisual stimulus was faster in post-test than pre-test ($p = 0.008$), however, the response to unimodal visual stimulus and unimodal auditory stimulus was faster in post-test than pre-test ($ps < 0.05$) for younger adults. The analysis for race model found that there was no significant difference between pre-test and post-test for all control groups and younger

experimental group, but higher in post-test than pre-test for older experimental group. These results suggested that the cross-modal perceptual training could improve the perceptual sensitivity, but there are some differences between older and younger adults, improving sensitivity to bimodal information for older adults but to unimodal information for younger adults. Additionally, the AVI ability was enhanced through cross-modal perceptual training.

Keywords：Perceptual training, Older adults, Audiovisual integration, Race model

律他如律己：自我利益对道德决策与道德评价的同向调节——道德敏感性与共情特质的中介效应

宋　茹[1,2] 刘　洁[1,2] 崔　芳[1,2]

([1]深圳大学心理学院; [2] 深圳大学脑疾病与认知科学研究中心, 深圳 518060,
E-mail:cuifang0826@gmail.com)

摘 要　道德情境中，个体在道德决策中获取的利益是影响个体道德标准的重要因素。探讨个体的自身利益如何影响其道德决策和道德判断具有重要的理论和现实意义。然而，目前对于在不同获利水平下道德决策与道德判断之间的关系尚不明确。本研究采用一个涉及电击伤害与金钱收益的道德两难范式对此进行探讨，并探究了个体道德敏感性和共情特质在其中的作用。实验中，被试总是作为“决策者”，与另一名“接受者”（实际上为假被试）共同完成实验。被试需要完成（1）道德决策任务：被试担任决策者，在不同的获利水平下决定是否愿意让“接受者”受到电击伤害以获得收益，被试被告知系统将会随机抽取一个试次真实执行；（2）道德判断任务：被试担任判断者，对其他决策者在同类道德决策任务中的行为进行道德水平评分。除决策者的选择（接受/拒绝）外，同时呈现决策是否被系统抽中执行（执行/未执行）。被试完成两个实验任务的顺序进行平衡。通过操纵赋予“决策者”的代币数量，以及系统执行情况，实验包括了获利水平（高、中、低）和决策执行（接受且执行、接受未执行、拒绝）的九种条件，并比较了三种获利水平下被试做出不道德决策的行为比例和九种实验条件下的道德水平评分。结果发现，当个体获利水平越高，作为决策者时，就越倾向于做出不道德决策；作为判断者时，对他人同类行为的道德评价越高（越宽容）。研究还发现，个体作为决策者做出不道德决策时受到自我利益影响的程度，可以正向预测其作为判断者对他人同类决策进行判断时受到自我利益影响的程度，即自我决策越不道德，对他人道德评价却越高，而道德敏感性和共情特质中介了二者之间的相关。此外，为进一步验证实验效度，我们利用心理学线上实验平台招募更多被试，对实验室的结果进行验证。结果显示，线上实验结果与线下实验基本一致。本研究表明，决策者通过不道德行为获利越高，其作为判断者时，倾向于采择决策者视角，更加理解利己选择，因而对他人同样的不道德行为的评价越宽松。这一发现为解释社会互动中个体的道德灵活性提供了思路。

关键词　自我利益，道德决策，道德判断，道德敏感性，共情

The Co-directional Regulation of Personal Interests on Moral Decision-making and Moral Evaluation: The Mediating Effect of Moral Sensitivity and Empathy

Song Ru[1,2] Liu Jie[1,2] Cui Fang[1,2]

([1]School of Psychology, Shenzhen University; [2]Brain Disease and Cognitive Science Research Center, Shenzhen University)

***Abstract*：** Personal interests are an important factor that affects individuals' moral standards in moral situations. This study employed a moral dilemma paradigm that integrated gains and harms to investigate the bidirectional moderating effects of personal interests on moral decision-making and moral evaluation, as well as the roles of moral sensitivity and empathy. The study consisted of two experiments, Experiment 1 was an offline laboratory and Experiment 2 was an online study conducted through an online experiment platform. Each comprising two tasks: In the moral decision task, participants acted as "decision-makers" and were instructed to decide whether they were willing to allow others to receive electric shocks to increase their own interests under different profit levels. They were informed that their decisions could potentially be implemented. In the moral judgment task, participants assumed the role of "judges" and were required to evaluate the moral behavior of others in the same type of decision-making scenarios they encountered as "decision-makers," using a scale ranging from -4 to 4. The order in which participants completed the two tasks was balanced. Additionally, participants were asked to complete two questionnaires: the Interpersonal Reactivity Index-C and the Dispositional Moral Sensitivity Questionnaire.

The results of Experiments 1 and 2 revealed that personal interests significantly influenced moral decision-making and moral judgments and the relationship between the two. Additionally, the impact of decision outcomes on moral judgment was found to be significant. When the decision schemes were actually implemented, judges evaluated the decision-makers more critically, and vice versa. Furthermore, under the influence of personal interests, individuals' unethical decisions positively predicted their moral evaluations of others in the same decision-making context. Lastly, the study identified that one sub-component of empathy (i.e., personal distress) and two sub-components of moral sensitivity (i.e., perceived frequency and synesthetic imagination) played mediating roles in this effect. These findings shed light on the reciprocal relationship between individual unethical decision-making and moral judgment under the influence of personal interests. They provide valuable insights into individuals' moral flexibility during social interactions, especially when personal interests are at stake.

***Keywords*：** Personal interest; Moral decision-making; Moral judgement; Empathy; Moral sensitivity

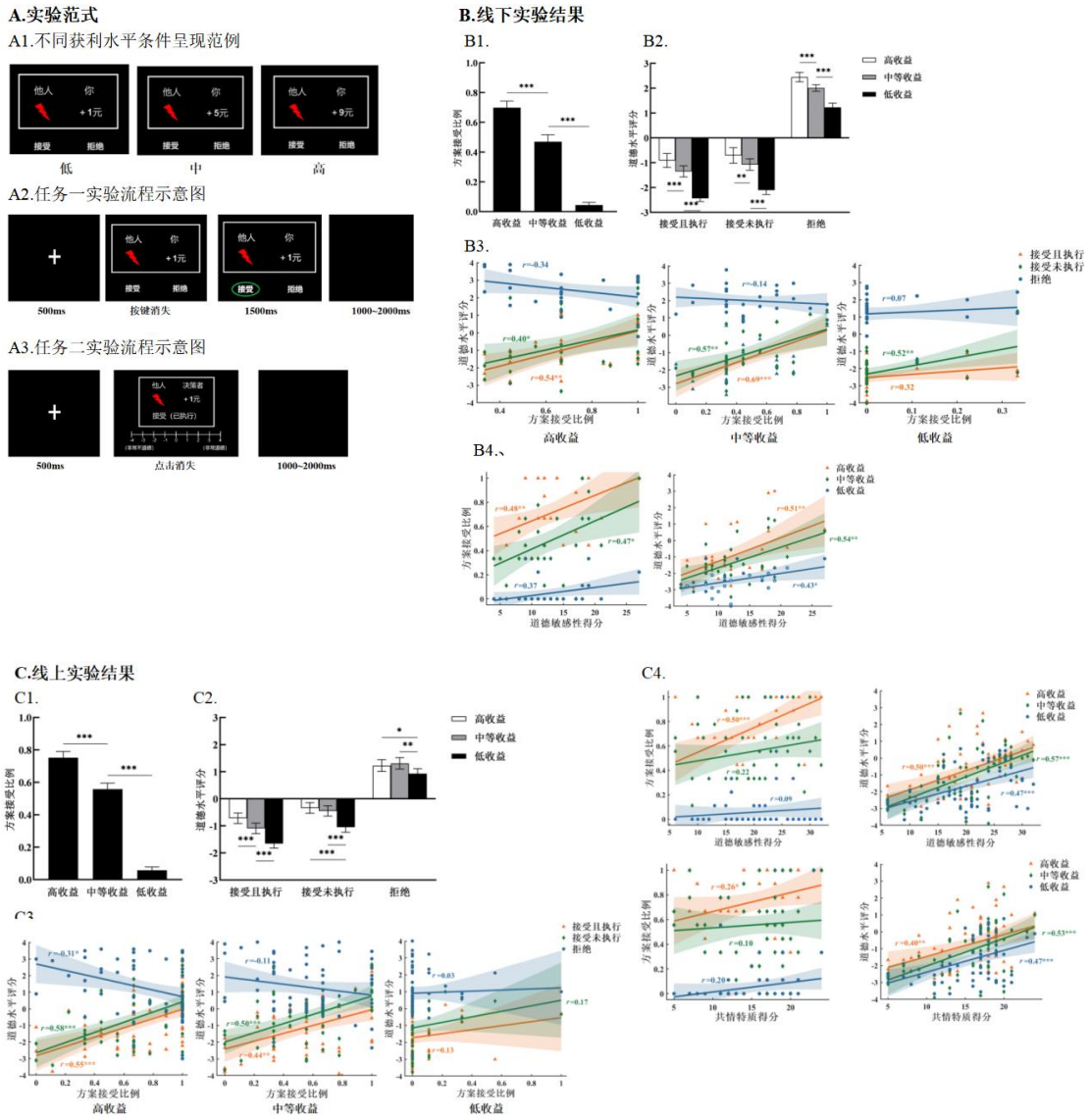


图 1 实验范式和实验结果。 A）实验范式示意图，其中 A1 为不同获利水平条件的范例，A2 为任务一道德决策任务流程图，A3 为任务二道德判断任务流程图。B）线下实验结果，B1 为不同获利水平下(高、中低)做出不道德行为的比例，B2 为不同决策结果下（接受且执行、接受未执行、拒绝）在不同获利水平下的道德评分，B3 为不同获利水平下不道德决策与道德判断之间的相关结果，B4 为不同获利水平下不道德决策、道德判断与道德敏感性特质之间的相关结果。C）线上实验结果，其中 C1 不同获利水平下(高、中低)做出不道德行为的比例，C2 为不同决策结果下（接受且执行、接受未执行、拒绝）在不同获利水平下的道德评分，C3 为不同获利水平下不道德决策与道德判断之间的相关结果，C4 为不同获利水平下不道德决策和道德判断与道德敏感性、共情特质之间的相关结果。

线索信息影响估算策略运用的认知机制

赵昕仪[1]　朱传林[1]

扬州大学教育科学学院，扬州，225002，psyxyzhao@163.com

摘 要 大量研究考察了年龄、执行功能、数学焦虑等因素对个体完成估算任务的影响，鲜有研究考察背景线索信息在个体完成估算任务时所起的作用。本研究结合 Flanker 范式，通过两个实验，分别考察在单一箭头线索（实验 1）和多箭头线索（实验 2）情况下被试完成估算任务的表现，并希望合理利用线索信息，为改善个体估算策略执行的表现提供思路。

实验一为 2（箭头朝向：左&右）×2（策略类型：DU 策略&UD 策略）的被试内实验设计。要求被试使用 DU 或者 UD 策略完成两位数乘法估算任务，并判断箭头的朝向。考察了单一箭头线索对个体使用 DU 策略(Down-Up 策略，即把前一个数下调、后一个数上调为整十的策略，例如，21×47≈20×50) 和 UD 策略(Up-Down 策略，即把前一个数上调、后一个数下调为整十的策略，例如，29×41≈30×40)完成乘法估算任务的影响。在实验一的基础上，实验二为 2 (中间箭头和另外四个箭头的朝向是否一致:一致&不一致) ×2 (最中间箭头的朝向:左&右)×2 (策略类型:DU 策略&UD 策略)的被试内实验设计。要求被试使用 DU 或者 UD 策略完成两位数乘法估算任务，并判断最中间箭头的朝向。结合 Flanker 范式考察了多箭头线索条件下个体使用 DU 策略和 UD 策略完成估算任务的表现。上述两个实验中的因变量均为被试完成估算任务的正确率和反应时。结果发现：（1）单箭头朝向和策略类型并不影响被试估算任务执行的正确率和反应时，但单箭头朝右时，无论使用 DU 还是 UD 策略，被试执行估算任务的反应时都更短（实验一）。（2）多箭头朝向和策略类型并不影响被试估算任务执行的正确率和反应时，但中间箭头和另外四个箭头朝向一致时，被试执行估算任务反应时更短且箭头朝向为右边且中间箭头和另外四个箭头朝向一致的时候被试执行估算任务的反应时更短（实验二）。本研究表明单一箭头线索和多箭头线索对个体完成估算任务造成了不同影响，完成估算任务时应充分重视不同线索信息的作用。

关键词 线索信息，估算策略，flanker 范式

The cognitive mechanism of environmental cues affecting estimation strategy

XinyiZhao[1]　ChuanlinZhu[1]

School of Educational Science, Yangzhou University, Yangzhou , 225002

Abstract：A large number of studies have studied the influence of age, executive function and math anxiety on an individual's estimation performance, but the influence of environmental cues is still un- known. In this study, combined with the Flanker paradigm, the performance of participants in completing estimation tasks under single arrow cues (experiment 1) and multiple arrow cues (experiment 2) was examined through two experiments, and it was hoped that the clue information should be used reasonably to provide ideas for improving the performance of individual estimation strategies.

Experiment 1 is the within-subject design of 2 (arrow pointed: left &right) × 2 (strategy type: DU strategy &UD strategy). Participants were asked to use the DU or UD strategy to complete the two-digit multiplication estimation task and tell the direction of the arrow. The impact of using the DU strategy (Down-Up strategy, i.e., the strategy of lowering the multiplicand and up-regulating the multiplier to the nearest decades, e.g., 21×47≈20×50)

and UD strategy (Up-Down strategy, i.e., the strategy of up-regulating the multiplicand and lowering the multiplier to the nearest decades, e.g., 29×41≈30×40) to complete the multiplication estimation task is examined. On the basis of experiment 1, experiment 2 (whether the orientation of the middle arrow and the other four arrows is consistent: consistent & inconsistent) ×2 (the direction of the middle arrow: left & right) ×2 (strategy type: DU strategy & UD strategy) is the within-subject design. Participants were asked to use the DU or UD strategy to complete the two-digit multiplication estimation task and tell the direction of the middle arrow. Combined with the Flanker paradigm, the performance of individuals using DU strategy and UD strategy to complete estimation tasks under multi-arrow cue conditions is investigated. The dependent variables in both experiments were the correct rate and response of the participant when completing the estimation task. The results showed that: (1) The direction of the single arrow and the type of strategy did not affect the correct rate and response of the participant's estimation task, but when the single arrow was facing to the right, the respondent's response to the estimation task was shorter regardless of whether the DU or UD strategy was used (Experiment 1). (2) When the direction of multiple arrows and the type of strategy did not affect the correct rate and response of the participant's estimation task, but when the middle arrow and the other four arrows were facing the same direction, the participant's response to the estimation task was shorter and the arrow's orientation was to the right and the middle arrow and the other four arrows were aligned (experiment 2). This study shows that single arrow clues and multi-arrow clues have different effects on individuals' completion of estimation tasks, and full attention should be paid to the role of environmental cues when completing estimation tasks.

Keywords：environmental cues，estimation strategy，flanker paradigm

表征精度对多记忆表征引导注意的影响

车晓玮　连浩敏　李寿欣（通讯作者）
山东师范大学心理学院，济南，250014，shouxinli@sdnu.edu.cn

摘 要　保存在记忆系统的目标表征可以引导注意朝向目标匹配刺激，促进视觉搜索。但是，当记忆系统内存储多个表征时，与存储单个记忆表征相比，记忆表征对视觉搜索的促进作用减弱，即产生多目标搜索代价。研究者认为，多目标搜索代价的产生原因可能在于：（1）存储多个记忆表征时，表征之间相互干扰，使得表征精度下降，阻碍记忆表征与搜索项目的匹配；（2）记忆表征数量增加，用于记忆存储的资源增加，使得用于视觉搜索的资源减少，从而降低搜索效率。本研究采用事件相关脑电位（event-related potentials, ERP）技术，通过改变记忆表征精度加工需求操纵记忆表征精度，通过改变记忆表征在不同试次间变化操纵记忆资源投入，分析视觉搜索过程反映注意资源分配的 N2pc 和反映记忆表征匹配的 SPCN 成分，利用神经信号解码技术分析神经表征激活的时间动态，探讨表征精度对多记忆表征引导注意的影响。

实验 1 采用 ERP 技术，探讨搜索目标在试次中变化时，表征精度加工需求对多目标搜索代价的影响。结果发现，在高精度加工需求条件下的多目标搜索代价小于低精度加工需求条件；高精度加工需求条件下，搜索 1 个目标和 2 个目标时，诱发的 N2pc 和 SPCN 没有差异；低精度加工需求条件下，搜索 1 个目标和 2 个目标诱发的 N2pc 没有差异，但搜索 2 个目标时诱发的 SPCN 小于搜索 1 个目标。实验 2 和实验 3 采用神经信号解码技术，分别探讨搜索目标在试次间变化和不变时，记忆表征激活的时间动态。结果发现，无论搜索目标在试次间变化与否，高精度加工需求条件下，两个记忆表征同步激活；而低精度加工需求条件下，同一时间内只激活一个记忆表征。

我们的研究表明，提高表征精度促进多记忆表征对注意的引导。多目标搜索代价的产生原因可能在于存储多个记忆表征时表征精度损耗,阻碍记忆表征与搜索项目的匹配。提高记忆表征精度加工需求，可以促进两个记忆表征同步激活，维持较高的表征精度，从而促进视觉搜索，降低多目标搜索代价。研究结果支持记忆表征引导注意的多模板假设。

关键词　记忆表征，注意，视觉搜索，精度，解码

Memory Precision Affects the Attentional Guidance of Multiple Targets

Che Xiaowei　Lian Haomin　Li Shouxin
Department of Psychology, Shandong Normal University, Jinan, 250014, shouxinli@sdnu.edu.cn

Abstract：The target representation maintained in the human memory system can direct attention towards the target-matching item, and thus promote visual search. However, when multiple target representations are maintained in the memory system, the promotion effect of memory representation on visual search is reduced compared with single-target search. This reduction in search guidance is defined as the multi-target cost of visual search. The multi-target cost may be caused by: (1) the decreased precision of memory representations caused by representations interference; (2) the decreased resources for visual search due to the increased resource consumption for memory storage. In this study, three experiments were conducted to explore the effect of memory precision on multi-target visual search by using event-related potentials (ERP) technology. The memory precision was manipulated by changing the precision requirement of the memory representation and the resource consumption was manipulated by changing the targets constant or variable between trials. The recorded ERP

signals were analyzed and decoded to explore the temporal dynamics of neural representations and reveal the mechanism of the multi-target cost in visual search.

In Experiment 1, ERP technology was used to explore the influence of the precision requirement on the multi-target cost when the search targets changed between trials. We measured electrophysiological markers of attentional selection (N2pc) and memory matching (SPCN) in visual search. The results showed that the multi-target cost under high precision requirement was smaller than that under low precision requirement. The evoked N2pc and SPCN when searching for 1 or 2 targets were comparable under high precision requirement. Under low precision requirement, the N2pcs showed no difference between searching for 1 target and 2 targets, but the SPCN evoked by searching for 2 targets was smaller than that evoked by searching for 1 target. In Experiments 2 and 3, neural signal decoding was used to investigate the temporal dynamics of the memory representations when the search targets changed or remained constant between trials. The results showed that, regardless of whether the search target changed between trials, the two memory representations were reactivated synchronously under high-precision requirement. However, under low-precision requirement, only one memory representation was reactivated at any given time.

The results indicate that increasing the precision of the target representation promotes the attentional guidance of multiple memory representations. The multi-target cost of visual search might be caused by the decreased precision of memory representations which hindered the matching of the target representations to input items. Increasing the precision requirements of the target representations could promote synchronous reactivation of multiple memory representations and improve the precision of representations, and thus promoting visual search. The results support the multi-template hypothesis that multiple memory representations can guide attention simultaneously.

Keywords：Memory representation, Attention, Visual search, Precision, Decoding

三维空间中深度对视觉注意的影响

潘星羽[1] 李杰[2]（通讯作者） 张禹[1]（通讯作者）
1 北京体育大学心理学院，北京，100084，btzy1973@126.com
2 杭州师范大学心理科学研究院，杭州，311121，lijie.psy@hznu.edu.cn

摘 要 随着计算机和虚拟现实技术的发展，人们开始在以往二维研究的基础上探索三维空间中深度对注意的影响及其背后的原理。本文在 PubMed、Web of science 和中国知网进行检索，使用以下检索词：“depth/3D/three-dimensional/attention”和“深度、三维、注意”。从 1262 篇中筛选出 53 篇有关研究纳入分析。结果显示在静态和动态注意领域的研究均有涉及到三维空间中深度对注意的影响，主要采用的研究范式有视觉搜索范式、空间线索范式和多目标追踪范式等。研究主要集中在注意在深度上的分配规律和深度对注意表现的促进两个方面：首先，注意可以在不同深度上分配，但这取决于任务的知觉负载，当知觉负载足够高时注意资源从距离观察者较近的位置向远处位置逐渐递减，这被解释为以观察者为中心的注意梯度模型。而当知觉负载较低时，则没有观察到这一分布规律。其次，在深度维度上分离目标与非目标可以促进视觉搜索和动态追踪的表现，但以观察者预先了解目标所在深度为前提条件。因此深度对注意的影响可能不同于二维特征（如颜色），它对注意的引导并非自动化的。对于深度对注意表现的促进作用有两种可能的解释：一是三维中的空间分离使注意资源在多个深度上分配比在同一深度内分配更容易；二是遮挡、相对大小等深度线索促进了对客体位置的感知，进而促进注意表现。但客体跨越不同深度的运动是否同样能够促进搜索或动态追踪任务的表现存在不一致的结论，这提示我们动态注意中深度的促进作用可能同样具有一定的前提条件。分析发现以往研究更多探讨深度对注意的影响，少有关注自上而下的注意引导的影响及与深度的交互作用；三维空间中动态注意的研究更多探讨不同平面内的多目标追踪，少有关注客体跨越不同深度平面的运动对追踪表现的影响；现有研究更多探讨行为层面的结果，少有关注结合眼动、脑电、脑成像等技术共同探索三维空间中深度对注意影响的原理与神经机制。未来可以从多模态技术融合的角度，从自上而下加工的注意引导和动态注意入手，进行更深入的探讨。
关键词 三维空间，深度，注意分配

The Influence of Depth on Visual Attention in 3D Space

Pan Xingyu[1], Li Jie[2], Zhang Yu[1]
1 School of Psychology, Beijing Sport University, Beijing, 10084, btzy1973@126.com
2 Institutes of Psychological Sciences, Hangzhou Normal University, Hangzhou, 311121, lijie.psy@hznu.edu.cn

***Abstract*:** With the development of computer and virtual reality technology, people have begun to explore the effect of depth on attention in three-dimensional space and the underlying principles based on previous two-dimensional research. This article was searched on PubMed, Web of Science, and CNKI using the following search terms: "depth/3D/three-dimensional/attention". 53 relevant studies were selected from 1262 papers and included in the analysis. The results showed that studies in both static and dynamic attention fields involve the influence of depth on attention in three-dimensional space, and the main research paradigms used were the visual search paradigm, spatial cueing paradigm, and multiple object tracking paradigm. Researches have focused on both the distributional patterns of attention over depth and the facilitation of attentional performance by depth: Firstly, attention can be distributed at different depths, but this depends on the perceptual load of the task; when the perceptual load is high enough, attentional resources taper off from positions closer to the observer to distant positions, which is interpreted as an egocentric attentional gradient model. In contrast, this distribution pattern is

not observed when the perceptual load was low. Second, separating targets from non-targets in the depth dimension can facilitate performance in visual search and dynamic tracking, but presupposes that the observer has prior knowledge of the depth at which the target is located. Thus the effect of depth on attention may differ from that of 2D features (e.g., color) in that its guidance of attention is not automatic. There are two possible explanations for the facilitating effect of depth on attentional performance: Firstly, spatial separation in three-dimensional space makes it easier to distribute attention across multiple depths than within the same depth; Second, depth cues such as occlusion and relative size promote the perception of object location and hence attentional performance. However, there were inconsistent conclusions on whether the movement of objects across different depths can also promote the performance of search or dynamic tracking tasks, suggesting that the benefits of depth in dynamic attention may also have certain prerequisites. Previous static and dynamic studies mainly focused on the impact of depth on attention, with little attention paid to the top-down process of directing attention to a specific depth. Studies on dynamic attention in 3D space have explored multiple object tracking in different planes, but paid little attention to the effect of object movement across different depth planes on tracking performance; Existing research explored more behavior indicators and few have focused on combining eye movement, EEG, brain imaging and other techniques to jointly explore the neural mechanisms of the effects of depth on attention in 3D space. In the future, more in-depth researches can be conducted from the perspective of multimodal fusion, starting with top-down attention guidance and dynamic attention.
Keywords**:** three-dimensional space, depth, allocation of attention

基于位置的统计学习对威胁分心刺激注意抑制的影响

念靖晴[1,2] 和凤棋[3] 谭江[1,2] 黄恋[1,2] 张禹[1,2] 罗禹[1,2]（通讯作者）

1 贵州师范大学心理学院，贵阳，550025

2 贵州师范大学心理学院应激与注意实验室，贵阳，550025，yuluo@gznu.edu.cn

3 山西师范大学教育科学学院，太原，030031

摘 要 研究发现具有威胁性的刺激更容易获得更多的注意资源分配，从而被优先关注和进一步加工。当威胁刺激作为分心物时，个体对目标的搜索速度更慢；此外，基于分心物位置的统计学习会影响个体对分心物的抑制效果。当个体可能学习到视觉搜索序列中的某个位置出现分心物的概率更高时，个体对分心物的抑制效果更好，对目标的反应时更快。但基于分心物位置的统计学习是否会影响威胁分心物的注意抑制尚不清楚。本研究采用 2（分心物位置概率：高概率（65%）/低概率（5%））×3（分心物属性：无分心物/威胁分心/无威胁分心物）的被试内实验设计。在威胁联结学习任务，随机从绿色（RGB：[0 73 0]）和青色（RGB：[0 71 71]）两种颜色（Luminance niveau = 35 cd/m2）中随机选取一种颜色作为与电击联结的 CS+条件或无电击的 CS-条件，并将两种颜色用于视觉搜索任务中的分心物颜色；在视觉搜索任务中，我们随机选取一个位置作为高概率位置，以 65%的概率呈现分心刺激；其余的位置为低概率位置，以 5%的概率呈现分心刺激。结果发现，与低概率位置相比，当分心物呈现在高概率位置时，个体对目标的反应时更短。但威胁分心和无威胁分心条件下个体对目标的反应时无显著差异。同时，在不同分心物位置概率条件下，个体对威胁分心刺激和无威胁分心刺激呈现时的目标反应时也无显著差异。结果表明，基于分心物位置的统计学习会动态调节个体的注意优先；但分心物的威胁性没有影响个体的注意优先，原因可能是在视觉搜索任务中，分心物的颜色为低物理突显的颜色且只有分心物为颜色单子，可能会导致个体只需投入较少的注意资源就能实现对分心物的注意抑制过程。

关键词 统计学习 威胁刺激 注意优先

The impact of location-based statistical learning on attentional inhibition of threat distraction stimuli

Nian Jingqing[1,2], He Fengqi[3], Tan Jiang[1,2], Huang Lian[1,2], Zhang Yu[1,2], Luo Yu[1,2]

1 School of Psychology, Guizhou Normal University, Guiyang

2 Laboratory of Stress and Attention, Department of Psychology, Guizhou Normal University, Guiyang

3 School of Education Science, Shanxi Normal University, Taiyuan

Abstract： Research has found that threatening stimuli are more likely to gain greater allocation of attentional resources, leading to being prioritized for attention and further processing. When threatening stimuli act as distractors, individuals exhibit slower search speeds for the target. Additionally, statistical learning based on the distractor's location affects the individual's ability to inhibit the distractor. When individuals are more likely to learn the probability of a distractor appearing at a specific location in a visual search sequence, they demonstrate better inhibitory effects on the distractor and faster reaction times to the target. However, it remains unclear whether location-based statistical learning affects attentional inhibition of threatening distractors. The study employed a 2 (distractor location probability: high probability (65%) / low probability (5%)) × 3 (distractor type: no distractor / threatening distractor / non-threatening distractor) within-subject experimental design. In the threat-conditioning task, one color was randomly selected from green (RGB: [0 73 0]) and cyan (RGB: [0 71 71]) with a luminance level of 35 cd/m2 to be associated with the CS+ condition (electric shock paired) or the CS- condition (no electric shock) and used as the distractor color in the visual search task. In the visual search task, a

high probability location (65% probability) was randomly chosen, where the distractor stimulus appeared, while the remaining locations were low probability locations (5% probability) for the distractor stimulus presentation.The results revealed that compared to the low probability locations, individuals had shorter reaction times to the target when the distractor was presented at high probability locations. However, there was no significant difference in reaction times to the target between the threatening distractor and non-threatening distractor conditions. Moreover, there were no significant differences in target reaction times when threatening distractors and non-threatening distractors were presented under different distractor location probability conditions.These findings indicate that location-based statistical learning dynamically modulates individual attentional priority. However, the threat level of the distractor did not influence attentional priority, possibly because the distractor's color was not highly salient and the distractor was a single feature distractor in the visual search task, allowing individuals to allocate fewer attentional resources for the process of inhibiting the distractor.
Keywords：statistical learning threatening stimuli attentional priority

一般警告能有效降低错误信息的持续影响效应吗？

徐瑞彤[1]　周广方[1]　贾丽娜[2]　金花[134]（通讯作者）

1 教育部人文社会科学重点研究基地天津师范大学心理与行为研究院，天津，300380；

2 天津商业大学法学院心理学系，天津，300134；

3 天津师范大学心理学部，天津，300380；

4 学生心理发展与学习天津市高校社会科学实验室，天津，300380，jinhua@tjnu.edu.cn

摘 要　背景：错误信息持续影响效应（CIE）指最初呈现为真但后来被界定是错误的信息会继续影响推理和行为的现象。如信息“口罩中的残留物环氧乙烷是一级致癌物，大家在佩戴前把口罩在空气中甩一甩”虽然被辟谣了，但还是有人会在使用口罩前甩一甩。目前，警告被网络媒体广泛应用以对抗错误信息的传播(如加注“该内容疑似使用 AI 合成，请谨慎甄别”的文字)，但它是否能有效降低错误信息的 CIE 尚缺少有力的实验数据支撑。本研究探讨了一般警告和替代解释对减少错误信息 CIE 的作用。方法：实验 1 为线上实验。262 名大学生被随机分入有警告简单更正组（警告组）、无警告的简单更正组（简单组）和替代解释组（替代组）。被试被要求认真阅读随机呈现的 6 个实验故事和 4 个填充故事并在每个故事阅读结束后完成 3 个推理/事实问题。每个实验故事由 6 个句子组成，第 2 句呈现错误信息，第 5 句呈现更正信息，其余句子为过渡句。实验故事据第 5 句的内容分为简单更正和替代解释两个版本，简单更正仅对原始的错误信息进行简单的否定，替代解释在简单否定的基础上增加了替代的解释原因。推理问题围绕错误信息句描述的情况发生后可能采取的措施提出。对推理问题的评分（9 点评分，1=完全不同意，9=完全同意）越高, 说明越依赖之前的错误信息, 即 CIE 越大。实验操纵如下：警告组在实验开始前会看到如“信息可能不实请谨慎识别”的提示，警告组和简单组阅读实验故事的简单更正版本，替代组阅读替代解释版本。实验 2 新招 210 名大学生在实验室环境下通过个别施测重复了实验 1 以检验实验 1 结果的可重复性和稳定性。数据的线性混合模型分析采用基于 R 语言环境的 lme4 包，事后比较用 lsmeans 包。结果：实验 1 发现，组别主效应显著，且警告组和简单组的推理分无显著差异，替代组的推理分显著低于警告组和简单组。实验 2 完全复制了实验 1 的结果。结果提示，一般性的警告不能有效降低错误信息的 CIE；实践中应该重视辟谣的内容，应该在否定谣言的同时，给出详细的解释。

关键词　错误信息，更正，警告，持续影响效应

Can general warnings reduce the continued influence effect of misinformation?

XU Ruitong[1]　ZHOU Guangfang[1]　JIA Lina[2]　JIN Hua[134]

1 Key Research Base of Humanities and Social Sciences of the Ministry of Education, Academy of Psychology and Behavior, Tianjin Normal University, Tianjin 300387, China；

2 Department of Psychology at College of Law, Tianjin University of Commerce, Tianjin 300134, China；

3 Faculty of Psychology, Tianjin Normal University, Tianjin 300387, China；

4 Tianjin Social Science Laboratory of Students' Mental Development and Learning, Tianjin 300387, China

Abstract: Background: The continued influence effect (CIE) refers to the phenomenon for information that is initially presented as true, but later revealed to be false, to continue to affect our reasoning and behavior. For

example, although the message "ethylene oxide residue in masks is a first-class carcinogen, a mask should be shaken in the air a few times before use" is defined as misinformation, there are still some people who shake it before using a mask. The fast development of social media promotes the rapid spread of misinformation, and how to minimize the CIE of misinformation has become one of the research focuses in the new media era. At present, warnings are widely used by online media to combat the spread of misinformation （For example, add the text "This content is suspected to be synthesized using AI, please be careful to screen"）, but whether it can effectively reduce the CIE of misinformation is still lacking strong support from experimental data. This study explored the role of general warnings and alternative explanations in reducing misinformation CIE in college students. Method: Experiment 1 was an online experiment. The 262 college students were randomly assigned in the group of general warning + simple retraction (referred to as the warning group), the group of simple retraction only (the retraction group), and the group of simple retraction + alternative interpretation (the alternative group). Participants were instructed to carefully read 6 experimental stories and 4 filler stories, and to complete 3 reasoning/factual questions at the end of each story reading. Each experimental story consists of 6 sentences, with misinformation in sentence 2, misinformation retraction in sentence 5, and transitional sentences in the remaining sentences. According to the content of sentence 5, the experimental story was divided into two versions: the simple correction version and the alternative explanation version. Simple retraction only made a simple negation of the original misinformation, and the alternative interpretation added the alternative explanation reason to the simple negative. Reasoning questions are around possible actions after the situation described by the misinformation sentence occurred. The higher the score for the reasoning problem (9 points, 1 = strongly disagree, 9 = strongly agree), the more dependent it is on the previous misinformation, i.e., the larger the CIE. The experiment was manipulated as follows: the warning group was presented a prompt such as "Please be cautious about information that may be false" before the experiment started, the warning group and the retraction group read a simple retraction version of the experiment story, and the alternative group read the alternative explanation version. Experiment 2 repeated Experiment 1 with individual tests in a laboratory environment to verify the reproducibility and stability of the results of Experiment 1. The 210 newly recruited college students were randomly divided into three groups mentioned above and completed the same tasks as the participants in Experiment 1. The linear mixed model analysis of the data used the Lme4 package based on the R language, and the Lsmeans package was used for post-hoc comparison. Results: Experiment 1 found a significant main effect of the group, and there was no significant difference in the inference score between the warning group and the retraction group, and the inference score of the alternative group was significantly lower than that of the warning group and the retraction group. Moreover, Experiment 2 completely replicated the results of Experiment 1. The results indicate that general warnings cannot effectively reduce the CIE of misinformation, which suggests that attention should be paid to the content of debunking rumors in practice, and a detailed explanation should be given to explain why rumors are wrong while denying them.

Keywords：misinformation,retraction,warning, the continued influence effect

发育性协调障碍成人的程序性学习缺陷

姚雨蓝[1] 赵明明[1] 张斌[2](通讯作者)
1 上海体育大学心理学院，上海，200438
2 上海体育大学心理学院，上海，200438，suszhangbin@126.com

摘 要 发育性协调障碍(Developmental Coordination Disorder, DCD)是一种以动作协调能力受损为特征的发育性疾病。5-11 岁儿童中的患病率为 5%-6%，且运动困难可能会持续到成年期。程序性学习缺陷假说认为程序性学习缺陷是造成 DCD 人群动作协调能力受损的原因，但 Gheysen 等人 2013 年的研究不支持该结论。**研究目的**：①探索成人 DCD 程序性学习特征；②从内部模型缺陷理论(Internal Modeling Deficit, IMD)角度探索 DCD 程序性学习缺陷的发生机制。IMD 理论认为，在实际感觉反馈可用之前，内部模型会对动作结果进行预测，提供快速在线纠正手段。DCD 个体存在内部模型缺陷，无法对动作进行修正，具体表现为动作表象能力下降。**研究假设**：DCD 组在程序性学习上的表现差于对照组；与动作执行条件相比，动作表象条件下 DCD 组表现出更大程度的缺陷。**方法**：研究纳入 18-21 岁的 18 名对照组(女生 12 名)被试和 19 名 DCD 组(女生 10 名)被试。实验程序改编自连续反应时间任务(Serial reaction time task, SRTT)，设置按键执行和动作表象两种条件，记录反应时和正确率。**结果**：进行 2(组别：对照组、DCD 组，组间变量)*2(序列类型：熟悉序列、不熟悉序列，组内变量)*2(反应方式：动作执行、动作表象,组内变量)的三因素重复测量方差分析。对于假设 1：组别和序列类型的交互作用不显著，F=（1，35）=1.781，p=0.191，序列类型的主效应不显著，F（1，35）=3.428，p=0.073。组别的主效应显著，F（1，35）=6.323，p=0.017*，偏η^2=0.153。事后检验显示，DCD 组平均反应时比 TD 组慢 37.40ms，p=0.017*。对于假设 2，当需要对不熟悉序列进行按键时，组别和反应方式的交互作用显著，F(1.35)=8.142, p=0.007**,偏η^2=0.132；对照组中反应方式的简单效应不显著 F（1，17）=0.247，p=0.626；DCD 组中反应方式的简单效应显著，F（1，18）=9.848，p=0.006**，偏η^2=0.354，表象条件下的平均反应时比在执行条件下快 36.18ms， p=0.001**。**结论**：DCD 组在程序性学习上反应时比对照组更长，验证假设一；DCD 表象条件下的学习效果显著差于按键执行条件下，验证假设二。本研究从 IMD 理论角度解释了 DCD 的程序性学习问题：DCD 中动作表象能力存在缺陷，导致无法对动作进行及时修正，进而出现程序性学习问题。

关键词 发育性协调障碍，动作序列学习，内部模型

Procedural learning deficits in adults with developmental coordination disorders

Yulan YAO[1] Mingming ZHAO[1] Binn ZHANG[2*]
1School of Psychology, Shanghai University of Sport, Shanghai, 200438
2School of Psychology, Shanghai University of Sport, Shanghai, 200438, suszhangbin@126.com

Abstract： Developmental Coordination Disorder (DCD) is a developmental disorder characterized by impaired motor coordination ability. The prevalence rate among children aged 5-11 is 5% -6%, and such difficulty may persist into adulthood. The hypothesis of procedural learning deficits suggests that procedural learning deficit is the cause of impaired motor coordination in DCD populations, but Gheysen et al.'s 2013 study does not support this conclusion. **Aim**: ① Exploring the characteristics of procedural learning in adult DCD; ② Exploring the

mechanism of procedural learning defect of DCD from the perspective of Internal Modeling Deficit (IMD). The IMD suggests that before actual sensory feedback is available, the internal model will predict the action results and provide fast online correction methods. DCD individuals have internal model deficit that prevents them from correcting their actions, specifically manifested as a decrease in their ability to represent their actions. **Hypothesis**: The DCD group performed worse in procedural learning than the control group; Compared to action execution, the DCD group showed a greater degree of defects under the condition of action representation. **Method**: The study included 18 control group (12 girls) participants and 19 DCD group (10 girls) participants aged 18-21. The experimental program is adapted from the Serial reaction time task (SRTT), setting two conditions: motor execution and motor imagery, reaction time and accuracy were recorded. **Results**: A three factor repeated measurement analysis of variance was conducted for 2 (group: control group, DCD group, inter group variable) * 2 (sequence type: familiar sequence, unfamiliar sequence, intra group variable) * 2 (reaction mode: motor execution, motor imagery, intra group variable). For hypothesis 1: the interaction between group and sequence type is not significant, F=(1,35)=1.781, p=0.191, the main effect of sequence type is not significant, F (1,35)=3.428, p=0.073. The main effect of the group is significant, F (1, 35)=6.323, p=0.017*, partial η^2= 0.153. Post hoc testing showed that the average reaction time of the DCD group was 37.40ms slower than that of the TD group, p=0.017 *. For hypothesis 2, as for unfamiliar sequences, the interaction between group and reaction mode is significant, F (1.35)=8.142, p=0.007**, partial η^2= 0.132; The simple effect of reaction mode in the control group was not significant F (1,17)=0.247, p=0.626; The simple effect of reaction mode in the DCD group is significant, with F (1,18)=9.848, p=0.006**, partial η^2= 0.354, the average reaction time under motor imagery is 36.18 ms faster than under motor execution , p=0.001**. **Conclusion**: The response time of the DCD group in procedural learning is longer than that of the control group, verifying hypothesis 1; The learning effect under motor imagery of the DCD group is significantly worse than that under motor execution, verifying hypothesis 2. This study explains the procedural learning problem of DCD from the perspective of IMD: there is a deficit in the motor imagery in DCD, which leads to the inability to timely correct actions, leading to procedural learning problems.

Keywords：Developmental coordination disorders, motor sequence learning, internal models

工作记忆表征优先级的形成机制

张亚亚　丁锦红（通讯作者）
首都师范大学心理学院，北京，100037，dingjh@cnu.edu.cnu

摘 要 近年来，人们对大脑中的多重和分布式记忆表征有了更深入理解并构建了一种从低级视觉表征到高层次概念表征的客体表征体系，具体包括感觉表征、具体和抽象语义表征、时空表征、图式以及认知地图等。多层次表征模型也进一步提出真实物体表征是由底层知觉特征、中层长时记忆经验信息（类别信息）以及顶层完整客体构成。然而，上述理论主要关注记忆表征与编码的动态性和转换性等特征，而未充分考虑客体多层次表征提取的优先级以及各表征层次间的相互关系。

本研究以真实物体图片为材料，采用眼动技术和延迟匹配任务，考察真实物体再认过程中的类别表征与知觉表征之间的相互作用机制。在学习阶段，要求被试记住同时呈现（实验一）和序列呈现（实验二）的 4 个物体；测验阶段在屏幕中央呈现一个探测刺激，要求被试判断是否在学习阶段出现过。探测刺激有三种类型：类别与物体都相同（完全相同）、类别相同而物体不同（部分相同）以及类别和物体都不同（完全不同）。实验过程中被试通过按键反应，眼动仪记录被试的眼动数据。

研究结果表明，（1）个体再认真实物体时，更多依赖类别表征而非知觉表征，且类别表征的优先提取会抑制物体知觉表征，降低对物体的提取成绩。（2）再认时的微眼跳率、转移熵及静息熵证明，基于类别的内部注意可以主动将资源分配阶段与决策阶段分开。300~500ms 内在类别表征层次上分配注意；500-1000ms 中在知觉表征层次上分配注意且做出决策。（3）类别-知觉表征间的资源竞争受到类别-物体间语义关系强度的影响，与部分相同物体（类别-物体语义关系弱）相比，提取完全相同物体（类别-物体语义关系强）时，基于类别的注意会调整个体更快地匹配到关注客体。总之，在工作记忆不同阶段表征发生快速而实质性的转换，不断调整表征的优先级，从而实现新旧知识整合，保证信息能够成功储存与提取。

关键词　视觉工作记忆，类别表征，微眼跳率，视线熵

Mechanisms of Prioritization of Working Memory Representations

Yaya Zhang Jinhong Ding (corresponding author)
School of psychology, Capital Normal University, Beijing, 100037, dingjh@cnu.edu.cnu

***Abstract*：** In recent years, multiple and distributed memory representations in the brain have been better understood and a system of object representations has been constructed that ranges from low-level visual representations to high-level conceptual representations, including sensory representations, concrete and abstract semantic representations, spatio-temporal representations, schemas, and cognitive maps. The multilevel representation model further proposes that real object representations are composed of bottom-level perceptual features, middle-level long-term memory experience information (category information), and top-level complete objects. However, the above theories mainly focus on features such as the dynamics and transformations of memory representation and encoding, and do not fully consider the priority of object multilevel representation extraction and the interrelationships among the representation levels.

In this study, we used pictures of real objects as materials, eye-movement technology and a delayed matching task to examine the interaction mechanism between category representations and perceptual representations in the process of real object rerecognition. In the learning phase, subjects were asked to memorize four objects presented simultaneously (Experiment 1) and sequentially (Experiment 2); in the quiz phase, a probe stimulus was presented in the center of the screen and subjects were asked to determine whether it had appeared in the learning phase. There were three types of probe stimuli: categories and objects were the same (identical), categories were the same and objects were different (partially identical), and categories and objects were different (completely different). Subjects responded by pressing keys during the experiment, and an eye-tracker recorded the subjects' eye-movement data.

The results of the study showed that (1) individuals relied more on category representations than perceptual representations when re-recognizing real objects, and that the preferential extraction of category representations inhibited object perceptual representations and reduced the extraction performance for objects. (2) Microsaccade rate, translational entropy, and stationary entropy during re-recognition demonstrated that category-based internal attention can actively separate the resource allocation phase from the decision-making phase. 300-500ms allocated attention at the category representation level; 500-1000ms allocated attention at the perceptual representation level and made a decision. (3) Resource competition between category-perceptual representations was influenced by the strength of the category-object semantic relationship, with category-based attention adjusting individuals to match to the object of attention faster when extracting identical objects (strong category-object semantic relationship) compared to partially identical objects (weak category-object semantic relationship). In summary, rapid and substantial shifts in representations occur at different stages of working memory, continuously adjusting the prioritization of representations, thus enabling the integration of old and new knowledge and ensuring that information can be successfully stored and extracted.

***Keywords*：** visual working memory, category representation, microsaccade rate, visual entropy

情绪如何影响道德困境中的判断？一项基于情绪启动的实证研究

杨佳闻[1] 闫孜佳[1] 杨伊静[1] 吴琳倩[1] 张馥雅[1] 王亚兰[1] 许施扬[1]（通讯作者）
1 山西师范大学教育科学学院心理系，太原，030031，xushiyang@sxnu.edu.cn

摘 要 道德判断是一个交织了情感与推理的复杂社会认知过程，受到情绪影响的同时，又对其做出反馈。情绪既可以引发道德直觉，也可能干预道德推理，其在道德判断中的作用不可忽视。在此背景下，本研究采用 CNI 模型来剖析道德判断的过程。该模型主要包括个体对结果(Consequences)的敏感性、对道德规范(moral Norms)的敏感性以及个体的行为反应偏好(Inaction versus action)。而情绪或许会调整对后果和规范的感知度，从而改变道德判断的反应时。情绪的种类不同也会有不同的影响，先前研究证明消极情绪会增加个体对规则的敏感性。为此，我们提出以下假设：（1）情绪启动下的道德判断时间高于无情绪启动；（2）消极情绪下的道德判断的道义倾向性高于对照组和积极情绪。

为了验证这些假设，我们设计了一个单因素被试间实验，通过启动积极情绪（开心）、消极情绪（厌恶）和无情绪（对照），让被试在这三种情绪状态下对道德两难困境问题进行回答，并记录其反应时间和道德判断的倾向性。实验对象为 99 名 19-23 岁的大学生，按情绪状态随机分为三组，每组 33 人。首先，被试需观看与启动情绪相符合的图片，然后对十个道德两难困境问题做出判断。实验结果揭示，情绪启动下的道德判断时间明显高于无情绪启动（$F(2,96) = 6.07, p < 0.01$，$\eta^2_p=0.112$），说明情绪会增加道德判断的认知负担。然而，积极情绪和消极情绪对道德判断的倾向性并无显著影响（$F(2,96) = 0.83, p > 0.05$,$\eta^2_p=0.017$）。

这些发现强调了情绪在道德判断中的影响。它们可能增加道德判断的认知负担，从而延长反应时间。我们推测，情绪可能激活与道德困境相关的情感直觉，增加了冲突维度的权重，使得在做出道德判断时需要更多时间和精力。然而，第二个假设并未得到验证，即积极情绪和消极情绪对道德判断的倾向性没有显著影响。这可能是由于道德困境问题涉及到不同的规范和直觉维度，而不同类型和强度的情绪对这些维度的影响可能有所不同。因此，不能简单地将情绪分为积极和消极，而需要详细考察情绪的具体内容和特点，以及其与道德困境问题的匹配程度。

关键词 道德判断,情绪,CNI 模型

How Do Emotions Influence Judgment in Moral Dilemmas? An Empirical Study Based on Emotional Priming

Jiawen Yang[1], Zijia Yan[1], Yijing Yang[1], Linqian Wu[1], Fuya Zhang[1], Yalan Wang[1], Shiyang Xu[1] (Corresponding Author)
[1] Department of Psychology, Faculty of Education Sciences, Shanxi Normal University, Taiyuan, 030031

***Abstract*：** Moral judgment is a complex social cognitive process intertwined with emotions and reasoning, influenced by emotions while also responding to them. Emotions can evoke moral intuitions and may interfere with moral reasoning, their role in moral judgment is undeniable. The model includes the individual's sensitivity to Consequences, the individual's sensitivity to moral Norms, and the individual's Inaction versus action. And emotions may adjust the perception of consequences and norms, thereby altering the response to moral judgments. Different types of emotions also have different effects, and previous research has shown that negative emotions can increase an individual's sensitivity to rules. Hence, we propose the following hypotheses: (1) The time of moral judgment under emotional priming is higher than without emotional priming; (2) The moral tendency of

moral judgment under negative emotions is higher than the control group and positive emotions.

a single-factor between-subjects experiment was designed to verify these hypotheses. We primed positive emotions (happiness), negative emotions (disgust), and no emotions (control), and had subjects answer moral dilemma questions under these three emotional states, recording their response times and moral judgment tendencies. The subjects were 99 university students aged 19-23, randomly divided into three groups of 33 each. First, the subjects needed to view pictures that corresponded to the primed emotions, then make judgments on ten moral dilemma questions. The experimental results revealed that the time of moral judgment under emotional priming was significantly higher than without emotional priming（$F(2,96) = 6.07$, $p < 0.01$，$\eta^2_p = 0.112$）, indicating that emotions increase the cognitive load of moral judgment. However, positive and negative emotions had no significant effect on the tendency of moral judgment （$F(2,96) = 0.83$, $p > 0.05$,$\eta^2_p = 0.017$）。

These findings emphasize the impact of emotions on moral judgment. They may increase the cognitive load of moral judgment, thereby extending response times. We speculate that emotions may activate emotional intuitions related to moral dilemmas, increasing the weight of the conflict dimension, necessitating more time and effort in making a moral judgment. However, our second hypothesis was not confirmed, that is, positive and negative emotions had no significant effect on the tendency of moral judgment. This may be because moral dilemma questions involve different norms and intuition dimensions, and different types and intensities of emotions may have varying effects on these dimensions. Therefore, we should not simply categorize emotions as positive or negative but need to examine in detail the specific content and characteristics of the emotions, as well as their match with the moral dilemma questions.

***Keywords*：** Moral judgment, Emotion, CNI model

数值比较范式对感数机制的影响

刘炜[1] 赵小可[2] 王春辉[1] 田静琳[1] Guido Marco Cicchini[3]（通讯作者）
1 云南民族大学，教育学院，昆明，650000
2 大理大学，教师教育学院，大理，671000
3 意大利国家研究理事会认知神经科学研究所，比萨，56124，cicchini@in.cnr.it

摘 要 在感数机制（Subitizing）的作用下，小数值（1-4）可以被快速且精确地识别。然而感数机制容易被影响，例如与目标刺激同时呈现的干扰刺激就会干扰感数机制。为了进一步分析上述影响是发生在知觉阶段还是反应选择阶段，我们考察了数值比较范式对感数机制的影响。被试需要比较呈现在屏幕左、右侧刺激的数量多少，在保证正确的前提下尽快反应。在不同任务组中，两侧刺激可以同时呈现（同时任务）也可以相继呈现（继时任务）。相对于继时比较范式来说，同时比较范式在知觉阶段会引发更高的注意负荷，而两种范式在反应阶段的认知负荷相同。实验结果表明，在比较中等数量（6-32 点）的刺激时，两种任务下都观测到了数值比率效应，即比较的错误率和反应时随着被比较数值比率升高（被比较的数值逐渐接近）而线性上升。形成对比的是，小数值加工会受比较范式影响：在比较小数值（1-4）的刺激时，继时比较任务的错误率不随数值比率而变化，始终维持在极低水平；在继时任务中，小数和中数比较的逆效率分数（IES）无显著相关。这些结果提示精确的感数机制可以在继时比较中发挥作用。在同时任务中，小数比较的数值比率效应与中数比较相似，即比较的错误率和反应时随被比较数值的比率接近而线性上升，且两种数值范围内的 IES 显著相关，这些结果提示，此时感数机制不再是上述小数值加工的基础；在同时比较范式下，数量比较建立在数量机制（Numerosity）活动的基础上。感数机制会因为知觉阶段产生的注意负荷而受到破坏，此时，小数值（1-4）的加工依赖数量机制完成。

关键词 感数，数量估计，韦伯定律，平行加工

Subitizing Endures in Sequential rather than Simultaneous Comparison Tasks

Wei Liu[1], Xiaoke Zhao[2], Chunhui Wang[1], Jinglin Tian[1], Guido Marco Cicchini[3]*
1 College of Education, Yunnan Minzu University, Kunming, China
2 College of Education, Dali University, Dali, China
3 Institute of Neuroscience, National Research Council, Via Morruzi 1, 56124 Pisa, Italy

Abstract: The number of small quantities (up to four) can be appraised rapidly and errorlessly, a phenomenon dubbed subitizing. This system, however, can be impaired by distractors presented along with targets to be enumerated. To better understand whether this limitation arises in perceptual circuits or in the response selection stage we investigated whether subitizing can endure in simultaneous comparison tasks. Participants were asked to compare the number of dots in two sets on the left and right sides of the screen, presented either simultaneously or sequentially. For comparing within the numerosity range (6-32 dots), both the error rate and reaction time increase steadily as the ratio between the two numbers to be compared approaches '1'. Namely, a phenomenon labeled the ratio effect was revealed. For comparison with small numbers (<5), the sequential comparison task is errorless

despite the ratio, suggesting the feature of subitizing. Individual efficiency (measured by the inverse efficiency score, IES) does not correlate between number ranges in sequential comparison, suggesting that two mechanisms are involved. However, we found that in simultaneous tasks, error rate and efficiency show an increase as the ratios of the two numbers to be compared approach '1'. This is similar to the ratio effect revealed in the comparison for moderate numbers. Individual efficiency within these two ranges correlates, indicating that the enumeration within these two ranges is based on a single mechanism. These results suggest that subitizing cannot process sets in parallel, and numerosity takes the job whenever subitizing fails.

Keywords：subitizing, estimation, Weber's Law, parallel processing

提取意识会保护内隐记忆吗？提取意识对提取干扰效应的影响

郑思琦[1 3] 吴楣[2] 孟迎芳[1]（通讯作者）黄发杰[4]

[1]福建师范大学心理学院，福州，350117；[2]首都师范大学心理学院，北京，100048；

[3]福建教育学院，福州，350025；[4]福建医科大学，福州，350117

通讯作者 E-mail：mengyf1978@126.com

摘 要 内隐记忆(implicit memory)指在无需刻意回忆的情况下，个体已有的知识经验无意识地影响当下行为表现的现象。研究发现，呈现在编码阶段的干扰任务不会对内隐记忆产生影响，但呈现在提取阶段的干扰任务却会影响内隐记忆，由此将后者成为内隐记忆的提取干扰效应。内隐记忆提取干扰效应的发现似乎挑战了传统观点中内隐记忆是自动化加工过程的观点，因此为了进一步揭示内隐记忆的加工机制，许多研究对提取干扰效应的产生机制进行探讨。有意思的是，近期研究发现，内隐记忆的提取干扰效应会受测验类型的不同影响，表现为提取干扰在产生式测验中对内隐记忆的影响显著小于识别式测验。由于相比于快速作答的识别式测验，产生式测验的回答主要基于自行激活，其测得的内隐记忆可能更容易混合外显意识成分，而研究表明，提取阶段的干扰任务不会影响有意识的外显记忆。因此，有理由怀疑，提取意识可能是内隐记忆提取干扰效应产生的一个重要机制，即内隐记忆的提取干扰效应之所以在不同的内隐测验中出现差异，可能主要源于提取意识对内隐记忆起到了保护作用。为此，本研究在前人研究的基础上，设置 2 个实验，通过操纵测验阶段的指导语和设置事后意识问卷对意识条件进行控制和检验，考察提取意识对不同类型内隐记忆提取干扰效应的影响。结果发现，提取意识既不会对识别式知觉内隐记忆的提取干扰效应产生影响（实验 1），也不会对识别式概念内隐记忆的提取干扰效应产生影响（实验 2）。表明，提取意识的差异并非引发内隐记忆的提取干扰效应产生的主要原因，只要被试在提取阶段进行双任务，内隐记忆的启动效应就会受损，提取意识并未对内隐记忆起到保护作用。

关键词 提取意识；提取干扰效应；内隐记忆

The Impact of Awareness at Retrieval on the Retrieval-DA Effect of Implicit Memory

Siqi Zheng§[1] , Mei Wu§[12], Yingfang Meng, Fajie Huang

School of Psychology, Fujian Normal University, Fuzhou, People’s Republic of China

School of Psychology, Capital Normal University, Beijing, People’s Republic of China

Fujian Institute of Education, Fuzhou, People’s Republic of China

School of Health, Fujian Medical University, Fuzhou, People’s Republic of China

CONTACT mengyf1978@126.com, School of Psychology, Fujian Normal University, 350117, Fuzhou, Fujian, China

§ Wu. M. and Zheng. S. contributed equally.

Abstract：Implicit memory does not require the intentional retrieval of the information presented during the study phase and is typically measured via repetition priming—a facilitation in the processing of previously encoded stimuli, relative to new stimuli.This study adopted a dual-task paradigm and manipulated the instructions to form awareness and the unawareness conditions in the test phase. We set up different test tasks in the three experiments to discuss the impact of awareness respectively when the implicit memory test was an identifiable-perceptual test(Experiment 1), an identifiable-conceptual test(Experiment 2). The results showed that the retrieval-DA effect is a relatively stable phenomenon, and the awareness at retrieval isn't a main result that causing the retrieval-DA effect of implicit memory.

Keywords：awareness at retrieval; the retrieval-DA effect; implicit memory

负性情绪诱发对个体不同热量食物注意偏向动态特征的影响

朱晓芸[1]　张剑[1]（通讯作者）

1 上海体育大学心理学院，上海，200438，通讯作者 E-mail：Zhangjian@sus.edu.cn

摘　要　情绪状态对人的饮食活动具有影响，情绪化进食（Emotional Eating）常发生在个体体验到消极情绪（如悲伤、焦虑等）时，通过饮食缓解“心理饥饿”，因此会增加过度饮食的可能性，带来肥胖、心脑血管疾病等方面的问题，在很大程度上损害心理健康。研究表明，个体对线索的注意偏向（Attentional Bias）是影响后续行为发生的主要因素，但是以往研究中将注意偏向概念化为个体稳定或静态的特征样信号，忽略了注意偏向的动态性特征，而时间动态理论的提出可以弥补以往研究的不足。因此，本研究基于时间动态理论，探究在消极情绪状态下，高、低情绪化进食程度个体对高、低热量食物注意偏向的动态特征。实验通过视频片段诱发被试的悲伤情绪，之后完成食物点探测任务，记录被试对高热量和低热量食物的注意偏向动态特征。结果显示，在悲伤情绪下，（1）对于高热量食物，无论情绪化进食程度高或低，被试的注意偏向峰值参数、均值参数之间没有显著差异；（2）对于低热量食物，注意偏向峰值参数、均值参数中，峰值偏向参数（即试次水平最大正值）上存在显著差异，也就是说情绪化进食程度高的被试在注意偏向低热量食物的最大程度上小于情绪化进食程度低的被试。这些结果表明，情绪化进食程度不影响个体对高热量食物的注意偏向波动，但是情绪化进食程度高的个体在悲伤情绪下可能更容易从低热量食物中脱离注意。

关键词　情绪化进食，注意偏向，时间动态理论

Negative mood induction affects the dynamic characterization of food attentional bias

Zhu xiaoyun, Zhang jian

School of psychology, Shanghai University of Sport, Shanghai 200438

Abstract：Emotional states have an impact on eating activities. Emotional eating often occurs when individuals experience negative emotions (e.g., sadness, anxiety, etc.) and eat to alleviate their "psychological hunger," thus increasing the likelihood of overeating, which can lead to obesity, cardiovascular and cerebrovascular diseases, and to a large extent, impair mental health. Research has shown that individuals' attentional bias toward cues is a major factor influencing the occurrence of subsequent behaviors, but previous studies have conceptualized attentional bias as a stable or static feature-like signal of individuals, ignoring the dynamic characteristics of attentional bias, and therefore, the proposal of temporal dynamics theory is to make up for the shortcomings of previous studies. Therefore, based on the temporal dynamics theory, the present study investigated the dynamic features of attentional bias toward high and low calorie foods in individuals with high and low emotional eating levels under negative emotional states. The experiment was conducted by inducing sadness in subjects through video clips, after which a food dot probe task was completed to record the dynamic features of subjects' attentional bias toward high and low calorie foods. The results showed that under sadness, (1) for high-calorie foods, there was no significant difference between the peak and mean attentional bias parameters of the subjects, regardless of whether they had high or low levels of emotional eating, and (2) for low-calorie foods, there was a significant difference in the peak bias parameter (i.e., the maximum positive value of the trial-level) among the peak and mean attentional bias parameters. It means that the subjects who had a high level of emotional eating showed great significant difference in the maximum positive value of attentional bias for low-calorie foods. These results suggest that emotional eating does not affect fluctuations in the attentional bias toward high-calorie foods, but that individuals

who are high in emotional eating may be more likely to disengage their attention from low-calorie foods when they are sad.
Keywords：emotional eating, food attentional bias, temporal dynamics theory

背景预期对前瞻记忆动态加工的影响：ERPs 研究

任智

宁波大学心理学系暨研究所，宁波，315211,renzhi@nbu.edu.cn

摘 要 前瞻记忆(prospective memory, PM)是指形成意图并记住在将来某一时间或特定情景下成功执行这一意图的能力。动态多重加工理论指出，前瞻记忆的策略监控是一个灵活变化的加工，与自发提取加工动态交互作用，共同支持前瞻记忆过程。另外，一些研究表明背景预期是调节策略监控加工的一个关键因素，它可以影响注意资源分配策略。而且，被试往往只会在可预期的任务背景下对前瞻记忆进行 监控。然而，在不同背景预期条件下的前瞻记忆的认知和神经机制仍然不清楚。因此，本研究结合 ERPs 技术，通过操纵执行前瞻记忆任务的背景预期水平，探究不同背景预期条件下前瞻记忆的动态加工特征及其认知神经机制。结果表明，在行为上，相比于非预期和低预期背景，高预期背景下前瞻记忆表现更好。而且，而线索聚焦和背景预期之间交互作显著用，表明背景预期对前瞻记忆表现的作用受到前瞻记忆聚焦特征的制约，高预期背景减小了聚焦和非聚焦前瞻记忆任务表现差异，因此更有利于提高非聚焦性前瞻记忆任务表现。此外，基于逐个试次的监控消耗分析发现，高预期背景条件下，从线索出现之前到之后，关联试次的监控消耗逐渐降低，从而导致总体消耗降低。因此，当线索背景可以预期时，个体会投入策略监控。前瞻记忆任务的背景预期越高，这种策略监控也就越高，而当线索尚未出现时则取消监控，采取自发提取。在 ERPs 结果模式上，高预期背景条件下前瞻记忆试次和线索关联试次诱发更大 N300（200~400 ms），而进行中试次诱发更多的前瞻正波（400~600 ms）。这种差异反映了在前瞻记忆线索探测和提取过程中注意资源的重新分配或提取模式的促进作用，甚至两者相互结合。总之，这些结果共同支持了前瞻记忆的动态多重加工理论，背景预期调节前瞻记忆的策略监控和自发提取的动态交互作用。

关键词 前瞻记忆，背景预期，动态加工，策略监控，自发提取

The Effect of Context Expectation on the Dynamic Process of Prospective Memory: ERPs Study

Zhi Ren

Department and Institute of Psychology, Ningbo University, Ningbo, 315211, renzhi@nbu.edu.cn

Abstract： Prospective memory (PM) refers to the ability to form an intention and remember to successfully execute that intention at a specific time or in a particular situation in the future. The dynamic multiprocess theory of PM suggests that the strategy monitoring in prospective memory is a flexible process that dynamically interacts with spontaneous retrieval processes, both supporting the PM processes. Additionally, some studies indicate that context expectation plays a crucial role in regulating the strategy monitoring process, influencing the allocation of attentional resources. Moreover, participants often only engage in monitoring PM in predictable contexts. However, it remains unclear that the cognitive and neural mechanisms of PM under different context expectation conditions. Therefore, in this study, we employed ERP (Event-Related Potentials) techniques to manipulate the levels of contexts expectation during PM tasks, investigating the dynamic processes and cognitive neural mechanisms of PM under different context expectation conditions.

Behaviorally, the results revealed that PM performance was better in the high expectation contexts compared to the non-expectation and low-expectation contexts. Furthermore, there was a significant interaction between cue focusing and context expectation, indicating that the effect of context expectation on PM performance was constrained by the focusing characteristics of prospective memory. The high-expectation contexts reduced the performance differences between focused and non-focused prospective memory tasks, thus favoring non-focused prospective memory tasks. Additionally, based on the analysis of monitoring consumption on a trial-by-trial basis, it was found that under the high-expectation context condition, the consumption of monitoring gradually decreased from before to after cue appearance, leading to an overall reduction in consumption. Therefore, when the cue context is predictable, individuals engage in strategy monitoring. The higher context expectation, the more strategy monitoring; while monitoring is canceled when the cue has not yet appeared, and spontaneous retrieval is adopted.

Regarding the ERP results, in the high-expectation context condition, PM trials and cue-associated trials elicited larger N300 (200-400 ms), while ongoing trials elicited more prospective positivity (400-600 ms). These differences reflect the reallocation of attentional resources or the facilitation of retrieval patterns during cue detection and retrieval in PM. These patterns may even combine with each other. In conclusion, these results collectively support the dynamic multiprocess theory of PM, indicating context expectation regulation the dynamic interplay between the strategy monitoring and spontaneous retrieval processes of PM.

Keywords **：** Prospective memory, context expectation, dynamic process, strategy monitoring, spontaneous retrieval

基于动作形式对群体成员的一致性预期：来自行为和事件相关电位的证据

周文莹 王思敏 段继鹏 尹军（通讯作者）
宁波大学心理学系暨研究所，宁波大学群体行为与社会心理服务研究中心，浙江 宁波，315211，
yinjun1@nbu.edu.cn

摘 要 人们总是预期群体成员的行为具有一致性，但是行为可以被细分为行动目标和动作形式。多数情况下，人们预期同一群体的成员具有相同的目标。然而，个体趋近目标的具体动作形式是否经济有效(即是否符合合理性原则)，也影响着人们对行为的理解。当行为不符合合理性原则时，动作形式的重要性会凸显，此时，个体能否依据动作形式建立群体行为一致性预期呢？本研究采用动画模拟群体情景范式，并借助能够间接体现被试预期与当前刺激是否一致的反应时和能够直接体现被试预期强度的晚期正成分(late positive potential, LPP)，对该问题进行了探究。研究 1 发现，当群体成员以不符合合理性原则的行为(无障碍跳跃)趋近外部目标时，若同群体的新成员在趋近目标过程中表现出相同动作形式，被试识别该成员行为的速度显著更快，而且此时被试在预期阶段会产生振幅更高的 LPP 成分，与之相对，当新成员来自不同群体时，上述效应则不存在。该结果表明，人们能够基于动作形式建立群体成员行为一致的预期。为了进一步确定人们建立该预期的前提条件，研究 2 对群体成员行为是否符合合理性原则进行了区分，结果发现，当群体成员行为不符合合理性原则(无障碍跳跃)时，若同群体新成员表现出相同动作形式，被试识别该行为时显著更快，且预期阶段所产生的 LPP 成分的振幅显著更高，而在群体成员行为符合合理性的条件(有障碍跳跃)则不存在该效应。该结果进一步表明，行为不符合合理性原则时，人们会依据动作形式建立群体行为一致性预期。总之，本研究所获得行为和事件相关电位证据一致表明，当行为不符合合理性原则时，人们能够依据动作形式建立群体行为一致性预期，该结论可以为理解社会文化中某些不经济甚至无意义的习俗行为的传承提供启发。

关键词 行为预期，动作形式，晚期正成分，社会群体

Consensus Expectations of Group Members based on Action Means: Evidence from Behavioral and Event-Related Potentials

Zhou Wenying Wang Simin Duan Jipeng Yin Jun（Corresponding author）
Department of Psychology, Center of Group Behavior and Social Psychological Service, Ningbo University, Ningbo, 315211, China

***Abstract*：** Consistency in the behavior of group members is a common expectation, with behavior being categorized into action goals and action means. Typically, individuals anticipate that members of the same group will share the same goals. However, the perceived rationality and effectiveness of an individual's actions towards a goal also play a significant role in shaping how behavior is understood. When behavior deviates from rational principles, the importance of action means becomes more pronounced. Under such circumstances, can individuals establish expectations of group behavior consistency based on action means? This study employed animated depictions to simulate group interaction scenarios and utilized response time as an indirect measure of subject expectation alignment with stimuli. Additionally, the study used the late positive potential (LPP) to directly gauge

the intensity of subject expectations. Study 1 findings revealed that when a group member approached an external goal using an action means that deviated from rationality (e.g., jumping without barriers), the subjects recognized the behavior of a new group member who adopted the same action means to reach the goal significantly faster. In this situation, the subjects also exhibited a higher amplitude LPP during the anticipation stage. However, this effect disappeared when the new member belonged to a different group. These findings suggest that individuals can establish expectations of group members' consistent behavior based on action means. To further validate the preconditions for this expectation, Study 2 distinguished between group members' behaviors conforming and not conforming to rational principles. The results demonstrated that when group members' behavior did not adhere to rationality (e.g., jumping without obstacles), the subjects recognized the behavior of new group members who used the same action means significantly faster, and the amplitude of the LPP component during the anticipation stage was notably higher. However, this effect was not observed when group members' behavior adhered to rationality (e.g., jumping with obstacles). These findings further underscore that when behavior does not conform to rational principles, people establish group behavior consistency expectations based on action means. In conclusion, the behavioral and event-related potentials evidence from this study consistently indicates that when behavior deviates from rationality, individuals form group behavioral consistency expectations based on action means. This insight provides inspiration for understanding the perpetuation of uneconomical or seemingly meaningless customary behaviors in social culture.

Keywords：action expection, action means, late positive potential, social group

面孔大小对面孔倒置效应的影响

肖宜清[1]　王金辉[1]　鲁虹宇[1]　韩超[2]　黄婉怡[1]（通讯作者）

1 上海师范大学心理学系，上海，200234，wanyihuang@shnu.edu.cn

2 上海体育大学心理学院，上海，200438

资助基金：国家自然科学基金项目（32000740，32271109）

摘 要　面孔识别通常被认为依赖整体加工或构型加工，一旦面孔倒置，人们无法加工面部特征间的空间关系，从而很难识别倒立面孔。有理论认为，这是由于人们对倒立面孔的知觉野（perceptual field）相比正立面孔变小，无法将多个特征进行空间整合（如 Rossion，2009；Poltoratski 等，2021）。然而，关于面孔知觉野的特点，目前的了解仍然非常有限。例如，正立面孔的知觉野范围为多大，是否当正立面孔超过特定的大小时，就难以对其进行整体加工，从而识别能力下降？前人的研究结果并不一致。另外，将倒立面孔缩小是否可以匹配较小的倒立面孔知觉野，从而有助于对其进行特征整合，提高识别能力？针对这两个问题，本研究探讨了面孔大小（1°到 10°）对正立和倒立面孔识别的影响。实验 1 采用面孔延时匹配任务（6 项迫选），发现对正立和倒立面孔的识别准确率在大多数面孔大小下均较为稳定，面孔倒置效应广泛存在于各种大小的面孔中（正立面孔的识别准确率显著高于倒立面孔），且效应大小不受面孔大小的影响。实验 2 采用奇异面孔奇怪性评分任务，发现无论哪种面孔大小均存在显著的倒置效应（即“撒切尔夫人面孔效应”）：人们能够轻易识别正立面孔中的特征改变，对于面部特征（眼睛和嘴巴）180 度反转的正立面孔会感到很奇怪（奇怪性评分高），而一旦面孔倒置，则不会感到奇怪（奇怪性评分低）。实验 2 同样发现，对正立和倒立面孔的识别（对奇异面孔的奇怪性评分）随面孔大小的波动不大，面孔倒置效应不受面孔大小的影响。本研究的结果提示，对正立面孔的整体加工窗口可以扩大到至少 10°，而倒立面孔即使小至 1°，人们也难以对其进行类似正立面孔的整体加工。我们推测，一种可能是倒立面孔的知觉野总是相对刺激大小本身变小（1°时知觉野小于 1°），另一种可能是“将多个特征涵盖在知觉野内”并非整体加工的充分条件，对于倒立面孔，人们并不能把知觉野内的特征有效整合到一起。面孔知觉野的特点，以及它和整体加工的关系仍有待进一步理清。

关键词　面孔知觉，面孔倒置，知觉野，面孔大小

The influence of face size on the face inversion effect

Yiqing xiao[1]　Jinhui Wang[1]　Hongyu Lu[1]　Chao Han[2]　Wanyi Huang[1] (Corresponding Author)

[1]Department of Psychology, Shanghai Normal University, Shanghai, 200234

[2]College of Psychology, Shanghai University of Sport, Shanghai, 200438

Correspondence should be addressed to Wanyi Huang (wanyihuang@shnu.edu.cn)

This work was supported by the National Natural Science Foundation of China (No. 32000740, 32271109)

Abstract：Face recognition is often thought to rely on holistic/configural processing. Once faces are inverted, people cannot process the spatial relations between facial features, and thus hard to recognize inverted faces. It has been hypothesized that the face inversion effect (FIE) is due to a smaller perceptual field (PF) for inverted relative to upright faces. People cannot spatially integrate multiple features with a small PF (e.g., Rossion, 2009; Poltoratski et al., 2021). However, the current understanding of the characteristics of the PF for faces is still very

limited. For example, how large can the PF be for upright faces? Does the holistic processing fail for upright faces when the face size exceeds a certain visual angle? The results were inconsistent in previous studies. By contrast, can the holistic integration of features become easier for inverted faces at small sizes that better match the smaller PF for inverted faces? Here, the present study investigated the effect of face size (1° to 10°) on upright and inverted face recognition. In Experiment 1, participants performed a 6AFC delayed face-matching task. The results showed that the recognition accuracies for both upright and inverted faces were relatively stable across face sizes. The FIE (i.e., higher accuracies for upright relative to inverted faces) was significant for all face sizes, and its magnitude was not influenced by face size. In Experiment 2, participants rated the scores of the grotesqueness of the distorted faces (with inverted eyes and mouths). Significant FIEs (i.e., the classic Thatcher illusions) were found regardless of face size: people could easily recognize the distorted features in upright faces and thus readily feel the grotesqueness (the scores were high). Once faces were inverted, the grotesqueness disappeared (the scores were low). Similar to Experiment 1, the recognition (the rating scores here) for both upright and inverted faces was stable across most face sizes, and the magnitude of FIE did not change with face size. The present results suggest that the holistic processing window for upright faces can be up to at least 10°. By contrast, people cannot apply similar holistic processing to inverted faces even at a small size as 1°. One explanation is that the PF for inverted faces is always smaller relative to the stimulus size (i.e., the PF was smaller than 1° at 1° size). Another explanation is that the coverage of features within the PF is insufficient for successful spatial integration of features. The characteristics of PF for faces and the relation between PF and holistic face processing needs further clarification.

Keywords：Face perception, Face inversion, Perceptual field, Face size

大学生主客体心理旋转的差异：主体心理旋转中的身体效应

巩昕昕 邵永聪（通讯作者）

北京体育大学心理学院，北京，100084，budeshao@aliyun.com

摘 要 心理旋转是空间能力的重要成分。根据旋转参考系的不同可以分为客体心理旋转和主体心理旋转。心理旋转中会出现空间性的具身效应，指的是身体动作经验会对个体的心理旋转等空间表征能力产生促进作用。已有研究表明刺激材料的不同或者操纵任务类型均可以实现对主体和客体心理旋转差异的研究。因此本研究通过字母 R 和身体动作摆出的姿势 R 作为刺激材料，在此基础上通过任务类型实现对主体和客体心理旋转的操纵，探讨刺激材料的类型和表征方式对心理旋转的差异。本研究选取 50 名右利手大学生作为研究对象，实验采用 2（刺激类型：字母 R，身体姿势 R） × 2（表征方式：客体心理旋转，主体心理旋转）两因素被试内设计，实验采用经典的心理旋转范式，旋转角度为 0°，60°，120°，180°，240°和 300°。在客体心理旋转中，每次向被试呈现两幅图片，被试需要判断两图是否相同。在主体心理旋转中，每次只呈现一幅图片，被试需要对指定部分在参考轴的左右侧进行判断。通过剔除缺失值和极端值，在保证正确率的前提下，对 43 名被试的反应时进行分析。重复测量方差分析显示：（1）刺激材料的主效应显著（$F(1,42) = 160.64$, $p < 0.001$）；（2）刺激材料和表征方式的交互作用显著($F(1,42) = 21.39$, $p < 0.001$)。进一步简单效应分析发现，在刺激材料是字母 R 时，主客体心理旋转差异不显著；当刺激材料是身体姿势 R 时，主客体心理旋转差异显著，当进行客体心理旋转时，被试的反应时更长($t = 13.18$, $p = 0.001$)。研究结果表明，个体主体表征的心理旋转能力优于客体表征的旋转能力，并且在以身体姿势作为刺激材料时，这种差异更加显著。具身认知认为，主体表征的过程是个体对身体旋转的模仿，这种模仿只发生在个体能够完成的动作中，因此本研究中在以身体姿势作为刺激材料时，由于与个体经验相关使得心理旋转任务获得具身化效应进而提升了绩效。这为后期进一步探究这种具身化过程背后的机制提供了基础。

关键词 心理旋转，主客体心理表征，身体效应

The difference of mental rotation with egocentric and object-based transformations in college students: the physical effect in egocentric transformations

Xinxin Gong, Yongcong Shao

School of psychology, Beijing Sport University, Beijing 100084, China

Abstract：Mental rotation is an important component of spatial ability. It can be categorized into object mental rotation and subject mental rotation based on the rotational frame of reference. A spatial embodiment effect occurs in mental rotation, which refers to the fact that the experience of bodily movements contributes to an individual's spatial representational abilities such as mental rotation. It has been shown that differences in stimulus materials or types of manipulation tasks can enable the study of differences in mental rotation with egocentric and object-based transformations. Therefore, in this study, we used the letter R and the body movement pose R as stimulus materials, and based on this, we realized the manipulation of subject and object mental rotation by the type of task, and explored the differences between the type of stimulus materials and the way of representation on mental rotation. In this study, 50 right-handed college students were selected as research subjects, and the experiment used a 2 (stimulus type: letter R, body pose R) × 2 (representation type: mental rotation with egocentric, mental rotation with object-based transformations) two-factor within-subjects design, and the experiment used the classical mental rotation paradigm with rotation angles of 0°, 60°, 120°, 180°, 240°, and 300°. In object mental rotation, two

pictures were presented to subjects at a time, and subjects were required to judge whether the two pictures were the same. In subject mental rotation, only one picture was presented at a time, and subjects were required to make judgments about the specified portion on the left and right sides of the reference axis. The response times of 43 subjects were analyzed by eliminating missing and extreme values, while ensuring correctness. A repeated measures ANOVA revealed (1) a significant main effect of stimulus material ($F(1,42) = 160.64$, $p < 0.001$), and (2) a significant interaction between stimulus material and representation type ($F(1,42) = 21.39$, $p < 0.001$). Further simple effects analyses revealed that the subject-object mental rotation difference was not significant when the stimulus material was the letter R. The subject-object mental rotation difference was significant when the stimulus material was the body posture R. Subjects' response times were longer when object mental rotation was performed ($t = 13.18$, $p = 0.001$). The findings suggest that the ability to mentally rotate an individual's subject representation is superior to the ability to rotate an object representation, and that this difference is even more pronounced when body posture is used as the stimulus material. Embodied cognition suggests that the process of subject representation is the individual's imitation of body rotation, which only occurs in movements that the individual is able to perform, and thus the mental rotation task in the present study gained an embodied effect and improved performance when body posture was used as the stimulus material due to its relevance to the individual's experience. This provides a basis for further investigation of the mechanisms behind this embodiment process at a later stage.

Keywords：mental rotation, object-based and egocentric transformations, physical effect

Simon 转换任务中抑制控制过程的动态：一项基于鼠标跟踪技术的研究

叶文婷[1] 邱江[1]（通讯作者）

1 西南大学心理学部，重庆，400715，qiuj318@swu.edu.cn

摘 要 抑制控制过程及其机制已经被探索了几十年。本研究旨在研究短时间内（即试次内）响应复杂冲突类型时的抑制控制过程。本研究提出了一项新颖的任务，称为 Simon 转换任务，将 Simon 任务与颜色-形状任务转换范式相结合。在此基础上，本研究采用鼠标跟踪技术记录反应，并引入了经典的双色 Simon 任务和困难的四色 Simon 任务作为对比实验，检验新范式的可靠性和有效性。通过常规分析和时间过程分析，本研究检查了这些任务中是否出现经典的 Simon 一致性效应（Simon congruency effect）和任务一致性效应（task-rule congruency effect）。结果显示，Simon 一致性效应和任务一致性效应的经典发现在按键和鼠标跟踪反应中得到复制，但这两种一致性效应并无交互作用。然而，鼠标追踪反应的时程分析结果显示，即使这两种一致性效应在效应量上不存在交互，其触发抑制机制的启动时间存在一定的相互影响。进一步而言，在一系列冲突事件中，不同冲突事件会先后触发抑制控制机制，先触发的抑制控制过程起到一个“预热”作用，可为后触发的抑制机制的启动加速，但后触发的抑制机制启动后的抑制过程并不受先触发的抑制影响（即在反应时等变量上不体现交互作用）。这些发现支持假设：在短时间内可以通过不同任务中的不同冲突事件灵活且独立地调动抑制控制系统，而鼠标跟踪的时程分析结果还表明任务中的抑制控制的启动过程可能存在交互。

关键词 抑制控制，认知控制，执行功能，鼠标跟踪技术

Dynamics of inhibitory control processes in Simon-switching task: a mousetracking study

Wenting Ye[1], Jiang Qiu[1]

[1]Faculty of Psychology, Southwest University (SWU), Chongqing 400715, China

Abstract：The processes and mechanisms underlying inhibitory control have been explored for decades. The current study aimed to investigate the inhibitory control processes in response to complex conflict types within trials. A novel task, called the Simon-switching task, was proposed, which integrated the Simon task with the colour-shape task switching paradigm, in conjunction with a simple Simon task and a difficult Simon task, using a mousetracking technique. Simon congruency effects and task-rule congruency effects were examined among these tasks, via conventional analyses and a time course analysis. The results showed that classic findings of Simon congruency effects and task-rule congruency effects replicated empirical key-press and mousetracking findings. These findings supported the hypothesis that inhibition could be flexibly and independently evoked by different conflict events within a short time, but mousetracking technique suggested that the initiations of inhibitory processes were interacted between congruency effects in the tasks.

Keywords：inhibitory control, cognitive control, executive functions, mousetracking

空间算术与时间算术中 OM 效应的认知神经机制：来自 ERP 证据

贾良智[1]　潘运[1]（通讯作者）

(贵州师范大学　心理学院，贵州　贵阳　550025 panyun129@163.com)

摘　要　运算动量效应(Operational Momentum, OM effect)指的是个体在心算中表现出高估加法答案和低估减法答案的现象。该效应反映了数字的空间属性对个体算术加工的影响。新近研究发现，OM 效应不仅存在于数量维度与空间维度，还存在于在时间维度。然而尚不明确不同维度中的 OM 效应是否反映了一致的心理过程。实验为 2(维度：时间/空间)×2(探针一致性：OM 一致/OM 不一致)被试内设计，招募被试 40 名(平均 21.76 ± 2.58 岁)，采用算术验证范式，使用事件相关电位(ERPs)技术，考察空间维度与时间维度中 OM 效应的行为表现与电生理机制。在空间维度，实验以不同面积的矩形为材料，要求被试计算两矩形相加减的面积是否与探针刺激的面积一致；在时间维度，实验以不同持续时间的“＃”为材料要求被试判断两“＃”相加减的持续时间是否与探针的持续时间一致。行为结果显示，在空间维度，被试倾向于在加法中接受面积较大的探针并在减法中接受面积较小的探针；在时间维度，被试倾向于在加法中接受持续时间较长的探针并在减法中接受持续时间较短的探针。ERP 结果显示，在空间维度，OM 一致探针(加/减法中呈现面积较大/小的探针)在双侧顶叶诱发了更大的 P300 波幅(250-350ms)且 OM 不一致探针(加/减法中呈现面积较小/大的探针)在双侧顶叶的诱发了更大的 N2 波幅(150-250ms)；在时间维度，OM 不一致探针在额叶诱发了更大的 LPC 波幅(400-500ms)。综上，研究发现，尽管在时间维度与空间维度都存在 OM 效应，然而不同维度中 OM 效应的认知神经机制却不相同，反映了不同的心理过程。以上结果表明时间与空间不存在相同的运算术加工系统。

关键词　数字认知，空间算术，时间算术，数字-空间联结，OM 效应

Cognitive Neurological Mechanisms of the Operational momentun in Spatial and Temporal Arithmetic: Evidence from ERP

Jian Zhang [1] Yun Pan[1] (correspondent)
1 School of Psychology, Guizhou Normal University, Huaxi University Town, Guian New District,Guiyang, 550025
E-mail:panyun129@163.com

***Abstract*：Objective** The Operational Momentum (OM) effect refers to the phenomenon in mental calculation where individuals tend to overestimate addition results and underestimate subtraction results. This effect reflects the influence of spatial properties of numbers on arithmetic processing. Recent research has revealed that the OM effect exists not only in the quantity dimension and spatial dimension but also in the temporal dimension. However, it remains unclear whether the OM effect in different dimensions reflects consistent cognitive processes. Therefore, this study employed an arithmetic verification paradigm and utilized the Event-Related Potentials (ERPs) technique to investigate behavioral performance and electrophysiological mechanisms of the OM effect in both spatial and temporal dimensions. **Method** The present study included 40 university student participants (mean age: 21.76 ± 2.58 years), with a gender distribution of 22 males and 18 females. In the spatial dimension, the experiment utilized rectangles of varying sizes, and participants were asked to determine whether the sum or difference of two rectangles matched the size of the probe stimulus. In the temporal dimension, the experiment used "#" symbols with different durations, and participants were required to judge whether the sum or difference of two "#" symbols matched the duration of the probe stimulus. **Result** Behavioral results demonstrated that, in the spatial dimension, participants tended to accept probes with larger areas in addition trials and probes with smaller areas in subtraction trials. In the temporal dimension, participants tended to accept probes with longer durations in addition trials and probes with shorter durations in subtraction trials. ERP results showed that in the spatial dimension, OM-consistent probes (probes with larger/smaller areas in addition/subtraction trials) induced larger P300 amplitudes in bilateral parietal lobes (250-350ms), while OM-inconsistent probes (probes with smaller/larger areas in addition/subtraction trials) induced larger N2 amplitudes in bilateral parietal lobes (150-250ms). In the temporal dimension, OM-inconsistent probes induced larger Late Positive Component (LPC) amplitudes in the frontal lobe (400-500ms). **conclusion** although the OM effect exists in both temporal and spatial dimensions, the cognitive neurological mechanisms underlying the OM effect differ between these dimensions, reflecting distinct psychological processes. These findings suggest that time and space operate within different arithmetic processing systems.

Keywords: Numerical cognition, Spatial arithmetic, Temporal arithmetic, Spatial-Numerical Associations, Operational momentum

6.7“工业心理专业委员会”分组展贴报告

后疫情时代餐饮从业者主观幸福感与焦虑的调查研究

吴纤芸　贲思瑶　杜嘉鸿（通讯作者）
南京特殊教育师范学院教育科学学院，南京，210000，398354541@qq.com

摘 要　新冠疫情的爆发对餐饮业带来了许多挑战，包括人员流动性的减少、顾客需求的变化、成本上升以及营业时间限制等。在此背景下，本研究调查了后疫情时代餐饮从业者主观幸福感与焦虑间的关系，调查时间设定在 2023 年初。本研究共有 100 名江苏省内餐饮从业者参与问卷与访谈调查，包括 56 名小微餐饮和 44 名连锁餐饮业从业者。通过问卷调查，发现主观幸福感和焦虑呈现负相关（$r = -0.59$，$p < 0.01$）。整体调查结果显示，餐饮从业者的主观幸福感中等偏低，平均得分为 3.58（满分为 5）；焦虑程度处于中等水平，平均得分为 27.7（总分 25-35 为中等焦虑）。尤其表现在小微餐饮从业者，与连锁餐饮业相比存在差异（$t = 2.89$，$p < 0.01$），表明小微餐饮从业者在后疫情时代面临更大的困境。通过访谈了解到疫情后对餐饮从业者的影响仍在持续，导致其焦虑的原因包括：经济压力增加、工作时间不稳定、工作环境恶劣、人际关系紧张以及缺乏职业发展机会等因素。基于研究结果，从员工援助计划的角度提出以下建议：提供心理健康支持和咨询服务（87%的调查对象表示需要心理支持），加强员工培训和技能提升（70%的调查对象希望获得更多培训机会），改善工作环境和福利待遇（64%的调查对象认为工作环境需要改善），鼓励员工参与团队活动和社交交流（55%的调查对象认为与同事间的互动有助于提升幸福感），以促进餐饮从业者主观幸福感的提升，减轻焦虑程度，进而增加工作满意度。
关键词　餐饮从业者，主观幸福感，焦虑，员工心理健康

A Survey on Subjective Well-being and Anxiety among Catering Industry Workers in the Post-Pandemic Era

WU, Xianyun　Ben,Siyao　Du, Jiahong

Department of Educational Science, Nanjing Normal University of Special Education, 1 Shennong Road, Qixia District, Nanjing, 210000, China

Abstract：The outbreak of the COVID-19 pandemic has posed numerous challenges to the catering industry, including reduced workforce mobility, changes in customer demands, rising costs, and limitations on operating hours. In this context, this study investigated the subjective well-being and anxiety of catering industry workers in the post-pandemic era, which was set at the beginning of 2023. A total of 100 catering professionals from Jiangsu Province participated in the survey and interview, including 56 individuals from small and micro-sized catering businesses and 44 from chain restaurants. The survey findings revealed a significant negative correlation between the subjective well-being and anxiety ($r = -0.59$, $p < 0.01$). The overall results indicated relatively low levels of subjective well-being among catering industry workers, with an average score of 3.58 (on a 5-point scale) and the anxiety level was at a moderate level, with an average score of 27.7 (a total score of 25-35 indicates moderate anxiety). This trend was particularly pronounced among small and micro-sized catering businesses, exhibiting significant differences compared to chain restaurants ($t = 2.89$, $p < 0.01$), indicating greater challenges faced by small and micro-sized operators in the post-pandemic era. Through interviews, it was found that the effects of the pandemic continued to impact catering industry workers, leading to job anxiety. Factors contributing to it included increased economic pressure, unstable work hours, unfavorable work environments, strained interpersonal relationships, and limited career development opportunities. Based on the research findings, the following recommendations are proposed from the perspective of employee assistance programs: providing psychological support and counseling services (87% of respondents expressed a need for psychological support), enhancing employee training and skill development opportunities (70% of respondents desired more training opportunities),

improving working conditions and benefits (64% of respondents believed that the work environment needed improvement), encouraging employee participation in team activities and social interactions (55% of respondents considered interaction with colleagues beneficial for enhancing well-being), in order to enhance the subjective well-being among catering industry workers, and reduce anxiety levels, thereby increasing job satisfaction.
Keywords：catering industry workers, subjective well-being, anxiety, employee mental health

不确定性规避对累积疫情防控效果的影响

严致昊 陈淼 王瑞瑞

(浙江大学，杭州，310058)

摘 要 新冠病毒流行 4 年，纵观全球数据，一些国家的防治效果不佳，但另一些国家却能较好地控制疫情蔓延。除了医疗资源、人口密度等基础条件以外，跨文化价值观差异是心理学文献讨论疫情防控行为效果的热点（Cho et al. 2021; Lu et al., 2021; 黄丽芹 et al., 2021）。现有文献多数考察文化价值观对于戴口罩、保持社交距离等疫情管制规范的遵守行为，很少有文献关注文化对于防疫效果的影响。尽管少数研究者呼吁对效果进行研究（Liu, 2021; 王然，2020），探索人类应对重大疾病传播的防控策略，截止目前并没有文章对此进行实证研究。本文回应了 Liu 等人（2021）的呼吁，基于 Hofstede 跨文化理论，研究者构建并验证了“疫情防控效果影响模型”，实证检验跨文化价值观如何影响 4 年以来的累积疫情防控效果。研究者收集了 Hofstede（2001）跨文化数据、世界卫生组织跨国疫情防控数据，并且控制了 GDP、人口密度等基础条件，研究发现，不确定性规避文化价值观正向预测 COVID-19 每十万感染人数、每十万死亡人数；并且对于疫苗接种率没有显著影响。相比与个体/集体主义价值观（e.g., Lu et al., 2021; 黄丽芹 et al., 2021），不确定性规避更好地预测了 4 年以来的累积疫情防控效果。研究者认为，面对重大传染性疾病事件，不确定性规避影响了人们对于新冠疫情防控措施新规范的群体接受程度。在不确定性规避低的国家，政府能够更快地出台管控响应措施，人们也更容易接受这些措施；在不确定规避高的国家，管控措施制定更慢，人们也不愿意接受新管控措施带来的不确定个性。本研究尝试了实证研究跨文化价值观对于 4 年累计疫情防控效果的影响，提出了不同于以往文献的新角度，为不同文化背景下针对重大传染性疾病实施管控、取得良好效果提出了新角度。

关键词 跨文化价值观；不确定性规避；新冠疫情；死亡率

Uncertainty Avoidance Influences Covid-19 Infection Rate and Death Rate

Zhihao Yan,Miao Chen,Ruirui Wang

(Zhejiang University，Hangzhou，310058)

Abstract： The COVID-19 pandemic has lasted for four years, looking at the global data, the effectiveness in controlling the pandemic of countries differs. In addition to basic conditions such as medical resources and population density, cross-cultural value differences is a hot topic in psychological literature discussing the effectiveness of epidemic prevention and control behaviors (Cho et al. 2021; Lu et al., 2021; Huang et al., 2021). In response to Liu et al. (2021)'s call, we proposed and empirical tested the Epidemic Death-rate Impact Model based on Hofstede's cross-cultural theory. We collected Hofstede (2001) cross-cultural data, World Health Organization (WHO) cross-national pandemic data, and controlled for background variables such as GDP, population density, etc. The study found that uncertainty avoidance positively influecnced COVID-19 per 100,000 infections and per 100,000 deaths; and had no significant impact on vaccination rates. Compared with individualism-collectivism (e.g., Lu et al., 2021; Huang et al., 2021), uncertainty avoidance better predicted the cumulative epidemic death rates over the past four years. We believe that in the face of major infectious disease events, uncertainty avoidance affects the group acceptance level of new regulations for COVID-19 prevention and control. In countries with low uncertainty avoidance, the government can quickly introduce coping strategies and policies, and people are more willing to accept these new policies; in countries with high uncertainty avoidance, policies are developed more slowly and people were reluctant to accept the pandemic preventing policies. This study proposes a new perspective different from previous literature, and provides a new perspective for implementing control and achieving good results in different cultural backgrounds in response to the pandemic.

Keywords： Cross-cultural values, uncertainty avoidance, Covid-19; Death rate

为何在职场“躺平”？：挑战性压力与工作退缩行为的关系

张晶[1]

1 河南农业大学文法学院，郑州，450046，zhangjingvip98@163.com

摘 要 “躺平”是从2021年出现的一种日益普遍的国内民众应对压力的新姿态。表现为当面对生活和工作中巨大而不可抗拒的压力时，有些人不再为成功而奋斗，而是主动降低精神驱动力，退出各种竞争，甚至逃离自己的工作。有学者提出，职场“躺平”的表现与工作退缩行为的内涵相近。为了分析面对工作中的挑战，人们为什么没有化压力为动力而是表现为“躺平”这一问题。本研究选取工作退缩行为代表职场“躺平”行为，分析工作中的挑战是如何与其建立连结的。依据持续性认知理论，面对工作压力时员工会产生情感反刍与问题解决反刍两种类型的工作反刍。而且已有研究显示两类工作反刍分别对工作退缩行为有不同的作用。基于此，本研究分析工作反刍在挑战性工作压力与工作退缩行为间的中介作用。并进一步分析个体的主动性人格在其中的调节作用。研究选取各行业的全职员工进行间隔一个月的两时点测量，对486份有效数据的回归分析结果显示：挑战性压力通过问题解决反刍负向预测工作退缩行为，通过情感反刍正向预测工作退缩行为。主动性人格可以有效缓解挑战性压力与情感反刍间的连结。这一结果说明，在面对工作挑战时，人们是否采取“躺平”的应对方式关键在于个体以何种方式反复思考压力。

关键词 “躺平”，工作反刍，主动性人格

Why “Lying flat” at Work?: The Relationship Between Challenging Stress and Work-withdrawal behavior

Zhang Jing

Henan Agricultural University, School of Humanity and Law, Zhengzhou

Abstract："Lying flat" is an increasingly common new attitude for domestic people to cope with pressure that has emerged in 2021. When facing the huge and irresistible pressure in life and work, some people no longer struggle for success, but to reduce the spiritual driving force, withdraw from various competitions, and even escape from their own work. Some scholars have proposed that the performance of "lying flat" in the workplace is similar to the connotation of work withdrawal behavior. In order to analyze the problem of why people do not turn stress into motivation but "lying flat" in the face of challenges at work. This study selected work withdrawal behavior as the representative of workplace "lying flat" behavior, and analyzed how challenges in work are linked to it. According to the persistent cognitive theory, employees may experience two types of work rumination when facing work stress: affective rumination and problem-solving rumination. Moreover, previous studies have shown that two types of work rumination have different effects on work withdrawal behavior. Based on this, this study analyzed the mediating role of work rumination in the relationship between challenging stress and work withdrawal behavior. And further analyzed the moderating role of proactive personality. The study selected full-time employees in various industries for two-time point measurement one month apart. The regression analysis of 486 valid data shows that challenging stress reduces work withdrawal behavior through problem solving rumination, and increases work withdrawal behavior through affective rumination. Proactive personality can effectively alleviate the link between challenging stress and affective rumination. The results suggest that whether people "lying down" in the face of work challenges depends on how individuals ruminate about stress.

Keywords："lying down", work rumination, proactive personality

人际好奇心对新员工职场适应的影响——团队信息交换的中介作用

邹丽萍[1]　陈晓曦[2]（通讯作者）文艳君[3]

1 暨南大学，广州，510632

2 暨南大学企业管理系，广州，510632，txiaoxi@jnu.edu.cn

摘 要 好奇心作为一种人格特质，在以往的研究中已有部分证据证明其可以帮助人们适应新的角色和情况、预测工作表现和创造性思维。近年来，在企业实践中涌现出组织重组、员工频繁变动工作等趋势，新生代员工开始接受“无边界”的职业理念。新生代员工的职场新人适应问题比以往任何时候都更加重要。好奇心作为一种人格特质在职场新员工的适应性问题中发挥着重要作用，好奇心提出了一种重要的元能力，即学习如何适应的能力，从而实现“探索和实践”的能力，并利用各种经验来了解自己的处境。学术界对好奇心的划分方式众多，其中一种分类中提出了人际好奇心，指的是对获取有关他人如何思考、感受和行为的信息的兴趣——已被证明可以预测八卦倾向以及对陌生人的人际感知的准确性。本文探讨了人际好奇心是如何通过影响新员工在职场中进行团队信息交换行为进而促进新员工的职场适应结果。同时还探讨了支持性组织氛围、团队心理安全感分别在前端和后端作用机制中的调节作用。本文通过对收集到的 435 份样本数据进行中介和调节作用分析，结果发现，新员工的人际好奇心特质通过促使新员工进行团队信息交换行为而对新员工的职场适应结果有正向影响，支持性组织氛围与团队心理安全感在该机制中调节作用显著。具体而言，支持性组织氛围对人际好奇心与新员工团队信息交换行为之间的关系起正向调节作用，即支持性组织氛围越高，人际好奇心对新员工团队信息交换行为的正向影响越强；团队心理安全感对新员工团队信息交换行为与新员工职场适应之间的关系起正向调节作用，即员工的团队心理安全感越高，新员工团队信息交换行为对新员工职场适应的正向影响越强。

关键词 人际好奇心，团队信息交换，支持性组织氛围，团队心理安全感

The Effect of Social Curiosity on New Comers' Workplace Adaptation - The Mediating Role of Information Exchange

Liping Zou

Jinan University, Guangzhou

Abstract： Curiosity, as a personality trait, has been partially documented in previous research to help people adapt to new roles and situations, predict performance, and think creatively. In recent years, there has been a trend towards organizational restructuring, frequent job changes, and a new generation of employees embracing the idea of "boundaryless" careers. It is more important than ever for this new generation of employees to adapt to the new workplace. Curiosity, as a personality trait, plays an important role in the adaptation of new comers in the workplace. Curiosity suggests an important meta-competency, i.e., the ability to learn how to adapt, thereby realizing the ability to "explore and practice" and to use various experiences to understand one's own situation. One of the many ways in which curiosity has been categorized by academics proposes social curiosity, which refers to an interest in obtaining information about how others think, feel, and behave-which has been shown to predict gossiping tendencies, as well as the accuracy of interpersonal perceptions of strangers. This paper explores how social curiosity contributes to new comers' workplace adaptation outcomes by influencing their information exchange behaviors in the workplace. It also explores the moderating roles of supportive organizational climate and team psychological security in the front-end and back-end mechanisms of action, respectively. This paper conducted mediation and moderation analyses on the collected data from 435 samples, and found that the social curiosity trait of new comers had a positive effect on new comers' workplace adaptation outcomes by prompting

them to engage in information exchange behaviors, and that the supportive organizational climate and team psychological security had significant moderating roles in this mechanism. Specifically, supportive organizational climate positively moderates the relationship between social curiosity and new comers' information exchange behavior, i.e., the higher the supportive organizational climate, the stronger the positive influence of social curiosity on new comers' information exchange behavior; team psychological security positively moderates the relationship between information exchange behavior and workplace adaptation, i.e., the higher the new comers' team psychological security, the stronger the positive influence of new comers' information exchange behavior; team psychological security positively moderates the relationship between information exchange behavior and workplace adaptation. The higher the new comers' sense of team psychological security, the stronger the positive influence of new comers' information exchange behavior on new comers' workplace adaptation.

Keywords **:** Social curiosity, Information exchange, Supportive organizational climate, Team psychological security

自我管理策略对网络闲逛行为的影响

海曼[1,2] 周兵平[3] 吴旭瑶[1,2] 宫剑[1,2] 李晔[1,2][13]

（1 华中师范大学心理学院，武汉 430079）

（2 华中师范大学心理学院暨青少年网络心理与行为教育部重点实验室，武汉 430079）

（3 温州大学教育学院，温州 325035）

摘 要 网络闲逛行为是组织中的管理难题。在工作中，如何使用自我管理策略帮助员工减少网络闲逛，目前尚未可知。基于资源保存理论，本研究通过两个全职员工样本对该问题进行了探索。研究 1 旨在解决哪些特定的自我管理策略会影响网络闲逛以及如何影响。基于以变量为中心的方法，探讨了四种常用自我管理策略（自我观察、目标设定、自我奖励、自我惩罚）对网络闲逛行为的影响（$N_{样本1}$=506，$N_{样本2}$=499），及情绪耗竭（资源损耗路径）和工作投入（资源获取路径）的并列中介作用（$N_{样本2}$=499）；研究 2 旨在解决自我管理策略间的配合使用对网络闲逛的影响如何。基于以人为中心的方法，使用潜在特征分析（LPA）探索了自我管理策略的组合类型，及其在情绪耗竭、工作投入和网络闲逛行为上的表现（$N_{样本1}$=506，$N_{样本2}$=499）。

基于以变量为中心的结果显示：1）自我惩罚对网络闲逛有显著正向影响，且结果稳定。自我奖励对网络闲逛有显著正向影响，目标设定、自我观察分别对网络闲逛也有显著负向影响，但这些自我管理策略对网络闲逛的作用并不稳定；2）自我惩罚策略主要通过增加情绪耗竭导致更频繁的网络闲逛行为。

基于以人为中心的结果显示：1）两个样本的 LPA 分析均得到了五类有效的自我管理策略组合，其中四类组合具有稳定性，即低水平管理者（11.1%、16.7%）、中等水平管理者（44.3%、46.5%）、高水平管理者（26.2%、20.1%）以及高水平低惩罚型管理者（9.3%、14.5%）；2）高水平低惩罚型管理者工作投入水平最高、情绪耗竭最低、网络闲逛行为最少，而低水平管理者工作投入最少、情绪耗竭最高、网络闲逛行为最多；这一结果反映出自我惩罚策略带来的不利影响无法被其他自我管理策略的有效使用而抵消。

结论：合理选择、正确使用自我管理策略可以最大化地利用个人资源，降低网络闲逛的频率。然而，目前能做到这一点的人不足总体人数的五分之一。本研究为干预网络闲逛行为提供了新的思路。

关键词 网络闲逛 自我管理策略 情绪耗竭 工作投入 潜在特征分析

[13] [项目基金]国家自然科学基金面上项目（项目号：71771102）

[通讯作者] 李晔 liye@mail.ccnu.edu.cn

The impact of self-management strategies on cyberloafing

Hai Man[a,b] Zhou Bingping[c] Wu Xuyao[a,b] Gong Jian[a,b] Li Ye[a,b14]
（a School of Psychology, Central China Normal University, Wuhan，430079）
（b Key Laboratory of Adolescent Cyber psychology and Behavior, Ministry of Education，Wuhan，430079）
(c School of Education, Wenzhou University, Wenzhou 325035)

Abstract: The management of cyberloafing behavior poses a significant challenge within organizations. It is currently unknown how self-management strategies can be employed to aid employees in mitigating cyberloafing within the workplace. This study, which is based on Resource Conservation Theory, analyzed this matter with two samples of full-time employees. Study 1 aimed to examine the specific self-management strategies that have an impact on cyberloafing and their effects. Using a variable-centered approach, the effects of four commonly employed self-management strategies, namely self-observation, goal-setting, self-reward, and self-punishment, on cyberloafing behaviors were examined(Nsample1=506， Nsample2=499). The mediating roles of emotional depletion (a resource depletion pathway) and work engagement (a resource acquisition pathway) were compared. Study 2 was designed to examine the effects of the use of fit between management strategies on cyberloafing behaviors. Based on a person-centered approach, the types of combinations of self-management strategies and their performance on emotional exhaustion, work engagement and cyberloafing behaviors were explored using latent profile analysis (LPA) (Nsample1=506，Nsample2=499).

A variable-centered approach demonstrated that 1) self-punishment had a significant positive effect on cyberloafing, with stable results. Self-reward had a significant positive effect on cyberloafing, and goal setting and self-observation had a significant negative effect on cyberloafing, respectively. These self-management strategies had unstable effects on cyberloafing. 2) self-punishment strategies are primarily responsible for the escalating frequency of cyberloafing, primarily due to the heightened emotional exhaustion.

The results based on the person-centered approach indicated that: 1) 5 unique profiles of self-management strategies were identified, with four of them being stable, namely low-level managers (11.1%, 16.7%), medium-level managers (44.3%, 46.5%), high-level managers (26.2%, 20.1%), and high-level low-punitive managers (.3%, 14.5%). 2) High-level low-punishment managers have the highest level of work engagement, the lowest level of emotional exhaustion, and the least amount of cyberloafing, while low-level managers have the lowest level of work engagement, the highest level of emotional exhaustion, and the most amount of cyberloafing. This result indicates that the negative effects of self-punishment strategies cannot be offset by the effective use of other self-management strategies.

Conclusion: The prudent selection and appropriate application of self-management strategies can optimize personal resources and reduce the frequency of cyberloafing. Nonetheless, less than one-fifth of the entire populace is currently capable of doing so. This study provides new ideas for addressing cyberloafing behavior.

***Keywords*：** cyberloafing, self-management strategies, emotional exhaustion, work engagement, latent profile analysis

[14] **Acknowledgements**

This work was supported by the National Natural Science Foundation of China (No. 71771102).

Corresponding author. E-mail address: liye@mail.ccnu.edu.cn (Ye Li).

6.8“医学心理专业委员会”分组展贴报告

经颅磁刺激治疗强迫症前后的脑电变化：系统综述

黄彬芯[1]，李伟[1]，王振[1,2,3]（通讯作者）

1. 上海交通大学医学院附属精神卫生中心，上海，200030，wangzhen@smhc.org.cn

2. 上海交通大学心理与行为科学研究院,上海，200030，wangzhen@smhc.org.cn

3. 上海市重性精神病重点实验室，上海，200030，wangzhen@smhc.org.cn

摘 要 **目的：**本研究旨在对经颅磁刺激治疗强迫症前后脑电图变化进行系统评价，并对现有相关研究进行全面分析，以了解常用脑电图指标在评估经颅磁刺激治疗强迫症疗效方面的有效性。通过系统介绍治疗强迫症的经颅磁刺激干预类型和有效性，以及它们的电生理指标，为未来强迫症治疗提供新思路和更全面的评估标准。**方法：**通过系统检索 PubMed、Web of Science、APA PsycINFO 和 APA PsycArticles 数据库收集有关经颅磁刺激治疗强迫症前后脑电图变化的相关文章。选择符合标准的研究进行分析。**结果：**本研究纳入了符合标准的 6 个研究。四项研究使用重复经颅磁刺激治疗强迫症，两项研究使用深部经颅磁刺激。干预靶点包括眶额叶皮层、双侧背外侧前额叶皮层、右侧辅助运动区和前扣带回。在经颅磁刺激治疗组中，有 88 名强迫症患者对经颅磁刺激治疗有反应（75.21%）。在对照组中，有 5 名患者有反应（12.5%）。在经颅磁刺激治疗强迫症后，不同频段的电生理指标出现不同的变化。在 delta 频段，经过经颅磁刺激治疗后 delta 频段功率显著增加。在 theta 频段，经过经颅磁刺激治疗后 theta 频段功率既有增加也有减少，大脑功能连接性和 ERN 也显著增加。在 alpha 频段，经过经颅磁刺激治疗后 alpha 频段功率既有增加也有减少，大脑功能连接性显著增加。在 beta 频段，经过经颅磁刺激治疗后频段的功率和波幅均显著降低，但是大脑功能连接性显著增加。这些结果表明，经颅磁刺激治疗强迫症可以在一定程度上调节大脑的神经活动。**结论：**经颅磁刺激治疗可以显著调节患者的脑电活动，尤其是在 theta 频段、alpha 频段和 beta 频段。经过经颅磁刺激治疗后，强迫症患者在额叶出现 theta 频段活动增强，在顶叶和枕叶出现 alpha 频段活动减少，在双侧中央-顶-枕区出现 beta 频段活动减少。这些变化可能与认知控制、注意力和反应抑制的改善相关，从而改善强迫症的症状。这为我们深入了解经颅磁刺激治疗强迫症的神经机制提供了重要线索。

关键词 经颅磁刺激，强迫症，脑电图

EEG Changes before and after Transcranial Magnetic Stimulation Treatment for Obsessive-Compulsive Disorder: A Systematic Review

Binxin Huang[1]，Wei Li[1]，Zhen Wang[1,2,3]

1. Shanghai Mental Health Center, Shanghai Jiao Tong University School of Medicine, Shanghai, P.R. China

2. Institute of Psychological and Behavioral Science, Shanghai Jiao Tong University, Shanghai, P.R. China

3. Shanghai Key Laboratory of Psychotic Disorders, Shanghai, P.R. China

Abstract:**Objective** This study aims to systematically evaluate the changes in electroencephalography (EEG) before and after transcranial magnetic stimulation (TMS) treatment for obsessive-compulsive disorder (OCD) and comprehensively analyze the existing relevant research to understand the effectiveness of commonly used EEG indices in assessing the efficacy of TMS for OCD treatment. By introducing the types and effectiveness of TMS interventions for OCD and their EEG indices, it provides new insights and more comprehensive evaluation criteria for future OCD treatment. **Methods** Relevant articles on changes in EEG following TMS treatment for OCD were comprehensively searched in databases including PubMed, Web of Science, APA PsycINFO, and APA PsycArticles. Studies that met the inclusion criteria were selected for analysis. **Results** Six studies met the inclusion criteria. Four studies used repetitive TMS (rTMS) for OCD treatment, while two studies used deep TMS (dTMS). The intervention targets included the orbitofrontal cortex, bilateral dorsolateral prefrontal cortex, right supplementary motor area, and medial prefrontal cortex-anterior cingulate cortex. In the TMS treatment group, 88 OCD patients responded to TMS treatment (75.21%), while in the control group, 5 patients responded (12.5%). After TMS treatment for OCD, different changes in EEG indicators were observed in different frequency bands. In the delta band, the power significantly increased after TMS treatment. In the theta band, the power could increase or decrease after TMS treatment, and there was a significant increase in functional connectivity and ERN. In the alpha band, the power could also increase or decrease after TMS treatment, and there was a significant increase in functional connectivity. In the beta band, the power, wave amplitude, and Z-score of the beta wave significantly decreased after TMS treatment, while there was a significant increase in brain functional connectivity. These findings suggest that TMS treatment for OCD can modulate brain activity to a certain extent. **Conclusion** TMS treatment can significantly adjust patients' brain waves, especially in the theta, alpha, and beta frequency bands. Following TMS treatment, OCD patients showed enhanced theta band activity in the frontal lobe, decreased alpha band activity in the parietal and occipital lobes, and decreased beta band activity in the bilateral central-parietal-occipital areas. These changes are likely associated with improvements in cognitive control, attention, and response inhibition, leading to a reduction in OCD symptoms. This provides important clues for deepening our understanding of the neural mechanisms of TMS treatment for OCD.

Keywords： Transcranial magnetic stimulation, Obsessive-compulsive disorder, Electroencephalography

抑郁症患者情绪冲突加工缺陷与自杀风险的脑机制研究

刘洋[1]　王成芳[1]　孔鑫媛[2]　王湘[2]　林盘[2]
1 湖南师范大学心理学系，长沙，410012
2 中南大学湘雅二医院医学心理中心，长沙，410011，
通讯作者：王湘（wangxiang0916@csu.edu.cn）

摘 要 目的：情绪冲突加工缺陷是抑郁症患者常见的认知损害，可能受到个体负性认知偏向、认知情绪调节方式、早期不良经历等多种因素的共同影响。以往研究发现，在抑郁症患者中情绪冲突认知加工功能的缺陷也可能导致患者的自杀风险增加，但其相关神经机制尚未阐明。本研究联合情绪 stroop 任务与功能磁共振技术，分析重性抑郁障碍（MDD）患者的情绪冲突认知损害，即情绪冲突加工过程中的脑功能网络连接异常，并进一步探究这一损害与童年创伤、自杀意念等临床特征的关系。

方法：31 名 HC 被试及 34 名 MDD 患者均完成认知情绪调节问卷（CERQ）、负性认知加工偏向问卷（NCPBQ）、童年创伤经历问卷（CTQ）、贝克抑郁问卷（BDI）、汉密尔顿焦虑量表（HAMA）、汉密尔顿抑郁量表（HAMD）以及贝克自杀意念量表（BSI）等评估；并在完成情绪 stroop 任务的过程中采集脑功能图像。对量表评估、情绪 stroop 任务中的大脑激活区域，以及一致和冲突条件下脑功能连接分别进行组间比较，并对量表评估—脑功能连接进行相关分析和中介效应分析。

结果：MDD 组在 HAMD、HAMA、BDI、BSI、NCPBQ 上得分均显著高于 HC（$p<0.001$），以及在 CTQ 上得分显著高于 HC（$p<0.01$）。大脑激活结果表明，HC 和 MDD 在情绪冲突认知加工中脑部激活的组间差异不显著（$p>0.05$）。功能连接分析结果表明，在冲突条件下，与 HC 相比，MDD 患者的杏仁核-眶额叶功能连接减弱($p=0.03$,FDR corrected)，而海马旁回-颞极和海马旁回-梭状回功能连接增强($p=0.042$;$p=0.044$;FDR corrected)。相关分析表明，MDD 患者中杏仁核-眶额叶功能连接强度与其童年创伤经历得分及最近一周自杀意念得分均呈显著负相关($r=-0.37$,$p<0.05$;$r=-0.44$,$p<0.01$)，进一步中介分析发现，杏仁核-眶额叶功能连接强度在童年情感虐待对自杀意念的影响中起完全中介作用($R^2=13.8\%$)。

结论：重性抑郁障碍患者的情绪冲突加工缺陷涉及杏仁核-眶额叶、海马旁回-颞极以及海马旁回-梭状回等神经生理异常。在有童年情感虐待经历的 MDD 患者中，与情绪冲突加工有关的杏仁核-眶额叶功能连接异常可能是介导其自杀意念形成的重要神经生理基础。（本研究得到国家自然科学基金 31671144 资助）

关键词　抑郁症；情绪冲突；情绪 Stroop 任务；情感虐待；自杀意念

Research on the Neural Mechanisms of Emotional Conflict Processing Deficits and Suicide Risk in Major Depression Disorder

Liu Yang　Wang Chengfang　Kong Xinyuan　Wang Xiang　Lin Pan
School of Psychology , Hunan Normal University
Medical Psychological Center, The Second Xiangya Hospital, Central South University

Abstract：Objective: Emotional conflict processing deficits are common cognitive impairments in patients with depression and may be influenced by various factors such as individual negative cognitive bias, cognitive emotion regulation strategies, and early adverse experiences. Previous studies have found that deficits in emotional conflict cognitive processing in depression patients may also increase their suicide risk, but the underlying neural mechanisms remain unclear. This study combined the emotional Stroop task with functional magnetic resonance technology to analyze the cognitive impairment of emotional conflict in patients with major depressive disorder (MDD), specifically examining the abnormal brain functional network connectivity during the emotional conflict processing. Furthermore, we explored the relationship between this impairment and childhood trauma , suicidal ideation and other clinical features.

Methods: A total of 31 healthy controls (HC) and 34 MDD patients completed assessments, including the Cognitive Emotion Regulation Questionnaire (CERQ), Negative Cognitive Processing Bias Questionnaire (NCPBQ), Childhood Trauma Questionnaire (CTQ), Beck Depression Inventory (BDI), Hamilton Anxiety Scale (HAMA), Hamilton Depression Scale (HAMD), and Beck Scale for Suicide Ideation (BSI). Brain functional images were collected from the participants while they completed the emotion Stroop task. Between-group comparisons were conducted on the scale assessments, brain activated regions during the emotional Stroop task, as well as brain functional connectivity under both congruent and conflict conditions. Correlation analysis and mediation analysis were performed between the assessments and brain functional connectivity.

Results: The MDD group scored significantly higher than the HC group on HAMD, HAMA, BDI, BSI, and NCPBQ ($p<0.001$), as well as on CTQ ($p<0.01$). Brain activation results indicated that there was no significant differences between HC and MDD group in brain activation during emotional conflict cognitive processing ($p>0.05$). Functional connectivity analysis revealed that under conflict conditions,compared to HC, MDD patients had weakened functional network connection between the amygdala and orbitofrontal cortex ($p=0.03$, FDR corrected), but strengthened functional network connections between the parahippocampal gyrus and temporal pole, and the parahippocampal gyrus and the fusiform gyrus ($p=0.042$, $p=0.044$, FDR corrected). The correlation analysis indicated a significant negative correlation between the strength of functional connectivity between the amygdala and the orbitofrontal cortex in MDD and their scores of childhood trauma experience and recent suicidal ideation ($r=-0.37$, $p<0.05$; $r=-0.44$, $p<0.01$). Further mediation analysis revealed that the strength of amygdala-orbitofrontal cortex functional connectivity fully mediated the impact of childhood emotional abuse on suicidal ideation ($R2=13.8\%$) in MDD.

Conclusion: Emotional conflict processing deficits in patients with major depressive disorder involve neural physiological abnormalities in the amygdala-orbitofrontal cortex, parahippocampal gyrus-temporal pole, and parahippocampal gyrus-fusiform gyrus. In MDD patients with a history of childhood emotional abuse, the dysfunctional connectivity between the amygdala and orbitofrontal cortex, which is related to emotional conflict processing, may serve as a crucial neurophysiological foundation that mediates the formation of suicidal ideation.
(This study was supported by the National Natural Science Foundation of China, Grant No. 31671144.)

Keywords：Depression；Emotional conflict；Emotional Stroop task；Emotional abuse

童年创伤与冲动行为:神经质、压力知觉和抑郁的链式多重中介作用

杨会会[1,2]，苗正淼[1,2]，蚁金瑶[1,2]（通讯作者）
1 中南大学湘雅二医院医学心理中心，长沙，410011；
2 中南大学湘雅二医院医学心理研究所，长沙，410011，jinyaoyi@csu.edu.cn

摘 要 目的：冲动行为（如自残行为和药物滥用）常见于临床多种心理障碍，可能产生恶性后果。先前研究提示，童年创伤、神经质、日常应激、抑郁均是冲动行为的严重危险因素，且神经质、日常应激及抑郁情绪影响了童年创伤对冲动行为的效应。本研究拟进一步阐明神经质人格、压力知觉和抑郁症状对童年创伤和冲动行为关系的影响，并探讨情感创伤和躯体创伤对冲动行为是否存在不同的作用机制。方法：637名心理障碍患者完成了童年创伤问卷（CTQ）、边缘性症状清单（BSL-23）-冲动行为分量表、NEO 人格量表（NEO-PI-R）的神经质分量表、压力知觉量表（PSS）和流调中心用抑郁量表（CES-D）。采用相关分析考察变量间的关联，以童年创伤为自变量，冲动行为为因变量，神经质、压力知觉和抑郁症状为中间变量，建立结构方程模型（SEM）检验各变量之间的因果关系。分别纳入情感创伤和躯体创伤作为自变量，构建情感创伤与躯体创伤对冲动行为的作用模型。结果：相关分析结果显示，各个变量间的相关系数为 0.284 - 0.785。通过 SEM 得到的最优解释模型与数据拟合良好（$\chi 2 = 517.987$, df = 109, CFI = 0.940, TLI = 0.926, GFI = 0.913, RMSEA = 0.077, RMSEA 90% CI= 0.070 - 0.084）。模型的具体路径表现为童年创伤可直接预测冲动行为（直接效应为 0.213），也可通过抑郁症状预测冲动行为，还可通过神经质→ 抑郁症状和神经质→ 感知压力→ 抑郁症状的链式中介效应影响冲动行为（总间接效应值为 0.224）。情感创伤和躯体创伤均能直接和间接预测冲动行为，其中直接效应分别占总效应的 43.94%和 64.38%，间接效应分别占总效应的 56.06%和 35.62%。结论：童年创伤既可直接导致心理障碍患者的冲动行为，也可通过高神经质人格、高压力感知和高水平抑郁症状间接导致冲动行为。情感创伤主要通过高神经质、高压力知觉和高水平抑郁症状间接影响冲动行为，而躯体创伤则主要通过直接效应影响冲动行为。

关键词 童年创伤；神经质；抑郁症；冲动行为；结构方程模型

Childhood trauma and impulsive behavior: the multiple chain mediating effects of neuroticism, stress perception and depression

Huihui Yang[1,2], Zhengmiao Miao[1,2], Jinyao Yi[1,2](corresponding author)
1 Medical Psychological Center, the Second Xiangya Hospital, Central South University, Changsha, 410011;
2 Medical Psychological Institute, Central South University, Changsha, 410011, jinyaoyi@csu.edu.cn

Abstract：Purpose: Impulsive behaviors (such as self mutilation and substance abuse), which may cause adverse outcomes, are common in psychological disorders. Previous studies suggested that childhood trauma, neuroticism, daily life stress and depression were all serious risk factors for impulsive behaviors. Also, neuroticism, daily life stress and depression might affect the relationship between childhood trauma and impulsive behaviors. This study aims to further clarify the influence of Neuroticism personality, stress perception and depressive symptoms on the relationship between childhood trauma and impulsive behaviors, and to explore whether emotional trauma and physical trauma have different mechanisms on impulsive behaviors. Method: A total of 637 clinical patients with psychiatric disorders completed childhood trauma questionnaire (CTQ), impulsive behavior subscale of borderline symptom list (BSL-23), neuroticism subscale of the NEO Personality Inventory Revised (NEO-PI-R), perceived stress scale (PSS), and center for epidemiologic studies depression scale (CES-D). Correlation analysis was

conducted to investigate the associations among all the variables mentioned above. Structural equation modeling (SEM) was performed to examine the causal relationship among all the variables with childhood trauma as independent variable, impulsive behaviors as dependent variable, neuroticism, perceived stress, and depressive symptoms as intermediate variables. Additionally, to separately examine the impacts of emotional and physical traumatic experiences on impulsive behaviors, emotional trauma and physical trauma were involved in the SEM as independent variable, respectively. Results: The correlation coefficients among all the variables ranged from 0.284 to 0.785. The optimal model obtained by SEM fitted the data well ($\chi 2$ = 517.987, df = 109, CFI = 0.940, TLI = 0.926, GFI = 0.913, RMSEA = 0.077, RMSEA 90% CI= 0.070-0.084). The specific pathways of the model showed that childhood trauma could not only directly predict impulsive behaviors (direct effect was 0.213), but also indirectly predict impulsive behaviors through depressive symptoms and two chain pathways neuroticism → depressive symptoms, neuroticism→ perceived stress → depressive symptoms, with total indirect effect being 0.224. Moreover, both emotional trauma and physical trauma could directly and indirectly predict impulsive behaviors, of which the direct effects accounted for 43.94% and 64.38% of total effects, and indirect effects accounted for 56.06% and 35.62% of total effects, respectively. Conclusion: Childhood trauma is a direct contributing factor to impulsive behaviors in patients with psychiatric disorders. Childhood trauma can also indirectly result in impulsive behaviors through high levels of neuroticism, perceived stress, depressive symptoms. Besides, emotional trauma mainly produces impacts on impulsive behaviors through high levels of neuroticism, perceived stress, depressive symptoms, while physical trauma mostly takes one direct effect on impulsive behaviors.

***Keywords*：** childhood trauma; neuroticism; depression; impulsive behavior; structural equation modeling

太极拳运动对 2 型糖尿病患者心理健康效益：基于 ICF 的系统综述

曾琪淋 [1]　　王艳 [2]（通讯作者）
北京体育大学，北京，100084，Email:wyweiwei@126.com

摘 要　目的：运用世界卫生组织（WHO）《国际功能、残疾和健康分类》（ICF）构建太极拳干预 2 型糖尿病患者的心理健康效益，系统综述太极拳对 2 型糖尿病患者生活质量、焦虑、抑郁、睡眠质量的改善效果。

方法：采用主题词检索方式，中文检索词包括：太极拳、2 型糖尿病、心理健康、睡眠质量。英文检索词包括：TaiChi、Mental health、Type 2 diabetes 、sleep quality。

检索知网（CNKI)、万方数据库（WAN-Fang）、Web of Science、PubMed、Medline 数据库建库至 2023 年 6 月 20 日公开发表的 2 型糖尿病患者接受太极拳运动干预及其心理健康效益的随机对照试验（RCT）的相关文献，并采用物理治疗证据数据库（PEDro）量表对纳入文献方法学质量评价，进行系统综述。

结果：纳入文献 11 篇，来自中国、澳大利亚、韩国，包括 423 例参与者（7 岁~82 岁），主要来源于医学、体育、护理等相关领域期刊，发表时间集中于 2008 年至 2021 年。本研究基于 ICF 构建了 2 型糖尿病患者进行太极拳干预的心理健康效益的 PICO 研究架构，主要的干预内容为 24 式太极拳，干预方案为每次锻炼时间 20~60min，每天 1~3 遍，每周 3~7 次，连续锻炼 6~12 周。太极拳对 2 型糖尿病患者心理健康的改善主要体现在 ICF 的能量和驱力功能（b130)和睡眠功能（b134)情感功能(b152)。

结论：2 型糖尿病患者进行太极拳干预后，其焦虑、抑郁、低生活质量、低睡眠质量等心理健康问题得到改善，可作为 2 型糖尿病患者康复中的常规锻炼方法进行推广。

关键词　太极拳，2 型糖尿病，心理健康，抑郁，睡眠质量

Mental health benefits of Tai Chi in patients with type 2 diabetes: a systematic review based on ICF

ZENG qilin[1] WANG yan[2]
Beijing Sport University,Beijing,

Abstract：Objective: To construct the effect of Tai Chi on the mental health of patients with type 2 diabetes by using the International Classification of Functioning, Disability and Health (ICF) of World Health Organization (WHO), and to systematically review the effect of Tai Chi on the quality of life, anxiety, depression and sleep quality of patients with type 2 diabetes.

Methods:The relevant literatures on the randomized controlled trial (RCT) of Tai Chi exercise intervention and its mental health benefits in type 2 diabetes patients were retrieved from CNKI, WAN-Fang, Web of Science, PubMed and Medline databases until June 20, 2023. Subject term search was used. Chinese search terms included Tai Chi, type 2 diabetes, mental health and sleep quality. English search terms included: Tai Chi, Mental health, Type 2 diabetes mellitus, sleep quality. The physical therapy Evidence Database (PEDro) scale was used to evaluate the methodological quality of the included literatures. Results: Eleven literatures were included, from China, Australia, and South Korea, including 423 participants (aged 7-82 years), mainly from medical, sports,

nursing and other related fields of journals, published from 2008 to 2021. Based on ICF, this study constructed a PICO research framework on the mental health benefits of Tai Chi intervention in patients with type 2 diabetes. The main intervention content was 24 simplified Tai Chi, and the intervention plan was to exercise for 20 to 60min each time, 1 to 3 times a day, 3 to 7 times a week, and continuously exercise for 6 to 12 weeks. The improvement of Tai Chi on the mental health of type 2 diabetes patients was mainly reflected in the energy and drive function (b130) and sleep function (b134) and emotional function (b152) of ICF.

Conclusion: After Tai Chi intervention, mental health problems such as anxiety, depression, low quality of life and low sleep quality can be improved in patients with type 2 diabetes, which can be promoted as a routine exercise method in the rehabilitation of patients with type 2 diabetes.

Keywords：Tai Chi, type 2 diabetes, mental health, depression, sleep quality

首发抑郁症患者的奖惩加工特征及脑电生理机制：一项纵向追踪研究

孔鑫媛[1] 廖静怡[1] 吕秋雨[2] 王成芳[2] 王湘[1]

1 中南大学湘雅二医院医学心理中心，长沙，410011，wangxiang0916@csu.edu.cn

2 湖南师范大学教育科学学院，长沙，410081

摘 要 目的：重性抑郁障碍（MDD）患者表现出一系列与奖励及惩罚敏感性损害有关的症状特点，如与正性奖赏异常相关的快感缺失、动机缺乏；以及因对负性反馈敏感性增强而导致的焦虑及损失回避等。但是，目前对于抑郁症患者在奖、惩不同效价刺激加工进程中的特异性脑电生理异常，以及相关损害是否会随症状缓解而恢复，均缺乏深入研究。本研究为纵向追踪研究，结合金钱激励延迟任务（Monetary incentive delay, MID）与事件相关电位（Event-related potentials, ERP）技术，明确 MDD 患者在奖惩期待与反馈加工进程中的脑电生理指标在发作期与缓解期等不同疾病发展阶段的变化规律。

方法：研究采用自身前后对照设计，对 25 名首发未服药 MDD 患者在接受序贯治疗（艾司西酞普兰/舍曲林治疗 8 周，若无效，则换药 SNRI 类药物，如文拉法辛）前、以及抗抑郁治疗一年内达缓解后分别进行 MID 任务的 EEG 数据采集，选取以往奖惩研究中 MDD 表现异常的成分进行分析，比较其在期待阶段的奖励、惩罚和中性条件下的 cueP2 与 cueP3，以及在反馈阶段正、负反馈条件下 FRN 和 LPP 等脑电生理指标差异，并对缓解期和基线 LPP 波幅差值与缓解期和基线 HAMD 得分的差值进行相关分析。

结果：行为学结果表明，奖励条件下的反应时显著小于中性条件和惩罚条件（p=0.009；p=0.001），惩罚条件下的反应时显著小于中性条件（p=0.005），MDD 缓解前后的反应时没有显著差异。ERP 结果表明，在期待阶段，奖励与惩罚条件下的 cueP2 波幅均显著大于中性条件（p<0.001；p=0.004），奖励条件下的 cueP3 波幅显著大于惩罚和中性条件下的波幅（p=0.016；p=0.006），缓解期 MDD 与基线时的 cueP2 和 cueP3 波幅没有显著差异。在奖惩反馈阶段，缓解前后的 FRN 波幅在正反馈与负反馈条件下均没有显著差异；缓解期 MDD 患者在负反馈下的 LPP 波幅显著大于基线（F=7.95, p=0.009）。相关分析结果显示缓解前后 MDD 患者在惩罚预期下负反馈 LPP 变化与 HAMD 变化有显著负相关。

结论：首发 MDD 患者奖惩期待动机及奖惩反馈早期与情绪动机评价相关的脑电指标未随症状缓解而发生改变；而首发 MDD 患者在奖惩反馈后期对负性反馈的敏感性下降可能为抑郁状态依赖性特征。（本研究得到国家自然科学基金 31671144 资助）

关键词 重性抑郁障碍，奖惩加工，状态依赖，事件相关电位

Neuroelectrophysiological Mechanisms of Reward and Punishment Processing in Patients with First Episode Major Depressive Disorder: A longitudinal Follow-up Study

Xinyuan Kong[1], Jingyi Liao[1], Qiuyu Lv[2], Chengfang Wang[2], Xiang Wang[1]
1 Medical Psychological Center, The Second Xiangya Hospital, Central South University, Changsha, Hunan, China
2 Department of Psychology, Hunan Normal University, Changsha, Hunan, China

***Abstract*：** **Objective:** Patients with major depressive disorder (MDD) exhibit a range of symptoms related to abnormal sensitivity to reward and punishment, such as anhedonia and reduced motivation associated with abnormal responses to reward, as well as increased sensitivity to negative feedback leading to anxiety and loss avoidance. However, there is a lack of in-depth research regarding the specific electrophysiological abnormalities during reward and punishment processing in MDD patients and whether these impairments recover with symptom remission. In this longitudinal follow-up study, the Monetary Incentive Delay (MID) task and Event-Related Potentials (ERPs) technology were employed to elucidate changes in the electrophysiological markers during reward and punishment anticipation and feedback processing in MDD patients across different disease stages, including the acute phase and the remission phase.

Methods: The present study adopted a within-subjects pre-post design in 25 first episode drug-naive MDD patients. Participants underwent sequential treatments with SSRI antidepressants (escitalopram or sertraline) for 8 weeks, and non-responders were switched to SNRI such as venlafaxine after 8 weeks. ERP data were collected before treatment and after achieving remission through antidepressant treatment within one year. Abnormal ERP components of reward and punishment processing in MDD reported in previous studies were selected for analysis. Specifically, cueP2 and cueP3 during the anticipation phase under reward, punishment, and neutral conditions were compared. Additionally, differences in feedback-related negativity (FRN) and late positive potential (LPP) during the feedback phase under positive and negative feedback conditions were examined. Furthermore, correlation analysis was conducted between the changes in LPP amplitude from baseline to the remission and the changes in Hamilton Depression Rating Scale (HAMD) scores from baseline to the remission.

Results: Behavioral results showed that reaction times were significantly shorter in the reward condition compared to neutral and punishment conditions (p=0.009; p=0.001). Punishment condition were also significantly shorter than in the neutral condition (p=0.005). There were no significant differences between the remission and baseline in MDD patients. ERP results during the anticipation phase indicated that cueP2 amplitudes were significantly larger in the reward and punishment conditions than in the neutral condition (p<0.001; p=0.004). CueP3 was significantly larger in the reward condition compared to punishment and neutral conditions (p=0.016; p=0.006). There were no significant differences in cueP2 and cueP3 amplitudes between the remission and baseline. During the feedback phase, no significant differences in FRN amplitudes between the remission phase and baseline under both positive and negative feedback conditions. However, under negative feedback, remitted MDD exhibited significantly larger LPP amplitudes compared to baseline (F=7.95, p=0.009). Correlation analysis showed a significant negative correlation between changes in negative feedback LPP and changes in HAMD scores in MDD patients before and after remission, under the punishment expectation condition.

Conclusion: First-episode MDD patients' electrophysiological indices related to reward anticipation and early

emotion evaluation associated with punishment did not change with symptom remission. However, a decreased sensitivity to negative feedback in the later phase of feedback in first-episode MDD may represent a state-dependent depression characteristic.

Keywords **:** Major depressive disorder, Reward and punishment processing, State-dependent, Event-related potentials

抑郁症患者动态静息脑网络特征的性别差异

董戴凤 姚树桥（通讯作者）

中南大学医学心理学研究所，长沙，410000，shuqiaoyao@csu.edu.cn

摘 要 抑郁症的流行病学和临床特征存在明显性别差异，这提示不同性别抑郁症患者的脑功能损伤可能存在差异。根据三重网络模型，默认网络（Default Mode Network, DMN）、额顶网络（Frontoparietal Network, FPN）和突显网络（Salience Network, SN）的交互异常是抑郁症等精神疾病的核心脑机制；然而，抑郁症患者在默认网络、执行网络和突显网络的脑网络特征的性别差异仍不明确。基于时间维度的脑网络动态特征是脑网络的关键属性。因此，本研究采用共激活模式分析的动态脑网络分析方法，揭示抑郁症患者动态脑网络特征的性别差异。本研究共招募 138 名首发未服药抑郁症患者（55 男）和 243 名正常对照组被试（106 男），所有被试均完成了静息态功能磁共振扫描。对停留在特定脑网络的总时间长度的重复测量方差分析结果显示：与相应性别的正常对照组相比，男性抑郁症患者组在涉及 SN 和 DMN 的共激活模式（包括 SN 增强 DMN 抑制；SN 增强 DMN 激活）上停留的时间显著增加。对停留在特定脑网络的平均持续时间的重复测量方差分析结果显示：与相应性别的正常对照组相比，女性抑郁症患者组在 SN 增强 DMN 抑制共激活模式上的平均持续时间显著降低；此外，与正常对照组相比，抑郁症患者组在 DMN 增强 FPN 抑制共激活模式的平均持续时间显著增加。本研究表明 SN 和 DMN 交互的失衡可能是抑郁症性别差异的关键神经生物学特征；伴随 FPN 活动抑制的 DMN 活动优势可能是独立于性别存在抑郁症的核心神经生物学特征。

关键词 抑郁症 性别 动态脑网络 共激活模式分析

Sex-specific Resting State Brain Network Dynamics in Patients with Major Depressive Disorder

Daifeng Dong and Shuqiao Yao

Medical Psychological Institute of Central South University, Changsha, Hunan.

Abstract： Sex differences in epidemiological and clinical characteristics in major depressive disorder (MDD) may implicate the sex differences in the brain function of MDD. As suggested by the triple network model, atypical interaction between default mode network (DMN), salience network (SN) and frontoparietal network (FPN) could be the critical neurobiological mechanism of MDD. However, sex differences in the SN, FPN and DMN in MDD are still unclear. Dynamic network analytical techniques capture changes in functional coordination among distributed brain regions over time, which is likely important for understanding functional network alterations in MDD. Hence, in the current study, we tested sex differences in resting dynamic functional network properties in a relatively large sample of male and female (sex assigned at birth) healthy controls and first-episode unmedicated MDD patients using a coactivation pattern analysis. Resting-state functional magnetic resonance imaging (fMRI) data were collected from 138 unmedicated patients with first-episode MDD (55 males) and 243 healthy controls (HCs; 106 males). For the time spent in each coactivation pattern, our results showed that, relative to the sex-matched HCs, the male MDD group spent more time in two CAPs involving the SN and DMN (i.e., DMN+SN- and DMN-SN+) relative to the male HC group. For the persistence in each coactivation pattern, the female MDD group showed less persistence in the DMN+SN- CAP relative to the female HC group; MDD patients exhibited greater persistence in a CAP involving activation of the DMN and deactivation of the FPN (DMN+FPN-). Our findings highlight that the imbalance between SN and DMN could be a neurobiological marker supporting sex differences in MDD. Moreover, the dominance of DMN accompanied by the deactivation of FPN could be a sex-independent neurobiological correlate related to depression.

Keywords： major depressive disorder, sex, network dynamics, coactivation pattern analysis

精神分裂症、抑郁症及双相障碍患者的持续性注意的跨诊断研究

孟雪[1]　顾杰[1]　胡文婷[1]　王毅[2,3]　王艳郁[1]

1 潍坊医学院心理学院，山东潍坊，261053

2 神经心理学与认知神经科学实验室，中国科学院心理健康重点实验室（中国科学院心理研究所），北京，100101

3 中国科学院大学心理系，北京，100049

通讯作者 E-mail：wangyanyu@wfmc.edu.cn

摘 要　持续性注意能力是指将认知焦点保持在给定的刺激源和任务上的能力。作为认知功能的重要组成部分，持续注意力缺损通常被当作精神障碍的内表型特征。已有的研究结果显示，精神分裂症、抑郁症、双相障碍患者均存在不同程度的持续注意力的缺损。然而，对于三类疾病患者持续注意力缺损的相似性及独特性的阐述尚不清晰。本研究采用计算机持续注意反应任务（the Sustained Attention to Response Task，SART）对年龄、性别相匹配的 58 名精神分裂症患者（SCZ）、57 名抑郁症患者（MDD）、44 名双相障碍患者（BD）以及 43 名健康对照（HC）志愿者的持续注意能力和反应抑制能力进行了测量，并且完成阳性与阴性症状量表（PANSS），查普曼社会快感缺失（CSAS）和躯体快感缺失（CPAS）量表，对 SART 任务指标与临床症状的关系进行探索。单因素方差分析结果显示，四组参与者在反应时（$F=10.791$，$p<0.001$）、效率估计值（$F=14.604$，$p<0.001$）、反应偏差（$F=20.428$，$p<0.001$）、灵敏度（$F=9.186$，$p<0.001$）以及漏报率（$F=14.052$，$p<0.001$）存在显著差异，在虚报率（$F=0.673$，$p=0.57$）上的对比未见显著差异。事后检验发现，三组患者在“SART”任务上的表现显著差于 HC 组。在反应时上，SCZ 和 BD 患者组显著高于 HC 组，但 MDD 组的反应时表现与 HC 组无显著差异（$p=0.385$）。在效率估计值上，三个患者组均显著低于 HC 组，其中，SCZ 组显著低于 MDD 组。三个患者组的灵敏度及反应偏差均显著差于 HC 组，但三组患者间的差异不显著。在漏报率上，三患者组均显著大于 HC 组，其中 SCZ 组显著大于 MDD 组。Pearson 相关显示，三组患者在 SART 任务中的漏报率和反应偏差与阴性症状（PANSS_N）、CSAS 及 CPAS 呈显著正相关，灵敏度与 PANSS_N、CSAS 及 CPAS 呈显著负相关。本研究揭示了精神分裂症、抑郁症及双相障碍患者的持续注意能力缺损，发现患者组区分目标和非目标的能力更差，反映风格偏向谨慎，但是在反应抑制能力方面未见显著缺损，并且持续注意能力的缺损与临床症状显著相关。未来有关精神疾病患者的持续注意力的研究应该更多朝向于大样本、跨诊断的研究,从而有利于持续注意力缺损机制的阐释以及有效干预措施的制定。

关键词　精神分裂症，抑郁症，双相障碍，持续注意力

A cross-diagnostic study of sustained attention in patients with schizophrenia, major depressive disorder and bipolar disorder

Xue Meng[1] Jie Gu[1] Wen-ting Hu[1] Yi Wang[2,3] Yan-yu Wang[1]

1 School of Psychology, Weifang Medical University, Weifang 261053, Shandong

2 Neuropsychology and Applied Cognitive Neuroscience Laboratory, CAS Key Laboratory of Mental Health, Institute of Psychology, Chinese Academy of Sciences, Beijing, 100101

3 Department of Psychology, University of Chinese Academy of Sciences, Beijing, 100049

*Corresponding Autho*r: Wang Yanyu,wangyanyu@wfmc.edu.cn

***Abstract*：** Sustained attention is the ability to keep cognitive focus on a given stimulus or task. As an important component of cognitive function, sustained attention deficit is often regarded as an endophenotypic feature of mental disorders. Previous studies have shown that patients with schizophrenia, depression and bipolar disorder all have varying degrees of sustained attention deficit. However, the similarity and uniqueness of sustained attention deficit in patients with these three diseases are unclear. This research adopts the computer sustained attention response task (theSustainedAttentiontoResponseTask, SART measured sustained attention and response inhibition in 58 age - and sex-matched patients with schizophrenia (SCZ), 57 patients with major depressive disorder (MDD), 44 patients with bipolar disorder (BD), and 43 healthy control (HC) volunteers, and completed the Positive and Negative Symptom Scale (PANSS). Chapman Social anhedonia (CSAS) and somatic anhedonia (CPAS) scales were used to explore the relationship between SART task indicators and clinical symptoms. The results of one-way ANOVA showed that the response time ($F=10.791$, $p<0.001$), efficiency estimate ($F=14.604$, $p<0.001$), response deviation ($F=20.428$, $p<0.001$), sensitivity ($F=9.186$, $p<0.001$) and false report rate ($F=14.052$, $p<0.001$) showed significant difference, while false report rate ($F=0.673$, $p=0.57$) showed no significant difference. Post-examination found that the three groups performed significantly worse on the "SART" task than the HC group. The response time of SCZ and BD patients was significantly higher than that of HC group, but the response time performance of MDD group was not significantly different from HC group ($p=0.385$). In terms of efficiency estimates, the three patient groups were significantly lower than the HC group, and the SCZ group was significantly lower than the MDD group. The sensitivity and response deviation of the three patient groups were significantly lower than that of the HC group, but the differences among the three groups were not significant. In terms of false negatives, the three patient groups were significantly higher than the HC group, and the SCZ group was significantly higher than the MDD group. Pearson correlation showed that the missing report rate and response bias in SART tasks in the three groups were significantly positively correlated with negative symptoms (PANSS_N), CSAS and CPAS, while the sensitivity was significantly negatively correlated with PANSS_N, CSAS and CPAS. This study revealed the sustained attention deficit in patients with schizophrenia, depression and bipolar disorder, and found that the patient group had worse ability to distinguish between targets and non-targets, and tended to reflect a cautious style, but no significant deficit in response inhibition ability was found, and the deficit of sustained attention ability was significantly correlated with clinical symptoms. Future research on sustained attention in patients with mental illness should focus more on large sample and cross-diagnosis research, which is conducive to elucidating the mechanism of sustained attention deficit and formulating effective intervention measures.

***Keywords*：** Schizophrenia, Major Depressive Disorder, Bipolar disorder, Sustained attention

神经元外泌体介导小胶质细胞极化在应激诱发大鼠抑郁中的作用

李善斯[1]　张逸[1]（通讯作者）

1 中南大学湘雅二医院医学心理中心，长沙，410011

通讯作者邮箱：zhangyipsy@csu.edu.cn

摘 要　目的：研究慢性应激致抑郁的大鼠海马小胶质细胞极化和神经元外泌体的变化，探究海马神经元外泌体是否介导了小胶质细胞极化参与慢性应激诱发抑郁的病理过程。

方法：1、动物实验：成年雄性 SD 大鼠随机分为 2 组：慢性不可预知性应激（Chronic Unpredictable Stress，CUS）组（N=37）和对照（Control，Ctrl）组（N=27）。CUS 组大鼠接受 5 周的慢性不可预知性应激，Ctrl 组大鼠不接受任何实验性处理。采用糖水偏爱实验、旷场实验、强迫游泳实验和三箱社交实验评估大鼠行为；采用实时荧光定量 PCR 检测大鼠海马组织小胶质细胞极化标志物 CD86 和 CD206、炎症因子的 mRNA 的相对表达水平；采用蛋白免疫印迹检测大鼠血浆中神经元外泌体浓度和海马组织内 CD86 和 CD206 的蛋白相对表达水平；使用酶联免疫吸附实验检测大鼠血浆中的皮质酮和炎症因子 IL-1β、IL-6、IL-10 的水平。2、体外细胞实验：使用皮质酮（CORT）干预海马神经元细胞系 HT22 后收集外泌体（HT22-Exo），再用 HT22-Exo 干预小胶质细胞系 BV2。使用 Western blot 检测干预后 BV2 的极化标志物 CD86 和 CD206 蛋白相对表达水平； qRT-PCR 检测干预后 BV2 细胞的 IL-1β、IL-6 和 IL-10 的 mRNA 的相对表达水平；ELISA 检测干预后 BV2 细胞上清 IL-1β、IL-6 和 IL-10 浓度。

结果：1、动物行为：糖水偏爱实验中 CUS 组大鼠的糖水偏爱率显著低于 Ctrl 组（$p<0.05$）；旷场实验中 CUS 组大鼠爬行总路程显著少于 Ctrl 组（$p<0.05$）、直立次数显著低于 Ctrl 组（$p<0.05$）；强迫游泳实验中 CUS 组大鼠的不动时间显著长于 Ctrl 组（$p<0.01$），而攀爬时间显著短于 Ctrl 组（$p<0.01$）；三箱社交实验中，CUS 组大鼠的社交能力指数和社交新颖性偏好指数显著低于 Ctrl 组（均 $p<0.05$）。2、生物指标的结果：CUS 组大鼠海马组织 CD86、IL-1β的 mRNA 相对表达水平显著高于 Ctrl 组（均 $p<0.05$）；CUS 组大鼠海马组织 CD86 的蛋白相对表达水平显著高于 Ctrl 组（$p<0.05$）；CUS 组大鼠的血浆皮质酮浓度显著高于 Ctrl 组（$p<0.05$）；CUS 组大鼠血浆中的促炎因子 IL-1β和 IL-6 均显著高于 Ctrl 组（均 $p<0.05$），而抗炎因子 IL-10 显著低于 Ctrl 组（$p<0.05$）。3、相关分析：大鼠社交能力指数与海马小胶质细胞 M1 型极化标志物 CD86 蛋白相对水平和 mRNA 相对表达水平呈显著负相关（均 $p<0.05$）；大鼠社交新颖性偏好指数与海马小胶质细胞 M1 型极化标志物 CD86 蛋白相对水平和 mRNA 相对表达水平呈显著负相关（均 $p<0.05$）。4、体外细胞实验：HT22-Exo 干预组 BV2 细胞的 CD86 的蛋白表达水平、IL-1β和 IL-6 的 mRNA 显著高于 PBS 组（$p<0.01$），而 CD206 的蛋白表达水平显著低于 PBS 组（$p<0.01$）；HT22-Exo 干预组 BV2 细胞上清中的 IL-6 的浓度显著高于 PBS 组（$p<0.05$）。

结论：1、慢性不可预知应激促进了抑郁大鼠海马小胶质细胞 M1 促炎型极化，增加促炎因子的表达和分泌；2、海马神经元外泌体可调节小胶质细胞极化，而小胶质细胞极化异常可能参与慢性应激诱发抑郁的病理过程。

关键词　慢性应激，抑郁，小胶质细胞极化，神经元外泌体

The effect of neuronal exosomes mediating microglia polarization on stress-induced depression

Shansi Li[1]，Yi Zhang[1*]

[1] Medical Psychological Center, The Second Xiangya Hospital, Central South University, Changsha, 410011

[*] Correspondence, Medical Psychological Center, The Second Xiangya Hospital, Central South University, 139 Renmin Rd, Changsha, Hunan 410011

Abstract： Objective: To study the effect of chronic stress on behaviors, microglia polarization, and neuronal exosomes in the hippocampal of rats. To explore whether neuronal exosomes mediate the microglia polarization in the hippocampal, which may involve in the pathological process of chronic stress-induced depression.

Method: 1. Animal experiments: adult male SD rats were randomly divided into 2 groups: Chronic unpredictable stress (CUS) group (N=37) and Control (Ctrl) group (N=27). Rats in CUS group received chronic unpredictable stress for 5 weeks, while rats in Ctrl group did not receive any experimental treatments. After the stress, all the rats were evaluated by sucrose preference test, open field test, forced swimming test, and three-box social test. After the behavioral assessment, peripheral blood and the hippocampal tissues were collected from all rats. qRT-PCR was used to detect the mRNA expression of microglia polarization markers CD86 and CD206, pro-inflammatory factor IL-1β, IL-6 and anti-inflammatory factor IL-10 in the hippocampus. The concentration of neuronal exosomes in plasma, the levels of CD86 and CD206 protein expression in the hippocampus were detected by Western blot. ELISA was used to measure corticosterone (CORT) and inflammatory cytokines IL-1β, IL-6 and IL-10 in rat plasma.

2. In vitro experiments: HT22 cells were treated with CORT, and then exosomes (HT22-Exo) were harvested, BV2 was treated with HT22-Exo. The levels of CD86 and CD206 protein expression in BV2 cells were detected by Western blot. The relative expression levels of IL-1β, IL-6 and IL-10 mRNA in BV2 cells after intervention were detected by qRT-PCR. The concentrations of IL-1β, IL-6 and IL-10 in the supernatant of BV2 cells after intervention were determined by ELISA.

Results: 1. Behavioral results: The sucrose preference rate of rats in CUS group was significantly lower than that in Ctrl group (p<0.05); In open field test, the total distance and vertical times in rats of CUS group was significantly lower than that in rats of Ctrl group (ps<0.05); The immobility time of CUS group was significantly longer than that of Ctrl group in forced swimming test (p<0.01). In the three-box social experiment, the social competence index and social novelty preference index in CUS rats were significantly lower than those in Ctrl rats(ps<0.05). 2. Results of biomarkers in rats: The mRNA expressions of CD86 and IL-1β in the hippocampus of CUS rats were significantly higher than those in Ctrl rats (ps<0.05); The protein expression of CD86 in the hippocampus of the CUS rats was significantly higher than that in the Ctrl rats (p<0.05), and the protein expression of CD206 was not significantly different between two groups (p>0.05); Concentration of CORT in CUS rats was significantly higher than that in Ctrl rats (p<0.05); The levels of pro-inflammatory factor IL-1β and IL-6 were significantly higher in CUS group than Ctrl group (ps<0.05), while the levels of anti-inflammatory factor IL-10 were significantly lower in CUS group than Ctrl group (p<0.05). 3. Correlation analysis results of biological indicators and behavior: The sociability index of rats was significantly negative correlation with the mRNA and protein level of CD86 (ps<0.05). The social novelty preference index was negatively correlated with the mRNA and protein level of CD86 (ps<0.05). 4. In vitro cell experiment results: The protein expression level of CD86 in BV2 cells treated with HT22-Exo was significantly higher than that PBS treatment (p<0.01), while the protein

expression level of CD206 was significantly lower in BV2 cells treated with HT22-Exo than PBS treatment (p<0.01). (2) The expression level of IL-1β and IL-6 mRNA in BV2 cells treated with HT22-Exo were significantly higher than those in PBS treatment (ps<0.05). (3) The concentration of IL-6 in the supernatant of BV2 cells treated with HT22-Exo was significantly higher than PBS treatment (p<0.05).

Conclusions: 1. Chronic unpredictable stress promoted the M1 pro-inflammatory polarization in the hippocampal microglial of rats, and increased the expression and secretion of pro-inflammatory factors.

2. Neuronal exosomes would mediate the polarization of hippocampal microglial, and the abnormal polarization of microglial may be involved in the pathological process of chronic stress-induced depression.

Keywords：Chronic stress, Depression, Microglia polarization, Neuronal exosome

强迫症共病抑郁患者的认知灵活性受损特征

熊港琴[1,2]，张小崔[3]，钟明天[1,2](通讯作者)
1 华南师范大学心理学院心理应用研究中心，广州, 510631
2 华南师范大学脑认知与教育科学教育部重点实验室，广州, 510631, ztomorrow@126.com
3 中南大学湘雅二医院医学心理中心，长沙, 410011

摘 要 **目的:** 强迫症(Obsessive-Compulsive Disorder, OCD)是一种以强迫思维或强迫行为为主要表现的常见精神疾病。OCD 与抑郁(Depression)存在高共病率, OCD 患者终生抑郁发生率高达 67.2 %。现有研究提示, 认知灵活性受损可能是强迫症共病抑郁的重要病理基础之一。因此, 本研究拟分析强迫症共病抑郁患者(OCD+D)在任务转换范式中的异常表现, 阐明其认知灵活性的受损特征。**方法:** 人口学信息相互匹配的 43 名 OCD+D 患者、63 名未共病的 OCD 患者与 63 名健康对照者完成了任务转换范式(task-switching paradigm)和系列心理自评量表, 包括流调中心用抑郁量表(Center for Epidemiologic Studies Depression Scale, CES-D)与状态焦虑量表(State Anxiety Inventory, SAI)。两组患者还完成了用于评估强迫症状严重程度的耶鲁-布朗强迫检查清单(Yale-Brown Obsessive-Compulsive Scale-Symptom Checklist, Y-BOCS-SC)。采用 SPSS 26.0 版本对任务转换范式的行为学数据和量表数据进行处理与分析: (1)采用独立样本 t 检验和单因素方差分析比较两组/三组的量表得分差异; (2)采用 3(组别: OCD+D 组、OCD 组、HC 组)×2(任务类型: 转换任务、重复任务)重复测量方差分析检验三组在 Switch 任务上反应时和错误率上的差异。**结果:** (1)独立样本 t 检验结果表明 OCD+D 组的 Y-BOCS-SC 分数显著高于 OCD 组(p<0.05); 单因素方差分析结果显示组别主效应显著($F_{CES\text{-}D}$=164.277, p<0.001; F_{SAI}=26.320, p<0.001), OCD+D 组与 OCD 组的 CES-D 得分与 SAI 得分均显著高于 HC 组(ps<0.001)，且 OCD+D 组的 CES-D 得分和 SAI 得分均显著高于 OCD 组(ps<0.001); (2)重复测量方差分析结果表明,在 Switch 任务反应时和错误率方面, 组间差异显著(反应时: F=9.004, p<0.001, 偏η^2=0.098; 错误率: F=8.206, p<0.001, 偏η^2=0.090), OCD+D 组与 OCD 组的反应时均显著长于 HC 组(ps<0.05), 而错误率则均显著高于 HC 组(ps<0.05), OCD+D 组与 OCD 组在反应时和错误率上没有显著差异(ps>0.05); 任务主效应均显著(反应时: F=177.223, p<0.001, 偏η^2=0.516; 错误率: F=37.416, p<0.001, 偏η^2=0.184)。转换任务的反应时显著长于重复任务(p<0.001), 转换任务中的错误率也显著高于重复任务(p<0.001); 组别与任务的交互效应则均不显著(ps>0.05)。**结论:** 强迫症存在认知灵活性受损, 强迫症共病抑郁患者的认知灵活性受损模式与未共病的强迫症患者类似, 认知灵活性受损可能可作为强迫症的潜在内表型。

关键词 强迫症，共病，抑郁，认知灵活性，任务转换范式

Impaired Cognitive Flexibility in Patients with Obsessive-Compulsive Disorder Comorbidity Depression

Gangqin Xiong[1,2], Xiaocui Zhang[3], Mingtian Zhong[1,2]
1 Center for Studies of Psychological Application, South China Normal University, Guangzhou, 510631, China
2 Key Laboratory of Brain, Cognition and Education Sciences ,South China Normal University, Ministry of Education, Guangzhou, 510631, China
3 Medical Psychological Center, The Second Xiangya Hospital, Central South University, Changsha, 410011, China

Abstract **: OBJECTIVE:** Obsessive-compulsive Disorder (OCD) is a common psychiatri disease

characterized by Obsessive thinking or Compulsive behavior. There is a high comorbidity between OCD and depression, and the lifetime incidence of depression in patients with OCD is as high as 67.2%. Previous studies have suggested that impaired cognitive flexibility may be one of the important pathological basis of OCD comorbidity depression. Therefore, this study aimed to clarify the impaired characteristics of cognitive flexibility of patients with obsessive-compulsive disorder and depression (OCD+D) by analyzing their performance in the task switching paradigm. **Methods:** With demographic veriables matched, 43 OCD+D patients, 63 OCD patients without comorbidity and 63 healthy controls completed the task-switching paradigm and several psychological scales, including the Center for Epidemiologic Studies Depression Scale (CES-D) and State Anxiety Inventory (SAI). The OCD+D group and the OCD group also completed the Yale-Brown Obsessive-Compulsive Scale-Symptom Checklist (Y-BOCS-SC), which was used to assess the severity of obsessive-compulsive symptoms. The behavioral and psychological data of task-switching paradigm were analyzed by SPSS 26.0 version: (1) The scale scores of the two / three groups were compared by independent two-sample t-test and one-way ANOVA; (2) The 3 (Group: OCD+D group, OCD group, HC group) × 2 (Task type: conversion task, repeat task) Repeated measures ANOVA was used to examine the differences in response time and error rate of the three groups of subjects on the Switch task. **RESULTS:** (1) The independent two-sample t-test results showed that the Y-BCS-SC scores of OCD+D group were significantly higher than those of OCD group (*ps*<0.05); one-way ANOVA showed that the group differences were significant (F_{CES-D}=164.277, p<0.001; F_{SAI}=26.320, p<0.001), the OCD+D and OCD groups had significantly higher CES-D scores and SAI scores than the HC group (all p<0.001), and the OCD+D group had significantly higher scores than the OCD group (*p*s<0.001). (2) The results of repeated measures ANOVA for task-switching paradigm response time and error rate of the three groups showed that the group differences were significant (Response time: F=9.004, p<0.001, partial η^2=0.098; Error rate: F=8.206, p<0.001, partial η^2=0.090). The reaction time of OCD+D group and OCD group was significantly longer than that of HC group (*p*s<0.05), and the error rate was significantly higher than that of HC group (*p*s<0.05), while there were no significant differences in response time and error rate between OCD+D group and OCD group (*p*s>0.05). The main effects were significant (Reaction time: F=177.223, p<0.001, partial η^2=0.516; Error rate: F=37.416, p<0.001, partial η^2=0.184). The response time in the conversion task was significantly longer than that in the repetitive task (p<0.001), and the error rate in the conversion task was significantly higher than that in the repetitive task (p<0.001). And the interaction effect between group and task in response time and error rate were both not significant (*p*s>0.05). **Conclusion:** Patient with OCD have impaired cognitive flexibility no matter whether they are comorbided with depression . Impaired cognitive flexibility might be one of endophenotypes of obsessive-compulsive disorder.

***Keywords*:** Obsessive-Compulsive Disorder, comorbid, depression, cognitive flexibility, task-switching paradigm

童年创伤、神经质与抑郁的纵向关系：交叉滞后网络分析

苗正淼[1,2]，杨会会[1,2,3]，蚁金瑶[1,2,3]（通讯作者）

1 中南大学湘雅二医院医学心理中心，长沙，410011

2 中南大学湘雅二医院医学心理研究所，长沙，410011

3 国家精神心理疾病临床医学研究中心，长沙，410011，jinyaoyi@csu.edu.cn

摘 要 **背景：**抑郁症是损害人类身心健康的重要公共卫生问题。既往研究提示，童年创伤是导致抑郁的高危因素，神经质则是抑郁易感性人格特质之一，童年创伤与神经质共同影响抑郁。此外，抑郁可能也反作用于神经质。本研究拟采用纵向设计，基于网络分析探究童年创伤、神经质人格、抑郁在维度水平上的相互影响关系，推测网络中可能存在的因果路径及重要节点，以助于识别出具有临床意义的抑郁干预靶点。

方法：共有 582 名本科生(M_{age} = 20.57，SD = 1.40)完成童年创伤量表简式(CTQ-SF)、大五人格量表修订版神经质分量表(NEO-FI-R-N)、流调中心用抑郁量表(CES-D)和状态焦虑量表(SAI)，一个月后对被试进行追踪测量。采用 SPSS 26.0 对样本数据进行描述性统计和相关分析。以第一次评估(T1)的各变量作为预测变量，第二次评估(T2)的各变量作为结果变量，将童年创伤(情绪虐待 C1、躯体虐待 C2、性虐待 C3、情绪忽视 C4、躯体忽视 C5)、神经质(焦虑 N1、愤怒性敌意 N2、抑郁 N3、自我意识 N4、冲动性 N5、脆弱性 N6)和抑郁(躯体症状 D1、抑郁情绪 D2、积极情绪 D3、人际问题 D4)的不同维度作为节点纳入分析，并将焦虑症状作为协变量。使用基于 R 4.3.1 的 *glmnet*、*qgraph* 和 *lavaan* 程序包，构建 T1→T2 的交叉滞后网络(CLPN)，重点关注各变量的预测能力和被预测程度。

结果：(1)童年创伤、神经质、抑郁和焦虑呈两两显著正相关(r：0.302~0.861，$p < 0.01$)。(2)交叉滞后网络分析结果显示，关联最强的路径是 T1 的人际问题(D4)、抑郁情绪(D2)与积极情绪(D3)显著作用于 T2 的抑郁(N3) (β = -0.33, 0.21, -0.16)，此外，T1 的抑郁、童年创伤与神经质均显著作用于 T2 的协变量(焦虑)。(3)CLPN 的中心性估计结果显示，抑郁情绪(D2)、躯体症状(D1)和焦虑(N1)的发出预期影响最高(out-EI = 0.73, 0.67, 0.63)；协变量(焦虑)、神经质-焦虑(N1)、冲动性(N5)和愤怒性敌意(N2)的接受预期影响最高(in-EI = 0.67, 0.41, 0.34, 0.34)。

结论：本研究发现童年创伤、神经质人格、抑郁在维度水平上存在广泛的相互影响。抑郁情绪、躯体症状、焦虑等情绪症状对后续的症状与特征具有最强影响效应，识别情绪并尽早实施有针对性的情绪干预极具意义。

关键词 童年创伤，神经质，抑郁，交叉滞后网络分析

Longitudinal relationships between childhood trauma, neuroticism, and depression： A cross-lagged panel network analysis

Zhengmiao Miao[1,2], Huihui Yang[1,2,3], Jinyao Yi[1,2,3](Corresponding author)

[1]Medical Psychological Center, Second Xiangya Hospital, Central South University, Changsha 410011

[2]Medical Psychological Institute, Central South University, Changsha 410011

[3]National Clinical Research Center for Mental Disorders, Changsha 410011, jinyaoyi@csu.edu.cn

***Abstract*:**

Background: As one significant public health issue, depression adversely affects physical and mental health. For depression, childhood trauma is considered a high-risk factor, and neuroticism is recognized as a vulnerability trait for depression. Furthermore, childhood trauma and neuroticism jointly influence the development of depression. Using network analysis, this longitudinal study aimed to explore the relationships among childhood

trauma, neuroticism, and depression at a dimensional level, identify possible causal pathways and essential nodes in the network, and identify clinically significant targets for the intervention of depression.

Methods: A total of 582 undergraduate students (M_{age} = 20.57, SD = 1.40) completed the Childhood Trauma Questionnaire Short-Form (CTQ-SF), the Neuroticism subscale of Neuroticism-Extraversion-Openness Personality Inventory-Revised (NEO-FI-R-N), the Center for Epidemiological Studies Depression Scales (CES-D), and the State Anxiety Inventory (SAI). Follow-up measures were administered one month later. Descriptive statistics and correlation analysis were conducted using SPSS 26.0. A T1→T2 cross-lagged network (CLPN) was constructed using the *glmnet*, *qgraph*, and *lavaan* packages of R 4.3.1. In the network analysis, variables in the first assessment (T1) were used as predictors, while variables in the second (T2) were used as outcomes. Additionally, dimensions of childhood trauma [Emotional Abuse(C1), Physical Abuse(C2), Sexual Abuse(C3), Emotional Neglect (C4), Physical Neglect (C5)], neuroticism [Anxiety (N1), Angry-hostility (N2), Depression(N3), Self-consciousness (N4), Impulsiveness (N5), Vulnerability(N6)], and depression [Somatic Symptoms(D1), Depressed Affect(D2), Positive Affect (D3), Interpersonal Difficulties (D4)] were included as nodes in the analysis, with anxiety symptoms serving as covariates. The predictive ability of each variable on other nodes and the extent to which other nodes predict it was determined.

Results: (1) The results showed positive correlations among childhood trauma, neuroticism, depression, and anxiety (r: 0.302 to 0.861, $p < 0.01$). (2) The cross-lagged panel network analyses revealed that interpersonal difficulties (D4), depressed affect (D2), and positive affect (D3) in T1 significantly contributed to depression (N3) in T2 (β = -0.33, 0.21, -0.16). Furthermore, depression, childhood trauma, and neuroticism in T1 significantly affected the covariate (anxiety) in T2. (3) The centrality estimates of the CLPN demonstrated that depressed affect (D2), somatic symptoms (D1), and anxiety(N1) had the highest out-expected influence (out-EI = 0.73, 0.67, 0.63). Conversely, the covariate (anxiety), anxiety (N1), impulsiveness (N5), and angry-hostility (N2) had the highest in-expected influence (in-EI = 0.67, 0.41, 0.34, 0.34).

Conclusion: Extensive interactions exist among childhood trauma, neuroticism, and depression at the dimensional level. Emotional symptoms, specifically depressed affect, somatic symptoms, and anxiety, have the strongest predicting effect. Early identification and targeted emotional interventions for emotional distress are paramount.

***Keywords*:** Childhood trauma, Neuroticism, Depression, Cross-lagged panel network analysis

抑郁症患者外部转换和反向抑制功能障碍：一般性或情绪特异性？

黄赛[1]　陆晓兵[2]　张豹[1]（通讯作者）

1 广州大学教育学院，广州，510006

2 广州医科大学附属脑科医院心理健康中心，广州，510006，zhangbao@gzhu.edu.cn（小五号宋体）

摘 要　抑郁症存在广泛的认知功能障碍，许多研究认为这些障碍主要反映的是高级执行功能的障碍。执行功能在控制和调节认知和行为选择过程中扮演着重要角色，它包括三个子成分：抑制（抑制优势反应的能力）、更新（从工作记忆中删除不再相关的信息并更新新信息的能力）和转换（在任务或心理状态之间切换的能力）。越来越多的实证证据显示，抑郁症在这些执行功能的子成分都存在障碍。抑郁症患者在任务转换过程中是否存在转换和/或抑制功能障碍，以及这种功能障碍是否具有一般性，还是具有情绪特异性，目前仍存在争议。为探讨这些问题，本研究采用改进的任务切换任务，测量并比较了临床抑郁症患者和非抑郁对照组个体的转换代价（从一个任务集切换到另一个任务集的能力）和反向抑制（抑制不再相关的任务集的能力）。结果显示，抑郁患者的外部转换功能障碍主要出现在情绪领域。与对照组相比，抑郁症患者在外部转换方面表现出一般性和情绪特异性的功能障碍，尤其在从情绪任务切换到非情绪任务时存在困难，而且这种功能障碍与反刍的程度无关。相反，在反向抑制中观察到的情绪功能障碍与抑郁症的症状密切相关，尤其与反刍分数升高有关。研究结果表明，抑郁患者存在转换功能障碍，而且这种障碍具有一般性，同时也具有情绪特异性，抑郁症的不同症状与不同的认知功能障碍相关。

关键词　抑郁症，任务转换，执行功能障碍，反向抑制，反刍

Dysfunction of External Switching and Backward Inhibition in Major Depressive Disorder：General or Emotional Specific？

Sai Huang[1], Xiaobing Lu[2], Bao Zhang[1]

1. School of Education and Center of Attentional Control and Cognitive Development, Guangzhou University, Guangzhou, China. 510006

2. Guangzhou Mental Health Center, The Affiliated Brain Hospital of Guangzhou Medical University (Guangzhou Huiai Hospital), Guangzhou, China. 510370 体）

Abstract：Cognitive impairments are now widely acknowledged as an important aspect of major depressive disorder (MDD). Most of these impairments are considered to reflect fundamental problems in executive function (EF). Vital to the control and regulation of cognitive processes and response selection, EF includes three subcomponents: inhibition (e.g., inhibiting prepotent responses), updating (e.g., removing no longer relevant information from working memory), and switching (shifting between tasks or mental sets). Mounting empirical evidence has demonstrated depression-related executive dysfunctions. It remains controversial whether MDD has dysfunctions in switching and/or inhibition and whether such dysfunctions, if present, are general or specific to emotional content. In the present study, we investigated these questions with a modified task-switching task to

measure the switch cost (the ability to activate a new set) and backward inhibition (the ability to inhibit a task set no longer relevant) in both clinical MDD patients and non-depressive control (NDC) individuals. The dysfunctions were identified to be in the emotional domain. Compared with NDCs, MDDs showed general and emotion-specific dysfunctions in external switching, especially difficulty switching attention from an emotional task to a non-emotional task. Further, this dysfunction was independent of rumination. In contrast, although emotional dysfunction in backward inhibition was also observed in MDD, it was closely related to elevated rumination scores. The results suggest that different symptoms of MDD were associated with different cognitive dysfunctions.

Keywords **：** major depressive disorder, task switch, dysfunction of executive control, backward inhibition, rumination

6.9“生理心理专业委员会”分组展贴报告

基于 fNIRS 数据的抑郁大学生脑网络拓扑特征

张科创[1] 杨梦笔[1] 张伟霞[2] 司书宾[1]（通讯作者）

1 西北工业大学工业工程系，西安，710000，sisb@nwpu.edu.cn

2 西北工业大学体育部，西安，710000

摘 要：抑郁症是一种常见的情感性精神障碍，严重影响大学生的心理健康水平。降低大学生抑郁发生率的关键环节是准确识别出潜在的抑郁患者。基于功能性近红外光谱技术（functional Near-infrared Spectroscopy, fNIRS）寻找客观的抑郁症生物学标记将辅助抑郁症的科学识别。为此，本研究收集了由医院提供的抑郁大学生及健康对照组在静息态和言语流畅性任务下的 fNIRS 数据，以及对应的抑郁自评量表数据。一方面，通过皮尔逊相关在个体水平上构建了抑郁大学生与对照组的前额脑网络，计算两组脑网络的全局拓扑属性，并进行组间差异比较，明确抑郁大学生脑网络的特异性；另一方面，构建了脑网络拓扑属性与量表得分的关系。结果表明：（1）静息态下，抑郁组脑网络连接密度、特征路径长度以及网络同配性显著低于健康组；（2）在言语流畅性任务中，抑郁组脑网络的特征路径长度、网络直径以及聚类系数显著高于健康组；（3）静息态下的抑郁症状与脑网络拓扑属性有一定的相关性，抑郁程度与症状表现均与部分拓扑属性，如特征路径长度、加权平均度以及同配系数存在负相关关系。本研究结果表明，部分脑网络全局拓扑属性可以作为区分抑郁大学生的客观指标，症状表现与脑网络拓扑属性的相关性进一步说明了脑网络拓扑属性的异常可以作为抑郁症状表现的潜在因素。

关键词：抑郁大学生，fNIRS，脑网络，拓扑属性

Topological Characteristics of Depressed University Students' Brain Networks Based on fNIRS Data

Kechuang Zhang[1] Mengbi Yang[1] Weixia Zhang[2] Shubin Si[1](corresponding author)

1 Department of Industrial Engineering, Northwestern Polytechnical University, Xian, China, sisb@nwpu.edu.cn

2 Department of Physical Education, Northwestern Polytechnical University, Xian, China

Abstract: Depression is a common affective mental disorder that significantly impacts the mental health of university students. The key to reducing the incidence of depression among university students is the accurate identification of potential depressed individuals. Finding objective biological markers of depression using functional Near-infrared Spectroscopy (fNIRS) technology can aid in the scientific identification of depression. In this study, fNIRS data during resting-state and verbal fluency tasks, as well as corresponding self-rating depression scale data, were collected from depressed university students provided by hospitals and a healthy control group. On one hand, using Pearson correlation, frontal brain networks of depressed university students and the control group were constructed at the individual level. The global topological properties of the two groups' brain networks were calculated, and intergroup differences were compared to determine the specificity of the brain networks of depressed university students. On the other hand, the relationship between brain network topological properties and scale scores was established. The results showed that: (1) During resting-state, the depressed group exhibited significantly lower network connectivity density, characteristic path length, and network assortativity compared to the healthy group. (2) During the verbal fluency task, the depressed group had significantly higher characteristic path length, network diameter, and clustering coefficient compared to the healthy group. (3) There was a certain correlation between depression symptoms during resting-state and brain network topological properties. The severity and symptom manifestations of depression were negatively correlated with certain topological properties such as characteristic path length, weighted average degree, and assortativity coefficient. These findings indicate that certain global topological properties of brain networks can serve as objective indicators for distinguishing depressed university students, and the correlation between symptom manifestations and brain network topological properties further suggests that abnormal brain network topological properties may be underlying factors in depressive symptomatology.

Keywords: depressed college students, fNIRS, brain network, topological characteristics

神经质与急性心理应激反应的关系：自主神经系统的证据

殷梦馨　尉怀怀　刘旭峰　王秀超（通讯作者）
空军军医大学军事医学心理学系，西安，710032，通讯作者 E-mail：Wangxiuchao1984@163.com

摘 要　神经质是一种应激易感性人格特质，是导致应激反应形式存在个体差异的重要因素，但它们之间的关系尚不明确。此外，由于神经质始终与不良的心血管健康相关，其中对心理应激的非典型心血管反应模式被认为是探讨神经质与心血管疾病之间联系的潜在机制。因此，本研究采用标准化的心算任务诱发急性心理应激状态，选取 30 名健康男性（M =21.43，SD =1.10）参与这项观察性研究。实验包括基线阶段（8 分钟）、心算任务（10 分钟）以及恢复阶段（8 分钟）。采用大五人格量表评估神经质，自我报告应激水平量表评估心理压力。全程监测收集基线阶段、应激阶段以及恢复阶段的心率（HR）和心率变异性（HRV）指标。广义估计方程表明神经质可以预测急性心理应激引起的生理反应，具体表现为，神经质水平较高的个体表现出 HRV 的高频成分（HF）反应减弱，低频成分（LF）、低频高频比（LF/HF）以及 HR 反应增强。多元线性回归分析表明，神经质与较高的生理反应性和恢复性相关。此外，本研究并未发现神经质与主观情绪压力体验存在显著相关。这些发现可能表明，高水平神经质个体对急性心理应激存在非适应性的生理反应模式，从而进一步导致不良的健康结果。

关键词　神经质，心率变异性，心率，应激，反应模式

The relationship between neuroticism and acute psychological stress response: evidence from the autonomic nervous system

YIN Mengxin,YU Huaihuai, LIU Xufeng, WANG Xuchao
Department of Military Medical Psychology, Air Force Medical University, Xi'an 710032,China

***Abstract*:** Neuroticism, a stress susceptibility personality trait, is an important factor contributing to individual differences in the form of stress responses, but the relationship between them is unclear. In addition, because neuroticism has consistently been associated with poor cardiovascular health, in which atypical patterns of cardiovascular responses to psychological stress have been suggested as a potential mechanism for exploring the link between neuroticism and cardiovascular disease. Therefore, in the present study, a standardized mental arithmetic task was used to induce an acute state of psychological stress, and 30 healthy men (M = 21.43, SD = 1.10) were selected to participate in this observational study. The experiment consisted of a baseline phase (8 min), a mental arithmetic task (10 min), and a recovery phase (8 min). Neuroticism was assessed using the Big Five Personality Inventory and psychological stress was assessed using the Self-Report Stress Level Scale. Heart rate (HR) and heart rate variability (HRV) metrics were collected throughout the monitoring for the baseline, stress, and recovery phases. Generalized estimating equations indicated that neuroticism predicted physiological responses induced by acute psychological stress, as evidenced by the fact that individuals with higher levels of neuroticism exhibited attenuated responses to the high-frequency component (HF) and enhanced responses to the low-frequency component (LF), low-frequency to high-frequency ratio (LF/HF), and HR of HRV. Multiple linear regression analysis indicated that neuroticism was associated with higher physiologic reactivity and recovery. In

addition, the present study did not find a significant correlation between neuroticism and the experience of subjective emotional stress. These findings may suggest that individuals with high levels of neuroticism have a non-adaptive physiological response pattern to acute psychological stress, which further contributes to poor health outcomes.

***Keywords*:** Neuroticism, Heart rate variability, Heart rate, Stress, Response pattern

恐惧从条件音频向语义相关图片的泛化

周洁仪[1] 陈迪[1] 陈一冉[1] 刘玉昕[1] 王璇[1] 谈欣[1] 陈文惠[1] 王士祺[1] 赵珂冰[1] 许筑媛[1] 郑希付[2]

1 浙江大学心理与行为科学系，杭州，310000，15868173447@163.com

2 华南师范大学心理学院，广州，510631，zhengxifu@m.scnu.edu.cn

摘 要 恐惧泛化被广泛地认可为是焦虑症的重要病因之一。先前的研究已证实恐惧在单一感觉通道中的泛化，主要为视觉通道内的泛化。恐惧网络理论是解释恐惧泛化的理论之一，由于恐惧网络的存在，我们才能快速识别和应对潜在威胁。已有证据表明，情绪信息的处理不只发生在同一种感觉通道中，同一种语义类别的抽象刺激之间也会发生泛化，提供了研究跨通道泛化的可能性。

本研究基于恐惧网络理论和信息的多感官处理提出假设，从听觉刺激向视觉刺激泛化的角度探究恐惧泛化的潜在机制。实验采用经典条件反射范式，25 名被试被随机分配到单通道组与交叉通道组。两组均会在习得阶段通过被施以电击习得对于听觉刺激的恐惧，单通道组在泛化阶段完成的是传统的恐惧消退，而双通道组在此阶段采用与听觉刺激语义相关的视觉刺激，完成泛化测试。我们将记录被试的皮肤电导反应与对非条件刺激（US）的主观预期评级，通过比较探究跨通道间的泛化与消退效果。

结果发现，在恐惧习得过程中，被试在主观预期和皮肤电导反应指标上均习得了恐惧。在恐惧泛化阶段，我们发现 US 主观预期评级从条件音频泛化至语义相关的图片。但在消退结果上，当原条件听觉刺激在消退过程中出现时，被试对于对泛化刺激的恐惧最终消失，而使用泛化刺激的消退训练对原始刺激的效果较差。本研究的结果为跨通道的恐惧泛化提供了新的证据，对跨通道恐惧习得机制的研究和暴露疗法的程序设置具有启发意义。

关键词 条件性恐惧，跨通道泛化，恐惧消退

Generalization of Fear from Conditional Audio to Semantically Related Pictures

Jieyi Zhou[1], Di Chen[1], Yiran Chen[1], Yuxin Liu[1], Xuan Wang[1], Xin Tan[1], Wenhui Chen[1], Shiqi Wang[1], Kebin Zhao[1], Zhuyuan Xu[1], Xifu Zheng[2]

1 Department of psychology and behavioral sciences, Zhejiang University

2 Department of psychology, South China Normal University

***Abstract*：** Fear generalization is widely recognized as an important etiological factor in anxiety disorders. Previous studies have confirmed the generalization of fear in single sensory channels, mainly within the visual channel. Fear network theory is one of the theories that explains fear generalization, and it is due to the existence of fear networks that we are able to quickly identify and respond to potential threats. It has been shown that processing of emotional information does not only occur in the same sensory channel, but that generalization also occurs between abstract stimuli of the same semantic category, offering the possibility of studying cross-channel generalization.

The present study proposes hypotheses based on fear network theory and multisensory processing of information to explore the potential mechanisms of fear generalization from the perspective of generalization from auditory to visual stimuli. The experiment was conducted using a classical conditioned reflex paradigm, and 25

subjects were randomly assigned to a single-channel group and a cross-channel group. Both groups acquired fear of auditory stimuli by administering electric shocks during the acquisition phase. The single-channel group completed the generalization phase with conventional fear extinction, whereas the two-channel group completed the generalization test by using visual stimuli semantically related to the auditory stimuli during this phase. We will record subjects' skin conductance responses with subjective expectancy ratings to unconditioned stimuli (US) to explore the generalization and extinction effects across channels by comparison.

It was found that during fear acquisition, subjects acquired fear on both subjective expectancy and skin conductance response metrics. In the fear generalization phase, we found that US subjective expectancy ratings generalized from conditioned audio to semantically related pictures. However, in the extinction result, when the original conditioned auditory stimulus appeared during extinction, subjects' fear of the generalized stimulus eventually disappeared, whereas extinction training using the generalized stimulus was less effective with the original stimulus. The results of the present study provide new evidence for fear generalization across channels, and are instructive for the study of cross-channel fear acquisition mechanisms and the programming of exposure therapy.

Keywords：conditioned fear, cross-channel generalization, fear extinction

6.10“体育运动心理学专业委员会”分组展贴报告

急性有氧运动对情绪性注意捕获的影响

石青青 [1,2]　康冠兰 [1,3] (通讯作者)

1 北京体育大学心理学院，北京，100084

2 北京师范大学中国基础教育质量监测协同创新中心，北京，100875

3 国家体育总局运动应激适应重点实验室，北京，100084

通讯作者 E-mail：kangguanlan@bsu.edu.cn

摘 要 情绪性注意捕获是指与任务无关的情绪性刺激能够不自觉吸引个体注意的现象。大量研究指出运动能够增强个体执行功能并能提高积极情绪降低消极情绪，改变大脑额叶、杏仁核及其边缘区域功能，情绪性刺激的加工同样会受到这些脑区调节，但目前尚不清楚运动如何影响情绪性刺激的注意捕获。因此，本研究主要探讨急性有氧运动对情绪性注意捕获的影响及可能存在的情绪体验的作用。采用 2(干预方式：运动 vs.静坐阅读)×3(情绪干扰类别：积极 vs.消极 vs.中性) ×2(目标存在与否：存在 vs.不存在)被试内设计。随机招募 26 名大学生(男生 9 名，年龄 19.5±1.6 岁)参与到研究中，均纳入最终统计分析。被试在中等强度急性运动(以 60%-69%最大心率强度蹬功率自行车)干预后和静坐阅读干预后进行视觉搜索任务，情绪面孔干扰刺激(快乐/愤怒)在搜索集中随机出现，被试需判断搜索集中是否存在面孔性别奇异项。每种干预时间持续 30 分钟，两次干预间隔至少五天，使用正性负性情绪量表(PANAS)测量干预前后情绪变化。结果显示：目标存在与否和情绪干扰类别交互作用显著，目标不存在时，愤怒面孔条件下的反应时显著高于快乐面孔和无干扰条件下的反应时，快乐面孔与无干扰条件之间无显著差异；目标存在时，仅发现愤怒面孔条件下的反应时显著高于快乐面孔条件下的反应时。未观察到干预方式的主效应，及其与其他因素的交互效应。以 PANAS 正性情绪得分为因变量分析发现干预方式与测量时间交互作用显著，运动干预对个体正性情绪有积极作用。考虑到运动、情绪和注意三者之间作用的复杂性，且本研究只探讨了 30 分钟中等强度有氧运动干预的影响，未来可从改变运动设置、任务难度以及结合相关认知神经技术进一步探究背后可能的内在机制。

关键词 急性有氧运动，注意，情绪注意捕获效应，视觉搜索

The effect of acute aerobic exercise on emotional attention capture

Shi Qingqing[1,2], Kang Guanlan[1,3]

1 School of Psychology, Beijing Sport University, Beijing 100084

2 Collaborative Innovation Center of Assessment toward Basic Education Quality, Beijing Normal University, Beijing, 100875

3 Laboratory of Sports Stress and Adaptation of General Administration of Sport, Beijing 100084

*Correspondence: kangguanlan@bsu.edu.cn

***Abstract*：** Emotional attention capture refers to the phenomenon that irrelevant emotional stimuli can unconsciously attract an individual's attention. Numerous studies have shown that exercise enhances executive function and increases positive emotions and decreases negative emotions, altering the function of the frontal lobe, amygdala, and limbic regions of the brain, where the processing of emotional stimuli is also regulated, but it is unclear how exercise affects the attentional capture of emotional stimuli. Therefore, the present study focused on the effects of acute aerobic exercise on emotional attention capture and the possible role of emotional experience. A 2 (intervention: exercise vs. reading) × 3 (emotional distractor: positive vs. negative vs. neutral) × 2 (target presence: presence vs. absence) within-subjects design was used. Twenty-six university students (9 male, 19.5±1.6 years old) were randomly recruited to participate in the study and all were included in the final statistical analysis. Participants performed a visual search task after a moderate-intensity acute exercise (pedaling a power bicycle at 60%-69% of maximum heart rate intensity) intervention and after a sedentary reading intervention, in which emotional face-disturbing stimuli (happy/angry) appeared randomly in the search set, and participants were required to judge the presence or absence of a face-gender singleton in the search set. Each intervention lasted 30 minutes, with at least five days between interventions, and feeling changes were measured before and after the intervention using the Positive and Negative Affect Scale (PANAS). The results showed that there was a significant interaction between target presence and emotional distractor. The response time in the angry face condition was significantly higher than those in the happy face and no interference conditions when the goal was not present, but there was no significant difference between the happy face and no interference conditions; when the goal was present, the response time was only found to be significantly higher in the angry face condition than in the happy face condition. There were no main effects of intervention or interaction effects with other factors. Analyses of the PANAS-positive emotional score showed a significant interaction between intervention and time. The exercise intervention improved positive emotions. Considering the complexity of the interaction between exercise, emotion, and attention, and that the present study only explored the effects of 30 minutes of moderate-intensity aerobic exercise, the underlying mechanisms could be further explored in the future by changing exercise settings, task difficulty, and combining relevant cognitive neurotechnologies.

***Keywords*：** acute aerobic exercise, attention, emotional attention capture effect, visual search

不同时长中等强度跑步运动下 7-11 岁儿童的时间知觉变化特点

沈行行[1]　郑玮琦[1]（通讯作者）
1 北京体育大学心理学院，北京，100084，weiqi71@126.com

摘 要　为进一步探讨不同年龄儿童在运动时的时间知觉变化特点，本研究通过操纵不同任务类型和任务时长探究运动对儿童时间知觉的影响。研究采用 4(年龄：7、9、11 岁儿童及成人)×2(任务类型：运动(中等强度跑步)，不运动(静止站立))×2(任务时长：短时(1 分 58 秒)，长时(5 分 3 秒))的混合设计，以预期时间估计范式为基础，结合神经心理学测验(测量短期记忆、工作记忆和注意力)招募 7、9、11 岁儿童及成人(18-25 岁)各 30 人。结果表明，自变量主效应均显著，任务类型 $F(1, 106) = 105.23, p < 0.001, \eta^2_p = 0.50$；任务时长（$F(1, 106) = 64.57, p < 0.001, \eta^2_p = 0.38$；年龄 $F(1, 106) = 80.2, p < 0.001, \eta^2_p = 0.19$。任务类型和年龄的交互作用显著（$F(3, 106)= 4.01, p = 0.009 , \eta^2_p = 0.10$），简单效应检验发现，在运动任务中，7 岁与 11 岁儿童及成人时距估计的差异显著，与 9 岁儿童没有显著差异；在不运动任务中，成人仅与 7 岁儿童差异显著，儿童之间差异均不显著。任务类型和任务时长交互作用显著（$F(3, 106)= 7.60, p = 0.007, \eta^2_p = 0.07$），简单效应检验发现，在短时任务中，对比不运动，参与者在运动中的时距高估现象更明显；在长时任务中，对比不运动，参与者在运动中的时距高估比率更大，但和短时任务相比，高估比率下降。任务时长和年龄的交互作用不显著，年龄、任务类型和任务时长三者交互作用不显著。结合神经心理学测验结果进行回归分析表明，参与者年龄越小，神经心理学测验得分越低，认知能力越差。分层回归结果显示，在长时任务中，年龄和注意力可以显著的预测时间估计的准确性。在短时不运动任务中，年龄和短期记忆可以显著的预测时间估计的准确性；短时运动任务中，除了年龄和短期记忆，注意力也可以预测时间估计的变化。综上可知：(1)对比成人，儿童在运动中时间估计准确性较差。11 岁儿童和成人的时间估计没有明显差异，但稳定性差，时间估计波动较大。 (2)与不运动相比，儿童和成人在运动时会高估客观时长；长时间运动时的高估比率下降。 (3)注意力可能是影响不同年龄儿童时间估计差异的主要因素。

关键词　时间知觉，儿童，注意力，中等强度运动

The characteristics of time perception changes in children aged 7-11 years under moderate intensity running of different durations

Hanghang Shen[1], Weiqi Zheng[1] (Corresponding Author)
School of Psychology, Beijing Sport University, No. 48, Xinxi Road, Haidian District, Beijing

Abstract: In order to further explore the changes and characteristics of time perception of different ages' children during exercise, this study explored the influence of exercise on children's time perception by manipulating different task types and task durations. In this study, a 4 (age: 7, 9, 11 years old and adults) × 2 (task type: exercise (moderate intensity running), no exercise (standing still)) × 2 (task duration: short-term (1 minute 58 seconds) and long-term (5 minutes 3 seconds)) mixed design was adopted, which was based on the prospective time estimation paradigm and combined with neuropsychological tests (measuring short-term memory, working memory, and attention). This study recruited 30 7-year-old children, 30 9-year-old children, 30 11-year-old children, and 30 adults aged 18-25 years. The results showed that the main effect of independent variables was significant: task type $F(1, 106) = 105.23, p < 0.001, \eta^2_p = 0.50$; task duration ($F(1, 106) = 64.57, p < 0.001, \eta^2_p = 0.38$; age $F(1, 106) = 80.2, p < 0.001, \eta^2 p = 0.19$. The interaction between task type and age was significant ($F(3, 106) = 4.01, p = 0.009, \eta^2_p = 0.10$). The simple effect test found that there were significant differences in the estimation of time intervals

between 7-year-old children to 11-year-old children and adults, but no significant differences between 11-year-old children and 7-year-old children in exercise tasks. In the exercise task, the difference between adults and 7-year-old children was significant. However, the difference between children was not significant. The interaction between task type and task duration was significant ($F(3, 106)= 7.60$, $p = 0.007$, $\eta^2_p = 0.07$). The simple effect test found that participants in the short-term tasks had a more obvious overestimation of the time intervals during exercise compared with no exercise task. During the long-term tasks, participants had a bigger rate of overestimation of the time interval during exercise compared with no exercise, but the rate of overestimation decreased compared with the short-term tasks. The interaction between task duration and age was not significant, and the interaction between age, task type, and task duration was not significant either. Regression analysis combined with neuropsychological test results showed that the younger the participants were, the lower the neuropsychological test score and the worse the cognitive ability. Hierarchical regression results showed that age and attention significantly predict the accuracy of time estimates in long-term tasks. Age and short-term memory can significantly predict the accuracy of time estimation in short-term no exercise tasks. In addition to age and short-term memory, attention can also predict changes in time estimates for short-term exercise tasks. In summary, the study shows that: (1) Compared with adults, children's time estimation accuracy during exercise is worse. There is no significant difference in time estimates between 11-year-old children and adults, but children's stability is poor and time estimates fluctuate considerably. (2) Children and adults overestimate objective time when they exercise compared to when they do not exercise; the overestimation rate decreases with long-term exercise. (3) Attention may be the main factor affecting the difference in time estimates of different ages' children.

Keywords: time perception, children, attention, moderate intensity exercise

正念训练对职业运动员备赛期间心理健康的干预研究

班亚东[1] 陈高伊[1] 刘安琪[1] 陈梦雪[1] 张丹[2] *杨明[3]（通讯作者）
1 四川体育职业学院，成都，610043
2 四川省体育科学研究所，四川省反兴奋剂中心，成都，610000
3 四川体育职业学院，成都 610043，441606584@qq.com

摘 要：本研究探讨正念训练对职业运动员大赛前心理健康干预效果，运动员通过练习正念—接受为基础干预方式的心理训练，以期帮助运动员调整负性情绪、适应压力降低焦虑。本研究采用单被试设计评估心理干预效果，选取四川省运动队 10 名不同专项的健将级职业运动员，在备战第十四届全运会期间，进行为期大约 10 个月干预，每人每天进行 16 分钟的正念身体扫描练习。所有心理学变量均评估 2 次：评估量表为《症状自评量表 SCL90》，进行干预前测试和比赛结束后 1 个月跟踪测试，量表测试后运动员对心理健康状态进行自评。结果：干预前，对 10 名运动员进行量表测试，运动员自评在全运会的比赛压力与运动员承担的比赛任务，引发状态焦虑，同时长时间、高强度的训练导致身体伤病和慢性疲劳，影响心理健康状态。经过 10 个月的正念训练干预后，在结束后 1 个月跟踪测试，对比干预前运动员除恐怖症状外，其余症状 $P<0.05$，均得到显著性改善。人际敏感、抑郁症状 $P\leq0.01$，得到显著性的改善。运动员自评通过正念训练，在适应压力、焦虑等方面有了显著提高，有效提高了运动员备战备赛时的心理健康水平。研究结论：通过为期 10 个月的正念训练，可以显著改善职业运动员在备赛期间的人际敏感、抑郁症状水平。本研究为正念训练改善运动员心理健康方面提供了初步的支持。

关键词 ：正念训练，职业运动员，心理健康

The Research on the Intervention of Mindfulness Training on the Mental Health of Professional Athletes During Competition Preparation

Ban yadong[1] Chen gaoyi[1] Liu anqi[1] Chen mengxue[1] Zhang Dan[2] *Yang Ming[3]
1 Sichuan Sports college, Chengdu, 610043
2 Sichuan Research Institute Of Sports Science, Sichuan Anti-doping Agency, Chengdu, 610000
3 Sichuan Sports college, Chengdu, 610043, 441606584@qq.com

Abstract ： This research explores the effect of mindfulness training on the mental health intervention of professional athletes before competition. Athletes practice mindfulness-based psychological training to help athletes adjust negative emotions and adapt to the reduction of stress. In this research, a single-subject design was used to evaluate the effect of psychological intervention. 10 professional athletes from Sichuan provincial sports teams with different disciplines were selected to conduct an intervention for about 10 months during the preparation for the 14th National Games, and each person performed 16 minutes of mindful body scanning

exercises every day. All psychological variables were evaluated twice: the assessment scale was "Symptom Self-rating Scale SCL90", pre-intervention test and one-month follow-up test after the competition were conducted, and athletes were self-rated on mental health status after the scale test. Results: Before the intervention, 10 athletes were tested on the scale. The athletes' self-rated competition pressure and competition tasks in the National Games caused state anxiety, while the long-term and high-intensity training led to physical injury and chronic fatigue, which affected the mental health state. After 10 months of mindfulness training intervention, the follow-up test one month after the end of the intervention, compared with the athletes before the intervention, the remaining symptoms except for terror symptoms, $P < 0.05$, were significantly improved. Interpersonal sensitivity and depressive symptoms $P \leq 0.01$ were significantly improved. Through mindfulness training, athletes' self-evaluation has significantly improved in the aspects of adapting to pressure and anxiety, and effectively improved the mental health level of athletes preparing for the competition. Conclusion: 10 months of mindfulness training can significantly improve the interpersonal sensitivity and depressive symptoms of professional athletes during the preparation period. This study provides preliminary support for the improvement of mental health of athletes through mindfulness training.

Keywords：Mindfulness Training, Professional Athlete, Mental Health

基于心理健康课程对运动员心理健康素养的干预研究

刘安琪[1] 班亚东[1] 叶姝[1] 张丹[2] *杨明[3]（通讯作者）
1 四川体育职业学院，成都，610043
2 四川省体育科学研究所，四川省反兴奋剂中心，成都，610000
3 四川体育职业学院，成都，610043，441606584@qq.com

摘 要 心理健康对运动员来说是核心要素之一，前人研究发现心理健康问题和心理疾病在运动员群体中广泛存在。心理健康素养的缺失会导致对待心理问题消极、向外界寻求帮助的意愿不足，心理健康素养是运用心理健康知识、技能和态度，保持和促进心理健康的能力。课程干预是帮助运动员提升认知水平、传播心理健康知识的有效手段，为了验证心理健康课程的干预效果，研究选取四川省运动队 60 名一级运动员为研究对象，其中男运动员 33 名，女运动员 27 名，平均年龄 21.4±2.6 岁。随机分为实验组（n=30）和对照组（n=30）,实验组设置 8 周心理健康课程，对照组不接受任何干预。心理健康素养课程每周一次课，课程时间 60 分钟，课程内容包括对心理健康和心理健康素养的基本认识、压力与心理健康、焦虑与抑郁、饮食与睡眠、运动员群体心理健康问题的特殊性、对待心理健康问题的态度、如何寻求帮助、总结与测评。在课程前后设置《多元心理健康素养问卷》、《寻求专业心理帮助态度问卷》对相关指标进行评估，旨在帮助运动员提高心理健康素养和求助态度。研究结果：心理健康课程可以提高运动员的心理健康素养水平，包括心理健康知识、信念和资源；心理健康课程可以提高心理求助态度。该研究证实了对我国运动员进行心理健康课程的有效性，对提高运动员心理健康素养水平和改善求助态度方面的研究提供一定参考依据。

关键词 心理健康素养，心理求助态度，心理健康课程

The Research on Intervention of Athletes' Mental Health Literacy based on Mental Health Courses

Liu Anqi[1] Ban Yadong[1] Ye Shu[1] Zhang Dan[2] *Yang Ming[3]
1 Sichuan Sports College, Chengdu, 610043
2 Sichuan Research Institute Of Sports Science, Sichuan Anti-doping Agency, Chengdu, 610000
3 Sichuan Sports College, Chengdu, 610043, 441606584@qq.com

Abstract： Mental health is one of the core factors for athletes. Previous studies have found that mental health problems and mental diseases exist widely in athletes. The lack of mental health literacy, which is the ability to use mental health knowledge, skills and attitudes to maintain and promote mental health, can lead to a negative attitude towards mental problems and a lack of willingness to seek help. Course intervention is an effective means to help athletes improve their cognitive level and disseminate mental health knowledge. In order to verify the intervention effect of mental health courses, 60 athletes from Sichuan provincial team were selected as the research objects, including 33 male athletes and 27 female athletes, with an average age of 21.4±2.6 years. They were randomly divided into an experimental group (n=30) and a control group (n=30). The experimental group received an 8-week mental health course, while the control group received no intervention. The Mental Health Literacy course is held once a week and lasts 60 minutes. The course covers the basic understanding of mental health and mental

health literacy, stress and mental health, anxiety and depression, diet and sleep, the particularity of mental health problems in athletes, attitudes towards mental health problems, how to seek help, summary and assessment. Multiple Mental health Literacy Questionnaire and Attitude towards Seeking Professional Psychological Help Questionnaire were set up before and after the course to evaluate the relevant indicators, aiming at helping athletes improve their mental health literacy and attitude towards seeking help. Results: Mental health courses can improve athletes' mental health literacy, including mental health knowledge, belief and resources; Mental health course can improve psychological help attitude. This study confirms the effectiveness of mental health courses for athletes in China, and provides some reference for improving athletes' mental health literacy and help seeking attitude.

Keywords：Mental health literacy, Psychological help-seeking attitude, Mental health course

初中生校园体育欺凌行为机制的质性研究：基于欺凌者视角

陈佩佩
山西大学体育学院

摘 要　近年来，国内外校园欺凌事件频登热搜并愈演愈烈，成为当今社会最严重的问题之一。而体育运动本身具有竞技性和对抗性，加之大多初中生身心尚未成熟，使得体育欺凌成为校园中最常见但又难以界定责任的校园欺凌行为。针对校园体育欺凌行为，过度关注其本身而不深入分析其产生的根本原因，会使得对此行为的预防和干预不能起到预期的效果。因此有必要将研究问题锁定为校园体育欺凌者的行为、为什么要欺凌以及欺凌行为的目的是什么三个问题，从中探讨校园体育欺凌行为机制。本研究采用参与式观察法与访谈法，深入到初中生校园体育活动中，对其校园体育欺凌行为进行细致观察，并对欺凌者进行访谈，采用质性研究法紧密围绕以上三个问题而推进，分析其欺凌行为背后存在的机制。研究发现：1）初中生校园体育欺凌行为主要体现为欺凌者在体育情境中如体育教学、运动训练及课外体育活动等对被欺凌者实施物理性、言语性、社交关系性等的欺负、侮辱，并给被欺凌者带来身体、财产或精神伤害的行为；2）由于欺凌者人格特质、资源优势、较高的冲动性和对体育规则的忽视、外界“裁判”的支持、个人或群体间的利益冲突、安全与情感的缺失等，加之体育攻击行为的隐蔽性，使其产生欺凌行为；3）欺凌者认为欺凌行为相较其他合理行为更能带来积极有益的后果且更易实施，如增强其体育圈关系网、拥有更多体育资源、获得安全感、心理满足和重视等，但较少能够认识到这种行为带给被欺凌者的伤害性；4）欺凌者态度（对被欺凌者的情感态度及行为倾向性）、主观准则（对他们而言认为什么是好的、能从中获得什么）和主观行为控制（即自我效能感）都能增强其意图从而间接促进欺凌行为的出现。通过了解欺凌者的想法，后续将着手探索如何减少其体育欺凌行为，甚至使他们降低欺凌别人的心理需要。

关键词　初中生，体育欺凌行为，质性研究，欺凌者

A qualitative study on the mechanism of school sports bullying behavior in junior high school students: based on the bully's perspective

Pei-pei Chen
Institute of Physical Education,Shanxi university,Taiyuan in Shanxi Province

Abstract：In recent years, school bullying at home and abroad has become one of the most serious problems in today's society. Due to the competitive and antagonistic nature of sports itself, coupled with the immature body and mind of most junior high school students, sports bullying has become the most common campus bullying behavior which is difficult to define the responsibility. However, focusing too much on the bullying behavior of school sports without in-depth analysis of its root causes will make the prevention and intervention of this behavior can not play the expected effect. Therefore, it is necessary to focus the research on three questions: the behavior of school sports bullies, why they bully and what is the purpose of bullying behavior, and explore the mechanism of school sports bullying behavior. This study uses the participatory observation method and interview method to go deep into the campus sports activities of junior high school students, carefully observe their campus sports bullying behavior, and interview the bully, and adopts the qualitative research method to closely focus on the above three

questions and analyze the mechanism behind their bullying behavior. The findings are as follows: 1) The bullying behavior of junior high school students is mainly embodied in physical, verbal and social bullying and insults to the bullied in sports situations such as sports teaching, sports training and extra-curricular sports activities, and brings physical, property or mental damage to the bullied; 2) Bullying behavior is caused by the bully's personality traits, resource advantages, high impulsiveness and neglect of sports rules, the support of external "referees", the conflict of interest between individuals or groups, the lack of safety and emotion, and the concealment of sports aggression; 3) Compared with other reasonable behaviors, bullies believe that bullying behavior can bring more positive and beneficial consequences and is easier to implement, such as enhancing their sports network, having more sports resources, gaining a sense of security, psychological satisfaction and attention, but they are less able to recognize the harm that this behavior brings to the bullied; 4) The bully's attitude (emotional attitude and behavioral tendency toward the bullied), subjective norms (what they think is good and what they can gain from it) and subjective behavioral control (i.e. self-efficacy) can enhance their intention and indirectly promote the emergence of bullying. By understanding what bullies think, the next step will be to explore how to reduce their sports bullying behavior and even reduce their psychological need to bully others.

Keywords：junior school students,sports bullying behavior,qualitative research,bullies

主动式休闲体育锻炼对大学生应对压力和心理健康的研究

印明辉

绵阳师范学院体育与健康教育学院，绵阳，621000，ymhblue@qq.com

摘 要 目的：研究主动式休闲体育锻炼对大学生应对压力和心理健康的影响。方法：采用访谈法进行的质性研究，以归纳的方式得出结论。对 3 所大学共 12 名大学生（N=12）进行半结构化的访谈，访谈包括 6 个结构化主题：积极情绪、身心合一、自尊、休闲、以问题为中心的应对和健康行为的改善，以及关于定期体育锻炼效益的 10 个开放式问题。结果：1.积极情绪。所有受访的大学生都回答说，他们在参加体育锻炼后感受到了积极的情绪。这种积极的情绪给他们带来了一种幸福感和舒适感。2.身心合一。所有受访者都回答说，通过体育锻炼等主动休闲活动，他们的幸福感和生活满意度得到了更大的改善。受访者还提到，当对一项体育项目产生兴趣时,就会对这项体育运动表现出极强的主动性和自觉性,从而做到身心合一。3.自尊。所有受访的大学生都回答说，当达到设定的体育锻炼的目标时，增强了自信心、获得的成就感。并且在体育锻炼的社会交往中建立了密切的人际关系和社会支持，形成了安全、稳定的高自尊。4.休闲。多名受访者将体育锻炼当作一种主动休闲活动，这种自主选择的活动使得他们对休闲时间的管理和健康行为的控制更强。5.以问题为中心的应对。多名受访者提到，体育锻炼不仅可以强身健体,还能够消除消极情绪,培养积极情绪。6.健康行为的改善。多名受访者回答说，从事体育锻炼改善了其它健康行为，改善了睡眠质量，改善了生理指标。结论：1.主动式休闲体育锻炼有助于提高积极情绪，有利于建立良好的社会关系，应对问题时更为注意力更为集中，从而提高有效应对能力。2.主动式休闲的体育锻炼有着更强主动性和自觉性,达到身心合一。3.通过体育锻炼增强了自信心、获得的成就感，从而提升了自尊。4.采用主动式休闲体育锻炼后恢复精力，可以更有效地应对问题，会增强压力应对能力。5.体育锻炼产生了积极情绪，从而培养了以问题为中心的应对方式。6.从事体育锻炼改善了其它健康行为并且改善和提高了身体各系统的机能水平。

关键词 主动式休闲，体育锻炼，大学生，心理健康

A Study on the Effects of Active Leisure Physical Exercise on Coping with Stress and Mental Health of College Students

Minghui Yin

School of Physical and Health education, Mianyang Normal University, Mianyang, 621000

Abstract：Objective: To study the impact of proactive leisure physical exercise on college students' coping with stress and mental health. Method: A qualitative study was conducted using interview methods, and conclusions were drawn through induction. A semi-structured interview was conducted on 12 college students (N=12) from 3 universities, covering 6 structured themes: positive emotions, physical and mental integration, self-esteem, leisure, problem-centered coping, and improvement of healthy behavior. Additionally, 10 open-ended questions were asked about the benefits of regular physical exercise. Result: 1. Positive emotions. All interviewed college students responded that they experienced positive emotions after participating in physical exercise. This positive emotion brings them a sense of happiness and comfort. 2. Integration of body and mind. All respondents responded that their sense of happiness and life satisfaction have been greatly improved through active leisure activities such as physical exercise. The interviewees also mentioned that when they are interested in a sports event, they will show

strong initiative and self-awareness towards it, thus achieving physical and mental integration. 3. Self respect. All interviewed college students responded that achieving the set goal of physical exercise enhances self-confidence and a sense of achievement. And in the social interaction of physical exercise, close interpersonal relationships and social support have been established, forming a safe and stable high self-esteem. 4. Leisure. Multiple respondents view physical exercise as an active leisure activity, which allows them to have stronger control over leisure time management and healthy behavior. 5. Problem centered response. Multiple interviewees mentioned that physical exercise not only enhances physical fitness, but also eliminates negative emotions and cultivates positive emotions. 6. Improvement of healthy behavior. Multiple respondents responded that engaging in physical exercise improved other health behaviors, improved sleep quality, and improved physiological indicators. Conclusion: 1. Active leisure physical exercise can help improve positive emotions, establish good social relationships, and focus more when dealing with problems, thereby improving effective coping abilities. 2. Active leisure sports exercise has stronger initiative and consciousness, achieving physical and mental integration. 3. Through physical exercise, self-confidence and a sense of achievement are enhanced, thereby enhancing self-esteem. 4. Adopting proactive leisure physical exercise to restore energy can more effectively cope with problems and enhance stress response ability. 5. Physical exercise generates positive emotions, thus cultivating a problem-centered coping style. Engaging in physical exercise improves other healthy behaviors and improves the functional levels of various systems in the body.

***Keywords*:** Active leisure, physical exercise, college students, mental health

不同唤醒水平对中长跑运动员后程运动决策能力的影响研究

施伟[1]（通讯作者）　盖子墨[2]

1 沈阳体育学院，辽宁沈阳，110102（sy36102@163.com）

2 沈阳体育学院，辽宁沈阳，110102

摘 要 **目的：**通过研究不同运动成绩的中长跑运动员后程心率差异变化反映其唤醒水平，进一步探究不同唤醒水平对中长跑运动员在竞赛中后程运动决策能力的影响，进而为中长跑运动员训练竞赛提供理论与实践依据。方法：选取体育学院中长跑专项男运动员 20 名作为实验对象，运动等级均为二级运动员。主要运用实验法，利用生物反馈仪监控运动员心率差异变化，使用运动决策测试程序测量运动员的决策能力，进而探究不同唤醒水平对中长跑运动员后程运动决策能力的影响。

结果:低唤醒水平运动员与高唤醒水平运动员相比，后程运动决策准确性具有较显著性差异(p<0.05），高成绩运动员在高唤醒水平时的后程决策准确性要高于低唤醒水平，低成绩运动员在低唤醒水平的后程决策准确性要高于高唤醒水平；高成绩运动员的后程运动决策准确性明显高于低成绩运动员具有极其显著性差异（p<0.01）；高成绩运动员在高唤醒水平下后程运动决策准确性要明显高于低成绩运动员具有极其显著差异（p<0.01），在低唤醒水平下差异性并不显著（p>0.05）。

结论:高成绩运动员在高唤醒水平下，后程运动决策准确性较高，适宜的唤醒水平可以使运动员处于较高的警觉状态，更有利于进行决策加工；低成绩运动员在高唤醒水平下，后程运动决策准确性较差，神经肌肉系统处于相对较弱的状态不利于运动决策的发挥；高成绩运动员后程运动决策加工速度快于低成绩运动员，运动员只有在最佳唤醒状态中才能保持最佳竞技状态取得佳绩。

关键词 唤醒水平，决策能力，中长跑运动员

Study on the Influence of Different Arousal Levels on decision making - distance Runners

SHIWei[1]（corresponding author） GaiZimo[2]
1 Shenyang Sport University, Shenyang, Liaoning, 110102(sy36102@163.com)
2 Shenyang Sport University, Shenyang, Liaoning, 110102

***Abstract*：Objective:** This study aims to investigate the differences in post-exercise heart rate variability of middle and long-distance runners with different performance levels as an indicator of arousal levels. Furthermore, it seeks to explore the impact of different arousal levels on the decision-making ability of middle and long-distance runners during competition, providing theoretical and practical guidance for their training and competition.

Methods: Twenty male middle and long-distance runners from the Sports College, all of whom were second-level athletes, were selected as the subjects. Experimental methods were primarily used to monitor the changes in heart rate variability of the runners using a biofeedback device. The decision-making ability of the runners was measured using a sports decision-making testing program, which aimed to investigate the impact of different arousal levels on the decision-making ability of middle and long-distance runners during the later stages of exercise.

Results: Compared to runners with low arousal levels, those with high arousal levels demonstrated significantly higher accuracy in post-exercise decision-making (p<0.05). High-performance runners showed higher decision-making accuracy during the later stages of exercise with high arousal levels compared to low arousal levels. Conversely, low-performing runners showed higher decision-making accuracy during the later stages of exercise with low arousal levels compared to high arousal levels. There was a significant difference between high-performance and low-performance runners in terms of decision-making accuracy during the later stages of exercise (p<0.01). The decision-making accuracy of high-performance runners was significantly higher in high arousal conditions compared to low-performance runners (p<0.01), while the difference was not significant in low arousal conditions (p>0.05).

Conclusion: High-performance runners exhibit higher decision-making accuracy during the later stages of exercise under high arousal conditions. An appropriate arousal level can help athletes maintain a higher state of alertness and facilitate decision-making processes. In contrast, low-performance runners show poorer decision-making accuracy during the later stages of exercise under high arousal conditions, as the neuromuscular system is relatively weaker, hindering effective decision-making. Additionally, high-performance runners demonstrate faster decision-making processing than low-performance runners. Athletes can only achieve optimal performance by maintaining their best competitive state under the optimal arousal level.

Keywords: Arousal level, decision-making ability, middle-distance runner

大学生体育参与与社会适应能力的关系：自我效能感中介作用

杨益成[1] 张春林[2]（通讯作者） 陈栋[2]

1 上海体育大学体育教育学院，上海，200438

2 江西师范大学体育学院，江西南昌，330022，通讯作者 E-mail:769585976@qq.com

摘 要 **目的：**研究大学生体育参与与社会适应能力的关系，探究自我效能感的中介作用，以期为体育参与促进大学生社会适应能力提供理论依据。**方法：**运用方差分析、相关性检验、多元回归分析和 Bootstrap 检验法以江西省 5 所大学 582 名大学生为调查对象对其体育参与、社会适应能力和自我效能感的调查数据进行分析。**结果:**1）方差分析显示大学生体育参与和自我效能感在性别上存在显著差异，其中男生的体育参与和自我效能感明显高于女性。在不同专业上，理工类和艺体类的体育参与程度明显高于文史类。2）相关性分析显示，大学生体育参与、社会适应能力和自我效能感三个变量之间显著相关（P<0.001）。3）回归分析表明，在控制性别和专业的情况下，大学生体育参与能显著正向预测社会适应能力（β=0.57，P<0.001）和自我效能感（β=0.30，P<0.001）；大学生自我效能感能显著正向预测社会适应能力（β=0.69，P<0.001）；引入自我效能感后，体育参与对社会适应能力的效应量下降（β=0.31，P<0.001），同时自我效能感显著预测社会适应能力（β=0.60，P<0.001）。因此，自我效能感在体育参与和社会适应能力中起部分中介作用。4）Boostrap 检验结果显示，体育参与、社会适应能力和心理资本的总效应显著，总效应值为 0.56。体育参与与大学生的社会适应能力直接效应显著，直接效应值为 0.39，直接效应占比 69.64%。自我效能感在在体育参与和社会适应能力中间接效应显著，间接效应值为 0.17，间接效应占比为 30.36%。**结论：**体育参与可以通过自我效能感间接提升大学生的社会适应能力，在体育教学中，注重提升大学生的自我效能感可以有效地提升大学生的社会适应能力。

关键词 体育参与，大学生，社会适应能力，自我效能感

The relationship between college students' sports participation and social adaptability: the mediating role of self-efficacy

Yicheng Yang[1] Chunlin Zhang[2] (Corresponding author) Dong Chen[2]

1School of Physical Education, Shanghai University of Physical Education, Shanghai, 200438, China

2College of Physical Education, Jiangxi Normal University, Nanchang, Jiangxi, 330022, China

通讯作者 E-mail:769585976@qq.com

***Abstract*：Purpose:** To study the relationship between college students' sports participation and social adaptability, and to investigate the mediating role of self-efficacy, with a view to providing a theoretical basis for sports participation to promote college students' social adaptability. **Methods:** ANOVA, correlation test, multiple regression analysis and Bootstrap test were used to analyze the survey data on sports participation, social adaptability and self-efficacy of 582 college students from five universities in Jiangxi Province. **Results:**1) Analysis of variance (ANOVA) showed that there was a significant difference between college students' sports participation and self-efficacy in terms of gender, with male students' sports participation and self-efficacy significantly higher than that of females. Across majors, sports participation was significantly higher in science and engineering and arts and sports than in literature and history.2) Correlation analysis showed significant correlation between the three variables of college students' sports participation, social adaptability and self-efficacy (P<0.001).3) Regression analysis showed that college students' sports participation significantly and positively predicted social adaptability (β=0.57, P <0.001) and self-efficacy (β=0.30, P<0.001); college students' self-efficacy significantly and positively predicted social adaptability (β=0.69, P<0.001); and the introduction of self-efficacy resulted in a decrease in the amount of the effect of sports participation on social adaptability (β=0.31, P<0.001),

while self-efficacy significantly predicted social adaptability (β = 0.60, P<0.001). Therefore, self-efficacy played a partial mediating role in sports participation and social adaptive ability.4) Boostrap test results showed that the total effect of sports participation, social adaptive ability and psychological capital was significant, with a total effect value of 0.56. The direct effect of sports participation and social adaptive ability of college students was significant, with a direct effect value of 0.39, and the direct effect accounted for 69.64% of the total effect. The indirect effect of self-efficacy in in sports participation and social adaptability is significant, the indirect effect value is 0.17, and the proportion of indirect effect is 30.36%. **Conclusion**: Sports participation can indirectly improve college students' social adaptive ability through self-efficacy, and in sports teaching, focusing on improving college students' self-efficacy can effectively improve college students' social adaptive ability.
Keywords: sports participation, college students, social adaptability, self-efficacy

中职生孤独感对人生意义感的影响：领悟社会支持的中介作用和身体活动量的调节作用

陈楚玉[1] 张悦[2] 郝明增[3] 张鐘文[1] 王英春[1]（通讯作者）

1 北京体育大学心理学院，北京，100084，13521531556@163.com

2 石家庄工程技术学校，河北石家庄，050061

3 江苏省东海中等专业学校，江苏连云港，222300

摘 要 **目的：**近年来职业教育的重要程度逐年加深，但相比高中生，中职院校学生的心理健康问题发生更多却甚少得到关注，因而对于中职生的心理健康应该给予重视。孤独感是当个体缺乏社会支持或者社会互动不足时产生的消极主观体验，研究表明，持续的孤独感会影响个体的身心健康，会产生更多的焦虑、抑郁症状和睡眠问题，甚至会有更大的自杀和早期死亡风险。中职院校学生所处年龄为心理健康形成发展的重要时期，此期间中职生处于多重压力之下，生活、升学压力以及面向社会就业的多重选择，很容易导致心理冲突的产生。有研究表明，领悟社会支持与自尊、自我效能、正性情感等呈正相关，与负性情感、焦虑、抑郁等呈负相关，而身体活动量又会对心理状态造成影响。因此本研究旨在探讨领悟社会支持在中职生孤独感与人生意义感之间的中介作用和身体活动量的调节作用，为提高中职生人生意义感，缓解负面情绪提供科学依据。**方法：**本研究采用中文版人生意义感量表、孤独感量表、领悟社会支持量表和身体活动量问卷对随机抽取的全国各地 430 名在读中职学生进行调查。**结果：**（1）采用 Harman 单因素检验法对共同方法偏差进行检验，结果发现未经旋转的第一个因子的解释率为 23.12%，小于临界值 40%，因此本研究不存在明显的共同方法偏差；（2）中职生孤独感能显著负向预测人生意义感（$\beta = -0.173$，$t = -3.625$，$p < 0.001$）；（3）领悟社会支持在中职生孤独感和人生意义感的关系中起中介作用（$\beta = 0.370$，$t = 10.347$，$p < 0.001$）；（4）领悟社会支持在中职生孤独感和人生意义感的中介作用受到身体活动量的调节（F（1,426） = 3.909，$p = 0.049$），进一步简单斜率分析表明，无论中职生具有高身体活动量还是低身体活动量，领悟社会支持都可以显著正向影响人生意义感。**结论：**研究结果支持中职生孤独感和人生意义感的关系是一个有调节的中介模型，应寻求降低中职生孤独感的干预方案，这样不仅可以提高其领悟社会支持，并且可以提高人生意义感，该研究对于帮助提高中职生人生意义感具有重要意义。

关键词 孤独感，人生意义感，领悟社会支持，身体活动量，中职生

The influence of loneliness on the sense of life meaning of secondary vocational college students: the mediating effect of perceived social support and the moderating effect of physical activity

Chuyu Chen[1] Yue Zhang[2] Hao Mingzeng[3] Zhongwen Zhang[1] Yingchun Wang[1]（Corresponding Author）

1 Beijing Sport University, Beijing, 100084

2 Shijiangzhuang Engineering & Technology School, 050061

3Jiangsu Donghai Specialized Secondary School, 222300

Abstract： **Objective:** In recent years, the importance of secondary vocational education has been increasing year by year. However, compared with high school students, the mental health problems of secondary vocational

college students occur more often, but they have received little attention. Therefore, attention should be paid to the mental health of secondary vocational college students. Loneliness is a negative subjective experience that occurs when an individual lacks social support or social interaction, and research has shown that persistent loneliness can affect an individual's physical and mental health, resulting in more anxiety, depressive symptoms, sleep problems, and even a greater risk of suicide and early death. The age of secondary vocational college students is an important period for the formation and development of mental health. During this period, secondary vocational college students are under multiple pressures. Life, study pressure and multiple choices for social employment are easy to lead to psychological conflicts. Studies have shown that perceived social support is positively correlated with self-esteem, self-efficacy and positive emotion, and negatively correlated with negative emotion, anxiety and depression, and the amount of physical activity will affect the psychological state. Therefore, this study aims to explore the mediating effect of social support on loneliness and sense of meaning in life of secondary vocational students and the regulating effect of physical activity, so as to provide scientific basis for improving the sense of meaning in life of secondary vocational students and alleviating negative emotions. **Methods:** In this study, the Chinese version of the meaning of life scale, loneliness scale, perceptive social support scale and physical activity questionnaire were used to investigate 430 secondary vocational students randomly selected across the country. **Results:** (1) Harman single factor test was used to test the common method deviation, and it was found that the explanation rate of the first factor without rotation was 23.12%, which was less than the critical value of 40%, so there was no obvious common method deviation in this study. (2) Loneliness of secondary vocational students could negatively predict the sense of life meaning (β = -0.173, t = -3.625, $p < 0.001$). (3) Perceived social support played a mediating role in the relationship between loneliness and sense of meaning in life (β = 0.370, t = 10.347, $p < 0.001$); (4) The mediating effect of perceptive social support on loneliness and sense of meaning in life of secondary vocational students was regulated by the amount of physical activity (F (1,426) = 3.909, p = 0.049). A further simple slope analysis showed that whether secondary vocational students had high or low level of physical activity, perceptive social support could significantly positively affect sense of meaning in life. **Conclusion:** The research results support that the relationship between loneliness and sense of life meaning of secondary vocational students is a moderated mediation model, and intervention programs should be sought to reduce loneliness of secondary vocational students, which can not only improve their understanding of social support, but also improve their sense of life meaning. This study is of great significance to help improve the sense of life meaning of secondary vocational students.

Keywords: loneliness, the sense of life meaning, perceived social support, physical activity, secondary vocational college students

大学生足球运动员的情绪、心智游移与创造力的关系

李悦铭[1]，李洁玲[1,2,3]（通讯作者）

1 河北师范大学体育学院，石家庄，050024

2 河北省人体运动生物信息测评重点实验室，石家庄，050024

3 河北师范大学体育学博士后流动站，石家庄，050024，lijieling@hebtu.edu.cn

摘 要 目的：心智游移指的是个体的注意从主要任务转向至内部信息。在普遍认知中，运动员发生心智游移会对运动表现造成消极影响。但研究者发现，心智游移也具有提高个体创造力的积极功能。研究认为青年是创造力发展的关键时期，体育课是发展创造力的关键环境。因此高校的体育教学需要重视提高学生的创造力。此外，足球场地空间较大，具有高创造力的球员才能充分运用场地空间，提高运动表现。因此在运动竞技中，需要重视球员的创造力。先前发现，积极情绪会降低运动员心智游移频率，消极情绪会提高运动员心智游移频率；同时，双通道模型认为，积极与消极情绪都会提高个体的创造力。那么，心智游移是否可以调节情绪与创造力的关系？综上，本研究从体育教学和运动竞技的双重角度，探究三者的关系。方法：研究采用《积极与消极情绪量表》、《心智游移频率量表》、《大学生创造力量表》，通过方便抽样的方法，涉及部分省市的高校，利用线上线下相结合的方式发放问卷。总共收取问卷 586 份，通过三项测谎题及规律性作答筛除问卷，获得有效问卷 302 份，有效率 51.536％。利用 SPSS25.0 和 MPlus7.0 对数据进行分析及构建结构方程模型等。结果:本研究不存在明显的共同方法偏差。相关结果显示，积极情绪与创造力呈显著正相关（r=0.364, p＜0.01），消极情绪与创造力的相关性不显著（r=0.030, p＞0.05）；消极情绪与心智游移呈显著正相关（r=0.286, p＜0.01），积极情绪与心智游移的相关性不显著（r=-0.059, p＞0.05）；心智游移与创造力的相关性不显著（r=0.106, p＞0.05）。调节效应结果显示，心智游移在积极情绪与创造力之间的调节效应不显著（β=0.030, p＞0.05）；心智游移在消极情绪与创造力之间的调节效应显著（β=0.133, p＜0.05）。结论：大学生足球运动员的心智游移可以在消极情绪与创造力之间起到调节作用，但无法在积极情绪与创造力之间起到调节作用。本研究结果具有双重实践意义，有利于促进有效的体育教学，并提高学生创造力；也为在竞技训练中提升球员的运动表现提供干预思路。

关键词 情绪，运动员，心智游移，创造力，调节效应

The Relationship between Emotion, Mind Wandering and Creativity among College Soccer Players

Li Yueming[1], Li Jieling[1,2,3*]

1 School of Physical Education, Hebei Normal University, Shijiazhuang, 050024

2 Key Laboratory of Measurement and Evaluation in Exercise Bioinformation of Hebei Province, Shijiazhuang, 050024

3 Postdoctoral Station of Physical Education, Hebei Normal University, Shijiazhuang, 050024

Abstract： Objective: Mind wandering refers to the shift of attention from the primary task to the internal information. In general cognition, mind wandering can have a negative impact on athletic performance. However, researchers have found that mind wandering also has a positive function of improving individual creativity. Studies suggest that youth is a critical period for creativity development, and physical education is a key environment for developing creativity. Therefore, physical education in colleges needs to pay attention to improving students' creativity. In addition, soccer has more space on the field, and players with high creativity can make full use of the

field space and improve their athletic performance. Therefore, in sports competition, we need to pay attention to the players' creativity. Previous studies have found that positive emotion can reduce the frequency of mind wandering in athletes, while negative emotion can increase the frequency of mind wandering in athletes; Meanwhile, the dual pathway model suggests that both positive and negative emotions can improve individual creativity. Then, can mind wandering moderate the relationship between emotion and creativity? Based on this, this study explores the relationship among the three from the dual perspectives of physical education and sports competition. Methods: The study used the "Positive Affect and Negative Affect Scale", the "Mind Wandering Frequency Scale", and the "College Students' Creativity Scale". Through convenience sampling method, it involved some colleges in some provinces and cities, and used online and offline methods to distribute questionnaires. A total of 586 questionnaires were collected, and 302 valid questionnaires were obtained by screening out questionnaires through three lie detection questions and regularity answering, with an effective rate of 51.536%. SPSS25.0 and MPlus7.0 were used to analyze the data and construct structural equation models. Results: There was no obvious common method bias in this study. The correlation results showed that positive emotion was significantly positively correlated with creativity (r=0.364, p<0.01), and the correlation between negative emotion and creativity was not significant (r=0.030, p>0.05); negative emotion was significantly positively correlated with mind wandering (r=0.286, p<0.01), and the correlation between positive emotion and mind wandering was not significant (r=-0.059, p>0.05); the correlation between mind wandering and creativity was not significant (r=0.106, p>0.05). The moderating effect results showed that the moderating effect of mind wandering between positive emotion and creativity was not significant (β=0.030, p>0.05); the moderating effect of mind wandering between negative emotion and creativity was significant (β=0.133, p<0.05). Conclusion: Mind wandering can play a moderating role between negative emotion and creativity among college soccer players, but it cannot play a moderating role between positive emotion and creativity. The results of this study have dual practical significance, which is conducive to promoting effective physical education and improving students' creativity; it also provides intervention ideas for improving players' athletic performance in competitive training.

Keywords: emotion, athletes, mind wandering, creativity, moderating effect

情绪调节策略对不同运动表象能力运动员工作记忆刷新的影响

乐静茹[1]　姜媛[1]（通讯作者）
1 北京体育大学心理学院，北京，100084，jiangyuan97@sina.cn

摘　要　愤怒是运动场上运动员产生的典型情绪，运动员的最佳运动表现需要运动员能够有效地调节情绪状态。认知重评和表达抑制是最为常用且有效的两种情绪调节策略，比赛中情绪调节策略的选择与使用至关重要。工作记忆刷新是对暂时存储的信息进行不断更新的加工过程，是中央执行系统的核心功能，也是运动员体育比赛中成功表现的重要因素之一，与情绪和情绪调节有着密切联系。运动表象是人脑对客观事物的编码，涉及个体的记忆功能，能够帮助运动员进行技能练习，可能是工作记忆刷新的影响因素之一。本研究探讨在愤怒情绪下，认知重评与表达抑制策略对不同运动表象能力运动员工作记忆刷新的影响，采用2（情绪调节策略：认知重评组、表达抑制组）×2（运动表象能力：高、低）的二因素组间设计，使用2-back任务测量运动员的工作记忆刷新功能，自变量是情绪调节策略和运动表象能力，因变量是工作记忆刷新功能，因变量的观测指标是完成2-back任务的反应时。使用《运动表象能力问卷》测量运动员的运动表象能力，依据问卷总分上下27%的标准将运动员分为高运动表象能力组和低运动表象能力组，共筛选出40名运动员，并随机分到表达抑制组和认知重评组。结果显示：情绪调节策略的主效应显著，使用认知重评策略的运动员比使用表达抑制策略的运动员反应时更短；运动表象能力主效应显著，运动表象能力高的运动员比运动表现能力低的运动员反应时更短；情绪调节策略与运动表象能力的交互作用不显著。结论：在愤怒情绪下，不同的情绪调节策略会影响不同运动表象能力运动员的工作记忆刷新功能，使用认知重评策略能够有效调节愤怒情绪对运动员工作记忆刷新的影响。

关键词　认知重评，表达抑制，工作记忆刷新，运动表象能力

Effect of emotion Regulation Strategy on working memory Refresh of athletes with different Motor imagery ability

Jingru Le, Yuan Jiang
School of Psychology, Beijing Sport University, Beijing, 100084

Abstract：Anger is a typical emotion produced by athletes in the sports field. the best sports performance of athletes requires athletes to be able to adjust their emotional state effectively. Cognitive reappraisal and expressive suppression are the two most commonly used and effective emotion regulation strategies, and the selection and use of emotion regulation strategies in the competition is very important. Working memory refresh is a process of constantly updating temporarily stored information, which is the core function of the central executive system and one of the important factors for athletes' successful performance in sports competitions. It is closely related to emotion and emotion regulation. Motor Imagery is the coding of objective things by human brain, which involves individual memory function. Individual motor imagery ability may be one of the influencing factors of working memory refresh. The purpose of this study was to explore the effects of cognitive reappraisal and expressive suppression strategies on working memory refresh of athletes with different motor imagery ability under anger. The two-factor intergroup design of 2 (emotion regulation strategy: cognitive reappraisal group, expressive suppression group)×2 (motor imagery ability: high and low) was adopted. The 2-back task was used to measure the working memory refresh function of athletes. The independent variables were emotion regulation strategy and motor imagery ability. The dependent variable is the working memory refresh function, and the observation index

of the dependent variable is the reaction time to complete the 2-back task. The motor imagery ability questionnaire was used to measure athletes' motor imagery ability. According to the standard of 27% of the total score of the questionnaire, athletes were divided into high motor imagery ability group and low motor imagery ability group. A total of 40 athletes were selected and randomly divided into expressive suppression group and cognitive reappraisal group. The results show that the main effect of emotion regulation strategy is significant, the reaction time of athletes using cognitive reappraisal strategy is shorter than that of athletes using expressive suppression strategy, and the main effect of motor imagery ability is significant. athletes with high motor imagery ability have shorter reaction time than athletes with low motor imagery ability, and the interaction between emotion regulation strategies and motor imagery ability is not significant. Conclusion: under the condition of anger, different emotion regulation strategies will affect the working memory refresh function of athletes with different motor imagery ability, and the use of cognitive reappraisal strategy can effectively regulate the effect of anger on athletes' working memory refresh.

Keywords：cognitive reappraisal, expressive suppression, working memory refresh, motor imagery ability

情绪调节策略对不同特质自我控制运动员基于不同冲突认知控制的影响

崔怡洋　姜媛（通讯作者）
北京体育大学，北京，100084，jiangyuan97@sina.cn

摘 要 运动员在日常的训练与比赛的过程中，良好的认知控制能力是其获得优异成绩的保证。情绪与情绪调节策略是影响运动员认知控制水平的重要因素。认知控制是自我控制的基础，但鲜有研究从人格层面探究运动员自我控制的一贯性行为特点。本研究采用实验法，实验 1 以 flanker 任务作为基于刺激冲突认知控制指标，采用 2（刺激冲突：冲突、无冲突）×2（情绪调节策略：表达抑制、认知重评）×2（特质自我控制：高、低）三因素混合实验设计，结果表明，（1）刺激冲突的主效应显著，有刺激冲突的反应时显著长于无刺激冲突的反应时。(2)特质自我控制主效应显著，高特质自我控制运动员的反应时显著长于低特质自我控制运动员。实验 2 以 simon 任务作为基于反应冲突认知控制指标，采用 2（反应冲突：无冲突、有冲突）×2（情绪调节策略：表达抑制、认知重评）×2（特质自我控制：高、低）三因素混合实验设计，结果表明，（1）反应冲突的主效应显著，有反应冲突的反应时显著长于无冲突的反应时。（1）自我控制的主效应显著，高特质自我控制运动员的反应时显著长于低特质自我控制运动员。（2）反应冲突与情绪调节策略的交互作用显著，在冲突条件下，使用认知重评策略的个体反应时显著短于使用表达抑制的个体，但在无冲突条件下，二者不存在显著差异。（3）反应冲突与特质自我控制的交互作用边缘显著，相较于低特质自我控制运动员，高特质自我控制运动员冲突与无冲突条件的反应时差异更大。结论：高特质自我控制运动员在刺激冲突与反应冲突解决的过程中表现更差，运动员面临反应冲突时，认知重评策略能够有效促进其认知控制。

关键词 运动员,情绪调节策略，特质自我控制，认知控制

The effects of emotion regulation strategies on cognitive control based on different conflicts in athletes with different traits of self-control

Cui Yiyang, Jiang Yuan (corresponding author)
School of Psychology, Beijing Sport University, Beijing, 100084, jiangyuan97@sina.cn

Abstract : In the process of daily training and competition, good cognitive control ability is the guarantee of excellent results. Emotion and emotion regulation strategies are important factors affecting the cognitive control level of athletes. Cognitive control is the basis of self-control, but few studies have explored the consistent behavioral characteristics of athletes' self-control at the personality level. In this study, the experimental method was adopted, and the experimental 1 took the Flanker task as the cognitive control index based on stimulus conflict, and used 2 (stimulus conflict: conflict, no conflict), × 2 (emotion regulation strategy: expression inhibition, cognitive reevaluation) × 2 (trait self-control: high, low) three-factor mixed experimental design, the results showed that (1) the main effect of stimulus conflict was significant, and the response with stimulus conflict was significantly longer than the response without stimulus conflict. (2) The main effect of trait self-control was significant, and the response of athletes with high trait self-control was significantly longer than that of athletes with low trait self-control. Experiment 2 uses the Simon task as the cognitive control index based on response conflict, and adopts 2 (response conflict: no conflict, conflict), × 2 (emotion regulation strategy: expression inhibition, cognitive reevaluation) × 2 (trait self-control: high and low) three-factor mixed experimental design, the

results show that (1) the main effect of response conflict is significant, and the response with response conflict is significantly longer than when there is no conflict. (1) The main effect of self-control was significant, and the response of high-trait self-control athletes was significantly longer than that of low-trait self-control athletes. (2) The interaction between response conflict and emotion regulation strategy was significant, and under conflict conditions, the response of individuals using cognitive reevaluation strategies was significantly shorter than that of individuals using expression inhibition, but there was no significant difference between the two under conflict-free conditions. (3) The interaction between response conflict and trait self-control was significant, and compared with athletes with low trait self-control, the response of high-trait self-control athletes to conflict and non-conflict conditions was greater. Conclusion: Athletes with high self-control perform worse in the process of stimulus conflict and response conflict resolution, and cognitive reassessment strategies can effectively promote the cognitive control of athletes when faced with response conflict.

Keywords: athletes, emotion regulation strategy, trait self-control，cognitive control

不同指导语类型对动作的表象学习与记忆的影响

刘心云[1] 郑玮琦[1]（通讯作者）
1 北京体育大学心理学院，北京，100084，weiqi71@126.com

摘 要 动作学习与记忆是人类活动的基础，以往研究表明在动作学习时采取不同的指导语和记忆方法会对学习和记忆效果产生不同的影响。本研究将指导语类型与表象学习结合，使用动作姿势作为记忆材料，通过对动作姿势学习记忆效果的测试来探究不同指导语类型是否可以对动作的表象学习和记忆的效果产生不同的影响。实验采用单因素被试间设计，指导语类型为组间自变量，动作姿势的学习记忆效果为因变量，并将动作姿势自由回忆的成绩作为因变量的行为学测量指标。招募无瑜伽武术等难美类运动项目经验的普通大学生共 76 人。其中类比指导语组 26 人，外显指导语组 25 人，联合指导语组 25 人。通过表象能力问卷对三组被试的表象能力进行平衡。首先向被试呈现 15 张动作姿势图片，每张图片呈现 6s，分别给三组被试在图片上方提示外显、类比或联合指导语并要求被试在图片和指导语呈现的 6s 内通过表象学习对动作姿势进行记忆和学习。之后进行自由回忆测试，要求参与者在学习之后的 10 分钟内尽可能多和准确地重现所学习的动作姿势，测试阶段全程录像，事后由专家进行评定，记录自由回忆正确率并且对每个回忆出来的动作根据指导语的内容进行共计 5 分评分。结果表明，三组之间自由回忆正确率差异显著（$F(2, 75)=5.207$, $p=0.008$），其中联合指导语组和类比指导语组显著优于外显指导语组，而联合指导语组和类比指导语组之间无显著差异。自由回忆评分三组之间差异显著（$F(2, 75)=17.860$, $p<.001$），其中外显组和联合指导语组评分显著高于类比指导语组，而外显组和联合组之间无显著差异。综上可知，在动作的表象学习和记忆中，类比指导语可以帮助学习者在短时间内记住更多的动作，外显指导语可以帮助学习者更好地记住动作的细节，而联合指导语可以让学习者在记住更多动作的同时尽可能多的保留细节，实现最好的学习效果，在今后的研究中可以可以借助脑科学技术进一步探讨表象学习背后的机制。

关键词 动作学习与记忆，指导语类型，表象

The effects of instructions on the motor imagery learning and memory

Xinyun Liu[1], Weiqi Zheng[1] (Corresponding Author)
School of Psychology, Beijing Sport University, No. 48, Xinxi Road, Haidian District, Beijing

Abstract： Action learning and memory are the basis of human activities, and previous studies have shown that different instructions and memorization methods during action learning have different effects. In this study, the type of instruction was combined with motor imagery, and action postures were used as memory materials to investigate whether different types of instruction could have different effects on motor learning. The experiment used a one-way between-subjects design, with the type of instruction as the between-group independent variable. A total of 76 general college students with no experience in yoga martial arts and other difficult-pretty events were recruited. First, 15 pictures of the target stimulus action postures were presented to the participants, and each picture was presented for 6 s. Three groups of participants were prompted with different instructions and were asked to memorize and learn the action postures within 6s during motor imagery. Afterwards, a free recall test was conducted, in which participants were asked to reproduce as many of the learned postures as possible and as accurately as possible within 10 minutes after learning, and the test was videotaped in its entirety, and was

evaluated by an expert afterward, who recorded the percentage of correct free recalls and rated each recalled movement on a total of 5 points according to the content of the instructions. The results showed a significant difference in correct free recall scores among the three groups ($F(2, 75)=5.207$, $p=0.008$), with the joint and analogy instruction groups significantly outperforming the explicit group, and no significant difference between the joint and analogy instruction groups. Free recall scores differed significantly among the three groups ($F(2, 75) = 17.860$, $p < .001$), with the explicit and joint groups scoring significantly better than the analogy group, while there was no significant difference between the explicit and joint groups. In summary, it can be seen that, analogy instructions can help learners remember more actions in a short period of time, whereas explicit instructions can help learners remember the details of the actions better, and joint guides can help learners memorize more actions while retaining as many details as possible to achieve the best learning effect. In future research, the mechanisms behind motor imagery can be further explored with the help of brain science and technology.

Keywords：action learning and memory, instructions, motor imagery

虚拟现实体感运动对执行功能的影响

李春铖[1]　杨寅[1]（通讯作者）
1 北京体育大学心理学院，北京，100084，yangyin@bsu.edu.cn

摘 要　执行功能对个体身心发展及成长有非常重要的意义。运动锻炼已经被证实可以提高个体的执行功能水平，同时有研究发现视频游戏对大学生的执行功能，尤其是抑制控制有促进作用。而体感运动结合了运动和游戏属性，其中虚拟现实技术（virtual reality）的应用更进一步加深了娱乐性和沉浸性，这有助于执行功能训练的长期保持。但在此之前，虚拟现实体感运动对执行功能的影响需要进一步探索。本研究旨在考查虚拟现实体感运动对执行功能影响的程度，并以传统单车运动为对照。方法：在正式开始对照实验之前收集了 40 名从未玩过 VR 运动游戏的参与者，VR 运动后的心率数据，确定了心率参考范围。然后选取 22 名普通大学生并将其随机分为 VR 运动组和单车运动组，单车组要求心率需要尽量保持在参考范围内。在运动前收集 go-nogo 任务、odd-shifting 任务和 2-back 任务的正确率和反应时数据作为基线，间隔一周开始正式实验，在运动结束后再次收集 3 个任务范式的数据。结果：未发现被试在 VR 运动和单车运动后的平均心率中存在差异；未发现被试在两种运动后在三项范式中正确率指标上存在差异。发现被试在三个范式的反应时中均存在时间和运动类型的交互作用，进一步简单效应分析发现，单车组和 VR 组在前测反应时上未发现存在显著差异，但后测的反应时中单车组比 VR 组的反应更快。结论：本研究发现传统有氧运动在促进执行功能上的作用好于 VR 体感游戏，这一结果提示传统有氧运动和 VR 体感游戏带来的心理效益可能各有侧重，新的运动方式并不能完全替代传统运动方式。本研究对这一结果的可能解释，以及该结果所反映的运动对执行功能的复杂效益，进行了讨论。

关键词　虚拟现实，体感游戏，运动，执行功能

Effects of Virtual Reality Exercise on Executive Functioning

LI Chuncheng[1],YAN Yin[1]
1 Beijing Sport University, Beijing, 100084, yangyin@bsu.edu.cn

Abstract：　Executive function is of great importance to an individual's physical and mental development and growth. Exercise has been shown to improve executive functioning, and video games have been found to promote executive functioning, especially inhibitory control, in college students. Exergame combines the attributes of exercise and gaming, with the use of virtual reality technology (VRT) further deepening the entertainment and immersion, which contributes to the long-term retention of executive function training. However, before that, the effects of virtual reality exercise on executive function need to be further explored. This study aimed to examine the extent to which virtual reality exercise affects executive function, with traditional cycling as a control. METHODS: Heart rate data were collected from 40 participants who had never played a VR exergame before the formal start of the control experiment, and the heart rate reference range was determined after the VR exercise. Then 22 general college students were selected and randomly divided into a VR exercise group and a cycling exercise group, with the cycling group requiring that the heart rate needed to be kept within the reference range as much as possible. Correct rate and reaction time data of the go-nogo task, odd-shifting task, and 2-back task were collected as a baseline before exercise, and the formal experiment was started at a week interval, and the data of the 3 task paradigms were collected again at the end of the exercise. RESULTS: No differences were found in

subjects' mean heart rates after VR exercise and cycling; no differences were found in subjects' correct rate metrics in the three paradigms after the two types of exercise. An interaction between time and type of exercise was found for subjects' reaction times in all three paradigms, and further simple effects analyses revealed that no significant differences were found between the cycling and VR groups in the pre-test reaction times, but that the cycling group responded faster than the VR group in the post-test reaction times. CONCLUSION: The present study found that traditional aerobic exercise was better than VR exercise in promoting executive function, a result that suggests that the psychological benefits of traditional aerobic exercise and VR exercise may be focused on each other and that new exercise modalities are not a complete substitute for traditional exercise modalities. Possible explanations for this result, as well as the complex benefits of exercise on executive function as reflected in this result, are discussed in this study.

***Keywords*:** virtual reality, exergame, exercise, executive function

成功/失败限制性饮食者和非限制性饮食者的食物线索记忆抑制差异

高丽娟[1]　孙美荣[1]（通讯作者）

1 北京体育大学心理学院，北京，100084，sunmeirong_870702@126.com

摘 要　限制性饮食指为了减肥或保持体重而节食的倾向，限制性饮食者(Restrained eaters, REs)的抑制控制能力相比非限制性饮食者(NREs)更差。REs 可分为成功限制性饮食者(SREs)和失败限制性饮食者(UREs)，两者在记忆抑制控制任务中有不同的行为表现和脑电活动模式。前人研究发现，记忆抑制在抑制饮食行为方面至关重要。

为探究不同类型限制性饮食者食物线索记忆抑制的差异，本研究招募了女大学生 SREs、UREs 和 NREs 各 12 名，使用思考/不思考(Think/No-Think, TNT)范式考察不同记忆条件下被试对食物线索的回忆正确率。以回忆正确率为因变量，进行 3(被试类型：SREs, UREs, NREs)×3(记忆条件：Think, No-Think, 基线)的两因素重复测量方差分析，结果表明，记忆条件主效应显著，Wilks' Lambda = 0.654，$F(2,32) = 8.464$，$p = 0.001$，$\eta_p^2 = 0.346$。被试类型主效应不显著，$F(2,33) = 1.641$，$p = 0.209$，记忆条件和被试类型交互作用不显著，Wilks' Lambda = 0.954，$F(4,64) = 0.381$，$p = 0.821$。成对比较结果显示，No-Think 条件回忆正确率显著低于 Think 条件的回忆正确率，说明主动抑制诱导了遗忘。抑制诱导遗忘(Suppression-induced forgetting, SIF)得分越高，表明记忆抑制能力越强，在被试类型的 SIF 均值图中呈现出 UREs 的得分低于 SREs 和 NREs 的趋势，UREs 的记忆抑制能力相对较弱，导致限制饮食失败。

本研究结果表明，被试的确对食物线索进行了有效的记忆抑制，这种主动抑制导致了被试的遗忘效应。抑制诱导遗忘效应可能会影响被试对食物线索的关注度，从而提高限制性饮食的成功率。然而本研究样本量较小，后续研究将增加样本量、控制情绪变量，并结合事件相关电位技术来进一步探究限制性饮食者不同亚型与记忆抑制的关系。

关键词　限制性饮食者，记忆抑制，食物线索

Differences in Memory Suppression of Food Cues among Successful/Unsuccessful Restrained Eaters and Non-restrained Eaters

Lijuan GAO[1], Meirong SUN[1]

1 School of Psychology, Beijing Sport University, Beijing, 100084

Abstract：Restrained eating refers to the tendency to diet in order to lose or maintain weight. Restrained eaters (REs) have worse inhibitory control ability than non-restrained eaters (NREs). REs can be divided into successful restrained eaters (SREs) and unsuccessful restrained eaters (UREs), which have different behavioral performances and brain electrical activity patterns in memory inhibition control tasks. Previous studies have found that memory suppression is crucial in inhibiting dietary behavior.

In order to explore the differences in memory suppression of food cues among different types of restrained eaters, this study recruited 12 female college students from SREs, UREs and NREs respectively, and used the Think/No-Think(TNT) paradigm to investigate the recall accuracy of food cues under different memory conditions. A 3 (group: SREs, UREs, NREs)×3 (condition: Think, No-think, baseline) repeated measures ANOVA on recall

accuracy was conducted, with condition as the within-subjects factor and group as the between-subjects factor. The results showed that the main effect of memory condition was significant, Wilks' Lambda = 0.654, $F(2,32) = 8.464$, $p = 0.001$, $\eta_p^2 = 0.346$, the main effect of group was not significant, $F(2,33) = 1.641$, $p = 0.209$, and the interaction between group and memory condition was not significant, Wilks' Lambda = 0.954, $F(4,64) = 0.381$, $p = 0.821$. Pairwise comparison results showed that the recall accuracy of No-Think condition was significantly lower than that of Think condition, indicating that active suppression induced forgetting. The higher the score of Suppression-induced forgetting (SIF), the stronger the memory inhibition ability. The SIF mean plots of the subject type showed a tendency that the SIF score of UREs was lower than that of SREs and NREs, and relatively weaker memory suppression in UREs, leading to failure of the restricted diet.

The results of this study showed that the subjects did have effective memory suppression of food cues, and this active suppression led to a forgetting effect in subjects. The suppression-induced forgetting effect may affect the subjects' attention to food cues, thereby increasing the success of the restrictive diet. However, the sample size of this study was small. Subsequent studies will increase the sample size, control emotional variables, and incorporate event-related potential techniques to further investigate the relationship between different subtypes of restrained eaters and memory suppression.

Keywords：restrained eaters, memory suppression, food cues

冲突情境下的篮球动作预期

王丹蕾[1]　栾梦恺[2]（通讯作者）

1 上海体育大学，上海，200438

2 上海体育大学心理学院，上海，200438，luanmengkai@sus.edu.cn

摘 要　研究目的：本研究旨在探究竞赛情境中情境先验信息和运动学信息对运动员动作预期的影响。前人研究发现情境先验信息的提供会增强运动员动作预期过程中额叶 theta 振荡能量，反映了认知负荷的增加。然而，前人研究仅对比了有、无情境先验信息条件下的大脑活动。实际运动中，情境先验信息和运动学信息可能存在一致或不一致的情况。额叶 theta 频段参与与冲突相关的认知过程。因此，我们推测不一致的冲突加工可能引起额叶 theta 频段能量增加，而不仅是简单增加了认知负荷。本研究以篮球动作预期为对象，探讨一致性提示和不一致性提示对动作预期和额叶 theta 频段能量的影响，揭示高水平运动员动作预期的认知加工机制和大脑活动特征。

实验方法：3（信息提示：无情境先验信息、一致情境先验信息、不一致情境先验信息）*2（运动经验：高水平运动员、新手）的实验设计。被试包括 24 名高水平篮球运动员和 24 名无球类运动经验的新手。被试需观看投篮视频后预期投篮结果。记录被试行为和脑电数据。

实验结果：行为数据分析结果显示，运动经验和信息提示的主效应显著，运动经验和信息提示间的交互作用显著，运动经验效应在不一致情境先验信息条件相比于其他信息提示条件下更小。

脑电数据分析结果显示，运动经验的主效应显著，运动员额叶 theta 振荡能量显著高于新手被试。信息提示的主效应显著。事后比较结果显示，被试额叶 theta 振荡能量在不一致情境先验条件下显著高于其他信息提示条件，而在无情境先验信息与一致情境先验信息之间无显著差异。运动经验和信息提示的交互作用显著，运动经验效应在不一致情境先验信息条件相比于其他信息提示条件下更大。

研究结论：在不一致条件下，运动员需要对冲突信息进行加工，需要投入相对更多的认知资源，动作预期表现也会相应的下降。theta 振荡能量的增强特异性地反映了对冲突情境的加工而不仅是非简单地对情境先验信息的加工。本研究进一步提高和丰富了对运动员动作预期认知加工机制和神经基础的理解。

关键词　动作预期，情境先验信息，运动学信息，冲突加工，Theta 振荡。

Action Anticipation of Basketball under Conflict Situation

Danlei Wang,Mengkai Luan

Abstract：Objective: This study aims to investigate the influence of contextual prior information and kinematic information on athletes' action anticipation in competitive scenarios. Previous research has indicated that providing contextual prior information enhances frontal theta oscillatory power, reflecting increased cognitive load during action anticipation. However, previous studies only compared brain activity under conditions with and without contextual prior information. In real sports situations, there may be consistent or inconsistent information provided by contextual prior and kinematic cues. Frontal theta oscillations are involved in cognitive processes related to conflict. Therefore, we hypothesize that processing inconsistent conflicts may lead to an increase in frontal theta oscillatory power, indicating more than just an increase in cognitive load. This study focuses on basketball action anticipation to explore the effects of consistent and inconsistent cues on action anticipation and frontal theta oscillatory power, thus revealing the cognitive processing mechanisms and brain activity characteristics in high-level athletes' action anticipation.

Method: The experimental design consists of a 3 (cue condition: no contextual prior information, consistent contextual prior information, inconsistent contextual prior information) * 2 (sports expertise: high-level athletes, novices) design. The participants include 24 high-level basketball players and 24 novices with no experience in ball sports. The experiment uses self-recorded and produced videos of basketball players performing free throw actions as stimuli. Prior to the appearance of the stimuli, contextual prior information cues (words: none/short/medium/long) are presented. In conditions with contextual prior information, the information provided may be consistent or inconsistent with the action outcome indicated by the kinematic information. Participants are required to anticipate the final outcome of the free throw after observing the stimuli, and both behavioral and electroencephalogram (EEG) data are collected.

Results: The analysis of behavioral data shows significant main effects of sports expertise and cue condition. The interaction effect between sports expertise and cue condition is also significant, with the effect of sports expertise being smaller in the condition with inconsistent contextual prior information compared to other cue conditions. The analysis of EEG data indicates a significant main effect of sports expertise, with athletes displaying significantly higher frontal theta oscillatory power than novices. There is also a significant main effect of cue condition. Post-hoc comparisons reveal that participants' frontal theta oscillatory power is significantly higher in the condition with inconsistent contextual prior information compared to other cue conditions, but there is no significant difference between the conditions with no contextual prior information and consistent contextual prior information. Additionally, a significant interaction effect between sports expertise and cue condition is found, indicating that the effect of sports expertise is larger in the condition with inconsistent contextual prior information compared to other cue conditions.

Conclusion: In inconsistent conditions, athletes need to process conflicting information, requiring the allocation of relatively more cognitive resources, leading to a decline in action anticipation performance. The enhanced frontal theta oscillatory power specifically reflects the processing of conflict scenarios rather than a simple processing of contextual prior information. This study further advances our understanding of the cognitive processing mechanisms and neural basis of action anticipation in athletes.

Keywords：action anticipation, prior information, kinematic information, conflict processing, Theta

动作识别与运动经验对假动作情景下预判表现的影响

刘艳艳[1] 任鹏飞[2] 苗秀影[1] 王经晖[1] 张鑫[1] 迟立忠[1](通讯作者)

1 北京体育大学心理学院，北京，100084，chilizh3804@163.com

2 延安大学体育学院，陕西，710000

摘 要 运动员在预测行为及其结果时面临的一个关键挑战是预判对手表达的意图是真是假。以往研究发现，无论是运动专家还是新手，均受到假动作的影响，降低预判表现。研究者分别探讨了专家和新手对假动作的识别及对假动作情景下的预判表现差异。无论是对假动作的识别还是对假动作情景下的预判表现，专家均较新手具有优势。那么对动作类型的识别是否是提高假动作情景下预判表现的原因。选取足球运动员与足球爱好者各 22 名被试。研究采用 2 (动作类型：真动作，假动作) × 2 (识别与否：识别，未识别)×2 (运动经验：运动员，爱好者)的混合实验设计。识别与否的主效应显著，$F(1, 42) = 77.244$，$p < .001$, $\eta^2_p = .648$，动作识别时预判的正确率高于未识别时预判的正确率(0.85 vs. 0.54)；动作类型的主效应显著，$F(1, 42) = 43.820$，$p < .001$, $\eta^2_p = .511$，假动作情景下预判的正确率低于真动作情景下预判的正确率(0.54 vs. 0.84)；运动经验的主效应显著，$F(1, 42) = 14.511$，$p < .001$, $\eta^2_p = .257$，专家的预判正确率高于新手(0.78 vs. 0.62)；动作类型×运动经验的交互作用显著，$F(1, 42) = 12.541$，$p = .001$, $\eta^2_p = .230$，简单效应分析显示，在假动作条件下，专家预判正确率高于新手(0.70 vs. 0.39, $p < .001$)；非假动作条件下，专家的预判正确率与新手差异不显著(0.84 vs. 0.85, $p = .865$)。结果表明，无论是假动作还是真动作，动作类型的识别有利于预判表现。专家的预判表现好于新手。

关键词 动作识别，假动作，预判，足球

The Effects of Action Recognition and Experience on Anticipation Performance in Deception

Liu yanyan[1] Ren pengfei[2] Miao xiuying[1] Wang jignhui[1] Zhang xin[1]

Chi lizhong[1](corresponding author)

1 School of Psychology, Beijing Sprot University, Beijing, 100084, chilizh3804@163.com

2 School of Psysical, Yan an University, Shang xi, 710000

Abstract：A key challenge for performers when anticipating actions and their outcomes is to judge whether the intent conveyed by their opponent is genuine or deception. Previous research has found that both expert and novice are affected by deception that interfere with anticipation performance. The researchers explored the differences between experts and novices in their recognition of deception and their anticipation performance in deception scenarios, respectively. Experts had an advantage over novices in both the recognition of deception movements and the performance of anticipation. So is the recognition of movement types responsible for improving the performance of anticipation in deception. Twenty-two subjects each of soccer players and soccer enthusiasts were selected. The study used a mixed experimental design of 2 (action type:genuine, deception) × 2 (recognition: recognition, non-recognition) × 2 (sport experience: athlete, enthusiast). There was a significant main effect of recognition vs. non-recognition, $F(1, 42) = 77.244$, $p < .001$, $\eta^2_p = .648$, and the accurate of anticipation was higher in the recognition than in the non-recognition (0.85 vs. 0.54). There was a significant main effect of action type, $F(1, 42) = 43.820$, $p < .001$, $\eta^2_p = .511$, and the accurate of anticipation was lower in the deception than in the genuine (0.54 vs. 0.84). The main effect of experience was significant, $F(1, 42) = 14.511$, $p < .001$, $\eta^2_p = .257$,

with experts having a higher accurate of anticipation than novices (0.78 vs. 0.62). The interaction of action type × sport experience was significant, F (1, 42) = 12.541 , p = .001, η^2_p = .230. The simple effects analyses revealed that experts had higher accurate of anticipation than novices (0.70 vs. 0.39, p < .001). The accurate of anticipation between experts and novices was not significant (0.84 vs. 0.85, p = .865). The results suggest that the recognition of action type facilitates anticipation performance in both genuine and deception. Experts had better anticipation performance than novices.

Keywords： motion recognition, deception, anticipation, soccer

自主性身体活动对于高中生久坐行为的影响——心理弹性的中介作用

刘明阳[1] 薛欣[1] 刘元国[2]（通讯作者）

1 沈阳体育学院，沈阳，110102

2 沈阳体育学院，沈阳，110102，zhenguo1717@sina.com

摘 要 自主性身体活动是指群体主动地由骨骼肌收缩引起的能量消耗，分为组织性与非组织性。非组织性身体活动（AP）更为强调是参与活动的动机源于自身动机，相对于组织性身体活动，非组织性对于青少年的后续发展作用更高。然而，目前有关自主性身体活动的实证研究较少，针对青少年身体和心理健康问题指导性不强。有研究表明：高中生因学习压力较大，导致久坐行为较为严重。本研究将基于心理弹性的中介作用，用于探究心理弹性对久坐行为的改善作用。研究方法：对沈阳市 3 所高中的高中生进行调查，通过问卷测量自身的自主性身体活动水平、心理弹性及久坐行为情况，回收 556 份有效问卷，随后运用 SPSS 26 与 AMOS 24.0 进行方差分析、相关分析、回归分析及中介效应检验($P < 0.01$)，构建以自主性身体活动、久坐行为以及心理弹性为基础的纵向中介模型，结果显示模型拟合良好。得到如下结论：（1）高中生久坐时间均大于 9.5h（2）自主性身体活动对于久坐行为呈显著负相关($r = -0.490$, $p < 0.01$)；心理弹性与自主性身体活动呈显著正相关($r = 0.271$, $p < 0.01$)；心理弹性与久坐行为呈显著负相关($r = -0.253$, $p < 0.01$)（3）自主性身体活动可以正向预测心理弹性；自主性身体活动可以负向预测高中生的久坐行为；心理弹性可以负向预测高中生久坐行为；心理弹性在自主性身体活动和高中生久坐行为之间其部分中介作用，中介效应占总效应 18.5%。研究结果显示心理弹性可以通过增强高中生参与自主性身体活动的频率从而缓解久坐问题，从而保障高中生心理健康和生理健康。本研究通过探索三者之间的作用机制以及验证心理弹性的中介作用，为提高青少年体质健康发展以及后续研究提供实证参考。

关键词 自主性身体活动，久坐行为，心理弹性，高中生

The Effect of Voluntary Physical Activity on Sedentary Behavior of High School Students: The Mediating Role of Psychological Resilience

Mingyang Liu[1] Xin Xue[1] Yuanguo Liu[2]

Shenyang Institute of Physical Education,Shenyang,**110102**

Shenyang Institute of Physical Education,Shenyang,110102,zhenguo1717@sina.com

***Abstract*：** Voluntary physical activity refers to the energy expenditure caused by the contraction of skeletal muscles in the group, which is divided into organizational and non-organized. Non-organized physical activity (AP) emphasizes that the motivation to participate in activities stems from self-motivation, and non-organizational activity has a higher effect on the subsequent development of adolescents than organizational physical activity. However, there are few empirical studies on voluntary physical activity, and there is little guidance for adolescents' physical and mental health problems. Studies have shown that high school students have more serious sedentary behavior due to greater study pressure. This study will explore the effect of resilience on sedentary behavior based on the mediating role of psychological resilience. Research Methods: A survey of high school students in three high schools in Shenyang was conducted to measure their autonomous physical activity level, psychological resilience and sedentary behavior through questionnaires, and 556 valid questionnaires were collected, and then SPSS 26 and AMOS were used to analyze variance, correlation analysis, regression analysis and mediation effect test ($P < 0.01$), and a longitudinal mediation model based on voluntary physical activity, sedentary behavior and psychological resilience was constructed, and the results showed that the model fit well. The following conclusions were obtained: (1) the sedentary time of high school students was greater than 9.5 h, and (2) voluntary physical activity was significantly negatively correlated with sedentary behavior ($r = -0.490$, $p < 0.01$); Mental resilience was positively correlated with voluntary physical activity ($r = 0.271$, $p < 0.01$). Psychological resilience was significantly negatively correlated with sedentary behavior ($r = -0.253$, $p < 0.01$) (3) Voluntary physical activity can positively predict psychological resilience. Voluntary physical activity can negatively predict sedentary behavior in high school students; Psychological resilience can negatively predict sedentary behavior in high school students; Psychological resilience played a partial mediating role between voluntary physical activity and sedentary behavior of high school students, and the mediating effect accounted for 18.5% of the total effect. The results showed that resilience could alleviate sedentary problems by increasing the frequency with which high school students participated in autonomous physical activity, thereby safeguarding the mental and physical health of high school students. By exploring the mechanism of action between the three and verifying the mediating role of psychological resilience, this study provides an empirical reference for improving the healthy development of adolescents' physical fitness and subsequent research.

***Keywords*：** Voluntary physical activity, sedentary behavior, mental resilience, high school students

高校学生运动对睡眠质量的影响：焦虑与抑郁的平行中介机制

刘唯智 1　雷凯新 1 李思瑶 1　陈雨薇 1　邱晨 1,2（通讯作者）
1 四川大学华西临床医学院（华西医院）,四川，610041
2 四川大学华西护理学院，成都，610041，
邱晨（通讯作者）E-mail：cqiu@scu.edu.cn

摘 要 目的：多项研究表明，运动与睡眠质量密切相关，运动过少可能导致睡眠质量下降，从而影响高校学生的日常学习生活。然而，运动与睡眠质量关系中的心理机制尚不清楚。因此，本研究以多所高校不同专业学生为研究对象，问卷调查其运动情况、睡眠状况，以及焦虑抑郁水平，来探讨精神心理因素与运动、睡眠的关系，为有效预防和减轻高校学生焦虑抑郁，提高其睡眠质量提供参考依据。方法：本研究使用日常运动评估量表、匹兹堡睡眠质量指数量表(PSQI) 、抑郁量表(SDS) 和焦虑量表(SAS) 对多所高校各专业学生进行问卷调查。采用 SPSS 和 AMOS 统计软件和 Bootstarp 技术进行数据分析和模型验证，建立信效度良好的平行中介模型。结果：共 3324 名高校学生参与调查，回收有效问卷 3041 份。（1）轻度及以上焦虑、抑郁检出率分别为 292 例（9.60%）、614 例（20.19%），睡眠障碍检出率 305 例（10.03%）。（2）一周内有效运动次数与睡眠障碍（β=-0.125，p<0,05）、焦虑(β=-0.246，p<0.001)、抑郁(β=-0.307,p<0.001)均呈现负相关。睡眠障碍与焦虑（β=0.265，p<0.001）、抑郁（β=0.02，p<0.001）呈显著正相关。（3）大学生可以通过增加每周的有效运动次数对睡眠质量起到改善作用。（4）平行中介分析结果显示焦虑（95%Cl：[-0.018--0.112]）和抑郁(95%Cl:[-0.0—0.02])在近一周有效运动次数对睡眠质量影响中其完全中介作用，故良好的精神心理状态可以有效促进运动对睡眠的积极影响。结论：对于高校的大学生，运动是睡眠质量的保护因素，焦虑与抑郁状态在运动对睡眠质量的影响中起平行中介作用。通过提高每周有效运动次数，可以有效缓解焦虑抑郁，也能进一步改善睡眠质量。

关键词 高校大学生，运动，焦虑，抑郁，睡眠质量

The effect of exercise on sleep quality among college students: parallel mediating mechanisms of anxiety and depression

Weizhi Liu[1], Kaixin Lei[1], Siyao Li[1], Yuwei Chen[1], Chen Qiu[1,2,*]
1 West China College of Clinical Medicine, Sichuan University(West China Hospital), Sichuan, 610041
2 West China College of Nursing, Sichuan University, Chengdu, 610041
Chen Qiu* E-mail：cqiu@scu.edu.cn

***Abstract*： Objective**: Several studies have shown that exercise is highly related to sleep quality, and lack of exercise may lead to poor sleep quality, which affect the daily academic life among college students. However, the psychological mechanisms in the relationship between exercise and sleep quality remain unclear. Therefore, the current study used questionnaire to investigate colleges students' exercise, sleep, anxeity and depression status, to analyses the role of psychological factors on the relation between exercise and sleep, to provide evidence on preventing colleges students' anxiety and depression, as well as improving their sleep quality. **Methods:** This study used the Daily Exercise Assessment Scale, the Pittsburgh Sleep Quality Index (PSQI), the Depression Scale (SDS) and the Anxiety Scale (SAS) to investigate college students from various majors. SPSS and AMOS statistical software and Bootstarp technology were used for data analysis, and a parallel mediation model with good

reliability and validity was established . **Results:** A total of 3324 college students participated in the current study, and 3041 valid questionnaires were recovered. (1) The detection rates of mild and above anxiety and depression were 292 cases (9.60%) and 614 cases (20.19%) respectively, and the detection rate of sleep disorder was 305 cases (10.03%). (2) The number of effective exercises in a week showed a significant negative correlation with sleep disorder (β=-0.125, p<0,05), anxiety (β=-0.246, p<0.001) and depression (β=-0.307,p<0.001). Sleep disorders showed a significant positive correlation with anxiety (β=0.265, p<0.001) and depression (β=0.02, p<0.001). (3) Increasing the number of effective exercise sessions per week was shown to be a effective way to improve sleep quality for college students. (4) The results of parallel mediation analysis showed that anxiety (95% Cl: [-0.018-0.112]) and depression (95% Cl: [-0.0-0.02]) fully mediated the relation from the number of effective exercise sessions per week to the quality of sleep, so that a good mental state can effectively promote the positive effects of exercise on sleep. **Conclusion**: For college students, exercise is a protective factor for sleep quality, and anxiety and depression status play parallel mediating roles in the effects of exercise on sleep quality. By increasing the number of effective exercise sessions per week, anxiety and depression can be effectively alleviated, and sleep quality can also be further improved.

Keywords： college students, exercise, anxiety, depression, sleep quality

高校体育教师领导行为对学生锻炼行为影响—运动友谊质量的中介作用

薛欣[1] 刘明阳[1] 刘元国[2]（通讯作者）

1 沈阳体育学院，沈阳，110102

2 沈阳体育学院，沈阳，110102，zhenguo1717@sina.com

摘 要 **研究目的：**近年来，大学生体质逐年下降，尽管国家陆续出台相关政策，但下降的趋势并没有得到缓解。体育锻炼是提高体质学生的必然要求，而体育教师的领导行为是提高学生的体育锻炼行为的重要因素之一。高校体育教师是促进学生体质健康的指导者，体育教师的语言行为对学生锻炼造成巨大的影响，其领导行为是在课堂上与学生互动所表现出来的。运动友谊质量是在运动情景中一类独特的交往状态，前人研究表明，学生自己选择是否参加体育锻炼与比赛，参加过程中确立的友谊是学生坚持体育锻炼的原因。因此，本研究力求高校体育教师领导行为对学生锻炼行为的影响，以及运动友谊质量的中介作用，进而有效的带动和促进学生积极参加体育锻炼，养成终身体育锻炼的习惯，为我国体育事业添砖加瓦。**研究方法：**本文运用文献资料法、问卷调查法及数理统计法为主要研究方法。选择 476 名在校大学生为调查对象，向调查对象发放体育教师领导行为调查问卷、学生体育锻炼量表、青年运动友谊质量量表并回收，回收有效问卷 447 份，问卷回收有效率 93.90%，运用 SPSS26.0 与 AMOS24.0 进行方差分析、相关分析、回归分析及中介效应检验($P<0.01$)，各量表信效度良好。**研究结果：**1.高校体育教师领导行为对学生锻炼行为、高校体育领导行为运动友谊质量、运动友谊质量对学生锻炼行为两两变量间具有显著相关性。2.高校体育教师领导行为能够正向预测学生锻炼行为($r = 0.372, p < 0.01$)，学生体育锻炼行为能够正向预测运动友谊质量($r = 0.296, p < 0.01$)，运动友谊质量能够正向预测体育锻炼行为($r = 0.278, p < 0.01$)。3.运动友谊质量对高校体育教师领导行为和学生锻炼行为占中介总效应的 17%。**研究结论：**高校体育教师领导行为对学生锻炼行为起到正向影响作用，且运动友谊质量在高校体育教师领导行为对学生锻炼行为起到中介作用。本研究通过探索三者之间的关系，为提高学生体质健康发展以及后续研究提供实证参考。

关键词 教师领导行为，学生锻炼行为，运动友谊质量

The influence of college physical education teachers' leadership behavior on students' exercise behavior—the mediating role of sports friendship quality

Xin Xue[1] Mingyang Liu[1] Yuanguo Liu[2]

Shenyang Sport University, No.36 jinqiansong east road, sujiatun district, Shenyang

***Abstract*:** In recent years, the physical fitness of college students has declined year by year, and although the state has successively introduced relevant policies, the downward trend has not been alleviated. Physical exercise is an inevitable requirement for improving physical fitness students, and the leadership behavior of physical education teachers is one of the important factors to improve students' physical exercise behavior. College physical education teachers are the instructors to promote students' physical health, and the language behavior of physical education teachers has a huge impact on students' exercise, and their leadership behavior is expressed in the interaction with students in the classroom. The quality of sports friendship is a unique type of communication state in sports situations, and previous studies have shown that students choose whether to participate in physical exercise and competitions, and the friendship established in the process of participation is the reason why students insist on physical exercise. Therefore, this study seeks to focus on the influence of the leadership behavior of college physical education teachers on students' exercise behavior, as well as the mediating role of sports friendship quality, so as to effectively drive and promote students to actively participate in physical exercise, develop the habit of lifelong physical exercise, and contribute to China's sports cause. Research Methods: This paper uses literature

method, questionnaire survey method and mathematical statistics method as the main research methods. A total of 476 college students were selected as the survey subjects, and the physical education teacher leadership behavior questionnaire, student physical exercise scale, youth sports friendship quality scale were distributed to the survey subjects and collected, 447 valid questionnaires were collected, and the questionnaire recovery efficiency was 93.90%, and SPSS26.0 and AMOS24.0 were used for ANOVA, correlation analysis, regression analysis and mediation effect test ($P < 0.01$), the reliability and validity of each scale is good. The results showed that: 1. There was a significant correlation between the leadership behavior of college physical education teachers on students' exercise behavior, the sports leadership behavior of college sports leadership behavior, the quality of sports friendship, and the quality of sports friendship on students' exercise behavior. 2. The leadership behavior of college physical education teachers can positively predict students' exercise behavior ($r = 0.372$, $p < 0.01$), students' physical exercise behavior can positively predict the quality of sports friendship ($r = 0.296$, $p < 0.01$), and the quality of sports friendship can positively predict physical exercise behavior ($r = 0.278$, $p < 0.01$). 3. The quality of sports friendship accounted for 17% of the total mediating effect on the leadership behavior of college physical education teachers and students' exercise behavior. The study concluded that the leadership behavior of college physical education teachers has a positive influence on students' exercise behavior, and the quality of sports friendship plays a mediating role in the leadership behavior of college physical education teachers on students' exercise behavior. By exploring the relationship between the three, this study provides an empirical reference for improving students' physical health development and subsequent research..

Keywords：Teacher leadership behavior, Students exercise behavior,Sports friendship quality

促进身体活动和锻炼行为的心理因素研究进展（2020-2023）

张仲昊[1]　王俞卜[1]　郭璐[2]（通讯作者）
1 北京体育大学心理学系，北京，100084
2 北京体育大学心理学系，北京，100084，guolu2000@163.com

摘 要　促进身体活动/锻炼对改善人们的身心健康至关重要。为梳理总结近几年促进身体活动/锻炼行为心理因素的研究，本文通过主题词在中国知网和 Web of Science 数据库中检索了近三年的有关实证研究，筛选出 2546 篇符合主题词的国外学者研究和 193 篇国内学者研究（中文文献 80 篇、英文文献 113 篇）。结果表明，第一，国外 10%的研究基于理论模型，基于社会认知理论和维持理论的研究数量逐渐减少，基于人本主义理论的研究占据主流。目前没有单一、最佳的理论模型来预测身体活动/锻炼的动机或行为的改变，研究者逐渐认识到身体活动/锻炼行为不仅是出于认知决策，因此未来要加强对注重情感过程的双过程理论的验证。相比之下，国内研究将弥补身体活动/锻炼意向和行为之间的鸿沟作为共识，更注重沿着成熟理论积累证据(例如计划行为理论和自我决定理论)，有 18%的研究基于成熟的理论模型，这使该领域预测身体活动/锻炼的水平较稳定。第二，注重探讨针对不同群体的身体活动/锻炼促进因素，国外 34%的研究针对儿童青少年，39%的研究针对临床患者，18%的研究针对老年人，29%的研究针对成年人，国内研究也有相似的趋势，但国外学者更重视细分不同群体，针对人群特点进行研究，例如幼儿的父母，少数族裔等。第三，国内研究者更重视个人因素（48%）对身体活动/锻炼的促进作用，例如信念和动机，而国外研究者更重视环境因素（34%）对身体活动/锻炼的促进作用，例如设施，天气等。第四，从久坐行为的角度理解身体活动/锻炼促进因素的研究仍需加强，国外有 17%的研究关注了久坐行为，国内则更少，仅 8%的研究关注了久坐行为。影响人们是否参加身体活动/锻炼的心理因素复杂多样，未来研究应该拓展理论模型外的心理因素，例如运动障碍感知和同伴示范行为；注意在行为近端而不是远端增加心理因素；深入探讨针对身体活动/锻炼行为，而非所有行为的心理因素；进一步增强对促进身体活动/锻炼的情感系统的研究；重视使用加速度计等客观评定工具测量身体活动/锻炼。

关键词　身体活动，锻炼行为促进，动机，双过程理论

A review of psychological factors promoting exercise and physical activity: Progress and prospects from 2020 to 2023

Zhonghao Zhang　Yubu Wang　Lu Guo
Beijing Sport University, Beijing, 100084

Abstract：Physical activity/exercise is very important for physical and mental health. To sort out the research on psychological factors that promote physical activity/exercise behavior in recent years, our study used subject words to search the relevant empirical research in China National Knowledge Infrastructure and Web of Science databases from 2020 to 2023. A total of 2546 foreign scholars' studies and 193 China scholars' studies (80 in Chinese and 113 in English) were screened out. The results show that, firstly, ten percent of foreign studies are based on theories or models. Among them, the number of studies based on social cognitive theory and maintenance theory is gradually decreasing, and the researches based on humanistic theory are the mainstream. At

present, there is no single and the best theoretical model to predict the change of motivation or behavior of physical activity/exercise. Researchers gradually realize that physical activity/exercise is not only caused by cognitive decision-making, but also by affective process. Therefore, it is necessary to strengthen the research on the dual-process theory in the future. In contrast, domestic researches pay more attention to accumulating evidence based on mature theories, such as theory of planned behavior and self-determination theory. Eighteen percent of these studies are based on mature theoretical models, which makes the level of predicting physical activity/exercise in this field more stable. Secondly, there are many studies focusing on the factors that promote physical activity/exercise for different groups. In foreign countries, Thirty-four percent of these studies are aimed at children and adolescents, Thirty-nine percent at clinical patients, eighteen percent at the elderly, and Twenty-nine percent at adults. There is a similar trend in domestic researches. But foreign scholars pay more attention to subdividing different groups, such as new parents and ethnic minorities. Thirdly, domestic researchers pay more attention to the promotion of personal factors (48%) on physical activity/exercise, such as belief and motivation, while foreign researchers pay more attention to the promotion of environmental factors (34%) on physical activity/exercise, such as built environment and weather. Fourthly, it is necessary to emphasize sedentary behavior to understand the physical activity/exercise promotion factors from the perspective of sedentary behavior. Seventeen percent of foreign studies pay attention to sedentary behavior, while there are even fewer in China, with only eight percent paying attention to sedentary behavior. The psychological factors that affect whether people participate in physical activities/exercises are complex and diverse. Future research should pay attention to the following points: (1) Future studies should expand the psychological factors that are not included in the theoretical model. (2) Researchers should increase psychological factors at the near end of behavior rather than at the far end. (3) Investigators should specially discuss the psychological factors for physical activity/exercise behavior rather than all behaviors. (4) Researchers should strengthen the affective system to promote physical activity/exercise. (5) Investigators should use objective tools such as accelerometers to measure physical activity/exercise.

Keywords：Physical activity promotion, motivation, dual processes theory

不同运动专项大学生视觉工作记忆的差异比较---一项 ERP 研究

余力[1]

1 武昌工学院，武汉，430007,1345504830@qq.com

摘 要　视觉系统作为“心灵的窗户”,对人们感知外部信息,了解客观世界起到了不可或缺的作用，然而人脑无法一次性加工海量的信息,需要视觉工作记忆暂时的存储和操纵环境中的视觉信息,让大脑对外界离散动态、变幻莫测的视觉刺激形成统一、清晰的认识。以往学者认为视觉工作记忆存储容量有限,且其编码和加工为单一过程。近年来学者提出了“视知觉与视觉工作记忆交互模型”,打破了将视觉工作记忆作为视知觉后续阶段的传统认知,认为视知觉和视觉工作记忆动态交互,在线完成客体信息表征,视知觉的表征可以并行进入到视觉工作记忆中。运动领域研究表明,长期的运动经验可以提高视知觉的表现,也有研究证明运动经验可以提高视觉工作记忆表现,但运动经验类别以及其原因并不明晰。本研究基于前人研究采用时空相关理论设计的两种知觉材料,使用变化察觉范式,结合 ERP 技术进行了 3(从事开放性运动专项大学生、从事闭锁性运动专项大学生、普通大学生)×2(有知觉组织、无知觉组织)的混合实验设计。得到了如下结果:1.行为学结果上知觉组织类别和运动专项类别的交互作用显著,篮球组和高尔夫组在有知觉组织的条件下视觉工作记忆的正确率显著高于无知觉组织的条件,而普通大学生在有无知觉组织条件上无显著差异。2.脑电结果上运动专项类别在后顶叶 P7 电极点的 P1、N1 潜伏期差异显著,篮球组的潜伏期大于高尔夫组与普通大学生组;运动专项类别与知觉组织的交互作用在枕颞叶 PO8 电极点 P1 成分的潜伏期上差异显著,篮球组在有知觉组织的条件下潜伏期小于无知觉组织条件;知觉组织在 O2、PO8、P8 电极点 N1 的波峰上差异显著,有知觉组织的波峰显著小于无知觉组织的波峰。

关键词　视工作记忆;视知觉;大学生;运动专项;ERP

Comparison of Visual Working Memory of College Students with Different Sports Specialities: An ERP Study

Yu Li

Wuchang Institute of Technology, Wuhan

Abstract：As the "window of the soul", the visual system plays an indispensable role in people's perception of external information and understanding of the objective world. At least 80%-90% of information is input to the brain from the visual system every day.However, the human brain cannot process massive information at one time, which requires the visual working memory to temporarily store and manipulate the visual information in the environment, so that the human brain can form a unified and clear understanding of the external discrete, dynamic and unpredictable visual stimuli.Visual working memory is the basis of higher cognition, but its storage capacity is

limited, which requires it to effectively encode and process visual information in the environment.In recent years, scholars have put forward the "visual perception and visual working memory interaction model", broke the traditional cognition that visual working memory is the later stage of visual perception, think there have a dynamic interaction that visual perception and visual working memory object information process online, so the characterization of visual perception can be parallel to the visual working memory.Sports field studies have shown that long-term experience in sports can promote the performance of visual perception, there are also some studies have shown that exercise can improve visual working memory performance, so this study wanted to base the visual working memory and visual perception interactive model to explore the difference that sport category effects on visual working memory, special college students more engaged in open movement and atresia type sports special visual working memory of the differences between college students, enrich the cognitive studies of sport-specific skills, but also provides new thought of exercise for visual cognitive aging.

In this study, we used two perceptual materials designed by predecessors based on spatial-temporal correlation theory, adopted change detection paradigm and combined with ERP technology to carry out a mixed experimental design of 3 (college students engaged in open sports, college students engaged in locked-in sports, and ordinary college students) ×2 (perceptual organization, non-perceptual organization).The results are as follows:

1. The interaction between perceptual organization category and sport-specific category was significant in behavioral result. The accuracy of visual working memory in the basketball group and the golf group was significantly higher in the perceptual organization condition than in the non-perceptual organization condition, while there was no significant difference in the non-perceptual organization condition among ordinary college students.

2. As for the EEG results, there were significant differences in the P1 and N1 latency of the P7 electrode point in the posterior parietal lobe of the sports category, and the latency of the basketball group was longer than that of the golf group and the ordinary college students group. In the occipitotemporal lobe PO8 electrode point, there was a significant difference in P1, because the interaction of sports category and perceptual organization. The latency of basketball group in the perceptual organized condition was smaller than in that no perceptual organized condition.The difference of perceived tissue on the peak of O2, PO8 and P8 electrode point N1 was significant, and the peak of perceptive tissue was significantly smaller than that of non-perceptive tissue.

Keywords：Visual working memory；Visual perception；Open exercise；Closed exercise

运用催眠技术对青少年运动员心理健康的干预 —— 一项个案研究

班亚东[1] *张丹[2]
1 四川体育职业学院，成都，610043
2 四川省体育科学研究所，四川省反兴奋剂中心，成都，610000，178750231@qq.com

摘 要 “青少年运动员”群体是当今社会中较少关注的，却具代表性的一类特殊群体，他们大多在儿童时期选拔进入专业运动队，开启职业运动员生涯，离开原生家庭开始集体生活和职业竞争，承受了举国体质下竞技体育为国争光的责任与压力，运动员群体心理健康问题日益凸显。诸多临床研究和案例报告显示,催眠可以应用于治疗儿童青少年的焦虑、行为障碍、疼痛以及其他适应症。本研究以探讨催眠对青少年运动员心理健康的干预效果为主要目的，采用个案研究法来评估干预效果，选取四川省羽毛球队青少年组女性运动员 1 名，年龄 14 岁，专业受训 5 年。采用共计 8 周，每周 2 次进行约 45 分钟的身体扫描催眠干预。研究结论：干预后 1 周，运动员进行自我评估，认为自己在训练中注意力有了明显的提高，在与队友的人际关系方面有了明显的提升，失眠、肠胃胀气明显缓解；教练员评估，运动员在表达沟通方面更加大胆，训练有效时间增长；咨询师评估，运动员在控制情绪、焦虑等方面有提升，纠正了过往在训练、集体生活中的不良行为模式，改善了与队友之间的关系，现实检验能力增强。运用催眠技术，可以改善青少年运动员在注意力、人际关系、不良行为和身心症状等方面的问题，帮助青少年运动员对自身和他人有了更客观、深刻的认知，人格进一步得到完善。

关键词 催眠，青少年运动员，心理健康

The application of hypnosis technology to the mental health intervention of young athletes: a case study

Ban yadong[1] *Zhang Dan[2]
1 Sichuan Sports college, Chengdu, 610043
2 Sichuan Research Institute Of Sports Science, Sichuan Anti-doping Agency, Chengdu, 610000，
178750231@qq.com

Abstract："Young athletes" are a special group that is less concerned in modern society, but they are representative. Most of them are selected into professional sports teams when they are children, start their career as professional athletes, leave their native families to start collective life and professional competition, and bear the responsibility and pressure of competitive sports to win honor for the country under the national constitution. The mental health problems of athletes have become increasingly prominent. Many clinical studies and case reports have shown that hypnosis can be used to treat anxiety, behavioral disorders, pain, and other indications in children and adolescents. The purpose of this study is to explore the intervention effect of hypnosis on the mental health of young athletes. The case study method was used to evaluate the intervention effect. A 14-year-old female athlete from the adolescent group of Sichuan Provincial badminton team was selected, who had been trained professionally for 5 years. The body scan hypnosis

intervention was conducted for about 45 minutes twice weekly for 8 weeks.Conclusions: One week after the intervention, the athletes self-evaluated that they had significantly improved their attention during training, had significantly improved their interpersonal relationship with teammates, and had significantly relieved insomnia and flatulation. The coaches evaluated that the athletes were bolder in expression and communication, and the effective training time increased. Counselors evaluated that athletes had improved emotional control and anxiety, corrected past bad behavior patterns in training and group life, improved relationships with teammates, and enhanced reality checking ability. The application of hypnosis technology can improve the attention, interpersonal relationship, bad behavior and psychosomatic symptoms of young athletes, help young athletes to have a more objective and profound cognition of themselves and others, and further improve their personality.
Keywords：Hypnosis, Young athletes, Mental health

体育锻炼的意向-行为鸿沟：锻炼习惯和启动性自我控制的调节作用

肖明兰　杨寅（通讯作者）
北京体育大学心理学院，北京，100084，yangyin@bsu.edu.cn

摘 要　时限性自我调节理论(Temporal Self-regulation Theory, TST)指出，在“意图-行为”模型基础上，行为优势和自我调节能力调节“意图-行为”联系的强度或直接影响行为。行为优势是人类做出某种优先于其他行为的反应，如个体过去的锻炼习惯；自我调节通常包含三个主要因素：标准、监控和操作，而自我控制是自我调节中的操作部分。近年来，研究者认为自我控制同时包含抑制性自我控制(inhibitory self-control)和启动性自我控制(initiatory self-control)，前者强调抑制冲动而不被短期利益所诱惑，后者强调人们要为实现长远目标而积极主动地执行控制行为。本研究旨在检验锻炼习惯和自我控制是否在体育锻炼的意向-行为鸿沟中起到调节作用，且重点探讨究竟是哪种自我控制影响人们参与体育锻炼。采用自编的人口统计学调查问卷、锻炼态度量表的行为意向和行为习惯分量表、多维自我控制量表(MSCS)以及体育活动等级量表(PARS-3)对成年人群进行施测，回收有效问卷 657 份(M_{age} = 26, SD = 9.27; 男性 187 人, 女性 470 人)。运用 SPSS 26.0 软件的 PROCESS 插件进行中心化的调节效应分析。结果发现，在控制性别、年龄、BMI 等人口统计学变量后，锻炼意向显著正向预测锻炼行为，且锻炼习惯、自我控制在锻炼意向与锻炼行为之间的调节效应存在；分别对启动性自我控制和抑制性自我控制进行检验发现，只有启动性自我控制显著调节锻炼意向和锻炼行为之间的关系。进一步简单斜率检验发现，无论锻炼习惯和启动性自我控制高于或低于平均水平，锻炼意向均显著正向预测锻炼行为；但当锻炼习惯和启动性自我控制处于较低水平时，锻炼意向对锻炼行为的正向预测作用相对减弱。研究结果表明，锻炼意向是锻炼行为重要的预测因素，体育锻炼作为一种短期可能不那么具有吸引力但长期有积极结果的行为，需要个体更多的主动发起行为并长期坚持形成锻炼习惯，而不仅仅是抑制其他诱惑或冲动，提示进行针对性的自我控制干预的重要性。

关键词　意向-行为鸿沟，习惯，启动性自我控制，时限性自我调节理论

The intention-behavior gap in physical exercise: the moderating role of exercise habits and initiatory self-control

XIAO Minglan, YANG Yin
School of Psychology, Beijing Sport University, Beijing, 100084

***Abstract*：** According to Temporal Self-regulation Theory (TST), based on the intention-behavior model, behavioral dominance and self-regulation ability regulate the intensity of the intention-behavior connection or directly affect behavior. The behavioral dominance is a human response that takes precedence over other behaviors, such as an individual's past exercise habits. Self-regulation usually consists of three main elements: standards, monitoring and operation, and self-control is the operational part of self-regulation. In recent years, researchers believe that self-control includes both inhibitory self-control and initiatory self-control. The former emphasizes the need to restrain impulses and not be tempted by short-term interests, while the latter emphasizes the need to actively perform control behaviors to achieve long-term goals. The purpose of this study is to examine whether exercise habits and self-control play a moderating role in the intention-behavior gap of physical exercise, and to

explore what kind of self-control influences people's participation in physical exercise. Self-designed demographic questionnaire, behavioral intention and behavior habit subscale of Exercise attitude Scale, Multidimensional Self-control Scale (MSCS) and Physical activity rating Scale (PARS-3) were used to test the adult population. 657 valid questionnaires were collected (M_{age} = 26, SD = 9.27; 187 men and 470 women). The PROCESS of SPSS 26.0 software was used to analyze the moderating effect of centralization. The results showed that after controlling for gender, age, BMI and other demographic variables, exercise intention significantly positively predicted exercise behavior, and exercise habits and self-control had a moderating effect between exercise intention and exercise behavior. It was found that only the initiatory self-control significantly regulated the relationship between exercise intention and exercise behavior. A simple slope test showed that exercise intention positively predicted exercise behavior regardless of whether exercise habits and initiatory self-control were above or below the average level. However, when exercise habits and initiatory self-control are at a low level, the positive predictive effect of exercise intention on exercise behavior is relatively weakened. The results show that exercise intention is an important predictor of exercise behavior. Physical exercise, as a behavior that may not be attractive in the short term but has positive results in the long term, requires individuals to initiate more active behaviors and adhere to the formation of exercise habits in the long term, rather than just resisting other temptations or impulses. This study suggests the importance of targeted self-control interventions.

Keywords：intention-behavior gap, habit, initiatory self-control, temporal self-regulation theory

动作倾向与判断效用对运动预判的影响

王君瑜[1] 任鹏飞[2] 迟立忠[1]（通讯作者）
1 北京体育大学心理学院，北京，100084
2 延安大学体育学院，陕西，716000
1 北京体育大学心理学院，北京，100084，chilizh3804@163.com

摘 要 运动预判是指运动员在过去经验的基础上形成的对对手动作、比赛趋势、比赛结果等的预测，是通过对运动情境中信息的有效加工产生的。前人研究多集中在真动作条件下非运动学信息（如动作倾向）与运动预判之间的关系，但鲜有研究者考虑假动作条件下两者的关系，及判断效用在其中的调节作用。本研究拟以足球运球方向判断任务为载体，探究动作倾向对足球运动员运动预判的影响，以及判断效用在其中的调节作用。该研究可帮助运动员、教练员和运动领域心理学工作者更深入地了解运动预判过程中的信息动态加工，从而更有效地开展运动预判训练。本研究共招募 72 名参与者人，并将其随机分配到有动作诱发组和无动作诱发组。两组被试均先采用“学习-反馈”方式进行动作诱发。诱发组的比例为 80/20，即在诱发任务中更大比例偏向左侧；无诱发组的比例为 50/50，即诱发任务中左右倾向各为 50/50，左右并无方向偏差。随后，两组均进行高低判断效用诱发。判断效用采用结合足球比赛实际的图片进行诱发。低判断效用条件下，左右两侧无显著差异，高判断效用条件下对个体右侧的错误反应给予更高的惩罚。最后进行正式实验，每组被试都要完成一致性条件 80/20、中性条件 50/50 以及真假动作的全部实验任务。以动作倾向诱发（有、无)、一致性条件（一致、中性)、动作类型（真、假)和判断效用（高、低)为自变量，将判断的左侧反应比例作为因变量，进行重复测量方差分析。研究发现判断效用、一致性和动作类型三者之间存在显著交互作用($F(1,70) = 30.853, p < .001, \eta^2_p = .306$)。进一步简单效应分析表明，在高判断效用时，呈现真动作视频后，一致性条件下的左侧反应比率高于中性条件；呈现假动作视频后，一致性条件下的左侧反应比例高于中性条件；而低判断效用时，呈现真动作视频后，一致性条件的左侧反应比率高于中性条件；呈现假动作视频后，一致性条件下的左侧反应比例低于中性条件。本研究发现，运动员可同时依据运动学信息和非运动学信息（情景先验）进行动作预判，且优先处理可靠性更高的信息；在两类信息的利用方式上符合贝叶斯统计模型；判断效用会影响运动学信息和非运动学信息的整合，但信息整合方式尚需进一步探讨。

关键词 运动预判，动作倾向，判断效用，假动作，贝叶斯模型

The influence of action preference and judgment utility on anticipation

Wang Junyu[1] , Ren Pengfei[2] , Chi Lizhong[3] (Corresponding Author)
1 School of Psychology, Beijing Sport University, Beijing, 100084
2 School of Sport, Yan’an University, Shanxi,716000
3 School of Psychology, Beijing Sport University, Beijing, 100084, chilizh3804@163.com

***Abstract*：** Sports anticipation refers to the prediction that athletes make based on past experiences regarding their opponents' movements, game tendencies, and game outcomes. It is generated through effective processing of information in sports contexts. Previous studies have mainly focused on the relationship between non-kinematic information (such as action tendencies) and sports anticipation under real-action conditions, while there is little research considering the relationship between the two under fake-action conditions, as well as the moderating role of judgment utility. This study aims to investigate the influence of action tendencies on sports anticipation among soccer players, as well as the moderating effect of judgment utility. This research can help athletes, coaches, and sports psychologists gain a deeper understanding of the dynamic processing of information in the process of sports anticipation and thus conduct more effective sports anticipation training. A total of 72 participants will be recruited for this study and randomly assigned to the action-induced group and the non-action-induced group. Both groups will undergo action induction through a "learning-feedback" paradigm. In the action-induced group, the ratio is set as 80/20, indicating a greater tendency towards the left side in the induction task. In the non-action-induced group, the ratio is set as 50/50, indicating equal left and right tendencies with no directional bias. Subsequently, both groups will undergo high and low judgment utility induction. Judgment utility will be induced using pictures that combine with actual soccer matches. Under the low judgment utility condition, there will be no significant difference between the left and right sides, while under the high judgment utility condition, higher punishment will be given for incorrect responses on the right side. Finally, the formal experiment will be conducted, in which each group of participants will complete all experimental tasks under consistency conditions of 80/20 and 50/50, as well as with real and fake actions. Using action tendency induction (with or without), consistency condition (consistent or neutral), action type (real or fake), and judgment utility (high or low) as independent variables, the percentage of left responses in judgment will be used as the dependent variable, and a repeated measures analysis of variance will be conducted. The study found a significant interaction effect among judgment utility, consistency, and action type ($F(1,70) = 30.853$, $p < .001$, $\eta^2_p = .306$). Further simple effect analysis showed that under high judgment utility, the left response rate under the consistent condition was higher than that under the neutral condition when real action videos were presented, and the left response rate under the consistent condition was also higher than that under the neutral condition when fake action videos were presented. However, under low judgment utility, the left response rate under the consistent condition was higher than that under the neutral condition when real action videos were presented, and the left response rate under the consistent condition was lower than that under the neutral condition when fake action videos were presented. This study found that athletes can make anticipatory judgments based on both kinematic information and non-kinematic information (contextual priors), and they prioritize the processing of more reliable information. The utilization of these two types of information conforms to the Bayesian statistical model. Judgment utility affects the integration of kinematic and non-kinematic information, but the integration process still requires further exploration.

***Keywords*：** sport anticipation, action tendency, deceptive action, judgment utility, Bayesian model

体育锻炼对大学生睡眠障碍的影响：心理资本和心理疲劳的链式中介效应

董亚琦[1]　周琼[2]　陈伟琴[3]

1 共青城市中学，江西九江，332020

2 江西师范大学科学技术学院，江西九江，332020，1445330089@qq.com

3 江西应用科技学院 江西南昌,330100

摘 要 **目的：**研究体育锻炼对大学生睡眠障碍的影响机制，分析心理韧性和心理疲劳的链式中介效应，以期为通过体育锻炼改善大学生睡眠质量提供实证参考。**方法：**运用相关分析法、多元回归分析法、Bootstrap检验法对江西省共青科教城757名大学生的相关数据进行分析。**结果：**（1）体育锻炼、心理资本、心理疲劳和大学生睡眠障碍存在显著相关性（P<0.001）；回归分析结果显示，体育锻炼能显著正向预测大学生心理资本水平（β=0.258，P<0.01），还能显著负向预测心理疲劳水平（β=-0.332，P<0.01），体育锻炼能显著预测大学生的睡眠障碍（β=-0.162，P<0.01）。大学生心理资本能显著负向预测大学生的心理疲劳水平（β=-0.327，P<0.01）；心理资本能显著负向预测大学生睡眠障碍（β=-0.300，P<0.01），心理疲劳能显著正向预测大学生睡眠障碍（β=0.457，P<0.01）。另Bootstrap检验法结果显示，体育锻炼能直接减缓大学生的睡眠障碍，直接效应为-0.1622，直接效应占比为37.7%。还能通过心理资本和心理疲劳的作用间接影响大学生的睡眠障碍，间接效应为-0.2677，间接效应占比为62.3%。**结论：**体育锻炼可以直接降低大学生的睡眠障碍，还能通过心理资本和心理疲劳间接影响大学生的睡眠障碍。因此，充分认识体育锻炼的价值和功能，在体育教学中，鼓励大学生主动形成健康的锻炼习惯和生活方式，通过规律化和个性化的体育锻炼提高大学生的心理资本水平，有效缓解大学生的心理疲劳，从而提高大学生的睡眠质量。

关键词 大学生，体育锻炼，心理资本，心理疲劳，睡眠障碍

基金项目 江西省教育科学“十四五”规划项目

The Influence of Physical Exercise on Sleep disorder of College Students: The Chain Mesomeric effect of Psychological Capital and Psychological Fatigue

Dong Yaqi 1, Zhou Qiong 2, Chen Weiqin 3

1 Gongqingcheng Middle School, Jiujiang, Jiangxi, 332020

2 College of Science and Technology, Jiangxi Normal University, Jiujiang, Jiangxi, 332020, 1445330089@qq.com

3 Jiangxi University of Applied Science and Technology, Xinyu, Jiangxi, 330100

Abstract: Objective: To study the influence mechanism of physical exercise on college students' Sleep disorder, and analyze the chain Mesomeric effect of psychological resilience and mental fatigue, so as to provide empirical reference for improving college students' sleep quality through physical exercise. **Method:** Correlation analysis, multiple regression analysis, and Bootstrap test were used to analyze the relevant data of 757 college students in Jiangxi Gongqing Science and Education City. **Results:** (1) Physical exercise, mental capital, mental fatigue and Sleep disorder of college students were significantly correlated (P<0.001); Regression analysis results show that physical exercise can significantly positively predict the level of psychological capital of college students（β= 0.258, P<0.01), which can also significantly negatively predict the level of psychological fatigue（β=-0.332,

P<0.01), physical exercise can significantly predict college students' Sleep disorder （β=-0.162, P<0.01). Psychological capital of college students can significantly negatively predict the level of psychological fatigue among college students（ β=-0.327, P<0.01); Psychological capital can significantly negatively predict college students' Sleep disorder（ β=-0.300, P<0.01), mental fatigue can significantly and positively predict college students' Sleep disorder（β= 0.457, P<0.01). In addition, the Bootstrap test results show that physical exercise can directly alleviate college students' Sleep disorder, the direct effect is -0.1622, and the direct effect accounts for 37.7%. It can also indirectly affect college students' Sleep disorder through the role of psychological capital and mental fatigue, with an indirect effect of -0.2677, accounting for 62.3%. **Conclusion:** Physical exercise can directly reduce college students' Sleep disorder, but also indirectly affect college students' Sleep disorder through psychological capital and mental fatigue. Therefore, fully understanding the value and function of physical exercise, in physical education teaching, we encourage college students to actively form healthy exercise habits and lifestyles, improve their psychological capital level through regular and personalized physical exercise, effectively alleviate their psychological fatigue, and thus improve their sleep quality.

Keywords: college students, Physical exercise, Psychological capital, Psychological fatigue, Sleep disorder

Fund project: Jiangxi Provincial Education Science "14th Five Year Plan" Project

神经质人格对运动员精力的影响：焦虑和心智游移的链式中介作用

李洁玲[1, 2] 李创业[1]

1 河北师范大学体育学院，石家庄，050024

2 河北省人体运动生物信息测评重点实验室，石家庄，050024,lijieling@hebtu.edu.cn

摘 要 目的：精力在体育运动中扮演着重要角色并且与运动表现息息相关。已有研究证明神经质人格会影响个体的精力等相关情绪，但其内在机制尚不清楚。焦虑和心智游移也同样被证明会影响运动员的情绪状态，并且多以神经质人格研究为主。因此本研究旨在考察神经质人格与精力之间的关系，并探讨赛前焦虑和心智游移在两者关系中的作用。方法：采用《中文形容词大五人格量表简式版》、《心境状态量表》、《运动员心智游移量表》和《赛前情绪量表-T 简版》收集 591 名运动员的数据。使用 SPSS 22.0 对各相关变量进行相关分析。使用 Mplus 7.0 进行验证性因素分析检验所使用量表的信度、收敛效度、模型的拟合度以及远程中介效应。结果：运动员神经质人格与精力呈显著负相关，与心智游移和赛前焦虑呈显著正相关；精力与心智游移和赛前焦虑呈显著负相关；心智游移和赛前焦虑呈显著正相关。各量表的信、效度及其各模型拟合度良好。神经质人格对精力产生的直接效应显著（β= -0.511, $p < 0.001$）。“神经质人格→焦虑→精力”存在显著的间接效应（β=-0.056,BC 95% CI=[-0.091，-0.028]）。“神经质人格→心智游移→精力”存在显著的间接效应（β=-0.030,BC 95% CI=[-0.054，-0.014]）。由“神经质人格→焦虑→心智游移→精力”产生的链式中介效应显著（β=-0.010,BC 95% CI=[-0.023，-0.002]）。结论：神经质人格对运动员精力具有预测效应，这种效应的机制包括神经质人格的直接效应以及通过焦虑、心智游移的间接效应。该研究结果为系统考察神经质人格与精力的关系提供了参考依据，为保证运动员精力而提升运动表现提供了理论依据。

关键词 神经质，运动员，心智游移，精力，焦虑

The Effect of Neuroticism on Athletes' Vigor: The Serial Mediating Roles of Anxiety and Mind Wandering

Jieling LI[1,2], Chuangye LI [1]

1 School of Physical Education, Hebei Normal University, Shijiazhuang, 050024

2 Key Laboratory of Measurement and Evaluation in Exercise Bioinformation of Hebei Province, Shijiazhuang, 050024

Abstract: Objective: Vigor plays an important role in sports and is closely related to sports performance. It has been proved that neuroticism can affect individual vigor and other related emotions, but its internal mechanism is still unclear. Anxiety and mind wandering have also been shown to affect the emotional of athletes, and most about the neuroticism. Therefore, this study aims to examine the relationship between neuroticism and vigor, and the role of anxiety and mind wandering between them. Methods: The data of 591 athletes were collected using the "Chinese Adjective Scale of Big Five Personality Brief version", the "Profile of Mood States", the "Athletes' Mind Wandering Scale"and the "Pre-Competition Emotion Scale-T Brief version". SPSS 22.0 was used to conduct correlation analysis of all relevant variables. Mplus 7.0 was used for confirmatory factor analysis to check the reliability, convergence validity, model fit and remote mediation effect of the scale used. Results: Neuroticism was negatively correlated with vigor and positively correlated with mind wandering and anxiety, vigor was significantly negatively correlated with mind wandering and anxiety, mind wandering was significantly positively

correlated with competition anxiety. The reliability and validity of each scale and the fit of each model were good. Neuroticism had a significant direct effect on vigor (β= -0.511, $p < 0.001$). There was a significant indirect effect on neuroticism → anxiety → vigor (β=-0.056, BC 95% CI=[-0.091, -0.028]). There was a significant indirect effect on neuroticism → mind wandering → vigor (β=-0.030, BC 95% CI=[-0.054, -0.014]). The serial mediation effect was significant (β=-0.010, BC 95%CI =[-0.023, -0.002]) from neurotic personality → anxiety → mind wandering → vigor. Conclusion: Neuroticism has a predictive effect on athletes' vigor. The mechanism of this effect includes the direct effect of neuroticism and the indirect effect through anxiety and mind wandering. The results of this study provide a reference for the systematic investigation of the relationship between neuroticism and vigor, it also provides a theoretical basis for ensuring athletes' vigor and improving sports performance.

Keywords: neuroticism, athlete, mind wandering, vigor, anxiety

体育锻炼对大学生睡眠障碍的影响：自我控制和负性情绪的中介效应

董亚琦[1]　饶芳[2]　何晴[3]　陈伟琴[3]

1 共青城市中学，江西九江，332020

2 南昌航空大学科技学院文理学部，江西九江 332020，384902281@qq.com

3 江西应用科技学院 江西南昌,330100

摘 要 **目的：**探讨体育锻炼对大学生睡眠障碍的影响机制，分析自我控制和负性情绪的链式中介效应，以期为通过体育锻炼改善大学生睡眠障碍提供实证参考。**方法：**运用相关分析法、多元回归分析法、Bootstrap检验法对江西省共青科教城757名大学生的相关数据进行分析。**结果：**（1）体育锻炼、自我控制、负性情绪和大学生睡眠障碍存在显著相关性（P<0.001）；回归分析结果显示，体育锻炼能显著正向预测大学生自我控制水平（β=0.234，P<0.01），还能显著负向预测大学生负性情绪水平（β=-0.130，P<0.01），还能负向预测大学生的睡眠障碍（β=-0.297，P<0.01）。大学生自我控制能显著负向预测大学生的负性情绪水平（β=-0.417，P<0.01）；自我控制能负向预测大学生睡眠障碍（β=-0.374，P<0.01），负性情绪能显著正向预测大学生睡眠障碍（β=0.200，P<0.01）。另Bootstrap检验法结果显示，体育锻炼能直接显著预测大学生的睡眠障碍，直接效应为-0.2967，直接效应占比为69%。还能通过自我控制和负性情绪的作用间接影响大学生的睡眠障碍，间接效应为-0.1330，间接效应占比为31%。**结论：**体育锻炼可以直接降低大学生的睡眠障碍，还能通过自我控制和负性情绪间接降低大学生的睡眠障碍。因此，充分认识体育锻炼的价值和功能，在体育教学中，鼓励大学生主动形成健康的锻炼习惯和生活方式，通过身体规训提高大学生的自我控制水平，有效改善负性情绪，从而提高大学生的睡眠质量。

关键词 体育锻炼；大学生；自我控制；负性情绪；睡眠障碍

基金项目 江西省教育科学“十四五”规划项目

The impact of physical exercise on sleep disorders of college students: the mediating effect of self-control and negative emotions

DONG Ya qi[1]　RAO Fang[2]　HE Qing[3]　CHEN Wei qin[3]

1.GongQingCheng Middle school,Jiujiuang,Jiangxi332020

2. Department of Arts and Sciences, College of Science and Technology, Nanchang Aviation University,Jiujiang332020, 384902281@qq.com

3.Jiangxi University of Applied Science and Technology, Nanchang, Jiangxi, 330100

Abstract: **Objective:** To explore the mechanism of the impact of physical exercise on the sleep disorders of college students, analyze the chain mediating effect of self-control and negative emotions, and provide empirical reference for improving the sleep disorders of college students through physical exercise. **Method:** Correlation analysis, multiple regression analysis, and Bootstrap test were used to analyze the relevant data of 757 college students in Jiangxi Communist Youth Science and Education City. **Result:** (1) There is a significant correlation between physical exercise, self-control, negative emotions, and sleep disorders of college students (P<0.001); Regression analysis results show that physical exercise can significantly positively predict the level of self-control among college students （ β= 0.234, P<0.01), which can also significantly negatively predict the negative emotional level of college students （ β=- 0.130, P<0.01), which can also predict the sleep disorders score of college students （ β=- 0.297, P<0.01). College students' self-control can significantly negatively predict their negative emotional levels （ β=- 0.417, P<0.01); Self control can negatively predict sleep disorders scores of college students（ β=- 0.374, P<0.01), negative emotions can significantly negatively predict sleep disorders scores

of college students（ β= 0.200, P<0.01). In addition, the Bootstrap test results showed that physical exercise can directly and significantly predict the sleep disorders of college students, with a direct effect of -0.2967 and a proportion of 69%. It can also indirectly affect the sleep quality of college students through self-control and negative emotions, with an indirect effect of -0.1330 and a proportion of 31%. **Conclusion:** Physical exercise can directly improve the sleep disorders of college students, and can also indirectly affect their sleep disorders through self-control and negative emotions. Therefore, fully understanding the value and function of physical exercise, in physical education teaching, we encourage college students to actively form healthy exercise habits and lifestyles, improve their self-control level through physical training, effectively improve negative emotions, and thus improve their sleep disorders.

Keywords: physical exercise; College students; Self control; Negative emotions; sleep disorders

体育旅游休闲涉入对游客重游意愿的影响：流畅体验和满意度的中介效应

董亚琦[1]　周琼[2]　饶芳[3]

1 共青城市中学，江西九江，332020

2 江西师范大学科学技术学院，江西九江，332020

3 南昌航空大学科技学院，江西九江 332020，384902281@qq.com

摘 要 **目的：**探讨休闲涉入对体育旅游重游意愿的影响机制，分析流畅体验和满意度的链式中介效应，以期为通过休闲涉入带动游客重游意愿提供理论依据。**方法：**运用相关分析法、多元回归分析法、Bootstrap检验法对江西省三个体育旅游景区 1592 名游客的调查数据进行分析。**结果：**（1）休闲涉入、流畅体验、满意度和重游意愿存在显著正相关（P<0.001）；回归分析结果显示，休闲涉入能显著正向预测游客的流畅体验（β=0.738，P<0.01）和满意度水平（β=0.570，t=,P<0.01），还能显著正向预测游客的重游意愿（β=0.087，P<0.01）。流畅体验能显著正向预测大游客的满意度水平（β=0.210，P<0.01）；流畅体验和满意度均对游客重游意愿有正向影响效应（β=0.629，P<0.01；β=0.194，P<0.01）。另 Bootstrap 检验法结果显示，休闲涉入能直接显著正向影响游客的重游意愿，直接效应为 0.087，直接效应占比为 12.6%。另外，休闲涉入还可以提高游客的流畅体验和满意度水平间接作用游客的重游意愿，间接效应为 0.6049，间接效应占比为 87.4%。**结论：**休闲涉入可以通过流畅体验和满意度间接影响游客的重游意愿。在体育旅游中，注重提高体育旅游景区的休闲设施及服务水平，注重游客流畅体验和满意度水平的提高，从而更大程度激起游客重游意愿。

关键词 休闲涉入；流畅体验；满意度；重游意愿；体育旅游

The influence of sports tourism leisure involvement on tourists' willingness to revisit: the intermediary effect of smooth experience and satisfaction

DONG Ya qi[1]　ZHOU Qiong[2]　RAO Fang[3]

1.GongQingCheng Middle school,Jiujiuang,Jiangxi332020

2. College of Science and Technology, Jiangxi Normal University, Jiujiang, Jiangxi, 332020

3. College of Science and Technology, Nanchang Aviation University,Jiujiang332020, 384902281@qq.com

Abstract:**Objective:** This paper discusses the influence mechanism of leisure involvement on the willingness to revisit sports tourism, analyzes the chain intermediary effect of smooth experience and satisfaction, with a view to providing a theoretical basis for promoting tourists' willingness to revisit through leisure involvement. **Methods:** Using correlation analysis, multiple regression analysis and Bootstrap test, this paper analyzes the survey data of 1592 tourists from three sports tourist attractions in Jiangxi Province. **Results:** (1) There was a significant positive correlation between leisure involvement, smooth experience, satisfaction and willingness to revisit (P<0.001); Regression analysis shows that leisure involvement can significantly and positively predict the flow experience of tourists（ β= 0.738, P<0.01) and satisfaction level（ β= 0.570, t=, P<0.01), which can also significantly predict tourists' willingness to revisit（ β= 0.087，P<0.01）。Smooth experience can significantly and positively predict the

satisfaction level of large tourists（ β= 0.210，P<0.01）； Both fluency experience and satisfaction have a positive impact on tourists' willingness to revisit（ β= 0.629，P<0.01； β= 0.194，P<0.01）。 In addition, the results of Bootstrap test show that leisure involvement can directly and significantly affect tourists' willingness to revisit, with a direct effect of 0.087 and a direct effect of 12.6%. In addition, leisure involvement can also improve the smooth experience and satisfaction level of tourists, which indirectly affects tourists' willingness to revisit, with an indirect effect of 0.6049 and an indirect effect of 87.4%. **Conclusion:** Leisure involvement can indirectly affect tourists' willingness to revisit through smooth experience and satisfaction. In sports tourism, we should pay attention to improving the leisure facilities and service level of sports tourism scenic spots, and pay attention to the improvement of tourists' smooth experience and satisfaction level, so as to stimulate tourists' willingness to revisit to a greater extent.

Keywords： leisure involvement; Smooth experience; Satisfaction; Willingness to revisit; sports tourism

6.11“法律心理专业委员会”分组展贴报告

欺骗的非言语线索以及性别和社会经济地位的影响——一项基于中国样本的研究

李贺 [1]

1 西北大学公共管理学院，西安，710127，lih@nwu.edu.cn

摘 要 识别欺骗行为对于维护人们的日常生活秩序以及临床、司法、国家安全等专门领域的工作均具有重要价值。而非言语线索在识别欺骗行为中发挥着至关重要的作用。但是，以往关于非言语欺骗线索的研究主要集中在西方国家，忽视了文化的差异。此外，以往研究大多以大学生为被试，难以代表社会群体在欺骗行为中的非言语表达。

本研究旨在考察中国文化背景下的社会群体在欺骗时的非言语行为线索，以及人际差异因素如性别、社会经济地位的影响。实验招募 50 名社会被试，男性 25 人，低社会经济地位 24 人，在平衡性别和社会经济地位的基础上，将被试随机分配到说谎组和说真话组。说谎组被试完成模拟犯罪活动；说真话组被试不参与模拟犯罪活动，而是阅读一段描述说谎组被试的模拟犯罪过程的文字。两组被试在完成上述活动之后接受模拟审讯，并需要在讯问中尽力证明自己是无辜的。

通过编码、分析被试的非言语线索，结果发现：说谎者相比于说真话者更频繁地表现出适应性动作；男性说谎者比男性说真话者表现出更多的阐述性动作，而女性说谎者则相对减少了使用阐述性动作；社会经济地位较高的男性说谎者比说真话者表现出更多的头部动作。这些发现加深了对中国文化中的非言语欺骗线索的认识，并表明非言语欺骗线索受到诸如性别、社会经济地位等人际差异因素的影响。

关键词 欺骗线索，人际差异，文化，性别，社会经济地位

Nonverbal Cues to Deception in a Chinese Sample and the Influence of Gender and Socioeconomic Status

He Li
School of Public Administration, Northwest University, Xi'an, China

Abstract：Detecting deception is of significant importance in maintaining order in people's daily lives and in specialized fields such as clinical practice, legal proceedings, and national security. Nonverbal cues play a crucial role in detecting deception. However, previous research on nonverbal deception cues has predominantly centered on Western countries, disregarding cultural differences. Moreover, most past studies have relied on university students as participants, which restricts the representation of nonverbal expressions of deception in more diverse social groups.

This study aimed to investigate the nonverbal cues displayed by social groups within the context of Chinese culture, along with the influence of interpersonal factors such as gender and socioeconomic status. The experiment recruited 50 social participants, with 25 males and 24 from lower socioeconomic backgrounds. Participants were randomly assigned to either a lying group or a truth-telling group, with an equal distribution of gender and socioeconomic status. The lying group engaged in a mock crime event, while the truth-telling group read a description of the mock crime process of the lying group. After these activities, both groups underwent a mock interrogation and had to prove their innocence to the best of their abilities.

The analysis of the participants' nonverbal cues revealed that liars exhibited a higher frequency of self-adaptors compared to truth tellers. Male liars displayed a greater frequency of illustrators than male truth tellers, while female liars showed a decrease in the use of illustrators compared to truth tellers. Additionally, male liars with higher SES exhibited more head movements than their counterparts who told the truth. These findings deepen our understanding of nonverbal deception cues within Chinese culture and underscore the influence of interpersonal factors such as gender and socioeconomic status on these cues.

Keywords：Deception cues, interpersonal differences, culture, gender, socioeconomic status

亲疏有别：愤怒情绪对欺骗行为的影响

黄朝政 周爱保（通讯作者）
甘肃政法大学犯罪心理测试技术研究中心，甘肃兰州，730070
通讯作者 E-mail：zhoulabpapers@163.com

摘 要　现实生活中最常见欺骗形式是利己欺骗，当对自我的好处大于对他人的伤害，个人更有可能撒谎。然而，当个人认为对他人的伤害超过了对自我的利益时，他们更有可能选择诚实。但在实际情境下有诸多因素影响了个体的欺骗行为，例如情绪。愤怒情绪会降低了个体对他人的同情心和增强自身利益来促进欺骗，致使个体更多的直觉处理，做出不理智的欺骗行为。同时，欺骗者和接受者之间的社会距离会在一定程度上影响欺骗行为，并且在不同社会距离下，欺骗者会有不同表现。已有研究发现双方关系越亲密，个体做出利他行为越多，当对象是陌生人时，个体做出的损己利他行为相对关系亲密者较少。同时有研究证实了愤怒情绪能够影响自我与他人社会距离的感知。因此，愤怒情绪和社会距离对欺骗行为都有一定的影响。虽然已有研究探索了不同社会距离在欺骗行为的作用，但大量研究还未将愤怒情绪和社会距离两者结合起来研究对欺骗行为的影响，对两者共同作用下的欺骗行为背后的原因也没有明确的定论。本研究采用2（情绪效价：愤怒情绪，中性情绪）×3（社会距离：朋友，陌生人，熟人）×2（欺骗类型：基线，自我受益-他人受益）混合实验设计，探讨了不同社会距离下愤怒情绪对欺骗行为的影响。实验结果发现中性情绪组在面对陌生人、朋友和熟人时做出了有利于双方的欺骗行为，双方均有获益。而愤怒情绪组做出了有损双方利益的欺骗行为，双方获益降低。通过本研究发现人们在愤怒状态下会降低对收益的期望以及对他人的同理心，更可能做出有损于双方的欺骗行为，尤其是在面对熟人的时候，被试相比陌生人和朋友，更倾向于损害熟人的利益。这可能说明了，人们对于社会距离较近的朋友和社会距离较远的陌生人，可以做出较为理性的欺骗决策，而对于社会距离适中的他人则是容易做出不理性的欺骗决策，出现“杀熟”行为。
关键词　愤怒情绪，欺骗行为，社会距离，共赢

Closeness makes a difference: the effect of anger on deceptive behaviour

Chaozheng Huang,　Aibao Zhou
Psychological Testing Technology Research Center,Gansu University of Political Science and Law Criminal，Lanzhou 730070

Abstract：The most common form of deception in real life is self-interested deception, where individuals are more likely to lie when the benefit to the self outweighs the harm to others. However, when individuals perceive that the harm to others outweighs the benefit to the self, they are more likely to choose honesty. However, there are a number of factors that influence an individual's deceptive behaviour in practical situations, such as emotions. The emotion of anger reduces the individual's empathy for others and enhances self-interest to promote deception, causing the individual to process more intuitively and engage in irrational deceptive behaviour. At the same time, the social distance between the deceiver and the receiver affects deceptive behaviour to a certain extent, and the deceiver will behave differently under different social distances. It has been found that the closer the relationship between the two parties, the more altruistic behaviours the individual makes, and when the target is a stranger, the

基金资助：甘肃省大学生创新创业计划训练项目（S202311406020），甘肃政法大学研究生科研创新项目（2023019）

individual makes less self-injurious and altruistic behaviours compared to those who are close to each other. Meanwhile, studies have confirmed that anger affects the perception of social distance between the self and others. Thus, both anger emotion and social distance have an effect on deceptive behaviour. Although studies have explored the role of different social distances in deceptive behaviours, a large number of studies have yet to combine both anger and social distance to investigate the effects on deceptive behaviours, and there is no clear and definitive conclusion on the reasons behind deceptive behaviours under the combined effect of the two. In this study, we used a mixed experimental design of 2 (emotional potency: angry emotion, neutral emotion) × 3 (social distance: friends, strangers, acquaintances) × 2 (type of deception: baseline, self-benefit-others' benefit) to investigate the effects of angry emotion on deceptive behaviour under different social distances. The results of the experiment found that the neutral mood group made deceptive behaviours that benefited both parties when confronted with strangers, friends and acquaintances, and both parties benefited. While the angry mood group made deceptive behaviours that were detrimental to both parties and both parties benefited less. Through this study, it was found that people in the state of anger reduce their expectation of gain and empathy towards others and are more likely to engage in deceptive behaviours that are detrimental to both parties, especially when confronted with acquaintances, where subjects were more inclined to compromise the interests of acquaintances compared to strangers and friends. This may indicate that people can make more rational deception decisions for socially close friends and socially distant strangers, while they are more likely to make irrational deception decisions for moderately socially distant others, and to engage in "familiarity-killing" behaviours.

Keywords： Anger , Deceptive behaviour, Social distance, Win-Win

6.12“学校心理学专业委员会”分组展贴报告

团体沙盘辅导对提升大学生积极自我概念的影响研究

陈希[1,2]（通讯作者） 刘方[3] 相冰冰[1]

1 成都大学，成都，610106

2 陕西师范大学，西安，710062

3 四川工商学院，眉山，620000

通讯作者 E-mail（chenxi0896@foxmail.com）

摘 要 作为目前国际上影响广泛的心理治疗的方法和技术，沙盘游戏经过中西文化的结合，在心理教育层面发挥着重要作用。目的：探索团体沙盘干预对大学生积极自我的影响。方法：被试共 18 人，采用实验组控制组前后测设计，实验组、控制组被试各 9 人，对自我满意度较低的实验组被试进行五周的团体沙盘干预，同时采用田纳西自我概念量表（TSCS）对实验组和对照组被试干预前后进行测量，并使用沙盘内容记录表、沙盘主题特征分析表和沙盘反馈表进行实验过程记录。结果：团体沙盘的干预过程可以分为自我开放、情绪表达、转化与成长、回馈与告别 4 个阶段，随着干预的推进，沙盘作品的创伤主题减少，治愈主题增多，沙盘也渐渐呈现“趋中”和“整合”。从数据处理结果来看，干预前，实验组被试的生理自我（t=2.56，p＜0.05）、道德自我（t=3.38，p＜0.01）、社会自我（t=2.84，p＜0.05）、自我满意（t=2.87，p＜0.05）、自我行动（t=4.66，p＜0.001）以及 TSCS 总分显著低于对照组（t_{TOT}=4.02，p_{TOT}＜0.01），经过五周的团体沙盘干预，实验组与对照组被试的 TSCS 各项因子均不存在显著差异（p＞0.05），且实验组被试在生理自我、

道德自我、社会自我、自我认同、自我满意、自我行动以及总分上均有显著提高。结论：团体沙盘干预能够有效提升大学生积极自我概念和自我满意度，并且能够传递道德关怀，促进大学生心育与德育的有机统一。

关键词　团体沙盘辅导；大学生；积极自我；自我意识

A study on the effect of group sandplay therapy on enhancing positive self-concept of college students

CHEN Xi[1, 2*], LIU Fang[3], XIANG Bingbing[1],

[1] Chengdu University, Chengdu, China; [2] Shaanxi Normal University, Xi'an, China; [3] Sichuan Technology and Business University, Meishan, China

***Abstract*：** Sandplay therapy is an internationally influential method and technique of psychotherapy, which plays an important role in psycho-educational level through the combination of Chinese and Western cultures and localized research with Chinese characteristics. Objective: exploring the effects of a group sandplay intervention on college students' positive self-concept. Methods: a five-week group sandplay intervention was conducted for college students with low self-satisfaction using an experimental and control group pre- and post-test design, while the Tennessee Self-Concept Scale (TSCS) was used to measure the experimental and control group subjects before and after the intervention. The experimental process was recorded using a sandplay content recording form, a thematic feature analysis form, and a feedback form. Results: the intervention process of group sandplay can be divided into four stages: self-opening, emotional expression, transformation and growth, and feedback and farewell. As the intervention progressed, the trauma theme of the sandplay decreased and the healing theme increased, and the sandplay gradually showed "neutralization" and "integration". Before the intervention, the PH(t=2.56，p＜0.05), ME(t=3.38，p＜0.01), SO(t=2.84，p＜0.05), SA(t=2.87，p＜0.05), B(t=4.66，p＜0.001), TOT(t_{TOT}=4.02，p_{TOT}＜0.01) scores of the subjects in the experimental group were significantly lower than those in the control group, and after the five-week intervention, there was no significant difference between the TSCS factors of the experimental and control subjects(p＞0.05). Conclusion: results shed light on the impact of the group sandplay on moral and mental education of college students.

Keywords: Group sandplay therapy, college students, positive self-concept, self-consciousness

幼儿教师关怀行为的问卷编制与现状分析

韩 娟

新疆师范大学心智发展与学习科学重点实验室、新疆师范大学心理学院， 乌鲁木齐 830017

摘 要 **目的** 编制“幼儿教师关怀行为问卷”，验证该问卷信效度，为幼儿教师心理健康工作提供心理测量工具。**方法** 2022 年 3 月～2022 年 7 月，根据标准化问卷开发程序，在文献分析、访谈法和专家评估的基础上，对幼儿教师关怀行为问卷的结构进行了探索， 形成条目池；随机选取 245 名幼儿教师为对象，进行探索性因素分析；再随机选取 260 名幼儿教师为对象，对该问卷进行验证性因素分析；最后随机选取 500 名幼儿教师为对象，对该问卷进行初步运用，运用描述性统计、独立样本 T 检验等方法探究幼儿教师关怀行为的发展现状。**结果** 探索性因子分析将问卷划分为理解与支持、班级管理、沟通、尊重与信任和反思与提升五个维度，经过筛选，共有 19 个条目入选，该问卷的 Cronbach's α系数为 0.940，各维度的 Cronbach’s α 系数为 0.741~0855；所有条目累计贡献率 57.72%，具有较好的信效度。验证性因子分析结果显示，问卷中各题项的因素符合量在 0.600~0.843 之间，信度在 0.360~0.711 之间，表明问卷的各个题项具有较高的信度和解释能力。问卷中各个构面的组成信度在 0.721~0.856 之间，表明问卷具有良好的结构效度。各个构面的收敛效度在 0.466~0.612 之间，表明问卷的各个构面对所包括的题项具有较高的解释能力。符合测量学的指标要求，可以作为幼儿教师关怀行为的测量工具。运用正式幼儿教师关怀行为问卷调研发现：幼儿教师的关怀行为整体上达到了中等程度以上的水平。在学历方面，幼儿教师关怀行为差异不显著，在教龄、婚姻状况、学校所在地、学校性质方面幼儿教师关怀行为的差异显著。教龄 5 年以上的幼儿教师的关怀行为显著多于 5 年以下的幼儿教师，已婚的幼儿教师的关怀行为显著多于未婚的幼儿教师，城市幼儿教师的关怀行为显著高于农村幼儿教师，公立学校的幼儿教师的关怀行为显著高于私立幼儿园教师。**结论** 幼儿教师关怀行为问卷信效度良好，可作为评定幼儿教师关怀行为的工具。

关键词 幼儿教师；关怀行为；问卷编制

Development of the Caring Behavior Questionnaire and Status Analysis for Preschool Teachers

Han Juan

The Key Laboratory of Mental Development and Learning Science of Xinjiang; School of Psychology, Xinjiang Normal University, Urumqi 830017,China.

Abstract： **Objective** To verify the reliability and validity of the caring behavior questionnaire for preschool teachers, and to provide a psychological measurement tool for preschool teachers' mental health work. **Methods** From March 2022 to July 2022, according to the standardized questionnaire development procedure, on the basis of literature analysis, interview and expert evaluation, the structure of the questionnaire on kindergarten teachers' caring behavior was explored and a pool of items was formed; A total of 245 preschool teachers were randomly selected for exploratory factor analysis. Then, 260 preschool teachers were randomly selected to carry out confirmatory factor analysis on the questionnaire. Finally, 500 preschool teachers were randomly selected to make preliminary use of the questionnaire, and descriptive statistics and independent sample T test were used to explore the development status of preschool teachers' caring behavior. **Results** Exploratory factor analysis divided the questionnaire into five dimensions: understanding and support, class management, communication, respect and trust, and reflection and improvement. After screening, a total of 19 items were selected. Cronbach's α coefficient of this questionnaire was 0.940, and Cronbach's α coefficient of each dimension was 0.741~0855. The cumulative contribution rate of all items is 57.72%, which has good reliability and validity. The results of confirmatory factor analysis showed that the factor coincidence quantity of each item in the questionnaire ranged from 0.600 to 0.843, and the reliability ranged from 0.360 to 0.711, indicating that each item in the questionnaire had high reliability

and explanatory ability. The constitutive reliability of each dimension of the questionnaire ranged from 0.721 to 0.856, indicating that the questionnaire had good structural validity. The convergence validity of each dimension ranges from 0.466 to 0.612, indicating that each dimension of the questionnaire has a high explanatory ability for the included items. It can be used as a measuring tool for preschool teachers' caring behavior.Using formal kindergarten teachers' caring behavior questionnaire survey, it is found that kindergarten teachers' caring behavior as a whole has reached a level above the medium level. In terms of educational background, there is no significant difference in caring behavior of preschool teachers, but there is significant difference in teaching age, marital status, school location and school nature. The caring behavior of preschool teachers with more than 5 years of teaching experience is significantly more than that of preschool teachers with less than 5 years of teaching experience, that of married preschool teachers is significantly more than that of unmarried preschool teachers, that of urban preschool teachers is significantly higher than that of rural preschool teachers, and that of preschool teachers in public schools is significantly higher than that of private kindergarten teachers. **Conclusion** The questionnaire has good reliability and validity and can be used as a tool to evaluate the caring behavior of preschool teachers.

key words: preschool teachers, Caring behavior, questionnaire preparation

校园受欺凌对 4-9 年级学生生活满意度的影响：一个有调节的中介模型

李泱巾　陆增颜 郭俊俏 赵必华（通讯作者）
安徽师范大学教育科学学院，芜湖 241000，zhaobihua1@sina.com

摘 要　背景：生活满意度指个体以自己的标准对生活总体的评价，对其认知和心理健康水平都有着非常重要的影响。然而，近年来校园欺凌现象屡见不鲜，遭受欺凌的学生对生活产生无力和无意义感，生活满意度水平降低，身心发展受到严重影响。基于马斯洛需要层次理论，当学生受到欺凌时，其安全的需要得不到满足，更高层次的爱与归属的需要就会受到影响，从而生活满意度水平较低。但是如果受欺凌学生有高水平的父母情感支持，虽然遭受到了校园欺凌，父母提供的情感支持有利于学生积极与同伴老师建立良好的人际关系，从而更好地融入学校，可能能够弥补学生归属的需求，那么由校园受欺凌造成的负面影响可能就会减小。因此,本研究构建了一个有调节的中介模型,检验学校归属感在校园受欺凌与 4-9 年级学生生活满意度之间的中介作用,以及父母情感支持在其中的调节作用。方法：采用《校园受欺凌问卷》《生活满意度量表》《学校归属感量表》以及《父母情感支持问卷》对 4-9 年级学生进行问卷调查,共收集到有效数据 2364 份。采用 SPSS 的 process 插件进行数据处理。在控制性别、学段等人口统计学变量后结果表明:(1)校园受欺凌与生活满意度、学校归属感之间存在着显著负相关，学校归属感与生活满意度之间存在显著正相关;(2)学校归属感在校园受欺凌对生活满意度的影响中起部分中介作用;(3)父母情感支持在校园受欺凌与生活满意度之间的直接路径以及学校归属感间接作用的前后两条路径均起调节作用。具体来说,相对于父母情感支持水平低的个体,遭受到校园欺凌对父母情感支持水平高的个体的学校归属感和生活满意度负向预测作用更强。建议：探究减少校园欺凌现象和提高学生学校归属感的方法和措施,并指导学生家长给予适当和正确的的情感支持,从而提高 4-9 年级学生生活满意度,促进其身心健康发展。

关键词　生活满意度，校园受欺凌，学校归属感，父母情感支持

The Impact of Campus Bullying on Life Satisfaction of Students in Grades 4-9: A Mediated Model with Regulation

LI Yangjin, LU Zengyan, GUO Junqiao, ZHAO Bihua*
School of Education Science, Anhui Normal University, Wuhu 241000, zhaobihua1@sina.com

***Abstract*:** Background: Life satisfaction refers to an individual's overall evaluation of their life based on their own standards, which has a significant impact on their cognitive and mental health levels. However, in recent years, School bullying has become a common phenomenon. The bullied students have a sense of powerlessness and meaninglessness in life, and their life satisfaction level has decreased, which has seriously affected their physical and mental development. Based on Maslow's hierarchy of needs theory, when students are bullied, their safety needs are not met, and higher-level needs for love and belonging are affected, resulting in lower levels of life satisfaction. However, if the bullied students have a high level of parental emotional support, although they have suffered from School bullying, the emotional support provided by parents will help students actively establish good interpersonal relationships with peer teachers, so as to better integrate into the school, which may be able to make up for the needs of students' belonging, then the negative impact caused by campus bullying may be reduced. Therefore, this study constructed a moderated mediation model to examine the mediating role of school belonging in the relationship between campus bullying and life satisfaction of students in grades 4-9, as well as the

moderating role of parental emotional support. Method: A questionnaire survey was conducted on students in grades 4 to 9 using the "Campus Bullying Questionnaire", "Life Satisfaction Scale", "School Belonging Scale", and "Parent Emotional Support Questionnaire". A total of 2364 valid data were collected. Use the process plugin of SPSS for data processing. After controlling for Demographics variables such as gender and school period, the results show that: (1) there is a significant negative correlation between campus bullying and life satisfaction, school belonging, and there is a significant positive correlation between school belonging and life satisfaction; (2) School belonging plays a partial mediating role in the impact of bullying on life satisfaction on campus; (3) Both the direct path between parental emotional support and campus bullying and life satisfaction, as well as the indirect effect of school belonging, play a moderating role. Specifically, compared with individuals with low parental emotional support, School bullying has a stronger negative predictive effect on school belonging and life satisfaction of individuals with high parental emotional support. Suggestions: explore ways and measures to reduce School bullying and improve students' sense of belonging to school, and guide students' parents to give appropriate and correct emotional support, so as to improve the life satisfaction of students in grades 4-9 and promote their physical and mental health development.

***Keywords*：** life satisfaction, campus bullying, school sense of belonging, parental emotional support

习美立新：高中生体像烦恼的概念复探

余习德[1] 刘嘉帆[2]（通讯作者） 林耀辉[1] 吴佳炫[1] 刘欢[3] 余学梅[4]

1 广东技术师范大学应用心理学系，广州，510665

2 香港教育大学心理学系，香港，999077，liujiafan2022@qq.com

3 华南师范大学附属广梅园小学，梅州，5144589

4 云南省曲靖市第一中学，曲靖，655000

摘 要 “人人皆是自媒体”的时代背景下，体像信息的传播已达到了前所未有的高度，对身体美的关注在“自我追求”的进程中占比加重。高中生处于自我意识第二次飞跃的青春期，其对身体形象与身体自我的关注尤甚，体像烦恼则是身体关注的典型表征。体像烦恼(body image depression)是指一种由于自我审美观或审美能力偏差导致自我体像失望而引起的心理烦恼，它包括形体、容貌、性器官与性别四类烦恼。作为一个本土心理学概念，其概念提出、工具开发及相关研究已有近二十年的历史。以往研究确定了“中学生普遍存在体像烦恼”的事实，也证实了由高亚兵等人(2005)编制的《青少年体像烦恼问卷》具有较高的信度。然而，鉴于：第一，以往研究较少报告《青少年体像烦恼问卷》的结构效度；第二，时代变化必然赋予青少年发展新特点，因此，本研究拟对高亚兵等人(2005)编制的研究工具及对应的概念结构予以重探。在广东与云南两省共 5 所中学高一至高三学生进行整群方便抽样，采用高亚兵等人(2005)编制的《青少年体像烦恼问卷》，对 932 名(样本一)与 716 名(样本二)学生进行探索性因素分析(EFA)、验证性因素分析(CFA)与效标关联效度分析。结果表明：第一，EFA 剔除原量表 7 题，保留 18 题(KMO = 0.84，Bartlett 球形检验 χ^2/df =46.24，P＜0.001)。第二，EFA 抽取 5 个特征根大于 1 的因子，累积方差贡献率 67.64%。第三，五个维度可命名为**容貌烦恼**(4 题)、**性器官烦恼**(4 题)、**身型烦恼**(4 题)、**身高烦恼**(3 题)与**性别烦恼**(3 题)。**原“形体烦恼”被分解为“身型烦恼”与“身高烦恼”。**第四，CFA 结果拟合良好(χ^2/df=3.19, RMSEA = 0.062, CFI = 0.942, SRMR = 0.044)。第五，修订量表及各维度的内部一致性 Cronbach’s α系数在 0.78-0.86 之间。第六，修订量表总分与自尊总分呈显著负相关(r = -0.31, P＜0.001)。可见，修缮的概念结构更具体，适切时代发展；修订的研究工具兼顾了信效度，更易推广使用。

关键词 体像烦恼；高中生；身体；自我

A further discussion on body beauty: Re-exploration of the concept of body image depression in high school students

Yu Xide[1] Liu Jiafan[2] Lin Yaohui[1] Wu Jiaxuan[1] Liu Huan[3] Yu Xuemei[4]

1 Department of Applied Psychology, Guangdong Polytechnic Normal University, Guangzhou, 510665

2 Department of Psychology, Education University of Hong Kong, Hong Kong, 999077

3 Guangmeiyuan Primary School, South China Normal University, Meizhou, 5144589

4 Yunnan Qujing No.1 Middle School, Qujing, 655000

Abstract: Under the background of "everyone is self-media", the dissemination of body image information has reached an unprecedented height. Attention to "body beauty" has also become an important part of "self-pursuit". High school students are in the adolescence of the second leap of self-consciousness, and they are especially concerned about body image and body self, while body image depression is a typical manifestation of body concerns. Body image depression (BID) refers to a kind of psychological distress caused by the disappointment of self-body image due to the deviation of individual self-aesthetic view or aesthetic ability, which includes four types of depressions: body shape, feature, sex organ, and gender identity depression. As a native psychological concept, the history of its conceptualization, development of research tool and related research is nearly 20 years. Previous studies have generally verified the fact that "body image depression is occurred in middle school students", and also confirmed the high reliability of the "body image depression questionnaire for teenagers" compiled by Gao et al. (2005). However, considering that: First, in previous studies, the structural validity of the "body image depression questionnaire for teenagers" has rarely been reported; second, that changes in the times inevitably bring new developmental characteristics to adolescents, therefore, the present study intends to re-explore the research instrument and corresponding conceptual structures developed by Gao et al. (2005). A total of 5 secondary schools in Guangdong and Yunnan provinces were used for cluster convenience sampling, and 932 (Sample 1) and 716 (Sample 2) students were subjected to Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), and criterion correlation validity using the "body image depression questionnaire for teenagers" developed by Gao et al. (2005). The results showed that: First, EFA excluded 7 items from the original scale and retained 18 items (KMO = 0.84, Bartlett's sphericity test χ^2/df = 46.24, $P < 0.001$). Secondly, EFA extracted five factors with eigenvalue greater than 1, with the cumulative variance contribution rate of 67.64%. Third, the five dimensions can be named appearance depression (4 items), sexual organ depression (4 items), body type depression (4 items), height depression (3 items), and gender depression (3 items). The original "body shape depression" was divided into "body type depression" and "height depression". Fourth, the CFA results were well-fitted (χ^2 / df = 3.19, RMSEA = 0.062, CFI = 0.942, SRMR = 0.044). Fifth, the internal consistency Cronbach's α coefficients for the revised scale and dimensions ranged from 0.78 to 0.86. Sixth, the total score of the revised scale was significantly negatively correlated with the total score of self-esteem (r = -0.31, $P < 0.001$). It can be seen that the revised conceptual structure is more specific and suitable to the development of the times; the revised research tool takes into account the reliability and validity, and is easier to popularize and use.

Keywords: body image depression, high school student, body, self

大学新生心理健康现状：社会支持的保护作用和留守经历的调节效应

王歆睿[1] 韩布新[2]（通讯作者）
1 成都工业学院，成都，611730
2 中国科学院心理健康重点实验室（心理研究所），北京，100101，hanbx@psych.ac.cn

摘 要 城镇化建设进程下留守经历学生心理健康问题不容忽视。留守经历大学新生面临新生活、新学习环境适应等多重挑战，而社会支持的积极心理健康功能有利于大学生提升社会适应能力。本研究于 2022 年 11 月，在大学生心理健康课程中调研了四川某高校 1515 名大学新生的心理健康与社会支持，重点关注城镇化建设影响下的留守经历学生，探索大学新生留守经历、社会支持对大学新生心理健康状况的影响。结果表明，有留守经历大学新生社会支持总分、家庭支持、朋友支持和其他支持显著低于无留守经历者（P ＜0.05），其心理症状总分、焦虑、抑郁和躯体化症状得分更高；回归分析发现大学新生社会支持三维度（家庭支持、朋友支持、他人支持）均显著负向预测其心理症状；简单调节效应也发现了社会支持三维度心理健康功能及留守经历的调节效应，留守经历者社会支持显著负向预测其心理症状；无留守经历者社会支持也显著负向预测其心理症状，但效应量相对较小。综上所述，留守经历大学生的社会支持系统影响其心理健康，利用地方社会心理服务体系建设、优化社会资源是大学生心理健康干预的重要路径。留守学生现状源于城镇化、家庭核心化和少子化、高等教育普及化等问题，高校需重视留守经历大学生心理健康，尤其是家校共育要重视父母对子女的家庭教育、陪伴时间。社会、学校、社区可多举措提高父母对孩子能力可塑性信念，增加父母亲子投入时间，缓解父母缺位现状。

关键词 大学新生；留守经历；领悟社会支持；心理健康；城镇化建设

项目基金：四川大学生思想政治教育研究中心项目（CSZ22130）；四川省心理学会年度科研规划项目成果（SCSXLXH2022032）；成都工业学院项目（2023RW024）

Current Situation of College Freshman Mental Health: The Protective Role of Social Support and the Moderating Effect of Left-behind Experiences

Wang Xinrui [1] Han Buxin[2*]
1.Student Affairs Department of Chengdu Technological University, Chengdu, 611730
2. CAS Key Laboratory of Mental Health, Chinese Academy of Sciences (Institute of Psychology), Beijing, 100101

***Abstract*:** Under the process of urbanization, the mental health problems of left-behind students cannot be ignored. Left-behind college freshmen face multiple challenges such as adapting to a new life and a new learning environment, and the positive mental health function of social support is conducive to improving college students' social adaptability. In November 2022, this study investigated the mental health and social support of 1515 freshmen in a university in Sichuan province, focusing on the left-behind students under the influence of urbanization, explore the influence of Freshmen's left-behind experience and social support on freshmen's mental health. The results showed that the total scores of perceived social support, family support, friend support and other support of freshmen with left-behind experience were significantly lower than those without left-behind experience ($p < 0.05$), and their total scores of psychological symptoms, anxiety, depression and somatization

symptoms were higher. Regression analysis found that the three dimensions of perceived social support (family support, friends support, others support) significantly negatively predicted the psychological symptoms of freshmen. The simple moderation effect also found the moderating effect of the three-dimensional mental health function of perceived social support and the left-behind experience, and the perceived social support of the left-behind experience significantly negatively predicted their psychological symptoms. Perceived social support also significantly negatively predicted psychological symptoms in people without left-behind experience, but the effect size was relatively small. To sum up, the social support system of the left-behind college students affects their mental health, and it is an important way to make use of the local social psychological service system to construct and optimize social resources. The present situation of the left-behind students stems from the problems of urbanization, family nucleus, fewer children and popularization of higher education, in particular, home-school co-education should pay more attention to time spent with parents and children. Society, School and community can take many measures to improve parents' belief in the plasticity of children ability, increase parents with children's engagement time, and alleviate the status quo of parent absence.
***Keywords*:** Freshmen; Stay-behind experience; Perceived social support; Mental health; Urbanization construction

疫情防控常态化背景下大学生心理健康的影响因素分析及对策研究

王歆睿[1]

1 成都工业学院学生工作部（处），成都，611730

摘 要 影响大学生心理健康的因素包括性别、年级、生源地、留守经历、独生子女、恋爱状况、社会支持等。本研究以四川某理工院校大学生为研究对象，于 2022 年 11 月问卷调查了 2234 名大学生心理健康的影响因素和心理症状（焦虑、抑郁和躯体化症状），重点分析不同人口学特征和社会支持对大学生心理健康的影响。结果显示：疫情防控常态化时期男大学生心理健康水平高于女大学生，大一新生心理健康水平显著高于高年级学生，农村学生心理症状比城镇学生严重，有留守经历学生心理症状多于无留守经历学生，独生子女心理症状少于非独生子女（$P<0.05$）。线性回归分析结果显示，性别、年级、生源地、留守经历、是否独生子女、恋爱状况、社会支持（家庭支持、朋友支持、其他支持）影响大学生心理症状（焦虑、抑郁、躯体化症状）（$P<0.05$）。可见，学校应该有针对性的关注不同影响因素下压力对大学生心理健康的影响，并提供相应的心理健康支持服务。后疫情时期大学生心理健康素养有待加强，不同类别的大学生心理健康素养水平不同，对女生、高年级学生、农村学生、留守经历、非独生子女、低社会支持学生开展针对性干预，积极开展心理学类课程、重视大学生社会支持系统、加强家校共育，提升大学生主动求助意识，提高新时期大学生的心理健康素养水平，促进大学生心理健康发展。

关键词 疫情常态化；大学生；心理健康；影响因素；社会支持

项目基金：四川大学生思想政治教育研究中心项目（CSZ22130）；四川省心理学会年度科研规划项目成果（SCSXLXH2022032）；成都工业学院项目（2023RW024）

Influencing factors analysis of college students' mental health and suggestions under the background of regular epidemic prevention and control

Wang Xinrui 1

1.Student Affairs Department of Chengdu Technological University, Chengdu, 611730

***Abstract*:** The factors affecting the mental health of college freshmen include gender, grade, place of origin, left-behind experience, only child, love status, social support and so on. In this study, 2234 college students from a technical college in Sichuan Province were investigated by questionnaire in November, 2022. The main influencing factors and psychological symptoms were anxiety, depression and somatization, this paper focuses on the effects of different demographic characteristics and social support on college students' mental health. The results showed that the mental health level of male college students was higher than that of female college students, the mental health level of freshmen was significantly higher than that of senior students, and the mental symptoms

of rural students were more serious than those of urban students, the psychological symptoms of the students with left-behind experience were more than those of the students without left-behind experience. The psychological symptoms of the only child were less than those of the non-only children (p <0.05). The Regression analysis results showed that, gender, grade, place of origin, left-behind experience, only-child status, love status, social support (family support, friends support, other support) affected the psychological symptoms of college students (anxiety, depression, somatization symptoms) (p < 0.05). Therefore, schools should pay attention to the influence of college students' mental health under different influencing factors and provide corresponding mental health support services. In the period of Regular epidemic prevention and control , the mental health literacy of college students needs to be strengthened, and different types of college students have different levels of mental health literacy, to carry out targeted intervention for female students, senior students, rural students, left-behind students, non-only children and students with low social support, we should actively develop psychological courses, attach importance to the social support system for college students, strengthen home-school co-education, promote the awareness of college students to seek help actively, and improve the level of college students' mental health literacy in the new era, promote the development of psychological health of college students.
***Keywords*:** Regular epidemic prevention and control; College students; Mental health; Influencing factors; Social support

心理控制源对高职生就业压力的影响与心理机制研究

徐明杰

四川文化产业职业学院大学生心理健康中心，成都，610000，aaaapy@vip.qq.com

摘 要 **目的：**据 2022 年中国大学生心理健康状况调查报告披露，大学生列举的十大压力源中，“学业负担重”和“不知道自己适合什么工作”这两项与就业压力有重要相关性的指标在分别位居第一和第三位。长期的就业压力可能导致焦虑、抑郁、失眠等心理问题，以及高血压、心脏病等生理问题，因此了解影响大学生就业压力的因素及探索其心理机制对于促进大学生心理健康和提升就业竞争力具有重要意义。本研究考察了大学生心理控制源对就业压力的影响，并探究在这一影响过程中生涯适应力的中介效应和专业认同的调节效应。**方法：**在四川省某高职院校中收集有效数据 574 份，对其进行描述统计、相关分析和有调节的中介模型分析。**结果：**①内控型心理控制源和就业压力显著负相关；生涯适应力和就业压力显著负相；专业认同度和就业压力显著负相关。②生涯适应力部分中介心理控制源对就业压力的影响。③专业认同度能够对中介模型的后半段进行调节，对于高专业认同度的个体，心理控制源通过生涯适应力对就业压力产生影响的中介路径显著，而对于低专业认同的个体，中介路径不显著。**结论：**①心理控制源对就业压力的影响可以通过生涯适应力进行解释。内控的个体具备较高的生涯适应力，感知就业压力更轻。可能的解释是内部控制源的个体相信自己能够通过努力和行动来影响事物，因此更倾向于主动寻求成长和支持，提升自我的生涯适应力，更能以有建设性的方式去处理就业问题。②专业认同可以对中介模型的后半段进行调节，根据 Savickas 的理论，认同感为个体提供了明确的职业发展方向，生涯适应力为实现职业目标提供动力，因此对于认同感很低的个体，即使在以往的人生经验中已经积累了一定的生涯适应力，但是由于低专业认同的影响，对自己的价值观和职业愿景缺乏清晰的认识，在面临就业问题时也会感到压力，缺乏方向和动力。

关键词 大学生就业压力,生涯适应力,心理控制源,专业认同度

The Effect of locus of control on the employment pressure and psychological mechanism study

Xu Mingjie

Sichuan Vocational College of Cultural Industries, Chengdu

***Abstract*：** **Objective:** According to the 2022 Mental Health Survey Report of Chinese College Students, among the ten stress sources listed by college students, "heavy academic burden" and "do not know what they are suitable for", two indicators with important correlation with employment pressure, ranked first and third respectively. Long-term employment pressure may lead to anxiety, depression, insomnia and other psychological problems, as well as physiological problems such as hypertension and heart disease. Therefore, it is of great significance to understand the factors affecting the employment pressure of college students and explore their psychological mechanism to promote the mental health of college students and enhance their employment competitiveness. This study examined the influence of locus of control on employment stress, and explored the mediating effect of career adaptability and the regulatory effect of professional identity during this influence. **Methods:** Collect 574 valid data from a vocational college in Sichuan Province, and conduct descriptive statistics, correlation analysis, and

moderated mediation model analysis on them. **Results:** ① Internal control type were significantly negatively correlated with employment pressure; career adaptability and employment pressure were significantly negative; professional identity and employment pressure were significantly negatively correlated.② In the influence path of psychological control sources on employment pressure, career adaptability plays a part-mediating role.③ Professional identity can adjust the second half of the mediation model. For individuals with high professional identity, the mediation path of locus of control on employment pressure through career adaptability is significant, while for individuals with low professional identity, the mediation path is not significant. **Conclusion:** ① The influence of locus of control on employment stress can be explained by career adaptability. Individuals with internal control have higher career adaptability and perceive employment with lighter pressure. The possible explanation is that the individuals with internal control sources believe that they can influence things through efforts and actions, so they are more inclined to actively seek growth and support, improve their career adaptability, and are more able to deal with employment problems in a constructive way.② Professional identity can adjust the second half of the mediation model, according to Savickas's theory, identity provides a clear career development direction for the individual,the career adaptability provides motivation for achieving professional goals.Therefore, for individuals with a low sense of recognition, even if they have accumulated a certain career adaptability in the past life experience, due to the influence of low professional identity, they lack a clear understanding of their own values and professional vision. It will also feel pressure, lack direction and motivation.

Keywords：Employment pressure,Career adaptability, Locus of control, Professional identity

教师自主支持、基本心理需求与初中生创造力的关系研究

吴桂翎[1, 2]（通讯作者） 余厚石[1]

1 合肥师范学院教育与心理科学学院，合肥，230601

2 安徽省学生心理健康教育指导和发展中心，合肥，230601，979130741@qq.com

摘 要 创造力是指由个体知识、动机、智力与个性特征共同作用，完成具有创新性、合适性与价值性活动的能力。初中阶段是创造力发展的关键时期，环境与人相互作用，发挥学校教育环境的优势，培养初中生的创造力、激发其创新的动机和行为，对于培养具有创新意识和创新能力、适应现代信息社会的人才，促进数字化时代社会主义现代化建设具有全局性、基础性和先导性的作用。已有研究表明，基本心理需求的满足有赖于社会环境的支持，在环境与个体行为之间起中介作用，而教师自主支持是学生社会支持系统重要来源，是学生基本心理需求满足和创造力培养的重要影响因素。本研究采用创造力自我报告量表、学习气氛问卷和基本心理需求量表对安徽、广东两省的 1972 名初中生进行问卷调查,探究其创造力的发展水平及影响机制。研究发现：（1）初中生创造力、教师自主支持与基本心理需求在性别与年级上存在显著差异；（2）初中生创造力、教师自主支持与基本心理需求两两之间正相关，教师自主支持对初中生创造力有显著正向预测作用；（3）基本心理需求在教师自主支持与创造力之间起部分中介作用。本研究一方面丰富了教师自主支持对初中生创造力影响的内在机制的理论研究，另一方面也为数字化时代下初中生创造力培养中学校创设良好的创新氛围、增强初中生创新动力的重要性和必要性提供了实证依据。

关键词 初中生，创造力，教师自主支持，基本心理需求，数字化时代

A Study of the Relationship Between Teacher Autonomy Support, Basic Psychological Needs, and Creativity in Junior High School Students

Wu Guiling[1,2], Yu Houshi[1]

1 School of Education and Psychological Science, Hefei Normal University, Hefei, 230601

2 Anhui Mental Health Education and Guidance Center for Student, Hefei, 230601,979130741@qq.com

Abstract：Creativity refers to the ability to complete innovative, appropriate and valuable activities by the joint action of individual knowledge, motivation, intelligence and personality characteristics. The junior high school stage is a key period for the development of creativity, and the interaction between the environment and human beings, giving full play to the advantages of the school education environment, cultivating the creativity of junior high school students, and stimulating their motives and behaviours of innovation, have an overall, fundamental and pioneering role in fostering talents with a sense of creativity and innovation, adapted to the modern information society, and in promoting the construction of socialist modernisation in the digital age. It has been shown that the satisfaction of basic psychological needs depends on the support of the social environment, which plays a mediating role between the environment and individual behaviours, while teacher autonomy support is an important source of students' social support system, which is an important influence on the satisfaction of students' basic psychological needs and the development of creativity. In this study, 1972 junior high school students in Anhui and Guangdong provinces were surveyed using the Creativity Self-Report Scale, the Learning Atmosphere Questionnaire, and the Basic Psychological Needs Scale to investigate the developmental level of creativity and

the influencing mechanisms. The study found that: (1) there are significant differences among junior high school students' creativity, teacher autonomy support and basic psychological needs in terms of gender and grade; (2) junior high school students' creativity, teacher autonomy support and basic psychological needs are positively correlated with each other, and teacher autonomy support has a significant positive predictive effect on junior high school students' creativity; and (3) basic psychological needs partially mediate the relationship between teacher autonomy support and creativity.On the one hand, this study enriches the theoretical research on the intrinsic mechanism of the influence of teacher autonomy support on junior high school students' creativity, and on the other hand, it also provides empirical evidence for the importance and necessity for schools to create a good innovation atmosphere and enhance junior high school students' innovation motivation in the cultivation of junior high school students' creativity in the digital era.

Keywords：junior high school students, creativity,teacher autonomy support , basic psychological needs, digital age

职业理想问卷的修订及在幼儿教师群体中的信效度检验

张晓丹[1,2,3] 高婷婷[1] 余杰[1] 姚本先[1,2]（通讯作者）

1 合肥师范学院教育与心理科学学院，合肥，230601

2 安徽省学生心理健康教育指导和发展中心，合肥，230601 通讯作者 E-mail：ybx7756@126.com

3 青少年心理健康与危机智能干预安徽省哲学社会科学重点实验室，合肥，230601

摘 要 教师的职业理想是教师渴望达到的职业境界，也是对所确立目标的向往和追求。幼儿教师作为幼儿健康成长的启蒙者和引路人，对我国学前教育发展有着至关重要的作用。近年来，幼儿教师的职业理想在幼教活动中发挥了重要作用。《幼儿教师职业标准》中提出作为幼儿教师要热爱学前教育事业，具有职业理想。职业理想作为理想的重要组成部分成为当前教师教育研究领域的热点。本研究目的：修订《中小学教师职业理想问卷》并检验其在幼儿群体中的信效度。方法：采用方便抽样法对两个样本共 540 名幼儿教师进行施测，其中第一次以 283 名幼儿教师为被试对问卷进行项目分析、探索性因素分析、内部一致性分析和结构效度分析，第二次以 257 名幼儿教师为被试对问卷对其进行验证性因素分析，间隔 3 周从第二批被试中选取 62 人进行重测。结果：修订的职业心理问卷包括 12 个题项，划分为职业认同、职业追求、职业素养 3 个维度，方差的总解释率为 64.11%；总问卷的内部一致性信度为 0.87，各维度的内部一致性信度为 0.67~0.84 之间，间隔 3 周后总问卷的重测信度为 0.76，各维度重测系数均在 0.5 以上。验证性因素分析显示，模型的各个拟合指数均达到了统计学的要求；修订的职业理想问卷总分和各维度之间存在高相关，各维度之间存在中相关，问卷具有较好的结构效度。结论：修订的职业理想问卷具有良好的信效度，可以作为测量幼儿教师职业理想的有效工具。

关键词 幼儿教师，职业理想，信度，效度

The revision of vocational ideal questionnaire and its reliability and validity test in preschool teachers group

Zhang Xiaodan[1,3] GAO Tingting[1] YU Jie[1] Yao Benxian[1,2] (Corresponding author)

1 School of Education And Psychology, Hefei Normal University, Hefei, 230601

2 Anhui Provincial Center for School Mental Health ,Hefei,230601

Corresponding Author，E-mail：ybx7756@126.com

3 Key Laboratory of Philosophy and Social Sciences of Anhui Province for Adolescent Mental Health and Crisis Intelligent Intervention，Heifei，230601

Abstract：The professional ideal of teachers is the professional realm that teachers desire to achieve, and also the yearning and pursuit of the established goal. Preschool teachers, as the enlighteners and guides for the healthy growth of children, play a vital role in the development of preschool education in China. In recent years, the professional ideal of preschool teachers has played an important role in preschool education activities. "Professional Standards for preschool teachers" put forward that preschool teachers should love preschool education and have professional ideals. As an important part of ideal, professional ideal has become a hot spot in the field of teacher education research.The purpose of this study is to revise the Vocational Ideal Questionnaire for primary and secondary school teachers and test its reliability and validity in children.method:A total of 540 preschool teachers in two samples were tested by convenient sampling method. In the first instance, 283 preschool

teachers were used as subjects for questionnaire item analysis, exploratory factor analysis, internal consistency analysis and structural validity analysis. In the second instance, 257 preschool teachers were used as subjects for questionnaire validation factor analysis. A total of 62 participants were selected from the second batch for retesting at an interval of 3 weeks.Results: The revised occupational psychology questionnaire included 12 items, which were divided into three dimensions: occupational identity, occupational pursuit and professional accomplishment. The total interpretation rate of variance was 64.11%. The internal consistency reliability of the total questionnaire was 0.87, and the internal consistency reliability of each dimension was between 0.67 and 0.84. After the interval of 3 weeks, the retest reliability of the total questionnaire was 0.76, and the retest coefficient of each dimension was above 0.5. Confirmatory factor analysis showed that each fitting index of the model met the requirements of statistics. There is a high correlation between the total score of the revised career ideal questionnaire and each dimension, and there is a moderate correlation between each dimension, and the questionnaire has a good structural validity.Conclusion: The revised professional ideal questionnaire has good reliability and validity, and can be used as an effective tool to measure the professional ideal of preschool teachers.

Keywords：Preschool teachers, professional ideals, reliability, validity

我国近二十年心理健康教育课程热点与反思

——基于 CiteSpace 的分析

蔡若男[1] 郑显亮[1]（通讯作者）

1 赣南师范大学教育科学学院，赣州, 341000, zxl2004@sina.com

摘 要 近年来，我国心理健康教育课程发展迅速，并取得了显著成就，但学界对于课程研究热点演进的文章撰写较少，且少有运用量化分析的方法对其进行分析总结。据此，本研究运用信息可视化软件 CiteSpace，对 2003—2023 年中国知网数据库中，有关心理健康教育课程的 2596 篇中文期刊文献进行转化分析，并基于作者、机构、关键词进行制图，发现二十年来我国心理健康教育课程的热点呈现如下特点：（1）2003 年到 2023 年对心理健康教育课程的研究呈现持续上升的趋势，大量文献出现于 2007 年之后。（2）根据作者图谱发现，马红霞、张艳霞、张丽娜、张林和俞国良是统计范围内发文数量最多的五位作者，但从整体来看大多数研究者之间的合作较少。（3）根据机构图谱发现，该领域的发文量机构排名前 5 的是湖南商务职业技术学院、广西师范大学、华中师范大学、中国人民大学和广西财经学院。（5）根据关键词图谱发现，从内容上看，研究热点高频词可以归为 8 大类——大学生、心理健康、对策、高校、课程改革、课程思政、课程建设、学生。（6）从时间上看，2003-2010 年为前期探索阶段，出现词频或中心性较高的关键词有课程、教育、心理健康、高职院校等；2011-2018 年为初步发展阶段，出现词频或中心性较高的关键词有课程建设、教学内容、教学方法、心理教育等；2019-2023 年为快速发展阶段，出现词频或中心性较高的关键词有翻转课堂、课程思政、思政教育、核心素养、思政元素、线上教学等。（7）从类型上看，稳健型热点包括课程建设、心理健康、课程改革；渐强型热点包括核心素养、课程思政、教学设计。2003-2023 年心理健康教育课程在心理教学中的实际应用越来越广泛，本文旨在通过科学知识图谱来客观地揭示近年来我国心理健康教育课程的热点，对于深入了解心理健康教育课程在实际教学过程中的知识基础与演化进程具有一定的价值，并对此进行反思，进而为完善此类研究提供启示。

关键词 心理健康教育课程，知识图谱，CiteSpace，可视化分析

Hot Spots and Reflections of Mental Health Education Curriculum in China in the Past Two Decades — Based on Analysis of the Data of CiteSpace

Cai Ruonan[1] Zheng Xianliang[1]

1 School of Education Science, Gannan Normal University, Ganzhou, 34100, zxl2004@sina.com

***Abstract*：** In recent years, China's mental health education curriculum has developed rapidly and achieved remarkable achievements, but few articles have been written on the evolution of curriculum research hot spots, and few articles have used quantitative analysis to analyze and summarize them. Based on this, this study uses the information visualization software CiteSpace to translate and analyze 2596 Chinese journal literature on mental health education curriculum in CNKI database from 2003 to 2023, and maps based on authors, institutions and keywords, and finds that the hot spots of mental health education curriculum in China in the past two decades have shown the following characteristics: (1) The research on mental health education curriculum from 2003 to 2023 showed a continuous upward trend. A large body of literature appeared after 2007. (2) According to the author's

atlas, Ma Hongxia, Zhang Yanxia, Zhang Lina, Zhang Lin and Yu Guoliang are the five authors with the largest number of articles within the statistical range, but on the whole, most researchers cooperated less. (3) According to the institutional map, the top 5 institutions in this field are Hunan Vocational College of Commerce, Guangxi Normal University, Central China Normal University, Renmin University of China and Guangxi University of Finance and Economics. (5) According to the keyword map, from the content point of view, the research hot spots and high-frequency words can be classified into 8 categories: college students, mental health, countermeasures, colleges and universities, curriculum reform, curriculum ideology and politics, curriculum construction, and students. (6) From the perspective of time, 2003-2010 is the early exploration stage, and keywords with high word frequency or centrality include curriculum, education, mental health, vocational colleges, etc.; From 2011 to 2018, as the initial development stage, keywords with high word frequency or centrality included curriculum construction, teaching content, teaching methods, psychological education, etc.; From 2019 to 2023, the keywords with high word frequency or centrality include flipped classroom, curriculum ideology and politics, ideological and political education, core literacy, ideological and political elements, online teaching, etc. (7) From the perspective of type, stable hot spots include curriculum construction, mental health, and curriculum reform; Crescendo hot spots include core literacy, curriculum ideology and politics, and teaching design. From 2003 to 2023, the practical application of mental health education curriculum in psychological teaching is becoming more and more extensive, this paper aims to objectively reveal the hot spots of mental health education curriculum in China in recent years through scientific knowledge map, which has certain value for in-depth understanding of the knowledge base and evolution process of mental health education curriculum in the actual teaching process, and reflects on this, and then provides enlightenment for improving such research.

Keywords：Mental health education curriculum, knowledge graph, CiteSpace, visual analytics

感知压力与乡镇中学生的短视频成瘾：自我控制的中介作用与父母积极干涉/共用教养行为的调节作用

刘星畅[1] 邹佳晨[1] 张宇驰[1,2]（通讯作者） 蒋鑫睿[1] 王海悦[1] 张龄月[1]

1 江苏师范大学智慧教育学院教育技术系，江苏徐州 211116

2 江苏师范大学江苏省教育信息化工程研究中心，江苏徐州，211116，6020200039@jsnu.edu.cn

摘 要 近年，短视频已成为国内外青少年普遍使用的新型手机应用程序。由于短视频具有个性化算法推送等特性，导致青少年更容易对其上瘾。然而，目前对青少年短视频成瘾的研究非常有限。个别研究表明，短视频成瘾对青少年学业发展和心理健康发展具有消极作用。探讨影响青少年短视频成瘾的因素及其机制，不但有助于未来构建更全面系统的短视频成瘾理论，并且将为设计干预方案提供实证依据。与以往研究大多关注单一自身因素不同，本研究将综合考察多个生态系统水平因素的综合作用，以加深我们对短视频成瘾的理解。基于一般张力理论与社会生态系统理论，本研究建构了一个有调节的中介模型，旨在探讨学生自我控制在感知压力与短视频成瘾间的中介作用，以及父母积极干涉/共用教养行为（父母手机使用特定教养行为策略的一种）在后半段路径上的调节作用。与大多数研究采用中心城市样本与方便取样法不同，本研究采用整群随机取样法，通过招募我国江苏省某地三所高中（一所来自农村，两所来自县城）10 至 12 年级的 807 名高中生以获得更具有代表性的样本。研究采用抑郁-焦虑-压力量表中文版压力分量表、简明多维自我控制量表、父母中介（父母）分量表的自适应版本和 Facebook 成瘾量表的改编版本，并使用 SPSS23.0 软件及其 PROCESS 插件进行分析。结果发现:（1）自我控制在感知压力与短视频成瘾的正向关系间起显著的部分中介作用;（2）父母积极干涉/共用教养行为在自我控制与短视频成瘾之间起调节作用。具体来说：感知其父母采用高水平的积极干涉/共用教养行为对待自己的手机使用的学生，他们的自我控制与短视频成瘾之间的负相关程度更高;（3）有调节的中介效应模型成立。本研究采用更有代表性的取样方法，探讨了以往被忽视的中国乡镇高中生的短视频成瘾的影响因素与作用机制，加深了我们对于短视频成瘾影响因素及其作用机制的理解，并为设计基于家校合作的短视频成瘾干预方案提供了科学依据。

关键词 感知压力，自我控制，父母积极干涉/共用教养行为，短视频成瘾，手机成瘾

Perceived stress and short-form video addiction among rural Chinese high school students: the mediating role of self-control and the moderating effect of active mediation/co-use

Xingchang Liu[1] Jiachen Zou[1] Yuchi Zhang[1,2] Xinrui Jiang[1] Haiyue Wang[1] Lingyue Zhang[1]

[1] Department of Educational Technology, School of Smart Education, Jiangsu Normal University, Xuzhou, China

[2] Jiangsu Engineering Research Center of Educational Informatization, Jiangsu Normal University, Xuzhou, China

***Abstract*:** In recent years, Short-form video applications (apps) have been thriving among adolescents worldwide. Short-form video addiction (SVA) is a type of mobile phone addiction, and its algorithm-driven tailored patterns and convenient video capture functions provide adolescents with exciting and highly attractive entertainment. A growing body of research has become concerned about the negative effects of SVA on teens' academic and mental health development. Exploring the factors and mechanisms that affect adolescents' SVA not only contributes to the future theoretical construction of SVA, but also provides evidence for schools to develop culture-sensitive programs to prevent SVA. Unlike previous studies that mostly focused on a single self-level factor, this study will comprehensively examine the combined effects of multiple ecological system-level factors to obtain more profound, comprehensive, and enlightening results. According to the general strain theory and the social-ecological system theory, we constructed a moderated mediation model with students' self-control as a mediating factor and parental active mediation/co-use as moderating factors in the latter part of the mediation pathway in the association between stress and Chinese adolescents' SVA. Unlike most studies that used central city samples and convenience sampling, we use a convenience sampling method, 807 participants (45.0% male, N =807) in grades 10 to 12 from three high schools (one rural and two from the county) in Yancheng City. The stress subscale of the Chinese version of the Depression-Anxiety-Stress Scale, the Brief Multidimensional Self-Control Scale, the parental mediation subscale (parents) and the Facebook Addiction Scale were used to assess, and analyze by using SPSS 23.0 and PROCESS. The results show that (1) Self-control mediated the positive link between students' stress and SVA; (2) Active mediation/co-use significantly moderated the link between self-control and SVA. Specifically, negative association between self-control and SVA was stronger for participants with high parental active mediatio n/co-use levels; (3)A moderated mediation model was established. This empirical study is the first to examine the complex mechanism of stress related to SVA among high school students, and the implications of the findings for school practitioners and recommendations for future research are discussed.

***Keywords*:** Perceived stress, Self-control, Active mediation/co-use, Short-form video addiction, Mobile phone addiction

视听觉统合训练对 6-8 岁 ADHD 儿童注意力稳定性的干预效果

杨夕淳 [1]
1 成都市沙堰小学，成都，610045，770837417@qq.com

摘 要　注意缺陷多动障碍（ADHD）作为一种神经发育行为障碍性疾病，目前我国小学生注意缺陷多动障碍的患病率逐年攀升。近年来注意缺陷多动障碍的治疗研究主要有行为干预、物理干预和药物干预等。而这些中的大多数方法因需要场地、器材以及高专业水平而难以在小学教学中形成周密的教育方案及大范围的教学实践，视听觉统合训练相对而言更容易实施和推广。注意力稳定性作为注意功能的基础，决定了注意较为高级的方面（选择性注意、注意转移）和一般认知能力的效力，对低学龄段儿童的规范化学习效果影响较大。因而本研究探讨视听觉统合训练对 6-8 岁注意缺陷多动障碍儿童注意力稳定性的干预效果。实验招募 60 名注意缺陷多动障碍儿童为研究对象，随机分至实验组和对照组。实验一采用单因素被试间设计，以划消测验和舒尔特方格测验前后差异作为指标考察视听觉统合训练对 6-8 岁注意缺陷多动障碍儿童注意力稳定性的干预效果。实验二采用 2（视听觉统合训练/不训练）╳2（家长关注高/低）的混合实验设计以划消测验和舒尔特方格测验前后差异作为指标考察干预效果。研究重点探究视听觉统合训练对注意缺陷多动障碍儿童注意力稳定性的影响，为采用视听觉统合训练改善注意缺陷多动障碍儿童的注意功能的课程提供实验依据和参考。

关键词　视听觉统合训练，注意缺陷多动障碍，注意力稳定性

Intervention of visual and auditory integration training on attention stability of 6-8 year old children with ADHD

Xiting Yang
Chengdu Shayan primary School，No.96 Shayan Street, Wuhou District, Chengdu

Abstract：Attention deficit hyperactivity disorder (ADHD) is a neurodevelopmental behavioral disorder, and the prevalence rate of ADHD in primary school students is increasing year by year. In recent years, the treatment of attention deficit hyperactivity disorder mainly includes behavioral intervention, physical intervention and drug intervention. However, due to the need of sites, equipment and high professional level, most of these methods are difficult to form a thorough education program and a wide range of teaching practices in primary school teaching, and visual and auditory integration training is relatively easier to implement and promote. As the basis of attention function, attention stability determines the effectiveness of higher aspects of attention (selective attention, attention transfer) and general cognitive ability, and has a great influence on the standardized learning effect of children at low school age. Therefore, this study investigated the effect of visual and auditory integration training on attention stability of 6-8 year old children with attention deficit hyperactivity disorder. Sixty children with attention deficit hyperactivity disorder were recruited and randomly divided into experimental group and control group. In experiment 1, the effects of visual and auditory integration training on attention stability in children with attention

deficit hyperactivity disorder (ADHD) aged 6-8 years were investigated by using the difference between elimination test and Schulte grid test. In experiment 2, the mixed experimental design of 2 (integrated visual and auditory training/no training) based on the difference before and after the cancellation test and the Schulte square test was used as an indicator to investigate the intervention effect. This study focuses on the influence of visual auditory integration training on attention stability of children with attention deficit hyperactivity disorder, and provides experimental basis and reference for the course of improving attention function of children with attention deficit hyperactivity disorder by visual auditory integration training.

Keywords：visual and auditory integration training, attention deficit hyperactivity disorder, attention stability

大学生就业压力对心理健康的影响：孤独感和家庭功能的作用

温馨[1]　高洁[2]（通讯作者）

1 仲恺农业工程学院心理健康教育与咨询中心，广州，510225；

2 华南师范大学心理学院，广州，510631，jiegao@m.scnu.edu.cn

摘　要　就业是最大的民生，受到疫情的冲击，高校毕业生就业形势严峻，应届毕业生的就业压力也较以往更大。以往研究表明就业压力是损害应届毕业生心理健康最重要的因素之一。压力事件会引发孤独感，而家庭的支持可以补偿这种孤独感。因此，本研究想要探讨就业压力是否会通过孤独感损害应届毕业生的心理健康，以及家庭功能是否能够帮助抵御这种负性影响。

本研究采用就业压力问卷、世界卫生组织心理健康自评问卷、孤独量表和家庭功能问卷对某高校2347名大四毕业生施测，结果发现：（1）就业压力对心理健康有负向预测作用，压力感越强，对心理健康的破坏程度越大；（2）孤独感在就业压力和心理健康之间起中介作用，就业压力的增加会诱发孤独感，进而对心理健康产生不良影响；（3）家庭功能在就业压力和心理健康之间起中介作用，家庭功能良好者能利用家庭支持有效降低压力对心理健康的损害作用（4）孤独感和家庭功能在就业压力和心理健康之间起链式中介作用，就业压力和孤独感水平的增加会使个体积极寻求社会支持来做压力应对，家庭功能良好的个体能有效地应对压力感和孤独感，从而维护心理健康平衡。

本研究表明，应届毕业生的就业压力会导致个体更多的封闭自我，从而更容易导致心理健康问题，而来自家庭的关心和支持则能够帮助个体提高应对水平，最大程度地减小就业压力对心理健康的危害。

关键词　大学生就业压力，心理健康，孤独感，家庭功能，链式中介效应

The influence of employment pressure on mental health of college students——The role of loneliness and family function

Xin Wen[1]　Jie Gao[2]

1 Mental Health Education and Counseling Center,Zhongkai University of Agriculture and Engineering,　Guangzhou, 510225；

2 School of Psychology, South China Normal University, Guangzhou,510631，

jiegao@m.scnu.edu.cn

Abstract：Employment is the biggest livelihood, affected by the COVID-19, the employment situation of college graduates is grim, and the employment pressure of graduates is greater than ever. Previous studies have shown that employment pressure is one of the most important factors that damage the mental health of graduates. Stressful events can trigger feelings of loneliness, which can be compensated for by family support. Therefore, this study explored whether employment stress can damage the mental health of graduates through loneliness, and whether family function can help counter this negative effect.

Employment Stress Questionnaire, World Health Organization Mental Health Self-assessment Questionnaire, Loneliness Scale and Family Function Questionnaire were used to measure 2347 senior college graduates. The results showed that: (1) Employment stress has a negative predictive effect on mental health. The stronger the sense of stress, the greater the degree of damage to mental health; (2) Loneliness plays a mediating role between employment pressure and mental health, and the increase of employment pressure will induce loneliness, which will have a negative impact on mental health; (3) Family function plays a mediating role between employment stress and mental health, and family function can effectively reduce the damaging effect of employment stress on

mental health by using family support. (4) Loneliness and family function play a chain mediating role between employment stress and mental health. The increase of employment stress and loneliness will lead individuals to seek social support to cope with stress. And family function can effectively cope with feelings of stress and loneliness, thereby maintaining a mental health.

This study shows that the employment pressure of graduates will lead to isolation, and therefore induce mental health problems, and the care and support from families can help individuals improve their coping ability and decrease the harm of employment pressure on mental health.

***Keywords*:** Employment Pressure, Mental Health, Loneliness, Family Function,Chain Mediating Effect

课后三点半亲子沟通心理健康教育课程对小学生主观幸福感的干预研究

吴桂翎[1,2]（通讯作者）王颜瑞[1]
1 合肥师范学院教育与心理科学学院，合肥，230601
2 安徽省学生心理健康教育指导和发展中心，合肥，230601，979130741@qq.com

摘 要 现阶段小学心理健康教育课程主要以班级为单位，面向全体学生，旨在提升全体学生的心理素质，在实践中很难针对个别学生心理状况进行深入干预。在“双减”政策背景下，“课后三点半课堂”尝试针对学生的实际心理需求提供心理健康教育“个性化课程”对小学减负赋能具有重要意义。主观幸福感是指自身对生活的总体性评价，是儿童心理健康的重要指标。已有研究证实亲子沟通对儿童主观幸福感有显著的正向预测作用，但尚未有研究通过提高亲子沟通水平对儿童主观幸福感进行干预。本研究在“课后三点半课堂”中通过开展以亲子沟通为教学内容的心理健康教育课程干预，旨在考察亲子沟通心理健康教育课程是否能够有效提升小学生的主观幸福感。研究在某小学 5 年级学生中通过招募方式选取 30 名学生，随机分为实验组和对照组，对实验组进行每周一次、为期十周的亲子沟通心理健康教育课程干预，对照组不进行任何干预。采用幸福感指数量表以及亲子沟通问卷对实验组和对照组实施前测和后测，以检验心理健康教育课程干预的有效性。结果表明：（1）实验组亲子沟通后测得分显著高于前测，并显著高于对照组后测得分；（2）实验组主观幸福感后测得分显著高于前测，并显著高于对照组后测得分。研究验证了基于亲子沟通的心理健康教育课程对小学生的主观幸福感干预的有效性，为完善小学“课后三点半”心理健康教育课程建设提供了实证依据。

关键词 亲子沟通， 主观幸福感， 心理健康教育课程

An intervention study on subjective well-being of primary school students in an after-school 3:30 parent-child communication mental health education programme

Guiling Wu[1,2] (Corresponding author)Yanrui Wang[1]
1College of Education and Psychological Science, Hefei Normal University, Hefei, 230601
2Anhui Student Mental Health Education Guidance and Development Centre, Hefei, 230601，
979130741@qq.com

Abstract： At the present stage, primary school mental health education programmes are mainly class-based and oriented to all students, aiming to improve the psychological quality of all students, and in practice, it is difficult to carry out in-depth interventions for the psychological conditions of individual students. Under the background of the "Double Reduction" policy, the "After-school Three-and-a-half Points Classroom" attempts to provide a "personalised curriculum" for mental health education according to the actual psychological needs of students,

which is of great significance to reduce the burden of primary schools and empower them. The subjective sense of well-being refers to one's perception of one's own well-being. Subjective well-being refers to the overall evaluation of one's own life, and is an important indicator of children's mental health. Parent-child communication has been shown to have a significant positive predictive effect on children's subjective well-being, but no studies have been conducted on interventions to improve children's subjective well-being through parent-child communication. In this study, we examined whether a mental health education programme on parent-child communication was effective in improving the subjective well-being of primary school students in an after-school three-and-a-half hour classroom. Thirty primary school students were recruited and randomly divided into an experimental group and a control group. The experimental group was given a 10-week weekly intervention in parent-child communication and the control group was not given any intervention. A pre-test and a post-test were administered to the experimental and control groups using the Index of Happiness scale and the Parent-Child Communication Questionnaire to test the effectiveness of the mental health education programme intervention. The results showed that (1) the experimental group's scores on the parent-child communication posttest were significantly higher than those on the pretest and significantly higher than those on the control group's posttest; (2) the experimental group's scores on the subjective well-being posttest were significantly higher than those on the pretest and significantly higher than those on the control group's posttest. The study verified the effectiveness of the parent-child communication-based mental health education programme on the subjective well-being of primary school students, and provided empirical evidence for the improvement of the construction of the "three and a half minutes after school" mental health education programme in primary schools.

Keywords: Parent-child communication, subjective well-being, psychological health education course

初一学生感知教师情感支持与学校适应的关系研究

汤彩云[1]　王阳茜[2]（通讯作者）

1 南宁市天桃实验学校教育集团，南宁，530000

2 华南师范大学心理学院，广州，510631，通讯作者 E-mail: wangyangqian718@163.com

摘 要 以小升初为代表的学校转变是青少年早期须面临的重要转折事件，往往伴随着更大的学业压力与诸多陌生环境挑战，学校适应问题也就尤为凸显。在这一过程中，感知教师情感支持可能是初一学生顺利适应环境变化的支持性资源。在对其他群体的研究表明，感知教师情感支持可以显著影响学校适应，但具体到初一学生群体的研究较少，且当前研究多为横向研究。本研究采用学校适应量表和感知教师情感支持量表，对初一学生进行三次追踪，每次追踪间隔两个月，经整理最终收集有效被试 984 人（男生占比 40.04%）。交叉滞后分析结果发现：（1）T1 时间点的感知教师情感支持可以显著正向预测 T2 时间点的学校适应（$\beta = 0.199$，$p < 0.001$），T2 时间点的感知教师情感支持可以显著正向预测 T3 时间点的学校适应（$\beta = 0.057$，$p < 0.05$）；（2）T1 时间点的学校适应也可以预测 T2 时间点的感知教师情感支持（$\beta = 0.141$，$p < 0.001$），T2 时间点的学校适应也可以预测 T3 时间点的感知教师情感支持（$\beta = 0.168$，$p < 0.001$）。从交叉滞后的回归系数来看，两个方向的交叉滞后回归系数均显著，推断感知教师情支持和学校适应之间存在相互作用关系。即学生感知教师情感支持水平越高，其后的学校适应水平也越高；反之，适应结果也会影响到感知教师情感支持，即学生学校适应得越好，其后感知到的教师情感支持也越多。研究结果支持动态相互作用模型，因此在后续研究中，可以通过提升初一学生的感知教师情感支持，以促进其学校适应水平。

关键词 感知教师情感支持，学校适应，初一学生，相互作用关系，交叉滞后

Study on the Relationship between Perceived Teacher's Emotional Support and School Adjustment of Junior School Freshmen

Caiyun Tang[1], Yangqian Wang[2] (Corresponding author)

[1] Nanning Tiantao Experimental School Education Group, Nanning, 530000

[2] School of Psychology, Southo China Normal University, Guangzhou, 510631

Abstract: The transition from primary to junior school represents a crucial turning point for early adolescents, as they encounter increased academic pressure and navigate unfamiliar environments. The problem of school adaptation is particularly prominent. In this process, perceived teacher emotional support may be a supportive resource for junior school students in adjust to environmental changes. Previous studies have shown that perceived teacher's emotional support can significantly influence school adjustment, but there are few studies on junior school freshmen groups, and most of them are horizontal studies. School Adjustment Scale and Perceived Teacher's Emotional Support Scale were used to track junior school freshmen for three times, each tracking interval of two months, and finally collected 984 effective questionnaires after sorting (boys accounted for 40.04%). Cross-lag model analysis showed that: (1) T1 perceived teacher's emotional support could significantly positively predict T2 school adjustment(β=0.199, p<0.001), T2 perceived teacher's emotional support could significantly positively predict T3 school adjustment(β=0.057, p<0.05).(2) School adjustment in T1 could significantly positively predict perceived teacher's emotional support in T2(β=0.141, p<0.001), and School adjustment in T2 could significantly positively predict perceived teacher's emotional support in T3(β=0.168, p<0.001). From the cross-lag regression coefficients, the both directions were significant, it can be inferred that there is an interactive relationship between perceived teacher's emotional support and school adjustment. In other

words, a high level of perceived teacher's emotional support may lead to a high level of school adjustment, while a high level of school adjustment may lead to a high level of perceived teacher's emotional support. The research results supports the dynamic interaction model, the perceived teacher's emotional support of junior school freshmen can be improved to promote their school adjustment in the follow-up studies.
Keywords: Perceived Teacher's Emotional Support, School Adjustment, Junior School Freshmen, Interaction Relationship, Cross-lagged Regression

近十年重庆地区大学新生心理健康变迁的纵向研究

李小鹏　黄炼旗

重庆三峡学院，重庆·万州，404100，1004143896@qq.com

摘 要　近年来大学生心理健康问题日益受到社会各方的关注，然而大学生的心理健康水平是否得到改善呢？这是值得探讨的问题。以往大多研究聚焦于横向研究，对于心理健康水平是否改变缺乏数据支持。为考察重庆地区大学新生心理健康水平随年代的变迁趋势，本研究采用纵向研究的方法对重庆某高校2013-2022年间大一新生（47009人）入学时90项症状自评量表（SCL-90）的测评数据进行综合分析。研究发现：（1）“强迫”、“人际关系敏感”、“焦虑”、“敌对”、“偏执”、“精神病性”6个因子与年代呈显著负相关（P<0.001），表明在这6个维度上大学新生心理健康状况逐年变好。“抑郁”、“恐怖”因子与年代呈显著正相关（P<0.001），表明在这2个因子上，大学新生心理健康状况逐年恶化，此外，“躯体化”与年代不相关（P>0.05）；（2）不同性别学生在9个因子上的得分女性显著高于男性（P<0.001），分别对不同性别学生与年代之间的相关分析发现，在“躯体化”和“焦虑”因子上出现分化，男性随着年代变化因子得分逐渐下降，但女性呈上升趋势，表明男性在这两个维度心理健康状况在逐年变好，而女性有下降趋势；（3）文理科学生在9个因子上得分文科学生显著高于理科学生（P<0.001），与年代进行相关分析发现文科学生在“人际关系敏感”、“焦虑”、“精神病性”因子上与年代相关不显著（P>0.05），而理科学生在这些因子上均显著负相关（P<0.001）。总体来说，近十年来大学生心理健康状况逐渐在好转，但是在部分维度仍然呈现恶化趋势，比如抑郁、焦虑等心理问题。此外，不同群体心理健康状况变化趋势呈现差异性，这也为我们进一步提供干预支持提供了方向。

关键词　大学生心理健康，SCL-90，纵向研究

A longitudinal study on the mental health changes of freshmen in Chongqing in recent ten years

Li Xiaopeng　Huang Lianqi

Chongqing Three Gorges University, Wanzhou, Chongqing

Abstract：In recent years, the mental health problems of college students have attracted increasing attention from all sectors of society. However, has the mental health level of college students been improved ? This is a question worth discussing. In the past, most studies focused on horizontal research, and there was no data support for whether the mental health level changed. In order to investigate the changing trend of freshmen's mental health level in Chongqing with the years, this study used a longitudinal research method to comprehensively analyze the evaluation data of 90 symptom checklist-90 (SCL-90) of freshmen (47,009 students) in a university in Chongqing from 2013 to 2022. The findings are as follows: (1) The six factors of compulsion, interpersonal sensitivity, anxiety, hostility, paranoia and psychosis are negatively correlated with years (P<0.001), which indicates that the mental health status of freshmen in these six dimensions is getting better year by year. The factors of "depression" and "terror" were positively correlated with the age (P<0.001), which indicated that the mental health status of freshmen was deteriorating year by year, and "somatization" was not related to the age (P > 0.05). (2) The scores of female students of different sexes in nine factors are significantly higher than those of male students (P<0.001).

The correlation analysis between students of different sexes and years shows that there is differentiation in the factors of "somatization" and "anxiety", and the scores of male students gradually decrease with the change of years, but the scores of female students show an upward trend, indicating that the mental health status of male students in these two dimensions is getting better year by year, while that of female students has a downward trend; (3) The scores of liberal arts students in nine factors are significantly higher than those of science students (P<0.001), and the correlation analysis with years shows that liberal arts students are not significantly correlated with years in interpersonal sensitivity, anxiety and psychosis (P>0.05), while science students are significantly negatively correlated with these factors (P<0.001). Generally speaking, the mental health status of college students has gradually improved in recent ten years, but it is still deteriorating in some dimensions, such as depression, anxiety and other psychological problems. In addition, the changing trend of mental health status of different groups is different, which also provides a direction for us to further provide intervention support.

Keywords： mental health of college students, SCL-90, longitudinal study

初中生负性生活事件与生命意义感的关系研究：自尊和应对方式的链式中介作用

荆效闫[1]　姚本先[1,2]（通讯作者）
1.合肥师范学院教育与心理科学学院，合肥，230601
2.安徽省学生心理健康教育指导中心，合肥，230601，ybx7756@126.com

摘 要　生命意义感是心理健康的保护因素，对学生的心理以及身体都会产生一定的影响。它的缺失不仅会损害个体的心理健康,还会导致其社会功能适应不良。根据生态系统理论，个体周围的环境会影响个体的身体和心理，负性生活生活事件作为外部的环境，经研究发现会对初中生的生命意义感产生影响。本研究包括两个部分，研究一使用生命意义感问卷（MLQ）、青少年生活事件量表（ASLEC）、罗森伯格自尊量表（SES）以及简单应对方式问卷(SCSQ)对安徽省内的 1556 名初中生进行调查，探讨负性生活事件、生命意义感、自尊以及应对方式四者之间的关系。研究二以 40 名生命意义感较低的初中生作为研究对象，采用团体辅导的形式对应对方式和生命意义感进行干预，对有效数据进行分析，研究结果如下:（1）负性生活事件负向预测生命意义感。（2）负性生活事件不仅可以通过自尊、应对方式的中介作用预测生命意义感，而且还可以通过自尊和应对方式的链式中介作用预测生命意义感。（3）团体辅导显著提升初中生的积极应对方式以及生命意义感的水平。本研究着重探讨初中生负性生事件对生命意义感的影响及其内在机制，为提升初中生生命意义感的水平提供了实证依据。
关键词　生命意义感，负性生活事件，自尊，应对方式

A study of the relationship between negative life events and sense of meaning in life among middle school students: the chain mediating role of self-esteem and coping styles

Jing Xiaoyan[1], Yao Benxian[1,2] (Corresponding author)
1 Faculty of Education and Psychological Sciences, Hefei Normal University, Hefei 230601, China
2 Anhui Student Mental Health Education Guidance Center, Hefei 230601, China

Abstract: A sense of meaning in life is a protective factor for mental health and can have an impact on students' psychological as well as physical well-being. Its absence not only damages the psychological health of individuals, but also leads to maladaptation of their social functions. According to the ecosystem theory, the environment around an individual affects the individual physically and psychologically, and negative life events, as the external environment, have been found to affect middle school students' sense of meaning in life. This study consists of two parts. Study 1 used the Meaning of Life Questionnaire (MLQ), the Adolescent Life Events Scale (ASLEC), the Rosenberg Self-Esteem Scale (SES), and the Simple Coping Style Questionnaire (SCSQ) to survey 1,556 junior high school students in Anhui Province to explore the relationship between the four components of negative life

events, sense of meaning of life, self-esteem, and coping styles. In Study 2, 40 junior high school students with a low sense of meaning in life were used as research subjects, and group counseling was used to intervene in coping styles and sense of meaning in life, and the valid data were analyzed, and the results of the study were as follows: (1) Negative life events negatively predicted the sense of meaning in life. (2) Negative life events not only predicted sense of meaning of life through the mediating role of self-esteem and coping styles, but also predicted sense of meaning of life through the chain mediating role of self-esteem and coping styles. (3) Group counseling significantly enhanced middle school students' positive coping styles, as well as their sense of meaning in life. This study focuses on the effects of negative life events on junior high school students' sense of meaning of life and their internal mechanisms, and provides empirical evidence to enhance the level of junior high school students' sense of meaning of life.

Keywords:Sense of the meaning of life,Negative life events, Self-esteem,Responding to the way

中学生校园氛围感知与学习心流体验的关系：影响模型及其干预研究

许亚男[1]　姚琼[1,2]（通讯作者）
1 合肥师范学院教育与心理科学学院，合肥，230601
2 安徽省学生心理健康教育指导中心，合肥，230601，120400298@qq.com

摘 要　心流体验（Flow）也称沉浸体验，是个体将精力完全投入于一项活动时的心理状态，学习心流体验是指当学生在进行学习活动时，个体的学习兴趣被激发，并能够持续地全身心投入于当前的活动中，有利于促进个体学业成绩的提高和身心健康发展。中学生主要的活动场所为学校，良好的校园氛围有利于调动学生的积极性，提高学习效率。本研究将心流体验与中学生的校园氛围感知相结合，研究中学生学习心流体验的影响因素，增强中学生的学习心流体验，以《青少年学习沉醉感量表》、《积极心理资本问卷》、《校园氛围问卷》为研究工具，选取安徽省合肥市初中、高中学校各一所共 1022 名学生进行问卷调查，探究二者之间的影响关系以及心理资本的中介作用。研究的主要结果如下：
1.中学生校园氛围感知水平处于中等；中学生心理资本的整体状况较好，高中生较初中生具有更高的韧性和自我效能水平； 初中生学习心流体验得分中等，高中生学习心流体验得分低于理论中值，沉浸体验状况一般。
2.中学生学校氛围感知、心理资本和学习心流体验两两之间存在显著正相关。
3.心理资本是中介变量，在学校氛围与学习心流体验之间起部分中介作用。
4.心理资本团体心理辅导能有效提升高中生自心理资本水平并增强中学生学习心流体验。
关键词　中学生，学校氛围，心理资本，学习心流体验，干预研究

The relationship between middle school students' campus atmosphere perception and learning flow experience: an influence model and its intervention

Xu Yanan[1], Yao Qiong[1,2] (Corresponding author)
1 Faculty of Education and Psychological Sciences, Hefei Normal University, Hefei 230601, China
2 Anhui Student Mental Health Education Guidance Center, Hefei 230601, China

Abstract: Flow experience, also known as immersion experience, is a psychological state when an individual fully invests his or her energy in an activity. Learning flow experience means that when students are engaged in learning activities, they can arouse the individual's interest in learning and continuously devote themselves to the current activities, which can promote the improvement of individual academic performance and physical and mental health development. The main activity place for middle school students is the school, and a good campus atmosphere is conducive to mobilizing students' enthusiasm and improving learning efficiency.This study combines flow experience with middle school students' perception of campus atmosphere, studies the influencing factors of middle school students' learning flow experience, and enhances the middle school students' learning flow experience. The research tools are "Adolescent Learning Immersion Scale", "Positive Psychological Capital Questionnaire" and "Campus Atmosphere Questionnaire". A total of 1022 students from one middle school and one high school in Hefei, Anhui province were selected to conduct a questionnaire survey to explore the

relationship between them and the mediating role of psychological capital. The main findings of the study are as follows:

1. Middle school students' perception level of campus atmosphere is medium; The overall psychological capital of middle school students is better, and high school students have higher resilience and self-efficacy than middle school students. Middle school students' learning flow experience score was medium, high school students' learning flow experience score was lower than the theoretical median, and the immersion experience status was average.

2. There is a significant positive correlation between middle school students' perception of school atmosphere, psychological capital and learning flow experience.

3. Psychological capital is a mediating variable, which plays a partial mediating role between school atmosphere and learning flow experience.

4. Psychological capital group counseling can effectively improve the level of high school students' self-psychological capital and enhance the learning flow experience of middle school students.

Keywords: middle school students, school atmosphere, psychological capital, learning flow experience, intervention research

初中生家庭环境、自我概念与学校适应的关系研究

姚本先[1,2]　荆效闫[1]

1 合肥师范学院教育与心理科学学院，合肥，230601，ybx7756@126.com

2 安徽省学生心理健康教育指导和发展中心，合肥，230601

摘 要　学校适应是学生在参与学校环境过程中的综合表现，主要包含学生的学业行为、同伴关系、情绪情感等等，是学生与学校环境相互作用的结果。经研究发现学校适应与家庭环境、自我概念分别存在相关关系。为调查我国初中生家庭环境、自我概念和学校适应的状况，并探讨初中生家庭环境、自我概念和学校适应三者之间的关系。本研究采用家庭环境量表中文版(FES-CV)、自我描述量表（SDQII）、初中生学校适应问卷，对合肥市的三所初中学校的 754 名初中生进行调查，选用 SPSS25.0 和 SPSS 宏程序 Process 进行数据统计分析，通过对数据的分析得出如下结论：（1）初中生的学校适应整体处于中等水平，九年级学生的学校适应要整体好于七、八年级。（2）初中生家庭环境和学校适应之间存在显著相关。（3）自我概念在家庭环境与学校适应之间起中介作用。据研究结论提出以下建议:（1）要培养七、八年级学生良好的学习习惯、鼓励他们积极参与课堂活动、促进社交交往。（2）要建立有效的家庭沟通模式，家庭成员之间要注重倾听和交流，在生活中互相支持、关心和鼓励，学会正确表达和处理情绪，避免矛盾的产生。（3）教师、家长在教育过程中应以赞赏的眼光发现学生的优秀之处，让优秀点成为学生良好自我概念的发展立足点。

关键词　家庭环境，自我概念，学校适应

A study of the relationship between home environment, self-concept and school adjustment among middle school students

Yao Benxian[1,2], Jing Xiaoyan[1]

1 Faculty of Education and Psychological Sciences, Hefei Normal University, Hefei 230601, China

2 Anhui Student Mental Health Education Guidance Center, Hefei 230601, China

Abstract:School adjustment is the comprehensive performance of students in the process of participating in the school environment, which mainly includes students' academic behavior, peer relationships, emotions and feelings, etc., and is the result of the interaction between students and the school environment. It has been found that school adjustment is related to family environment and self-concept respectively. In order to investigate the status of family environment, self-concept and school adjustment of junior high school students in China, and to explore the relationship between family environment, self-concept and school adjustment of junior high school students, this study used the Family Environment Scale (FES) in Chinese. In this study, 754 junior high school students from three junior high schools in Hefei City were surveyed using the Family Environment Scale Chinese Version (FES-CV), Self-Description Inventory (SDQII), and Junior High School Adaptation Questionnaire, and SPSS 25.0 and the SPSS macro program Process were selected for statistical analysis of the data, which led to the following conclusions through the analysis of the data: (1) Junior high school students' school Adaptation as a whole is at a moderate level, and the school adaptation of ninth grade students is better than that of seventh and eighth grades as

a whole. (2) There is a significant correlation between middle school students' home environment and school adjustment. (3) Self-concept mediates the relationship between home environment and school adjustment. Based on the findings, the following recommendations were made: (1) Cultivate good study habits, encourage active participation in classroom activities, and promote social interactions among students in grades 7 and 8; (2) Establish an effective home environment for middle school students; and (3) Establish an effective home environment for middle school students. (2) An effective family communication model should be established. Family members should emphasize listening and communication, support, care and encourage each other in life, and learn to express and deal with emotions correctly to avoid conflicts. (3) Teachers and parents should discover students' excellence with appreciation in the process of education, so that the excellence point can become a foothold for the development of students' good self-concept.

Keywords:Family environments,Self-concept,School adaptation

成长型思维对初中生学校适应的影响：心理弹性的中介效应与父母情感温暖的调节作用

徐贝贝[1]　刘银雪[1]　桑青松[1]（通讯作者）

[1] 安徽师范大学教育科学学院，芜湖，241000，s7210qs1@ahnu.edu.cn

摘 要　学校适应对初中生的成长发展具有重要的影响，学校生活适应的良好与否不仅影响初中学生的心理健康发展，也会影响其成年后的社会适应。因此，对于初中生来说，适应学校生活是非常重要的发展任务，以往研究表明成长型思维、心理弹性以及父母情感温暖与中学生学校适应密切相关，为探明其内在心理机制，本研究使用成长思维量表、学校适应问卷、心理韧性量表和父母情感温暖量表通过整群抽样对 820 名初中生进行问卷调查，使用 SPSS 25.0、PROCESS 和 AMOS21.0 进行结构方程模型分析。结果显示：（1）初中生的成长型思维与心理弹性、学校适应均呈显著正相关（r=0.41，p<0.01；r=0.44，p<0.01），心理弹性与学校适应也呈显著正相关关系（r=0.58，p<0.01）。父母情感温暖与成长型思维、心理弹性和学校适应之间均呈显著正相关关系（r=0.24，p<0.01；r=0.52，p<0.01；r=0.35，p<0.01）（2）初中生的成长型思维可以直接显著正向预测学校适应（B=0.25，95%CI[0.19，0.31]），也可以通过心理弹性间接影响学校适应（B=0.20，95%CI[0.15，0.25]）。（3）心理弹性在成长型思维与初中生学校适应间的中介路径的前半段受到父母情感温暖的调节，相对于父母情感温暖水平低的初中生（β=0.43，t=9.81，p<0.001），高父母情感温暖水平的初中生的心理弹性在成长型思维对学校适应预测关系中的中介效应更强（β=0.25，t=5.29，p<0.001）。结论：成长型思维会直接影响初中生学校适应，也通过心理弹性间接影响学校适应；心理弹性在成长型思维与学校适应间的中介路径的前半段受到父母情感温暖的调节。因此，提高初中生的心理弹性水平、给予初中生更多的关心与理解、父母采用积极的养育方式能更好地促进初中生适应学校生活。

关键词　成长型思维，心理弹性，父母情感温暖，学校适应

The Effect of Growth Mindset on Junior High School Students' School adjustment: The Mediating Effect of Psychological Resilience and the Moderating Effect of Parents' Emotional Warmth

Xu Beibei[1], Liu Yinxue[1], Sang Qingsong[1]

College of Education Sciences, Anhui Normal University, Wuhu, 241000

Abstract: School adjustment has an important impact on the growth and development of junior high school students, and the good adjustment of school life not only affects the mental health development of junior high school students, but also affects their social adjustment in adulthood. Therefore, for junior high school students, adapting to school life is a very important developmental task, and previous studies have shown that growth mindset, psychological resilience and parental emotional warmth are closely related to school adjustment of junior high school students. In order to explore their internal psychological mechanisms, this study used the Growth Mindset Scale, School Adjustment Questionnaire, Psychological Resilience Scale and Parental Emotional Warmth Scale to survey 820 junior high school students through a cluster sample, and structural equation model analysis using SPSS 25.0, PROCESS and AMOS21.0. The results showed that: (1) Junior high school students' growth mindset was positively correlated with psychological resilience and school adjustment (r=0.41, p<0.01; r=0.44, p<0.01). Psychological resilience and school adjustment were also positively correlated ($r=0.58$, $p<0.01$). There

was a significant positive correlation between parents' emotional warmth and growth mindset, psychological resilience and school adjustment (r=0.24, p<0.01; r=0.52, p<0.01; r=0.35, p<0.01) (2) The growth mindset of junior high school students can directly predict school adjustment significantly positively (B=0.25, 95% CI [0.19, 0.31]) or indirectly affect school adjustment through psychological resilience (B=0.20, 95% CI [0.15, 0.25]). (3) Psychological resilience was regulated by parental emotional warmth in the first half of the mediating path between growth mindset and junior high school students' school adjustment, and compared with junior high school students with low parental emotional warmth level (β=0.43, t=9.81, p<0.001), the psychological resilience of junior high school students with high parental emotional warmth level had a stronger mediating effect on the school adjustment prediction relationship (β=0.25, t=5.29, p<0.001). Conclusion: Growth mindset directly affects the school adjustment of junior high school students, and also indirectly affects school adjustment through psychological flexibility. Psychological resilience is moderated by the parental emotional warmth in the first half of the mediating path between growth mindset and school adjustment. Therefore, improving the psychological resilience level of junior high school students, giving them more care and understanding, and parents adopting positive parenting styles can better promote junior high school students to adapt to school life.

Keywords: Growth mindset; Psychological resilience; Emotional warmth of parents; School adjustment

贫困生心理健康影响因素及其研究启示

杨众望

南京中医药大学医学院，南京，210046

摘 要 贫困生一直是高校重点关注的学生群体，同时备受学界的关注。新时代的中国，尤其是在全面建成小康社会后、全面建设社会主义现代化国家新征程的时代背景下，高校贫困生不再是物质层面的匮乏，更多倾向于心理健康层面的不足。近年来，诸多研究学者从心理健康角度入手探究了贫困生受污名化、歧视知觉等诸多影响以及干预措施。污名化的贫困生在人际情境中颇受阻碍，常体验到受排斥而自我退缩，极易产生消极自我预期，不利于心理健康；长期受排异的知觉具有长期性，产生的歧视知觉更具有损害心理健康的泛化性。有研究表明，歧视知觉高的贫困生其孤独感愈高，这阻碍贫困生接纳社会提供支持性帮助。新近的研究成果如集体仪式、自然体验等为改善贫困生心理健康提供助益。大学环境对贫困生进行仪式行为塑造，利于增强其与更广泛大学生群体认同及提升群体凝聚力，仪式行为促进群体凝聚力和情绪感染，使贫困生产生积极情感体验，主观社会支持也会增多，个体幸福感就会增加，进而提升心理健康。这与自然体验能减少消极行为有类似助益。基于此，本文分别从贫困生心理健康影响因素、影响机制、干预措施等方面进行了总结梳理。未来研究可以从研究方式、干预措施、神经生物机制等方面做进一步探究并概念化贫困生心理健康成长框架。

关键词 贫困生，心理健康，消极影响，集体仪式，自然体验

Factors influencing the mental health of Impoverished undergraduates and research implications

YANG Zhong-wang

School of Medicine,Nanjing University of Chinese Medicine,Nanjing210046,China

Abstract： Impoverished undergraduates have been a key focus of attention in colleges and universities, and have also received much attention from academics. In recent years, many researchers have explored the effects of stigma, perceptions of discrimination, and interventions for impoverished undergraduates from a mental health perspective. Recent research findings, such as collective rituals and nature experiences, can be useful for improving the mental health of impoverished undergraduates. Based on this, this paper summarizes and compares the factors influencing the mental health of impoverished undergraduates, the influencing mechanisms, and the interventions, respectively. Future research can further explore and conceptualize the framework of impoverished undergraduates' psychological growth in terms of research approaches, interventions, and neurobiological mechanisms.

Keywords：Impoverished undergraduates，Mental health，Negative effects，Collective rituals，Nature experience

课程思政视域下高职院校学生心理健康教育服务需求分析

林楠[1] 范亭亭[1] 李春春[1] 陈瑶[1] 葛飘[1] 程刚[1]（通讯作者）

1 贵州师范大学心理学院，贵阳，550025，通讯作者 E-mail:chenggang314@163.com

摘 要：背景：新时代思想政治教育与心理健康教育的协同发展是落实与推进立德树人根本任务的重要内容之一。高职院校肩负着为国家培养复合型技术技能人才的重任，其学生因群体的特殊性和教育的职业化，导致学生的心理发展与心理健康教育具有鲜明特色。而目前的心理健康教育课程更多针对的是普通高等院校的大学生，并不能很好的适用于生源和学情都更为复杂的高等职业院校。因此，需要从课程思政的视角出发，对高职院校学生心理健康发展现状进行有针对性、本土化的研究。方法：本研究以高职学生为研究对象，采用目的性抽样的方式选取了贵州航天职业技术学院（简称“航职院”）的 182 名学生进行一对一的半结构式访谈，了解高职学生的心理健康服务需求。访谈录音经过讯飞软件转换成文字，随机选择其中 121 份访谈资料，运用质性研究软件 NVIVO12，将其按照开放性编码、主轴性编码和选择性编码依次递进的方式进行编码。此外，根据理论饱和度原则，采用剩余的 61 份资料进行了理论饱和度检验。结果：首先，航职院学生在自我意识、情绪管理、人际关系发展、学业、适应、生涯规划、婚恋观和危机应对这 8 个主要方面的心理发展过程中存在问题；其次，大部分学生对学校史（9.09%）、航天工业史（5.79%）和三线建设史（4.96%）的了解不多，对学校杰出人物、学校发展历程的整体了解程度不高；最后，航职院的校址所在地——遵义，是历史名城，拥有浓厚的历史底蕴，在红色教育中具有一定的优势，但航职院的学生对于红色文化及历史知识了解不够深入，对红色人物故事的认识也不足。结论：本研究通过扎根研究，了解了航职院学生的心理健康服务需求，对于将来在课程思政视域下进行校本课程开发，构建契合学生实际的职业院校心理健康教育课程具有重要意义。

关键词 课程思政；高职院校、心理健康

Analysis of students' mental health service needs in higher vocational colleges from the perspective of curriculum ideology and politics

LIN nan[1] FAN tingting[1] LI chunchun[1] CHEN yao[1] GE piao[1] CHENG gang[1] (Corresponding author)

1 School of Psychology, Guizhou Normal University, Guiyang 550001, Correspondence: chenggang314@163.com

Abstract：Background: The coordinated development of ideological and political education and psychological health education in the new era is one of the important contents of implementing and promoting the fundamental task of cultivating students' morality. Higher vocational colleges shoulder the important task of training compound technical and skilled personnel for the country. Due to the special characteristics of the group and the vocational education, the psychological development and psychological health education of higher vocational college students have distinctive features. However, the current psychological health education curriculum is mostly aimed at ordinary college students and cannot be well adapted to the more complex student sources and learning situations of higher vocational colleges. Therefore, it is necessary to start from the perspective of curriculum ideological and political education and conduct targeted and

localized research on the current situation of psychological health development of higher vocational college students.

Methods: In this study, higher vocational college students were selected as the research objects. A total of 182 students from Guizhou Aerospace Vocational and Technical College (referred to as "Aerospace College") were selected by purposive sampling for one-on-one semi-structured interviews to understand the psychological health service needs of higher vocational college students. The interview recordings were converted into text using iFlytek software, and 121 interview data were randomly selected. Qualitative research software NVIVO12 was used to code them in the order of open coding, axial coding, and selective coding. In addition, according to the principle of theoretical saturation, the remaining 61 pieces of data were used to test theoretical saturation.

Results: Firstly, Aerospace College students have problems in the psychological development process of self-awareness, emotion management, interpersonal relationship development, academic performance, adaptation, career planning, marriage and love concept, and crisis response. Secondly, most students do not know much about the school history (9.09%), aerospace industry history (5.79%), and the history of the third line construction (4.96%), and their overall understanding of outstanding figures and the development process of the school is not high. Finally, Zunyi, where the Aerospace College is located, is a historic city with a rich historical heritage and has certain advantages in red education, but students of the Aerospace College have insufficient understanding of red culture and historical knowledge, and their understanding of red figures and stories is insufficient.

Conclusion: This study uses grounded research to understand the psychological health service needs of Aerospace College students. It is of great significance to develop school-based courses in the perspective of curriculum ideological and political education in the future and to construct vocational college psychological health education courses that are in line with students' actual needs.

Keywords **:** curriculum ideological and political education; Higher vocational colleges; psychological health education

新课标下心理健康教育初中 SSI 教学初探

张而畅 姚本先（通讯作者）
安徽师范大学心理学系，芜湖，241000，ybx7756@126.com

摘 要 2022 版《义务教育课程方案和标准》强调了学科实践和对学生核心素养的培养。核心素养是学生在接受相应学段教育过程中，逐步形成的适应个人终身发展和社会发展需要的必备品格与关键能力，包含文化基础、自主发展、社会参与三方面人文底蕴、科学精神、学会学习、健康生活、责任担当、实践创新六因素。对于心理健康教育，其核心素养体现在培养学生的自我效能感、社会适应能力、学会学习。心理健康教育课程无对应课程标准的学科科目，具有较高的自由度与可操作性，可以根据地区经济发展特点学生特点因地制宜因材施教。社会性科学议题内容（Socioscientific Issue ，SSI）是指因科学技术的发展与应用，而对社会产生冲击和影响的科学问题相关的争议性问题。SSI 能够有效地契合 2022 新课改方案要求和学科教学特点，可基于该议题开发出相应的心理健康教育教学内容，未来有进一步发展的空间和成长性。本文将从引入的可行性及必要性方面进行论证，指出心理健康课的特点与 SSI 教育的契合之处及在当前时代下引入 SSI 的必要性，并阐述 SSI 在初中心理健康课中能够发挥的作用，如提高学生的非形式推理能力，进一步提升综合学习能力和道德情操。以 Pedretti 的一般课程的六个步骤为基础，以“智能手机发展对人类的影响”为例给出心理健康教育 SSI 教学的基本模式和实践路径。

关键词 义务教育课程标准，心理健康教育，SSI 教学

An Initial Exploration of SSI Teaching in Junior High School Psychological Health Education under the Compulsory Education Curriculum

Zhang Erchang, Yao BenXian(Corresponding author)
Department of Psychology, Anhui Normal University, Wuhu 241000, China

Abstract: The 2022 edition of the "Compulsory Education Curriculum Plan and Standards" emphasizes subject practice and the cultivation of students' core competencies. Core competencies refer to the essential qualities and key abilities gradually developed by students during the corresponding educational stages, which are necessary for personal lifelong development and societal progress. They encompass three aspects: cultural foundation, self-directed development, and social participation, including humanistic heritage, scientific spirit, learning to learn, healthy living, responsibility and commitment, and practical innovation, comprising six factors. Regarding mental health education, its core competencies are reflected in cultivating students' self-efficacy, social adaptability, and learning skills.The curriculum for mental health education lacks corresponding subject standards, providing a higher degree of freedom and adaptability. It allows for tailoring to regional economic development and the characteristics of students. Socioscientific Issues (SSI) pertain to controversial problems related to the impact and influence of scientific and technological developments on society. SSI can effectively align with the requirements and characteristics of the 2022 curriculum reform, making it possible to develop corresponding content for mental

health education. There is potential for further development and growth in this field.This paper will argue from the perspectives of feasibility and necessity, indicating the compatibility between the characteristics of mental health education and SSI education. It will emphasize the significance of introducing SSI in the current era, as well as the role SSI can play in middle school mental health classes. For instance, it can enhance students' informal reasoning skills, further improve their comprehensive learning abilities, and cultivate moral character. Building upon Pedretti's six steps of general curriculum, the paper will use the example of "The Impact of Smartphone Development on Humanity" to present the basic model and practical approach for mental health education with SSI integration.

Keywords: Socioscientific issue, Compulsory education curriculum, Mental health education

自我同情对青少年体像烦恼的影响及书写表达干预

张芹 张信勇（通讯作者）

广东外语外贸大学社会与公共管理学院，广州，510006，zhangxinyong@gdufs.edu.cn

摘 要 体像烦恼是个体由于审美水平偏下或自我审美出现社会偏差，导致对于自己的身体形象产生了负面消极想法，是一种不健康的心理状态。青少年的身体和心理尚未发育完全，无法做出客观的自我评价和自我接纳。加之网络时代媒体和影视作品对于“瘦为美”观念的传播，青少年学生会以外界的审美标准来要求自己，未能达到则容易产生体像烦恼。前人研究表明，自我同情能够对身体满意度产生影响，那么自我同情与青少年体像烦恼问题是否具有关联，自我同情又是如何影响身体意象的，对于生活中青少年出现的体像烦恼，应该如何进行干预缓解。本文以青少年初高中学生为被试，开展了两个研究。研究一采用问卷法，以 12-18 岁的初高中学生为研究对象，采用自陈式量表测量青少年群体的自我同情、体像烦恼、社会比较倾向、核心自我评价水平，考察了社会比较倾向的中介作用和核心自我评价的调节作用。结果发现：（1）自我同情能够负向预测体像烦恼和社会比较倾向，社会比较倾向能够正向预测体像烦恼；（2）社会比较倾向在自我同情对体像烦恼的影响中起部分中介作用，核心自我评价在社会比较倾向与体像烦恼之间起负向调节作用。基于研究一的理论模型，研究二进一步探讨了自我同情书写和书写表达能否降低青少年体像烦恼，采用 2（时间：前测、后测）×3（组别：自我同情书写组、书写表达组、对照组）混合实验设计，以初高中学生为研究对象，随机分配至自我同情书写组、书写表达组、对照组分别进行不同主题的书写，每周进行一次，共进行四次书写，每次 20 分钟，至少书写 300 字，在干预前和干预后完成问卷测量。结果发现：（1）自我同情书写能够提高青少年自我同情水平，降低体像烦恼和容貌烦恼水平，提高核心自我评价水平；（2）书写表达能够降低青少年体像烦恼和性别烦恼水平。

关键词 自我同情；青少年体像烦恼；社会比较倾向；核心自我评价；书写表达

The Influence of Self-compassion on Adolescent Body Image Depression and Expressive Writing Intervention

ZHANG Qin, ZHANG Xin-yong(Corresponding author)

School of Public Administration, Guangdong University of Foreign Studies, Guangdong 510006, China

***Abstract*:** Body image depression is an unhealthy mental state in which individuals have negative thoughts about their body image due to their lower aesthetic level or social deviation in self-aesthetic. The physical and psychological development of adolescents is not complete, unable to make objective self-evaluation and self-acceptance. Coupled with the spread of the concept of "thin is beautiful" by media and film and television works in the Internet era, young students will demand their own aesthetic standards from the outside world, and if they fail to meet them, they are prone to body image depressions. Previous studies have shown that self-compassion can have an impact on body satisfaction, so is there any correlation between self-compassion and adolescent body image depression? How does self-compassion affect body image? How should we intervene to alleviate adolescent body image depressions in daily life? In this paper, two studies are designed with adolescent middle and high school students as subjects. In the first study, a questionnaire was used to measure the self-reported scale of adolescents' self-compassion, body image depressions, social comparison orientation and core self-evaluation. The mediating effect of social comparison orientation and the moderating effect of core self-evaluation were analyzed. The results showed that: (1) Self-compassion could negatively predict body image depression and social comparison orientation, and social comparison orientation could positively predict body

image depression; (2) Social comparison orientation partially mediates the influence of self-compassion on body image depression, and core self-evaluation negatively moderates the relationship between social comparison orientation and body image depression. Based on the theoretical model of study 1, Study 2 further explores whether self-compassion writing and written expression can reduce the body image depression of adolescents. In Study 2, 2 (time: pre-test and post-test) ×3 (Group: Self-compassion writing group, writing expression group, control group) mixed experimental design. Middle and high school students were randomly assigned to self-compassion writing group, writing expression group and control group to write on different topics, once a week, a total of four times, 20 minutes each time, at least 300 words. Questionnaire measurement was completed before and after intervention. The results showed that: (1) Self-compassion writing could improve the level of self-compassion, reduce the level of body and appearance depression, and improve the level of core self-evaluation; (2) Written expression can reduce the level of adolescent body image depression and gender depression.

Keywords **:** self-compassion, adolescent body image depression, social comparison orientation, core self-evaluation, written expression

青少年同伴友谊发展中父母的作用：友谊质量的预测机制

熊柏林[1] 钟潇[2] 付浩杰[3] 王斌[1,4]（通讯作者）

1 西南科技大学法学院心理学系，绵阳，621000

2 北京体育大学心理学院，北京，100101

3 同济大学上海市自主智能无人系统科学中心，上海，200092

4 西南科技大学社会心理服务与危机干预研究中心，绵阳，62100

通讯作者邮箱：wangbin@swust.edu.cn

摘 要 步入青春期，个体与朋友的交往愈发频繁，友谊关系对青少年的身心健康发展的作用日益突出。友谊质量是个体与朋友之间的亲密情感联系，包括友谊的特征和个体对友谊状态的主观评价。以往研究发现，高质量的友谊可以为个体提供社会支持，减少孤独感，促进心理健康。鉴于友谊质量的积极作用，自然要探究其影响因素，根据生态系统理论，家庭、个体、同伴作为微观系统彼此之间会有相互影响，已有研究也为此提供了实证支持。然而，针对友谊质量的预测因素的研究仍比较少且其机制不明，故本研究基于生态系统理论，从“家庭-个体-同伴”三方综合的角度出发，探究父母教养方式对青少年友谊质量的影响及其内部心理机制。采用父母教养方式问卷、青少年特质情绪智力量表、积极应对方式量表和友谊质量问卷，调查了绵阳市五所学校的 2789 名中学生。结果显示，父母情感温暖与青少年友谊质量、特质情绪智力和积极应对方式分别呈显著正相关(r=0.39,0.54,0.48，P＜0.01)，父母过度保护和拒绝与青少年友谊质量、特质情绪智力、积极应对方式分别呈显著负相关（r=-0.10,-0.33,-0.12, P＜0.01; r=-0.20,-0.42,-0.19, P＜0.01）；中介效应检验表明，父母情感温暖对青少年友谊质量的直接效应显著，效应值为 0.13，特质情绪智力和积极应对方式在父母情感温暖与青少年友谊质量之间的单独中介作用显著，二者的链式中介作用也显著，效应值分别是 0.09、0.05、0.05；在父母过度保护与青少年友谊质量的关系中，直接效应不显著，但特质情绪智力和积极应对方式的单独中介作用以及二者的链式中介作用均显著，效应值分别是-0.10、0.03、-0.07；在父母拒绝与青少年友谊质量的关系中，直接效应不显著，但特质情绪智力和积极应对方式的单独中介作用以及二者的链式中介作用均显著，效应值分别是-0.11、0.02、-0.08。总之，父母情感温暖水平越高，青少年的友谊质量越好，过度保护和拒绝水平越高，青少年的友谊质量越差，特质情绪智力和积极应对在这一影响中发挥了链式中介作用。

关键词 父母教养方式，特质情绪智力，积极应对方式，友谊质量，青少年

The role of parents in adolescent peer friendship development: a predictive mechanism for friendship quality

XIONG Bolin，ZHONG Xiao，FU Haojie，WANG Bin

Department of Psychology, Southwest University of Science and Technology, Mianyang 621000, China

Department of Psychology, Beijing Sports University, Beijing 100101, China

Department of Psychology, Tongji University, Shanghai 200092, China

Corresponding Author's Email：wangbin@swust.edu.cn

***Abstract*:** Entering adolescence, individuals interact with friends more and more frequently, and friendship plays an increasingly prominent role in the healthy development of adolescents' physical and mental health. Friendship quality is the intimate emotional connection between individuals and friends, including the characteristics of friendship and the individual's subjective evaluation of friendship status. Previous research has found that

high-quality friendships can provide individuals with social support, reduce loneliness and promote mental health. In view of the positive effect of friendship quality, it is natural to explore its influencing factors. According to the ecosystem theory, family, individuals and peers as micro-systems will affect each other, and existing studies have provided empirical support for this. However, there are still few researches on the predictors of friendship quality and its mechanism is unknown. Therefore, based on the ecosystem theory, this study explores the influence of parental rearing styles on adolescent friendship quality and its internal psychological mechanism from the perspective of "family-individual-peer" synthesis. 2789 middle school students from five schools in Mianyang City were investigated by parental rearing style questionnaire, adolescent Trait Emotional Intelligence Scale, positive coping style Scale and friendship quality questionnaire. According to the results, parental emotional warmth was positively correlated with adolescents' friendship quality, trait emotional intelligence and positive coping style (r=0.39,0.54,0.48, P<0.01), while parental overprotection and rejection were negatively correlated with adolescents' friendship quality, trait emotional intelligence and positive coping style (r=-0.10,-0.33,-0.12, P< 0.01; r=-0.20,-0.42,-0.19, P<0.01); The mediation effect test showed that the direct effect of parental emotional warmth on adolescent friendship quality was significant, with an effect value of 0.13. Trait emotional intelligence and positive coping style had significant independent mediating effect between parental emotional warmth and adolescent friendship quality, and their chain mediating effect was also significant, with effect values of 0.09, 0.05 and 0.05, respectively. In the relationship between parental overprotection and adolescent friendship quality, the direct effect was not significant, but the single mediating effect and the chain mediating effect of trait emotional intelligence and positive coping style were significant, and the effect values were -0.10, 0.03, and -0.07, respectively. In the relationship between parental rejection and adolescent friendship quality, the direct effect was not significant, but the single mediating effect of trait emotional intelligence and positive coping style and the chain mediating effect of both were significant, with effect values of -0.11, 0.02 and -0.08, respectively. In conclusion, the higher the level of parental emotional warmth, the better the quality of adolescent friendship, the higher the level of overprotection and rejection, the worse the quality of adolescent friendship. Trait emotional intelligence and positive coping play a chain mediating role in this effect.

***Keywords*:** Parenting style, Trait emotional intelligence, Positive coping style, Friendship quality, Adolescents

自我调节学习对学业表现的影响:学业投入的中介作用和感知社会支持的调节作用

潘晨晨[1,2] 方平[1] 姜媛[2]（通讯作者）

[1] 北京理工大学人文与社会科学学院，北京，100048

[2] 首都师范大学心理学院，北京，100048

[3] 北京体育大学心理学院，北京，100084，jiangyuan97@sina.cn

摘 要 学业表现是教育的结果，是指学生、教师或机构实现其教育目标的程度，通常通过考试或持续性的评估来衡量。学业成绩与青少年和儿童的自尊有关，甚至关系到与同伴关系、亲子关系和师生关系的发展，是决定一个人未来发展和成年后事业成功的关键因素。学业表现通常受到学生自主学习能力等内部因素及学习环境等外部要素的影响，其中自我调节学习便是重要的内部要素，其主要是指自我调节学习是学习者主动调节元认知、情绪动机和行为，以促进学习成功，提高学习效果，实现学习目标的过程。已有研究表明，自我调节学习能促进学业表现的提升，但其具体影响的潜在机制还需要进一步探讨。为了阐明初中生自主学习与学业成绩关系的内在机制。本研究采用自主学习量表、学业投入量表和感知社会支持量表对北京市初三年级 451 名 11～15 岁学生 (M=13.66, SD=0.87) 进行调查，检验学业投入在自我调节学习与学业表现之间的中介作用，以及组织支持对上述中介路径的调节作用。结果表明: (1)自主学习与学业投入、学业成绩、感知社会支持呈显著正相关；学业成绩与学业投入、感知社会支持呈正相关； (2)学业投入在自主学习与初中生学业成绩之间起中介作用； (3)感知社会支持在自我调节学习与初中生学业投入之间起调节作用。与高感知社会支持个体相比，低感知社会支持个体的自我调节学习对学业投入的影响更大。本研究基于自我调节学理论及社会支持理论，共同考察了内外部因素对学业表现的作用，厘清学业表现的内在影响机制和条件，对促学生未来成长及教育事业发展有着重大意义。

关键词：自我调节学习，学业投入，感知社会支持，学业表现

Self-regulating learning to academic performance: The mediating role of academic engagement and the moderating role of perceived social support

Chenchen Pan[1] Ping Fang[2] Yuan Jiang[3](corresponding author)

[1] Department of Humanities and Social Sciences, Beijing Institute of Technology, Beijing 100048, China

[2] Department of Psychology, Capital Normal University, Beijing, 100048

[3]Department of Psychology, Beijing Sport University, Beijing, 100084

Corresponding author jiangyuan97@sina.cn

Abstract： Academic achievement (performance) is the result of education, which refers to the

degree to which students, teachers or institutions have achieved their educational goals, usually measured by examination or continuous assessment. Academic achievement is related to the self-esteem of adolescents and children, and even relates to the development of peer relationships, parent-child relationships and teacher-student relationships, and is a key factor in determining a person's future development and career success as an adult. Academic performance is usually affected by internal factors such as students' autonomous learning ability and external factors such as learning environment, among which self-regulated learning is an important internal factor, which mainly means that self-regulated learning is a process in which learners actively adjust metacognition, emotional motivation and behavior to promote learning success, improve learning results and achieve learning goals. In order to clarify the internal mechanism of the relationship between self-regulated learning and academic performance of junior high school student. This study investigated 451 students aged 11 to 15 years old (M=13.66, SD=0.87) in the third grade of junior middle school in Beijing using the self-regulated learning scale, academic engagement scale and perceived social support scale to examine the mediating effect of academic engagement on self-regulated learning and academic performance, as well as the mediating effect of organizational support on the above mediating path. The results are as follows: (1) Self-regulated learning is positively correlated with academic engagement, academic performance and perceived social support; Academic performance is positively correlated with academic engagement and perceived social support; (2) Academic engagement plays a mediating role between self-regulated learning and academic performance of junior high school students; (3) Perceived social support plays a moderating role between self-regulated learning and junior high school students' academic engagement. Compared with individuals with high perceived social support, self-regulated learning has a greater impact on the academic engagement of individuals with low perceived social support. Based on self-regulation theory and social support theory, this study jointly examines the effects of internal and external factors on academic performance, clarifies the internal influencing mechanism and conditions of academic performance, and has great significance for promoting students' future growth and educational development.

Keywords：self-regulated learning; academic engagement; perceived social support; academic performace

高中生学业乐观与学业复原力的关系：

自我效能感和认知灵活性的链式中介作用

魏秀超[1]　代文武[2]　贾宁[1]（通讯作者）

1 河北师范大学教育学院，石家庄，050024，jnajh@126.com

2 北京林业大学人文社会科学学院，北京，100083

摘 要　处于青春期的高中生们具有较强的可塑性，培养良好的学业品质能促使个体获得积极的学业发展。作为良好学业品质的重要指标之一，学业复原力的影响因素受到了学者们的广泛关注。在众多影响因素中，学业乐观对高中生学业复原力产生了深远影响，但是学业乐观是如何影响学业复原力的研究尚少，仍有待于进一步探究。本研究旨在探讨高中生学业乐观和学业复原力的关系，以及自我效能感和认知灵活性在其中的中介作用。本研究采用学业乐观量表、自我效能感问卷、认知灵活性量表和日常性学业复原力问卷，对 730 名高中生进行了问卷调查。结果发现：（1）学业乐观、自我效能感、认知灵活性和学业复原力之间存在着显著的正相关关系；（2）学业乐观分别通过自我效能感和认知灵活性对学业复原力产生影响；（3）自我效能感和认知灵活性在高中生学业乐观和学业复原力间起链式中介作用。本研究揭示了高中生学业乐观影响学业复原力的作用机制，对学校开展提升高中生学业复原力的干预工作具有一定的参考价值。

关键词　学业乐观，自我效能感，认知灵活性，学业复原力，高中生

The Relationship between High School Students' Academic Optimism and Academic Resilience: The Chain Mediation of Self efficacy and Cognitive Flexibility

Wei Xiuchao[1] DaiWenwu[2] JiaNing[1]

1 College of Education, Hebei Normal University ,Shijiazhuang Hebei, 050091

2 School of Humanities and Social Sciences, Beijing Forestry University,Beijing, 100083

Abstract：High school students in adolescence have strong plasticity, and cultivating good academic qualities can promote individuals to achieve positive academic development. As one of the important indicators of good academic quality, the influencing factors of academic resilience have received widespread attention from scholars. Among numerous influencing factors, academic optimism has a profound impact on high school students' academic resilience. However, there is still little research on how academic optimism affects academic resilience and further exploration is needed. The aim of this study is to explore the relationship between academic optimism and academic resilience among high school students, as well as the mediating role of self-efficacy and cognitive flexibility in it. This study conducted a questionnaire survey on 730 high school students using the Academic Optimism Scale, Self Efficacy Scale, Cognitive Flexibility Scale, and Daily Academic Resilience Scale. The results showed that: (1) there was a significant positive correlation between academic optimism, self-efficacy, cognitive flexibility, and academic resilience; (2) Academic optimism has an impact on academic resilience through self-efficacy and cognitive flexibility, respectively; (3) Self efficacy and cognitive flexibility play a chain mediating role between academic optimism and academic resilience in high school students. This study reveals the mechanism by which high school students' academic optimism affects their academic resilience, and has certain reference value for schools to carry out intervention work to enhance their academic resilience

Keywords：Academic optimism, self-efficacy, cognitive flexibility, academic resilience, high school students

家庭功能与青少年心理健康：

特质情绪智力和亲子依恋的作用

刘海延[1] 钟潇[2] 付浩杰[3] 陆心怡[1] 王斌[1,4,5]（通讯作者）

1 西南科技大学法学院，绵阳，621000

2 北京体育大学心理学院，北京，100101

3 同济大学上海市自主智能无人系统科学中心，上海，200092

4 西南科技大学社会心理服务与危机干预研究中心，绵阳，621000

5 西南科技大学心理学系，绵阳，621000，wangbin@swust.edu.cn

摘 要 家庭微观系统是个体身心健康发展的港湾，为青少年的生理、认知、心理和社会性等方面的健康发展提供条件和支持功能。家庭功能作为家庭生态系统的运行质量的衡量标准要变量,也是影响青少年心理健康发展的重要因素。特质情绪智力是指个体对自我情绪意识、感知和情感沟通能力的主观理解，相关研究发现特质情绪智力是预测个体心理健康的重要人格因素。为了更全面地了解青少年心理健康的影响因素，本研究基于家庭生态系统理论和人-境交互作用论，探讨了青少年家庭功能与心理健康的关系，并检验二者之间的内在作用机制和影响因素。研究采用家庭功能评定量表、亲子依恋量表、中国特质情商问卷简写表和心理健康量表对 624 名青少年进行施测。结果显示:(1)家庭功能、特质情绪智力、亲子依恋、心理健康四个变量两两显著正相关;(2)家庭功能能显著预测青少年心理健康(b＝0.22，p＜0.001)，特质情绪智力也能显著预测青少年心理健康(b＝0.62，p＜0.001); (3)特质情绪智力在家庭功能与青少年心理健康之间起中介作用(b＝0.36，95% bootCI =[0.29,0.43]); (4)亲子依恋对家庭功能与青少年特质情绪智力的中介过程存在调节作用，与低亲子依恋水平的青少年相比，高亲子依恋水平青少年的家庭功能对特质情绪智力的预测效果更显著。具体表现为：家庭功能对特质情绪智力的正向预测作用在低父子依恋水平的学生中显著(b=0.27，t=5.89，p<0.001)，当父子依恋水平较高时，家庭功能对特质情商的正向预测作用增强(b=0.39，t=7.01，p<0.001)；家庭功能对特质情商的正向预测作用在低母子依恋水平的学生中显著(b=0.24，t=5.09，p<0.001)，当母子依恋水平较高时，家庭功能对特质情商的正向预测作用增强(b=0.43，t=8.10，p<0.001)。本研究揭示了家庭功能不仅能直接预测也可以通过特质情绪智力间接预测青少年心理健康水平，但是这一中介预测模型会因为亲子依恋程度不同而不同。这一结果不仅有助于深入理解青少年心理健康的影响因素和作用机制，还对在家庭环境中培养青少年特质情绪智力具有一定启发意义。

关键词 家庭功能，特质情绪智力，心理健康，青少年，亲子依恋

Family functioning and adolescent mental health:

The role of trait emotional intelligence and parent-child attachment

Haiyan Liu[1]，Xiao Zhong[2]，Haojie Fu[3]，Xinyi Lu[1]，Bin Wang[1,4,5*]

1 Psychosocial Service and Crisis Intervention Research Center, Southwest University of Science and Technology, Mianyang, China,

2 Department of Psychology, Beijing Sport University, Beijing, China,

3 Shanghai Research Institute for Intelligent Autonomous Systems, Tongji University, Shanghai, China

4 Psychological Education and Counseling Center, Southwest University of Science and Technology, Mianyang, China
5 Department of Psychology, Southwest University of Science and Technology，Mianyang,，621000，wangbin@swust.edu.cn

Abstract：The family microsystem is a harbor for the healthy development of the individual's body and mind, providing conditions and supportive functions for the healthy development of adolescents' physiological, cognitive, psychological and social aspects. Family functioning, as a measure of the quality of the family ecosystem, is also an important factor affecting adolescents' healthy psychological development. Trait Emotional Intelligence (TEI) refers to an individual's subjective understanding of his/her emotional awareness, perception, and ability to communicate emotionally, and related studies have found that TEI is an important personality factor in predicting an individual's mental health. In order to gain a more comprehensive understanding of the factors influencing adolescent mental health, this study explored the relationship between adolescent family functioning and mental health based on the family ecosystem theory and the person-situation interaction theory, and examined the intrinsic mechanisms and influencing factors between the two. The study utilized the Family Assessment Device-6(FAD-6), the Inventory of Parent and Peer Attachment（IPPA）, the Chinese Trait Emotional Intelligence Questionnaire Short Form (TEIQue-SF), and the five-item version of the Mental Health Inventory(MHI-5) on 624 adolescents.The results showed that:(1) the four variables of family functioning, trait emotional intelligence, parent-child attachment, and mental health were significantly positively correlated two-by-two; (2) family functioning significantly predicted adolescent mental health ($b = 0.22$, $p < 0.001$), as did trait emotional intelligence ($b = 0.62$, $p < 0.001$); (3) trait emotional intelligence played a significant role in mediating the relationship between family functioning and adolescent mental health ($b = 0.36$, 95% bootCI = [0.29,0.43]); (4) There was a moderating effect of parent-child attachment on the mediating process between family functioning and adolescents' trait emotional intelligence, and family functioning was a more significant predictor of trait emotional intelligence in adolescents with high levels of parent-child attachment than in those with low levels of parent-child attachment.Specifically, the positive predictive effect of family functioning on trait emotional intelligence was significant among students with low levels of parent-child attachment ($b=0.27$, $t=5.89$, $p<0.001$), and was enhanced when the level of parent-child attachment was high ($b=0.39$, $t=7.01$, $p<0.001$); the positive predictive effect was significant in students with low levels of mother-child attachment ($b=0.24$, $t=5.09$, $p<0.001$), and the positive predictive effect of family functioning on trait emotional intelligence was enhanced when the level of mother-child attachment was high ($b=0.43$, $t=8.10$, $p<0.001$).This study reveals that family functioning not only directly predicts but also indirectly predicts adolescent mental health through trait emotional intelligence, but this mediated prediction model varies depending on the degree of parent-child attachment. This result not only contributes to a deeper understanding of the influencing factors and mechanisms of adolescent mental health, but also sheds light on the development of adolescent trait emotional intelligence in the family environment.

Keywords： Family Functioning, Trait Emotional Intelligence, Mental Health, Adolescents, Parent-Child Attachment

机器学习在大学生自杀倾向识别和预测中的应用

杨颖倩[1] 杨惠琴[1] 郭雯[1] 付浩杰[2]（通讯作者）

1 西南科技大学心理教育与辅导中心，绵阳，621010

2 同济大学上海市自主智能无人系统科学中心，上海，200092，通讯作者 E-mail：fuhaojie@tongji.edu.cn

摘 要 自杀，是一个重要的公共卫生问题，也是大学生非正常死亡的主要原因。准确识别和预测大学生的自杀倾向，对于自杀干预和预防工作有十分重要的意义。机器学习是一种使用算法和统计模型寻找大数据中隐含模式的方法，能较好的处理高维数据与非线性数据，越来越多的研究者将其应用于风险的识别与预测中。本研究采集了绵阳地区一万五千多名大学生的心理普查数据，纳入人口学变量、成长经历、人格特质、生活事件、抑郁、社会支持等 15 个特征。分层抽样选取 70%的被试作为训练集，30%的被试作为测试集。采用 SVM、LR、KNN、XGBoost、LightGBM、CatBoost 六种算法，利用网格搜索寻找最佳参数，5 折交叉检验平衡抽样误差，建立自杀倾向的识别和预测模型。因自杀为高风险因素，因此首先关注查全率（Recall）指标，其中 XGBoost 表现最佳，在测试集上准确率为 0.951，查全率为 0.761，F1 分数为 0.748，AUC 为 0.866。基于可解释的机器学习，利用 SHAP 进行模型事后解释的方法，最终找出了识别自杀倾向最重要的 5 个特征，依次为抑郁、成长经历、社会支持、人格特质和生活事件。综上所述，本研究表明极致梯度提升算法（XGBOOST）可用于自杀倾向的识别，有较好的查全率的结果，有助于简化并提高大学生自杀倾向识别和预测的有效性。可解释的机器学习，寻找风险因素，为进一步理解大学生自杀的发生因素提供了重要的方向，同时也为更有针对性地开展自杀预防和干预工作提供帮助。

关键词 自杀预测，可解释的机器学习，极致梯度提升算法，风险因素

Application of machine learning to the identification and prediction of college students' suicidal tendencies

Yang Yingqian Yang Huiqin Guo Wen Fu Haojie

Psychological education and counseling center, Southwest University of Science and Technology, Mian Yang, China

Shanghai Research Institute for Intelligent Autonomous Systems, Tongji University, Shang Hai, China

Abstract：Suicide is not only an important public health problem, but also the main cause of abnormal death of college students. It is of great significance for suicide intervention and prevention to accurately identify and predict the suicidal tendency of college students. Machine learning is a method that uses algorithms and statistical models to find hidden patterns in big data. It can better deal with high-dimensional data and nonlinear data. More and more researchers have applied it to risk identification and prediction. This study collected the psychological survey data of more than 15,000 college students in Mianyang area, including 15 characteristics such as demographic variables, growth experience, personality traits, life events, depression and social support. Stratified sampling selected 70% of the subjects as the training set, 30% of the subjects as the test set. Six algorithms, SVM, LR, KNN, XGBoost, LightGBM and CatBoost, were used to search for the best parameters by using grid search, and the balanced sampling error of 5-fold cross-check was used to establish the identification and prediction model of

suicide tendency. Among them, XGBoost performed best, with an accuracy of 0.951 on the test set. The Recall rate was 0.761, the F1 score was 0.748, and the AUC was 0.866. Since suicide was a high risk factor, we first focused on the recall index. Based on explicable machine learning, using SHAP to model post-hoc interpretation, we finally found the five most important characteristics for identifying suicidal tendencies, in order of depression, growing experiences, social support, personality traits and life events. In summary, this study shows that XGBOOST algorithm can be used to identify suicide intention, and has a better recall rate, which helps simplify and improve the effectiveness of college students' suicide intention recognition and prediction. Explainable machine learning, searching for risk factors, provides an important direction for further understanding the occurrence factors of college student suicide, and also provides help for more targeted suicide prevention and intervention efforts.

Keywords **：** Suicide Prediction, Explainable Machine Learning, Extreme Gradient Lifting Algorithms, Risk Factors

6.13“心理测量专业委员会”分组展贴报告

中文版《过度教养量表(大学生版）》的信效度检验

陈晓 [1,2]（通讯作者） 杜浩荣 [3]

1 广东白云学院 应用心理学系，广州，510450

2 北京师范大学 未来教育学院，珠海，519087 psychenxiao@126.com

3 北京师范大学珠海分校 教育学院，珠海，519087

摘 要 本研究对 Segrin 等人（2012）的《过度教养量表》（Overparenting Scale, OPS）进行中文孩子版修订并检验其信效度。英文版《过度教养量表》包含期待问题解决、建议/情感管理、具体的帮助和孩子自我导向四个维度，共 39 个题目，采用李克特 5 点计分法。中文版《过度教养量表》采用中英文回译法，由心理学专业教师翻译成中文，并依照原文对个别语句进行修改，尽可能保障题目表述符合中文语言习惯。再由 1 名英语专业人士对量表中文稿进行回译，回译结果与原量表基本一致。原始量表是父母版，中文版改为孩子版本，把量表中的“我的孩子”表述转化为 “我的父母”，并在尽量不影响题目原意的情况下对语句进行修改，使其符合中文语言习惯。对 370 名大学生施测中文版《过度教养量表》、《父母自主支持量表》、《父母心理控制量表》、《自我控制问卷》、《Ryff 心理幸福感量表》中的自主维度、《自我同一性过程量表》检验量表的效度。其中 199 名大学生 2 周后进行量表重测。结果：1）修订后的中文版《过度教养量表》包含 36 个项目，并保持原量表期待问题解决、建议/情感管理、孩子自我导向和具体的帮助四个维度；2）验证性因素显示四因子模型 4 因子结构模型在大学生群体上拟合良好，不同模型比较显示四因子一阶模型的拟合都要优于其他模型；3)过度教养量表总分与父母心理控制呈显著正相关，与孩子的自主性呈显著负相关；期待问题解决与父母心理控制、父母自主支持呈显著正相关；建议/情感管理与父母心理控制呈显著负相关，与父母自主支持，孩子自我控制，自我同一性的探索和承诺呈显著正相关；具体的帮助与父母自主支持呈显著正相关；孩子自我导向与父母心理控制呈显著负相关，与父母自主支持，孩子的自我控制、孩子的自主性、自我同一性的探索和承诺均呈显著正相关；4）过度教养量表的内部一致性信度为.83，四个维度的信度介于.67-.85，两周后量表的重测信度为.76。结论：中文版《过度教养量表（大学生版）》具有良好的信效度，适用于评估中国大学生的过度教养研究。

关键词 过度教养量表，大学生，效度，信度

The Validity and Reliability of the Chinese College Student version of Overparenting Scale(CS-OPS)

Chen Xiao[1,2] Du haorong[3]

1. Department of Applied Psychology, Guangdong Baiyun University, Guangzhou, 510450
2. College of Education for the Future, Beijing Normal University, Zhuhai, 519087, Email: psychenxiao@126.com
3. School of Education, Beijing Normal University, Zhuhai campus, Zhuhai, 519087

Abstract: This study examined the validity and reliability of the Chinese child version of the Overparenting Scale (Cc-OPS) developed by Segrin et al. (2012). The original OPS consisted of four sub-scales: Anticipatory Problem Solving, Advice/Affect Management, Tangible Assistance, and Child Self-direction. The original OPS was translated into Chinese by a psychological professor. The Chinese version was back-translated by an English professional. The original Scale was administered to parents. The phrase "my child" was modified to "my parents". Three hundred and seventy college students were administered with OPS, Parental Autonomy Support Scale, Parental Psychological Control Scale, Self-Control Questionnaire, the he autonomy sub-scale of the Ryff Psychological Well-Being Scale and the Ego Identity Process Questionnaire. One hundred and ninety-nine college students were re-administered the OPS two weeks later to examine the test-retest reliability.Results showed that: 1) the Chinese child version of OPS included 36 items and consisted of the same four sub-scales as the original scale. Confirmatory factor analysis(CFA) showed that, compared with other possible models, the four-factor model fitted best with college students data. 2)The total score of CC-OPS correlated significantly with parental psychological control positively and correlated with child autonomy negatively. Anticipatory Problem Solving correlated significantly with parental psychological control and parental autonomy support positively. Advice/Emotion management correlated significantly with parental psychological control negatively and correlated significantly with parental autonomy support, child self-control, exploration and commitment of self-identity positively of self-identity; Tangible Assistance correlated significantly with parental autonomy support positively; Child Self-direction correlated significantly with parental psychological control negatively and positively correlated with parental autonomy support, child self-control, child autonomy, exploration and commitment of self-identity; 4)The internal consistency reliability of the CC-OPS was .83, and the reliability of the four sub-scales ranged from .67 to .85. The test-retest reliability of the was .76. The Chinese college student version of the Overparenting Questionnaire Scale was with acceptable reliability and validity and was suitable for assessing overparenting in Chinese college students.

Keywords: Overparenting Scale, College Student, Validity, Reliability

线上办公如何影响情绪敏感性：

控制感和睡眠质量的作用

但宗怡[1] 张翕然[1] 王滢[2] 严子洋[2] 徐建平（通讯作者）

北京师范大学心理学院，北京，100875

北京师范大学心理学院，北京，100875，xujp@bnu.edu.cn

摘 要 此前我国针对新冠疫情的常态化防控使得远程办公模式愈发受到各界的广泛关注，并得到进一步发展和完善。新型工作方式的流行既为个体的工作生活带来了便利，同时也表现出了一些局限。本研究基于持续 3 年的新冠疫情时代背景，针对这期间出现并有可能在未来广泛使用的线上办公形式，以改善并促进个体身心健康与工作表现为出发点，探索并讨论了线上办公对个体情绪敏感性的影响机制、控制感的中介作用以及睡眠质量的调节作用。基于理论研究结果，对个体如何改善线上办公可能对控制感、情绪敏感性造成的不良影响提供策略和方法借鉴。通过对 120 名被试进行为期 10 个工作日的纵向追踪研究，本研究主要得出以下结论：线上办公对情绪敏感性的直接效应显著，其中工作环境与工作场所人际压力因素的效应量更大；以控制感为中介的全模型检验不显著，但线上办公的工作环境和人际压力因素会显著负向影响控制感；睡眠质量能够显著负向影响控制感，即高睡眠质量能够显著缓解个体的控制感缺失。

关键词 线上办公，控制感，睡眠质量，情绪敏感性，纵向追踪研究

How online office affects emotional sensitivity :

The Role of Sense of Control and Sleep Quality

Dan zongyi[1], Zhang yiran[1], Wang ying [2], Yan ziyang [2], Xu jianping
School of Psychology, Beijing Normal University，No. 19, Xinjiekouwai Street, Haidian District, Beijing

Abstract： The normalization of COVID-19 prevention and control measures in China has led to increased attention, further development, and improvement of the remote work model. While the popularity of this new working style has brought convenience to individuals' work-life balance, it has also revealed certain limitations. This study, conducted against the backdrop of the COVID-19 era spanning three years, focuses on the online work format that emerged during this period and is likely to be widely used in the future. The study aims to explore and discuss the impact mechanisms of online work on individuals' emotional sensitivity, the mediating role of perceived control, and the moderating effect of sleep quality. The study takes into consideration the improvement and promotion of individuals' mental and physical well-being and work performance. Based on theoretical research findings, the study provides strategies and methods for individuals to mitigate the adverse effects of online work on perceived control and emotional sensitivity. Through a longitudinal tracking study involving 120 participants over a period of 10 workdays, the study draws the following conclusions: Online work has a significant direct effect on emotional sensitivity, with the work environment and interpersonal pressure in the workplace having a greater impact. The full model test with perceived control as a mediator is not significant, but the work environment and interpersonal pressure factors of online work significantly negatively affect perceived control. Sleep quality has a significant negative impact on perceived control, indicating that higher sleep quality can significantly alleviate individuals' sense of control loss.

Keywords： Online office, sense of control, sleep quality, emotional sensitivity, longitudinal follow-up study

机器学习重抽样方法在潜在剖面分析模型选择中的适用性探究

倪雨菡[1]（通讯作者） 张敏强[2]

1 安徽师范大学教育科学学院，芜湖，241000

2 华南师范大学心理学院，广州，510631

摘 要 潜在剖面分析(Latent Profile Analysis，LPA)是根据外显的行为指标对个体的潜在特征进行分类的统计方法，广泛应用于人格、心理健康等领域。在 LPA 中，研究者通常需要综合考量拟合指数、模型简约性与模型可解释性三大准则进行模型评估与选择。然而，现在还没有被广泛接受的最佳指数，拟合指数的表现依赖于模拟研究创设的条件(Grimm, Mazza, & Davoudzadeh, 2017)，且基于拟合指数的模型选择会导致结果的可重复性不高(Preacher & Merkle, 2012)。基于以上问题，有研究者提出将机器学习重抽样方法——*K* 折交叉验证法，作为混合模型分析中模型选择的替代策略(Grimm et al., 2017)。

综述发现，目前尚无研究将 *K* 折交叉验证法引入 LPA，其他改进的交叉验证法在混合模型中的研究亦为空白，交叉验证法的性能与效度均有待进一步考证；另一种重抽样方法 Bootstrap 法仅探究了拟合指数的不确定性 (e.g., Lubke et al., 2017)，对模型选择的改善可能性仍待挖掘。因此，有必要系统评估机器学习重抽样方法在潜在剖面分析中的适用性，为实际使用者提供应用参考。

本研究通过三个蒙特卡洛模拟研究和一个实证研究，对传统拟合指数、Bootstrap 法及交叉验证法（5 折、10 折、重复 5×2、组块 3×2）下模型选择指标在 LPA 中的适用性进行探究和验证。模拟因素组合包括：①外显指标数 (*I*=4, 8)、②潜在类别比例 ($p(x = k)$ = 0.33/0.33/0.34, 0.15/0.40/0.45)、③类间距 (*MD* = 0.5, 1.2, 3) 、④样本容量 (*N*=100, 300, 900, 1500)，共 2×2×3×4=48 种组合水平，每种组合模拟 500 次。使用 Mplus 7.0、Rstudio 的 MplusAutomation 软件包、rpart 软件包自编程序完成数据模拟与分析，采用二分类 Logistic 回归分析探究因素的主效应，采用分类回归树(Classification and Regression Trees, CART)探索因素的影响程度与交互效应。

模拟研究结果表明：1）机器学习重抽样方法在 LPA 模型选择中的绝对表现不佳，但相较于传统拟合指数，Bootstrap 法和 *K* 折交叉验证法的表现均有一定提升，其中 10 折交叉验证法下的-2LL$_{CV_1}$ 指标表现相对最好，增幅比约为 14%，其次是 Bootstrap 法下的-2LL$_{boot_2}$ 指标；2）类间距是各模型选择指标最重要的影响因素，其次是样本容量，且二者存在显著的交互效应。这两种因素反映了数据集信息量的大小，因此，模型选择指标的表现可能更取决于 LPA 模型本身的参数估计及拟合，而惩罚项与机器学习重抽样方法选择策略的比重较小。实证研究结果表明：1）相较于传统拟合指数，Bootstrap 法和 10 折交叉验证法均选择了相对简单的模型，有效平衡了模型拟合优度与简约性；2）使用 Bootstrap 法能够观察到拟合指数在进行模型选择时的易变性，如，指数会选择不同类别作为结果，实证研究者应当避免对传统拟合指数以及“最佳拟合模型”的过度信任。

建议将 LPA 的实证研究划分为研究设计和数据分析两个阶段，首先在研究设计阶段，因 LPA 模型对数据集信息量的要求较高，研究者需要在有相关理论支撑、适合分类的基础上，尽可能多地抽取有代表性的样本；在数据分析阶段，若样本容量较小(≤300)，使用 Bootstrap 法下的-2LL$_{boot_2}$ 指标作为模型选择的首要策略，样本容量较大(≥900)时，考虑使用 Bootstrap 法下的-2LL$_{boot_2}$ 指标或 10 折交叉验证法下的-2LL$_{CV_1}$ 指标。

关键词 潜在剖面分析，模型选择，机器学习，Bootstrap，交叉验证

Evaluating Machine Learning Resampling Approaches to Model Selection in Latent Profile Analysis

Yuhan Ni[1] Minqiang Zhang[2]

1 School of Education Science, Anhui Normal University, Wuhu, 241000

2 School of Psychology, South China Normal University, Guangzhou, 510631

***Abstract*:** Latent profiles analysis (LPA) has been applied to psychological research for modeling heterogeneity in cross-sectionally sampled data by grouping participants into latent categories based on similarities in their response scores. Researchers usually determine the number of latent classes with a set of fit indices, parsimony and interpretability. However, there is no widely certificated optimal index, and the performance of fitting indices depends on specific conditions in specific simulation studies (Grimm, Mazza, & Davoudzadeh, 2017). In addition, according to Preacher and Merkle (2012), the current use of fit indices for model selection, which assumes that fit indicators are error free, is problematic and renders the replicability of the best-fitting models. Based on the above challenges, *K*-fold Cross Validation method, a typical resampling method in the field of machine learning, was putted forward as an alternative strategy for model selection in finite mixture model (Grimm, et al, 2017).

However, there is no study to apply *K*-fold Cross Validation method into LPA, and there is no any research of improved Cross Validation method in finite mixed model. The performance and validity of Cross Validation method need to be further verified. Besides, Bootstrap method is only applied to explore the uncertainty of fitting indices (e.g. Lubke et al., 2017), that is, its possibility of improving model selection remains to be explored. Therefore, it is necessary to systematically evaluate the applicability of these machine learning methods in LPA.

Three Monte Carlo simulation studies and one empirical study were conducted for traditional fitting indices, Bootstrap method, and Cross Validation method (5-fold, 10-fold, repeated 5×2, and Blocked 3×2). Monte Carlo simulation used to examine the ability of several classes of enumeration indices to correctly identify the number of latent population profiles present under four different research design conditions: ①the number of observed indicators used for LPA (I = 4, 8), ②latent class size ($p(x = k)$ = 0.33/0.33/0.34, 0.15/0.40/0.45), ③class distance (MD = 0.5, 1.2, 3), and ④sample size (N = 100, 300, 900, 1500), totally 2×2×3×4 = 48 conditions. All data are generated and analyzed using Mplus 7.0, MplusAutomation and rpart package via Rstudio. The binary logistic regression analysis was used to explore the main effects of design factors, and Classification and Regression Trees (CART) were used to explore the effect size and interaction effects of factors.

The simulation results showed: 1) The performance of fitting index of machine learning resampling methods in LPA model selection are generally unsatisfactory, but better than traditional methods. Of the two machine learning resampling methods, the $-2LL_{CV_1}$ under the 10-fold CV method performs best relatively, with almost 14% growth ratio, followed by the $-2LL_{boot_2}$ under the Bootstrap method. 2) Class distance is the most important factor affecting the model fitting indices, followed by the sample size, with a significant interaction effect between class distance and sample size. These two factors reflect the amount of information in the data set. Therefore, the performance of model fitting indices may depend more on the parameter estimation and fitting of the LPA model, while the proportion of penalty item and machine learning strategy is smaller. The empirical results showed: 1) Compared with the traditional fitting indices, the indices under Bootstrap method and 10-fold CV method choose relatively simple models in the empirical study, which effectively balances the model fit and the simplicity. 2) The variability of fitting indices can be observed by using Bootstrap method (e.g., selecting model with different latent classes as *best fit model*). Empirical researchers should prevent excessive trust in fitting indices and *best fit model* when using traditional indices.

It is suggested that the empirical study of LPA can be divided into two stages. Firstly, in the research design stage, researchers need to obtain as many representative samples as possible on the basis of relevant theoretical literature review due to the high demand for dataset information in LPA model. Secondly, in the data analysis stage, if the sample size is small (300 or below), use $-2LL_{boot_2}$ under Bootstrap method as the primary index for model selection; if the sample size is large (900 or above), the $-2LL_{boot_2}$ under Bootstrap method and $-2LL_{CV_1}$ under 10-fold Cross Validation method can be both good references.

Keywords：Latent profile analysis, Model selection, Machine learning, Bootstrap, Cross Validation

中文版古德琼森顺从性量表的心理测量学特性研究

杭亚明[1] Gisli H. Gudjonsson[2] 姚莹颖[3,1] 丰怡[4,1]（通讯作者） 乔志宏[1]（通讯作者）

1 北京师范大学心理学部，北京，100875

2 伦敦国王学院精神医学、心理学及神经科学研究院，伦敦

3 厦门大学心理咨询与教育中心，福建，361005

4 中央财经大学心理咨询中心，北京，100081

通讯作者 E-mail：fengyi@cufe.edu.cn; qiaozhihong@bnu.edu.cn

摘 要 背景：特质顺从性是指人们在不同情境下对他人提出的要求或请求做出被期待的反应的倾向。它可能导致个体容易受到外部压力、剥削和操纵。古德琼森顺从性量表（Gudjonsson Compliance Scale，GCS）是在西方背景下评估个人特质顺从性的有效工具。迄今为止，还没有研究验证过 GCS 在中国人群中的心理测量学特性。

方法：本研究招募了两个不同的中国成年人样本。第一个样本（n=4276）用于进行探索性因素分析。第二个样本（n=4356）用于进行验证性因素分析。对这两个样本进行了信度、测量等价性和效标效度检验。

结果：中文版 GCS 在删除了其中两个项目后呈现出三因素结构。三个因子量表具有中度到良好的内部一致性(α = 0.67 ~ 0.87)，全量表也具有良好的内部一致性(α = 0.88)，从而证明了其信度。在不同性别、种族和招募组别中，强测量等价性都得到了支持。总量表和因子量表的效标效度得到了与人格特质和若干心理健康问题的显著关联的支持。具体来说，GCS 总分及三个因子分与焦虑、抑郁、消极情绪、症状自评量表（Symptom Checklist-90，SCL-90）总分和神经质呈显著正相关；而与积极情绪、自尊、外向性、宜人性、尽责性和开放性呈显著负相关。在三个因子中，因子 1 与这些变量有最强的相关。

结论：中文版 GCS 被证明是一种有效且可靠的特质顺从性测量工具，可以促进对中国人群特质顺从性的评估和研究。

关键词 顺从性，验证研究，心理测量学特性，心理健康，自尊

Psychometric properties of the Chinese version of the Gudjonsson Compliance Scale: a large-scale validation study

Yaming Hang[1], Gisli H. Gudjonsson[2], Yingying Yao[3,1], Yi Feng[4,1*] and Zhihong Qiao[1*]

1 Faculty of Psychology, Beijing Normal University, Beijing, China

2 Department of Psychology, Institute of Psychiatry, Psychology & Neuroscience, London, England

3 Mental Health Center, Xiamen University, Fujian, China

4 Mental Health Center, Central University of Finance and Economics, Beijing, China

Abstract：Background: Trait Compliance involves people reacting favourably to the demands or requests made by others across different situations. It may lead to individuals' susceptibility to external pressures, exploitation, and manipulation. The Gudjonsson Compliance Scale (GCS) is an efficient tool for assessing individuals' trait compliance in Western contexts. To date, no study has validated the psychometric properties of the GCS in Chinese populations.

Methods: Two different samples of young adults from China were recruited in this study. The first sample (N

= 4,276) was used to conduct exploratory factor analysis. The second sample (N = 4,356) was used to perform confirmatory factor analysis. Tests of reliability, measurement invariance and criterion validity were conducted in the combined two samples.

Results: The Chinese GCS showed a 3-factor structure, with two items deleted. Reliability was supported by moderate to good internal consistencies of the three factor scales (α = 0.67 ~ 0.87) and good internal consistency of the full scale (α = 0.88). Strong measurement invariance across gender, ethnicity and groups recruitment was supported. The criterion validity of the total scale and the factor scales was supported by significant associations with personality traits and several mental health problems. Specifically, the GCS total scores and scores of all three factors were positively correlated with anxiety, depression, negative affect, SCL-90 total scores and neuroticism, while negatively correlated with positive affect, self-esteem, extraversion, agreeableness, conscientiousness and openness. Among factor scores, factor 1 had the strongest relationship with all these variables.

Conclusion: The Chinese version of the GCS appears to be a valid and reliable instrument for measuring trait compliance, which could promote both the assessment and research of compliance in Chinese populations.

Keywords：compliance, scale validation, psychometric properties, mental health, self-esteem

中文版马里兰州特质状态抑郁量表：在中国大学生群体中的心理测量特征

张曼琪[1] 彭君[1] 廖洁洁[1] 高媛[1] 莫雷[1]（通讯作者）
1 华南师范大学心理学院 /华南师范大学心理应用研究中心， 广州, 510631
通讯作者莫雷 molei@scnu.edu.cn

摘 要 个体的抑郁特质被认为是人格的一部分，抑郁特质更高的个体会更频繁陷入抑郁状态，目前学界对抑郁特质和状态的关系机制探索尚不成熟，而使用可靠有效的工具是关键前提。本研究旨在修订马里兰州特质状态抑郁量表中文版（Maryland Trait and State Depression Scale – Chinese Version, MTSD-C），包括抑郁状态（MTSD-C-S）和抑郁特质（MTSD-C-T）两个子量表，并检验了其在中国大学生群体中的心理测量学特征。样本一纳入 412 人填写 MTSD 的最初修订版本供条目删改修订，得到 16 条目版 MTSD-C-S 和 15 条目版 MTSD-C-T 供正式施测。样本二纳入 1677 人填写 MTSD-C 正式版及相关校标问卷，包括抑郁自评问卷、9 项版一般患者健康问卷和大五人格量表-抑郁分量表，其中 150 人在 4 周后完成 MTSD-C 的重测。对于 MTSD-C-S 和 MTSD-C-T 均采用验证性因子分析和探索性结构方程模型进行模型比较，结果表明，两个子量表均支持核心症状-认知症状-躯体症状三因子结构（MTSD-C-S: $\chi^2 = 645.95$, df = 101, TLI = 0.916, CFI = 0.929, SRMR = 0.04, MTSD-C-T: $\chi^2 = 791.651$, df = 87, TLI = 0.905, CFI = 0.921, SRMR = 0.043）。MTSD-C-S 和 MTSD-C-T 的α系数分别为 0.93 和 0.94，同质性系数ρ_{hom}分别为 0.89 和 0.90，四周内的重测信度 ICC 均为 0.85。另外，MTSD-C-S 和 MTSD-C-T 在性别、教育类型、家庭来源上均表现出严格的测量等值性（ΔCFI < 0.01, ΔRMSEA < 0.01）。综上所述，中文版 MTSD 在中国大学生群体中信效度良好，能作为促进本土化抑郁相关临床心理研究的可靠工具之一。

关键词 抑郁特质,抑郁症状,特质状态量表,抑郁测量

Chinese version of the Maryland Trait and State Depression Scale: Psychometric characteristics among Chinese college student

Manqi Zhang[1] Jun Peng[1] Jiejie Liao[1] Yuan Gao[1] Lei Mo[1] (Corresponding author)
1 School of Psychology and Center for Studies of Psychological Application，South China Normal University，Guangzhou, 510631
Corresponding author Lei Mo molei@m.scnu.edu.cn

Abstract：Depressive trait is viewed as part of personality, and individuals with higher depressive trait would fall into depression more frequently. Until now, the lack of reliable and effective tools to measure depressive trait limits our exploration on both relationship between depressive trait and state and their mechanism. The aim of this study was to revise the Maryland Trait and State Depression Scale - Chinese Version (MTSD-C), including depressive state scale (MTSD-C-S) and depressive trait scale (MTSD-C-T), and we also examined their

psychometric characteristics in Chinese college students. Sample 1 included 412 students to fill in the original revised version of the MTSD for primally revision, we got 16-item MTSD-C-S and 15-item MTSD-C-T for following test. Sample 2 included 1677 people who completed the MTSD-C official version and related calibration questionnaires, including the self-rating depression scale, the 9-item Patient Health Questionnaire, and the Big Five Personality Inventory - Depression subscale. One hundred fifty of them completed the MTSD-C retest 4 weeks later. Both MTSD-C-S and MTSD-C-T were analysis using confirmatory factor analysis and exploratory structural equation model. The results showed that both MTSD-C-S and MTSD-C-T supported the three-factor structure (core symptoms-cognitive symptoms-somatic symptoms (MTSD-C-S: $\chi^2 = 645.95$, df = 101, TLI = 0.916, CFI = 0.929, SRMR = 0.04, MTSD-C-T: $\chi^2 = 791.651$, df = 87, TLI = 0.905, CFI = 0.921, SRMR = 0.043). The α coefficients of MTSD-C-S and MTSD-C-T are 0.93 and 0.94, the homogeneity coefficients ρ_{hom} are 0.89 and 0.90, respectively, and the retest reliabilities ICC within four weeks is 0.85. In addition, MTSD-C-S and MTSD-C-T showed strict equivalence in gender, education type and family origin (ΔCFI < 0.01, ΔRMSEA < 0.01). In a word, the MTSD-C has good reliability and validity in Chinese college students and can be used as one of the reliable tools to promote localized depression-related clinical psychological research.

Keywords：depressive trait, depressive state, trait and state scale, depression scale

中文版 15 项认知闭合需要量表的心理测量学特性：量表验证及与心理健康的相关

杭亚明[1] 王子仪[1] Arne Roets[2] 宗敏[3,1] 丰怡[4,1]（通讯作者） 乔志宏[1]（通讯作者）

1 北京师范大学心理学部，北京，100875

2 根特大学心理与教育科学学部，根特

3 外交学院心理咨询中心，北京，100037

4 中央财经大学心理咨询中心，北京，100081

通讯作者 E-mail：fengyi@cufe.edu.cn; qiaozhihong@bnu.edu.cn

摘 要 背景：研究发现，认知闭合需要（Need for closure, NFC）与不同形式的心理病理症状有关。在西方背景下，15 项认知闭合需要量表（NFCS）是评估个体认知闭合需要的有效而简便的工具。然而，15 项 NFCS 的心理测量学特性尚未在中国人群中得到验证。

方法：本研究招募了两个不同的中国大学生样本。第一个样本（n=5080，49.9%为女性）用于进行探索性因素分析（EFA）和信度分析。第二个样本（n=3968，女性占 64.2%）用于进行验证性因素分析（CFA）和探索性结构方程模型（ESEM），然后进行测量等价性和效标效度测试。

结果：全量表显示出良好的内部一致性(ω =0.83)。四因素 ESEM 结果被选为我们的最终模型，四个子量表（结构偏好、决断性、模糊不适和心理封闭）均显示出中等至良好的内部一致性(ω =0.60 ~ 0.81)。在不同性别和种族组别中，强测量等价性都得到了支持。总量表和各因子量表的效标效度得到了与若干心理健康问题存在显著相关性的支持。具体来说，NFCS 总分、模糊不适及心理封闭分量表得分与焦虑、抑郁、消极情绪、孤独感和症状自评量表（Symptom Checklist-90，SCL-90）总分呈显著正相关，其中心理封闭得分与这些变量有最强的相关。心理封闭也与积极情绪呈显著负相关，而结构偏好得分与积极情绪和生活满意度呈显著正相关。

结论：中文版 NFCS 是一种有效且可靠的 NFC 测量工具，可促进对中国人群 NFC 的评估和研究。

关键词 认知闭合需要，验证研究，心理测量学特性，心理健康，因素分析

Psychometric properties of the Chinese version of the 15-item Need for Closure Scale: scale validation and associations with mental health

Yaming Hang[1], Ziyi Wang[1], Arne Roets[2], Min Zong[3,1], Yi Feng[4,1*] and Zhihong Qiao[1*]

1 Faculty of Psychology, Beijing Normal University, Beijing, China

2 Faculty of Psychology and Educational Sciences, Ghent University, Ghent, Belgium

3 Mental Health Center, Foreign Affairs University, Beijing, China

4 Mental Health Center, Central University of Finance and Economics, Beijing, China

Abstract ： Background: Need for closure (NFC) has been found to be implicated in different forms of psychopathology. The 15-item Need for Closure Scale (NFCS) is an efficient and easy tool for assessing individuals' NFC in Western contexts. However, the psychometric properties of the 15-item NFCS have not yet

been validated in Chinese populations.

Methods: Two different samples of university students from China were recruited in this study. The first sample (N = 5,080, 49.9% females) was used to conduct exploratory factor analysis (EFA) and reliability analysis. The second sample (N = 3,968, 64.2% females) was used to perform confirmatory factor analysis (CFA) and exploratory structural equation modeling (ESEM), followed by tests of measurement invariance and criterion validity.

Results: The full scale showed good internal consistency (ω =0.83). The four-factor ESEM result was chosen as our final model, with each of the four subscales (Preference for order, Decisiveness, Discomfort with ambiguity and Closed-mindedness) showing moderate to good internal consistency (ω =0.60 ~ 0.81). Strong measurement invariance across sex and ethnicity groups was supported. The criterion validity of the total scale and the factor scales was supported by significant associations with several mental health problems. Specifically, the NFCS total scores, Ambiguity and Closed-mindedness were positively correlated with anxiety, depression, negative affect, loneliness and SCL-90 total scores. Among these measures, Closed-mindedness had the strongest relationship with these variables, as revealed by the largest correlation coefficients. Closed-mindedness was also negatively correlated with positive affect. In contrast, Order was positively correlated with positive affect and life satisfaction.

Conclusion: The Chinese NFCS appears to be a valid and reliable instrument for measuring the NFC, which could promote both the assessment and research of the NFC in Chinese populations.

Keywords：NFCS, need for closure, validation, mental health, factor analysis

主观社会经济地位与睡眠拖延行为：压力知觉与问题性社交媒体使用的链式中介作用

柯慧慧[1]　杨潇[1]
1 贵州师范大学心理学院，贵阳，550025

摘 要　目的：《中国睡眠研究报告（2022）》报告指出我国民众睡眠时长不足，影响睡眠时长的因素分别是看手机或上网导致睡眠拖延。在询问“每天睡觉前看一会儿手机”的情况时，超过一般的调查者选择了“总是”。睡眠拖延是指个体在没有外部原因阻碍的情况下，习惯性地推迟其预定就寝时间的行为。研究发现，睡眠拖延不仅会导致个体出现睡眠不足、入睡困难、负性情绪增多，长此以往还会诱发睡眠节律紊乱、焦虑、抑郁以及免疫功能低下等身心障碍。由此，本研究旨在探讨主观社会经济地位对个体睡眠拖延行为的影响，以及压力知觉、问题性社交媒体使用在其中的作用机制。方法：采用《压力知觉量表》、《主观社会经济地位量表》、《问题性社交媒体使用量表》、《睡眠拖延行为量表》对 417 名在校大学生进行调查。结果表明：（1）压力知觉、主观社会经济地位、问题性社交媒体和睡眠拖延行为之间均存在显著的相关；（2）压力知觉在主观社会经济地位和睡眠拖延行为中间起中介作用；（3）压力知觉和问题性社交媒体使用在主观社会经济地位和睡眠拖延行为中间起链式中介作用。结论：主观社会经济地位不仅可以直接影响个体的睡眠拖延行为，也可以通过压力知觉和问题性社交媒体使用对个体的睡眠拖延行为产生间接影响。研究揭示了个体主观社会经济地位与睡眠拖延行为的关系及其作用机制，对于帮助个体减少睡眠拖延行为、提高睡眠质量有一定指导意义。

关键词　主观社会经济地位，睡眠拖延行为，压力知觉，社交媒体

Subjective Socioeconomic Status and Bedtime Procrastination: The Chain Mediating Effect of Perceived Stress and Problematic Social Media Use

Ke Huihui[1], Yang Xiao[1]
1. School of Psychology, Guizhou Normal University

Abstract：Objective: The report "China Sleep Research Report (2022)" points out that the Chinese people lack sufficient sleep duration, and the factors that affect sleep duration are sleep delays caused by watching mobile phones or the Internet. When asked about 'checking your phone for a while before going to bed every day', more than half of the respondents chose 'always'. Bedtime procrastination refers to the behavior of individuals habitually delaying their scheduled bedtime without external obstacles. Studies have found that sleep delay will not only lead to insufficient sleep, difficulty in falling asleep and increase of negative emotions, but also lead to sleep rhythm disorder, anxiety, depression, immune dysfunction and other disability in the long run. Therefore, this study aims to explore the impact of subjective socioeconomic status on individual bedtime procrastination behavior, and the mechanism of perceived stress and problematic social media use. Methods: 417 college students were investigated

with the Perceived Stress Scale, Subjective Socioeconomic Status Scale, Problem Social Media Use Scale, and Bedtime Procrastination Scale. The results showed that: (1) There were significant correlations between perceived stress, subjective socioeconomic status, problematic social media and bedtime procrastination; (2) Perceived stress plays a mediating role between subjective Socioeconomic status and bedtime procrastination; (3) Perceived stress and problematic social media use play a chain mediating role between subjective Socioeconomic status and bedtime procrastination. Conclusion: Subjective Socioeconomic status can not only directly affect individuals' bedtime procrastination behavior, but also indirectly affect individuals' bedtime procrastination behavior through perceived stress and problematic social media use. The research reveals the relationship between individual subjective Socioeconomic status and bedtime procrastination and its mechanism, which has certain guiding significance for helping individuals reduce bedtime procrastination and improve sleep quality.

Keywords：subjective socioeconomic status, bedtime procrastination, perceived stress, social media

不执着简版量表(NAS-7)的中文版及其信效度检验

朱筠[1]　何相材[1]　杨潇[1]　罗禹[1]　张禹[1]（通讯作者）
1 贵州师范大学心理学院，贵阳，550025，yuzhang331@163.com

摘 要　**背景：**不执着是与正念相关但不同的概念，并且是正念最突出的机制之一。它是个体积极融入当下环境，接纳生命的短暂和变化无常，并且自主地做出选择的心理特性，具体表现为不固着于想法、情绪或外在事物，对成就、得失等一切经验保持开放与灵活。多项研究表明，冥想研究和干预的重点应放在类似不执着这样的概念上。

目的：不执着简版量表(Brief Version of Nonattachment Scale, NAS-7)相较于完整版有更优的模型拟合并可减少受试者负担，然而国内尚无该量表的中文版本，这在一定程度上阻碍了该领域研究的深入开展。本研究旨在将 NAS-7 翻译为中文版本，检验其信效度，为开展不执着相关研究提供有效的测量工具。

方法：通过翻译、回译、文化调适等过程完成 NAS-7 的中文版后，在网络平台随机发放问卷，获得有效问卷 1023 份（男生 265 人，年龄 18~60 岁）。选用抑郁-焦虑-压力自评量表简版(Depression Anxiety and Stress Scale，DASS-21)和中文版五因素正念问卷简版(Five Facet Mindfulness Questionnaire-Short Form, FFMQ-SF)作为效标。使用总样本进行项目分析、内部一致性分析、分半信度分析以及效标效度分析，并将总样本随机分半分别进行探索性因素分析和验证性因素分析，另外选取 156 人在 20~30 天后第二次完成 NAS-7 以评价重测信度。

结果：NAS-7 中文版具有较高的信度：Cronbach's α系数为 0.849，分半信度为 0.825，重测信度为 0.729；相关系数法显示各条目均与量表总分显著相关，*t* 检验显示各条目区分度良好；探索性因素分析表明量表为单维结构，累计方差贡献率为 53.21%；验证性因素分析表明，模型拟合指标为χ^2/df=2.567、GFI=0.982、NFI=0.971、CFI=0.982、TLI=0.973、RMSEM=0.055、RMR=0.035；效标效度分析表明，不执着水平与正念正相关(r=0.532, P<0.001)，与抑郁(r=-0.407, P<0.001)、焦虑(r=-0.333, P<0.001)、压力(r=-0.491, P<0.001)负相关；对人口学变量进行分析显示，不执着水平在个体正念经验(P<0.001)、婚姻状况(P<0.01)、年龄(P<0.01)上存在差异，在性别上不存在差异(P＞0.05)。

结论：NAS-7 中文版在中国成年人样本中具有较好的信效度指标，可以作为进一步研究的可靠的测量工具。

关键词　不执着，中文版，正念，信度，效度

Chinese version of brief version of Nonattachment Scale(NAS-7): Reliability and Validity

Jun Zhu[1]　Xiangcai He[1]　Xiao Yang[1]　Yu Luo[1]　Yu Zhang[1](corresponding author)
1 School of Psychology, Guizhou Normal University, Guiyang, 550025, yuzhang331@163.com

Abstract*: *Background: Nonattachment is a construct related to mindfulness but distinct from it, and it is one of the prominent mechanisms of mindfulness. It refers to the psychological characteristic of individuals actively integrating into the present environment, accepting the transience and unpredictability of life, and autonomously making choices. Specifically, it entails not clinging to thoughts, emotions, or external things, and maintaining openness and flexibility towards all experiences such as achievements and gains. Multiple studies have indicated

that research and interventions of meditation should focus on concepts similar to nonattachment.

Objective: The brief version of the Nonattachment Scale (NAS-7) has better model fit and reduces participants burden compared to the full version. However, there is currently no Chinese version of this scale, which hinders further research in this field. This study aims to translate NAS-7 into Chinese, examine its reliability and validity, and provide an effective measurement tool for nonattachment-related research.

Methods: Through processes such as translation, back-translation, and cultural adaptation, the Chinese version of the NAS-7 was developed. A total of 1023 valid questionnaires were collected through online platforms, with 265 males and participants ranging in age from 18 to 60. The Depression Anxiety Stress Scale - Short Form (DASS-21) and the Chinese version of the Five Facet Mindfulness Questionnaire - Short Form (FFMQ-SF) were used as criterion measures. Item analysis, internal consistency analysis, split-half reliability analysis, and criterion validity analysis were conducted on the total sample. Exploratory factor analysis and confirmatory factor analysis were performed on randomly divided halves of the sample. Additionally, a subset of 156 participants completed the NAS-7 for a second time after 20 to 30 days to assess test-retest reliability.

Results: The Chinese version of NAS-7 demonstrated good reliability: Cronbach's alpha coefficient was 0.849, split-half reliability was 0.825, and test-retest reliability was 0.729. The correlation coefficient method showed significant correlations between each item and the total score of the scale, and the t-tests indicated good discriminant validity for each item. Exploratory factor analysis revealed a unidimensional structure of the scale with a cumulative variance contribution rate of 53.21%. Confirmatory factor analysis showed satisfactory model fit indices: χ^2/df=2.567, GFI=0.982, NFI=0.971, CFI=0.982, TLI=0.973, RMSEM=0.055, RMR=0.035. Criterion validity analysis revealed positive correlations between nonattachment and mindfulness (r=0.532, P<0.001), and negative correlations with depression (r=-0.407, P<0.001), anxiety (r=-0.333, P<0.001), and stress (r=-0.491, P<0.001). Demographic analysis showed differences in nonattachment levels concerning individual mindfulness experience (P<0.001), marital status (P<0.01), and age (P<0.01), but not gender (P>0.05).

Conclusion: The Chinese version of NAS-7 demonstrated good reliability and validity among Chinese adult samples and can serve as a reliable measurement tool for further research.

Keywords：Nonattachment, Chinese Version, Mindfulness, Reliability, Validity

珀斯情绪反应性量表在中国的跨文化验证与临床效用研究

张茜[1]，蔡新璐[1]（通讯作者）
1 杭州师范大学脑科学研究所，杭州，311121
Email: caixinlu@hznu.edu.cn

摘 要 背景：珀斯情绪反应性量表（Perth Emotional Reactivity Scale, PERS）可以用于测量个体情绪反应的易激活程度、强度和持续时间，具有将个体的积极和消极情绪反应分别进行测量的优点。然而，此量表尚未在中国样本群体中得到验证。因此，本研究旨在检验中文版 PERS 的跨文化心理测量特性与临床效用。方法：在研究一中，我们对中国大学生样本群体（n = 814）施测中文版 PERS，并对其因子结构、内部一致性、重测信度和同时效度进行检验。在研究二中，我们对抑郁症患者组（n = 50）、抑郁症匹配健康对照组（n = 50）、亚临床抑郁症状组（n = 50）和亚临床抑郁症状匹配健康对照组（n = 50）进行组间差异比较，以评估 PERS 的临床效用。结果：在研究一中，通过验证性因子分析（Confirmatory Factor Analyses, CFA）发现,六因子模型的拟合结果最优(拟合指标值和因子负荷)。此外，PERS 具有良好的内部一致性，重测信度和同时效度。在研究二中，独立样本 t 检验（Independent *t*-tests）和多因素方差分析(Multivariate Analysis of Variance, MANOVA)结果显示，抑郁症患者组与健康对照组之间在 PERS 得分上存在显著差异(t_{98} = - 4.73, p < .001；*Wilks' Lambda* = .58, F (6,93) = 11.03, p < *.001*)，在亚临床抑郁症状组与其健康对照组中也发现了相似的结果，提示 PERS 具有良好的临床效用。结论：中文版的情绪反应性量表是一种可靠有效的情绪反应测量工具，可用于后续研究和临床实践。

关键词 情绪反应性，抑郁，心理测量，临床效用

Cross-cultural validation and clinical application of the Perth Emotional Reactivity Scale in China

Qian Zhang[1], Xinlu Cai[1*]
1 Hangzhou Normal University, Institute of Brain Science, Hangzhou, 311121
Email: caixinlu@hznu.edu.cn

Abstract: **Background:** The emotional reactivity construct is of significant interest to psychiatry. The Perth Emotional Reactivity Scale (PERS) measures the typical ease of activation, intensity, and duration of one' s emotional reactivity. Moreover, it assesses emotional reactivity across negative and positive emotion valence. However, it has not been validated in the Chinese context. In this paper, we aimed to examine the psychometric properties and clinical utility of the Chinese version of the PERS. **Methods:** In study 1, the Chinese version of the PERS was administered to a large Chinese sample (n = 814). The factor structure, internal consistency, and test-retest reliability of the PERS were examined. In study 2, we compared the group differences among a major depressive disorder (MDD) group (n = 50), a matched healthy control group for MDD (n = 50), a subclinical depression group (n = 50), and a matched healthy control group for subclinical depression (n = 50), to assess the clinical relevance of the PERS. **Results:** In study 1, confirmatory factor analyses (CFA) supported a six-factor correlated model was the best solutions (for fit index values and factor loading). The PERS showed good internal consistency and test-retest reliability, as well as good concurrent validity. In study 2, independent *t*-tests and multivariate analysis of variance (MANOVA) showed significantly differences in PERS total and subscales scores between patients with MDD and healthy controls (t_{98} = - 4.73, $p < .001$; *Wilks' Lambda* = .58, F (6, 93) = 11.03, $p < .001$). It indicated that the PERS was able to distinguish the MDD group from their matched healthy controls. The similar results were found in the subclinical depression group and their matched healthy controls. **Conclusions:** Our findings indicated that the Chinese version of the PERS is a reliable and valid instrument to measure emotional reactivity and could be used in both research and clinical practice.

Keywords: emotional reactivity, depression, psychometric, clinical application

恶意创造力涂鸦测验——基于恶意创造力行为的测量范式开发

汤睿轶[1]　李钱刚[1]　贡喆（通讯作者）[1]

1 四川师范大学心理学院，成都，610066，通讯作者 E-mail zhegong@sicnu.edu.cn

摘 要　如何准确、有效地测量恶意创造力，是该研究领域重要的基础性问题。恶意创造力(Malevolent Creativity)现有的实验测量方法中，不论是要求被试在负面情境中想出新颖方案的问题解决任务(Problem-Solving Tasks)，或是要求被试汇报常用物品不同用途的发散思维测验(Divergent Thinking Test)，又或是在这二者基础上改进而成的恶意创造力解决任务(Malevolent Creativity Test, MCT)，都仅要求被试汇报想法，而不做出真实的恶意创造力行为。但头脑中的想法与真实的行为是有本质区别的。作为创造力的子概念，具体的、可观察的行为才是恶意创造力的最终“产品”。研究者们无法测量“真正”的恶意创造力，这极大威胁着已有研究的有效性，并制约着未来研究的发展。恶意创造力又可以看作一种特殊的攻击行为。本研究从攻击领域的实验室涂鸦(Experimental Graffiti)范式中获得启发，设计了恶意创造力涂鸦测验(Malevolent Creativity Graffiti Test, MCGT)。该测验利用涂鸦兼具创造性与破坏性的特点，允许被试在实验情景中，完整地经过准备、酝酿、豁然、验证 4 个阶段，真实地做出恶意创造力行为，并生成恶意创造力产品。通过两个研究对 MCGT 进行效度检验。分别将恶意创造力行为量表(Malevolent Creativity Behavior Scale, MCBS)、MCT，以及愤怒反刍量表(Anger Rumination Scale, ARS)作为校标。分别抽取 82 名大学生(女生 54 人，男生 28 人，M_{age}=21.62±2.29)和 53 名大学生被试(女生 33 人，男生 20 人，M_{age}=19.11±1.03)作为样本。三位评分者对 MCGT1、MCT 和 MCGT2 进行独立评分，α分别为 0.92、0.91 和 0.74。其中 MCGT 需要对涂鸦作品的新颖性、恶意度、涂鸦程度和精致性进行 7 点评分，将新颖性×恶意度作为恶意创造力的指标。偏相关分析显示，控制了性别、年龄和学历的情况下，MCT 与 MCBS 显著正相关(r=0.25, p=0.028)；ARS 与 MCBS 显著正相关(r=0.57, p<0.001)；MCGT1 中的新颖性(r=0.252, p=0.025)、恶意度(r=0.26, p=0.019)、涂鸦程度(r=0.25, p=0.025)、新颖性×恶意度(r=0.27, p=0.018)与 MCT 显著正相关；MCGT2 中的新颖性(r=0.28, p=0.045)、恶意度(r=0.36, p=0.011)、新颖性×恶意度(r=0.39, p=0.005)与 ARS 显著正相关；MCGT1、MCGT2 与 MCBS 的相关均不显著。结论：初步验证了 MCGT 作为恶意创造力行为指标的有效性，但其信效度仍需进一步的检验。

关键词　恶意创造力，行为测量，范式开发，涂鸦

The Malevolent Creativity Graffiti Test – Development of Paradigm Based on Malevolent Creativity Behavioral Measurement

Ruiyi Tang[1], Zhe Gong[1]*

[1] College of Psychology, Sichuan Normal University, E-mail zhegong@sicnu.edu.cn

Abstract: How to measure malevolent creativity accurately and effectively is an important fundamental question in this research field. In the existing experimental measurement methods of malevolent creativity, whether it is asking subjects to come up with novel solutions in a negative context (Problem-Solving Tasks), or requesting subjects to report the different uses of common items (Divergent Thinking Test), or the method derived from these two (Malevolent Creativity Test, MCT), all only require subjects to report their thoughts in the mind, without actually engaging in malevolent creative behaviors. However, there are fundamental differences between thoughts in the mind and behaviors in reality. As a sub-concept of creativity, specific and observable behavior is the

ultimate "product" of malevolent creativity. Researchers cannot measure the "real" malevolent creativity, which greatly threatens the validity of existing researches, and hinders the development of researches in the future. Malevolent creativity can also be seen as a special type of aggressive behaviors. This study was inspired by the Experimental Graffiti paradigm in the aggression field, and designed the Malevolent Creativity Graffiti Test (MCGT). This test utilizes both the creative and destructive characteristics of graffiti, allowing subjects to engage in malevolent creative behavior in the laboratory setting with intact four stages: preparation, immersion, incubation and verification, and generate the malevolent creative product. The validity of MCGT was tested by two studies. The Malevolent Creativity Behavior Scale (MCBS), MCT, and the Anger Rumination Scale (ARS) were used as benchmarks. 82 (54 females, 28 males, *M*age=21.62±2.29) and 53 college students (33 females, 20 males, *M*age=19.11±1.03) were randomly selected as participants respectively. Three raters scored MCGT1, MCT, and MCGT2 independently, with α=0.92, 0.91, and 0.74. MCGT requires a 7-point rating of novelty, maliciousness, graffiti extent, and refinement of the graffiti artwork, with novelty × maliciousness serving as the indicator of malevolent creativity. Partial correlation analysis showed that, with controlling gender, age, and educational degree, MCT was positively correlated with MCBS significantly (r=0.25, p=0.028); ARS was positively correlated with MCBS significantly (r=0.57, p<0.001); novelty (r=0.252, p=0.025), maliciousness (r=0.26, p=0.019), graffiti extent (r=0.25, p=0.025), and novelty × maliciousness (r=0.27, p=0.018) in MCGT1 were positively correlated with MCT significantly; novelty (r=0.28, p=0.045), maliciousness (r=0.36, p=0.011), and novelty × maliciousness (r=0.39, p=0.005) in MCGT2 were positively correlated with ARS significantly; the correlations between MCBS and MCGT1, MCGT2, were not significant. Conclusion: The effectiveness of MCGT as an indicator of malevolent creative behavior was preliminarily validated, but its reliability and validity need more examinations in the future.

Keywords：Malevolent Creativity, Behavioral Measurement, Development of Paradigm, Graffiti

“从面对面欺凌到键对键攻击”：基于线上游戏对校园欺凌生态化识别的初步探索

张宇暄[1] 于丽含[2] 何思思[1] 周海波[1]（通讯作者）

1 湖南科技大学教育学院，湖南湘潭 ，411201，hbzhou@hnust.edu.cn

2 西南大学心理学部，重庆，400715

摘要 当前网络已广泛普及，成为人们交流、信息传递以及社会互动的重要平台，校园欺凌也逐步由传统的校园欺凌演变为网络欺凌，然而网络是一把双刃剑，如何在心理学领域利用好网络这一工具是当前研究热点。本研究以在线对战游戏“王者荣耀”为例，拟探究一种生态化识别方法来测量校园欺凌，旨在弥补自我报告法的缺陷。研究 1 拟采用聚合交叉设计，对比某高校同属教育学范畴内的电子竞技专业与其他专业大一到大三的学生，进行历时一年半共四个时间点的追踪，依据欺凌者/受害者/旁观者、欺凌者的角色（头目/助手/加强者）、欺凌形式、各节点斜率变化趋势分组，探讨使用在线游戏时长与网络欺凌的关系和发展轨迹。研究 2 拟依据“王者荣耀”游戏指标，例如输出伤害、承受伤害、常用位置、信誉积分等，结合以往校园欺凌量表，采用机器学习的方法建构游戏数据指标与校园欺凌的关系。研究 3 拟收集被试在游戏对局中系统提供的各种快捷消息的使用频率，结合访谈法收集被试最近的局内发言，采用 AI 神经网络模型提取基于词向量的文本特征，不断扩充数据集以深度学习调整各文本信息对应不同欺凌方式的权重，并最终结合历史游戏指标和近期在线时长有效地提高对校园欺凌识别的准确率。我们预期该研究结果可以对校园欺凌提供一个相对客观的生态数据获取方法，一定程度上规避校园欺凌作为敏感问题对学生的影响，更客观的预测欺凌行为的发生与识别遭受欺凌的学生，为进一步教育和干预提供科学依据。

关键词 校园欺凌，网络欺凌，在线游戏，生态化识别

压力反应的时间动力性：神经恢复作为心理韧性的指标

于佳露[1] 伍珍[1]（通讯作者）
1 清华大学心理学系，北京，100084，zhen-wu@mail.tsinghua.edu.cn

摘 要 心理韧性指的是个体在逆境中积极适应和恢复的能力，良好的心理韧性有助于个体经历逆境或压力后恢复良好的心理健康水平。如何在逆境发生之前，得到较为客观的对于心理韧性的测量，对于预防逆境后的创伤，以及创伤后的恢复，都具有重要意义。然而已有研究对心理韧性的测量大多依赖自我报告，或通过逆境后的心理健康水平来间接反应。近年来，已有研究者关注到了个体压力反应的时间动力性。他们从神经生理学角度出发，将心理韧性定义为压力事件后个体在自主神经系统、心血管系统等层面恢复稳态的能力，并认为神经恢复速度可能是潜在的心理韧性的良好指标。为了验证这一假设，本研究拟建立自然压力事件中个体自主神经系统反应的时间动力性特征与心理韧性之间的联系。本研究收集了 65 名本科生在多场期末考试过程中的皮肤电和心率数据，并让他们完成了 Connor-Davidson 心理韧性量表（CD-RISC）和简版心理韧性量表（BRS）。通过对皮肤电和心率的时序数据进行自回归系统辨识，我们提取了个体压力反应的时间动力性特征，包括上升时间，峰值，恢复时间等。结果显示：个体皮肤电恢复稳态的时间与个体通过两个量表报告的心理韧性得分显著负相关。说明个体在自主神经系统层面恢复稳态需要的时间越长，个体自我报告的心理韧性水平越低。本研究的结果支持了神经恢复性作为心理韧性指标的假设，丰富了已有的关于心理韧性在生理层面的测量指标，有助于研究者从神经和心理两个层面理解心理韧性的本质。
关键词 心理韧性，神经恢复，时间动力性，压力反应

Temporal dynamics of stress response: Neural recovery as an indicator of psychological resilience

Jialu Yu[1], Zhen Wu[1] (Corresponding author)
1 Department of psychology, Tsinghua University, Beijing 100084, China

***Abstract*:** Resilience refers to an individual's capacity to positively adapt and recover from adversity, aiding in the restoration of mental health following adversities or stress. Obtaining objective measures of resilience before encountering adversities is crucial for preventing and recovering from the subsequent trauma. However, existing studies heavily relies on self-report measures or retrospective evaluations of mental health following adversities. In recent years, an increasing number of researchers have focused on the temporal dynamics of stress responses. From a neurophysiological perspective, resilience is defined as the ability of an organism to regain homeostasis after stressful events. They propose that neural recovery could potentially serve as an indicator of resilience. To test this hypothesis, this study aims to establish a relation between the temporal dynamic features of stress responses during real-life stressful situations and psychological resilience. We recorded the physiological data of heart rate (HR) and galvanic skin response (GSR) from 65 undergraduates during their final exams. Participants were also required to complete the Connor-Davidson Resilience Scale (CD-RISC) and the Brief Resilience Scale (BRS). By employing an autoregressive system identification method on the time-series recordings, we extracted temporal dynamic features of individual stress responses, such as rise time, peak value,

and recovery time. The results show a significant negative correlation between the recovery time of GSR and participants' self-reported scores of CD-RISC and BRS. This suggests that individuals who take longer time to restore autonomic nervous system homeostasis are more likely to report lower levels of resilience. Our findings provide evidence for the hypothesis that neural recovery can serve as an indicator of psychological resilience, thereby expanding the repertoire of physiological indicators for psychological resilience. This contributes to a more comprehensive understanding of resilience from both physiological and psychological perspectives, offering valuable insights into the mechanism under resilience.

Keywords：Resilience, Neural recovery, Temporal dynamics, Stress response

6.14"社会心理学专业委员会"分组展贴报告

竞争背景下亲密关系调节女性大脑活动：来自 EEG 及功能连通性证据

贾淑钰[1]　孟雨佳[1]　刘映杰[1]

1 华北理工大学，河北，唐山，063210

华北理工大学，河北，唐山，063210，psyliuyingjie@163.com

摘 要　竞争作为重要的社会互动方式之一，本研究通过脑电技术手段，从事件相关电位分析、时频分析以及功能连接分析的视角，探究了亲密恋人陪伴状态以及竞争对手性别对女性个体竞争调控的神经机制。本研究共招募了 52 名在校女性大学生，采用了 2（陪伴状态：在身边、不在身边）×2（对手性别：同性、异性）的被试间实验设计。被试被分为四组：一组是 15 个伴侣在身边与同性竞争组合，另一组是 15 个伴侣在身边与异性竞争组合，还有一组是 13 个伴侣不在身边与同性竞争组合，最后一组是 14 个伴侣不在身边与异性竞争组合。要求被试完成视觉提示-目标任务，通过按键竞争的方式模拟真实竞争场景，同时记录反应时与脑电信号，以评估其在竞争情境下的状态。结果发现，当恋人不在身边时，女性与陌生异性竞争时候的 P3 平均波幅更高。与同性竞争相比，女性个体在与陌生异性竞争时，大脑的 theta 频段活动显著增加。此外，研究还发现，个体脑内中央顶叶区域的连接同步与个体预测结果监测和行为适应性呈正相关。换句话说，当个体能够更好地掌握局势并预测行为时，连接同步程度也更高。研究结果表明，当女性的伴侣不在身边时，她们在竞争任务中表现出更高的投入度。此外，与陌生同性竞争相比，与异性竞争会给女性个体带来更大的心理负荷，竞争任务的复杂性也更高。在这种情况下，女性个体在结果预测和行为调整方面表现得更好。本研究基于社会比较理论，证明了亲密关系恋人的陪伴状态以及对手性别对女性竞争的影响，对女性更好的适应社会良性竞争以及维护亲密关系稳定发展具有重要意义。

关键词　脑电，竞争，功能连接，亲密关系

Intimate relationships weaken female competition: Evidence from phase-amplitude coupling and functional connectivity

Shuyu Jia[1], Yujia Meng[1], Yingjie Liu[1]

1 North China University of Science and Technology, Hebei, Tangshan

Abstract：Competition is one of the important ways of social interaction. Through EEG technology, this study

explored the neural mechanism of the intimate partner's companionship status and competitor's gender on female individual competition regulation from the perspective of Evoked potential analysis, Time–frequency analysis, and functional connectivity analysis. A total of 52 female college students were recruited in this study, and 2 (companionship status: nearby or not nearby) were used × Design of inter-subject experiments for 2 (opponent gender: same-sex or opposite sex). The subjects were divided into four groups: one group consisted of 15 partners competing with the same sex while they were around, the other group consisted of 15 partners competing with the opposite sex when they were around, the other group consisted of 13 partners competing with the same sex when they were not around, and the last group consisted of 14 partners competing with the opposite sex when they were not around. Participants are required to complete the visual cue-target task, simulate real competitive scenarios through button competition, and record reaction time and EEG signals to evaluate their state in competitive situations. The results showed that when the lover was not around, the average amplitude of P3 was higher when women competed with strangers of the opposite sex. Compared to the same-sex competition, female individuals significantly increase their theta frequency band activity when competing with the unfamiliar opposite sex. In addition, the study also found that the synchronization of connections in the central parietal lobe region of an individual's brain is positively correlated with the monitoring of individual prediction results and behavioral adaptability. In other words, when individuals are better able to grasp the situation and predict behavior, the degree of connection synchronization is also higher. The research results indicate that women exhibit higher engagement in competitive tasks when their partners are not around. In addition, compared to unfamiliar same-sex competition, competition with the opposite sex can bring a greater psychological burden to female individuals, and the complexity of competitive tasks is also higher. In this situation, female individuals perform better in predicting outcomes and adjusting behavior. Based on the Social comparison theory, this study proves that the companionship status of intimate relationship lovers and the influence of rival gender on female competition are of great significance for women to better adapt to social benign competition and maintain the stable development of intimate relations.

Keywords：EEG, Competition, Functional connectivity, Intimacy relationships

来源记忆新旧效应对自我参照编码和情绪效价的敏感性

聂爱青

山西师范大学教育科学学院，太原，031100，nieaiq@126.com

摘 要　在情节记忆中，旧/新效应是对正确识别的学习项目和正确拒绝的新项目引发的波形对比。然而，自我参照编码对源记忆中的旧/新效应（即源-SRE）的贡献远未明确；此外，尚不清楚这种贡献是否受刺激情绪性因素的影响。为解决这些问题，本研究采用了事件相关电位（ERP）技术，在自我关注和外部关注编码任务中应用了三种类型的情绪价值词（积极、中性和消极）。在测试过程中，发现了四种 ERP 新旧效应：（a）熟悉度和回忆程度的中央额区效应（FN400）和晚期正性成分（LPC）与源-SRE 和刺激情绪性无关；（b）重建驱动的晚期后部负性成分（LPN）表现出与源-SRE 相反的模式，并受到编码焦点的情绪价值影响；以及（c）右前额新旧效应效应（RFE）反映出检索后的过程，显示出情绪性词汇中的源-SRE。这些效应为刺激效价和编码焦点对源记忆中的 SRE 的影响提供有力证据。

关键词　来源记忆，情绪效价，自我参照，新旧效应，LPN

Sensitivity of late ERP old/new effects in source memory to self-referential encoding focus and stimulus emotionality

Aiqing Nie

[1]Department of Psychology, College of Educational Sciences, Shanxi Normal University, Taiyuan, Shanxi Province, China, 030031. Email: nieaiq@126.com

Abstract： In episodic memory, the old/new effect, the contrast of the waveforms elicited by the correctly recognized studied items and the correctly rejected novel items, has been broadly concerned. However, the contribution of self-referential encoding to the old/new effect in source memory (i.e., source-SRE), is far from clarification; further, it remains unclear whether the contribution is susceptible to the factor of stimulus emotionality. To address these issues, adopting the event-related potential (ERP) technique, this study applied words of three types of emotional valences (positive, neutral, *vs.* negative) in the self-focus *vs*. external-focus encoding tasks. In the course of the test, four ERP old/new effects were identified: (a) the familiarity- and recollection-reflected mid-frontal effect (FN400) and late positive component (LPC) were both independent of source-SRE and stimulus emotionality; (b) the reconstruction-driven late posterior negativity (LPN) exhibited an adverse pattern of source-SRE and was susceptible to the emotional valence by encoding focus; and (c) the right frontal old/new effect (RFE), reflecting post-retrieval process, exhibited a source-SRE in emotional words. These effects provide compelling evidence for the influences of both stimulus valence and encoding focus on SRE in source memory, especially during the late processes. Further directions considering more perspectives are put forward.

Keywords： Source memory, emotional valence, self-reference, old/new effect, LPN

大学生对口音说话者的社会评价：社会阶层和道德水平的边际效用

李云霞

赣南师范大学教育科学学院，江西赣州，341000，liyxlily@163.com

摘 要 口音属于个体的发音方式，可以通过第一印象轻易引起听者的关注和评价，而广西夹壮普通话以其独特的腔调和喜感的口音特点在网上颇为流行。基于此，本研究关注地方特色口音（夹壮普通话）是否会影响他人对其的社会评价。此外，研究进一步探究社会阶层和道德水平是否能给口音说话者的社会评价带来减弱或改善的边际效用。

研究方法与结果：前期使用设备录制浓重夹壮和标准普通话的节选段落录音作为口音变量材料。研究 1 采用单因素（口音水平：浓重口音、标准普通话）被试间实验设计，被试通过听取录音并填写言语态度量表对所呈现人物进行评价。研究 2 和 3 进一步探究口音社会评价的边际效应，首先采用 2（口音水平：浓重口音、标准普通话）×2（社会阶层水平：高社会阶层、低社会阶层）被试间实验设计。接着，研究 3 采用 2（口音水平：浓重口音、标准普通话）×2（社会阶层水平：高社会阶层、低社会阶层）×2（道德水平：高道德水平、低道德水平）被试间实验设计。结果表明：（1）口音、社会阶层和道德水平的主效应显著，相比非标准口音者、低阶层者和低道德水平者，被试对标准口音说话者、高阶层说话者和高道德水平说话者的评价更积极；（2）口音和社会阶层的交互作用显著，相比低社会阶层的浓重口音说话者，听者对高阶层的浓重口音说话者的评价更积极；（3）社会阶层和道德水平的交互作用显著，相比低道德低阶层说话者，听者对高道德低阶层说话者的评价更积极；（4）三者的交互作用并不显著。

研究结论：个体口音会消极影响他人对说话者的社会评价，而社会阶层和道德水平可以在一定程度上削弱这些负面评价。对此，有必要增强人们学习普通话的动机，鼓励人们更好地发展自我，提高个人能力和地位，发展积极品德，修养自身，展现更好的自己。

关键词 夹壮口音，社会阶层，道德水平，边际效应，社会评价

College Students' Social Evaluation of Accent Speakers: Marginal utility of Social Class and Moral Level

Yunxia Li

Education Science School, Gannan Normal University, Ganzhou, Jiangxi China

***Abstract*:** Accents belong to individual pronunciation methods and can easily attract the attention and evaluation of listeners through first impressions, and Guangxi Jiazhuang Mandarin is quite popular online due to its unique tone and pleasant accent characteristics. Based on this, this study focuses on whether local distinctive accents (including Zhuang Mandarin) will affect others' social evaluations of them. In addition, the study further explores whether social class and moral level can bring about weakened or improved Marginal utility to the social evaluation of accent speakers.

Research methods and results: This study used equipment to record strong and standard Mandarin excerpts as accent variable materials. Study 1 adopts a single factor (accent level: strong accent, standard Mandarin) inter subject experimental design, where participants evaluate the presented characters by listening to recordings and filling out a speech attitude scale. Studies 2 and 3 further explore the marginal effects of accent social evaluation, starting with 2 (accent level: strong accent, standard Mandarin) × 2 (Social class level: high social class, low social class) Intersubject experimental design. Next, Study 3 adopted 2 (accent level: strong accent, standard Mandarin) × 2 (Social class level: high social class, low social class) × 2 (Moral level: high moral level, low moral level)

Intersubject experimental design. The results showed that: (1) the main effects of accent, social class, and moral level were significant. Compared with non standard accent speakers, lower class speakers, and lower moral level speakers, participants had more positive evaluations of standard accent speakers, higher class speakers, and higher moral level speakers; (2) The interaction between accent and social class is significant, and compared to speakers with strong accents from lower social classes, listeners have a more positive evaluation of speakers with strong accents from higher social classes; (3) The interaction between social class and moral level is significant, and compared to low moral and lower class speakers, listeners have a more positive evaluation of high moral and lower class speakers; (4) The interaction between the three is not significant.

Research conclusion: Individual accents can negatively affect others' social evaluations of the speaker, and social class and moral level can to some extent weaken these negative evaluations. In this regard, it is necessary to enhance people's motivation to learn Mandarin, encourage them to better develop themselves, improve personal abilities and status, develop positive moral character, cultivate themselves, and showcase a better self.

Keywords: Zhuang accent, social class, moral level, marginal effects, social evaluation

Physical health status and psychological distress among frontline and non-frontline prison officers during the prevention and control of a major emerging infectious diseases: A case-control study from China

Yong Tian
Sichuan Judicial and Police Officers Professional College, Deyang 618000,
People's Republic of China

Abstract*: *Background and objective The spread of major emerging infectious diseases (MEIDs), including SARS, H7N9 avian influenza, and Coronavirus disease 2019 (COVID-19), had put prisons across the globe into an emergency state where extraordinary measures have been taken. Chinese prison system contained the spread of MEIDs inside its walls by demanding officers work on lockdown shifts inside for an extended and indefinite period of time. This strategy had proved effective markedly in terminating the prevention and control of COVID-19 epidemic recently, but placed a heavy burden on the personal physical and mental health of the officers. To further explore the physical and psychological impact of a MEIDs outbreak, this study compared the mental health status and psychological distress between frontline and non-frontline prison officers in China. ***Methods*** This case-control study recruited 818 frontline and 818 non-frontline prison officers during the prevention and control of COVID-19 epidemic (November 22 to 30, 2022). A set of online questionnaires were used to measure physical health (i.e., self-assessment of physical fitness, loss of appetite, stomach pain, hemorrhoids, insomnia, oral ulcers and other physiological diseases), and psychological distress including perceived pressure, perceived organizational support, and emotional exhaustion for prison officers. ***Results*** Frontline prison officers had higher rates of any physical problem, that was self-assessment of poor health (28.95% *vs*. 16.63%, $\chi^2 = 40.53$, $P < 0.001$), loss of appetite (60.02% *vs*. 28.24%, $\chi^2 = 248.65$, $P < 0.001$), stomach pain (29.79% *vs*. 24.33%, $\chi^2 = 7.26$, $P = 0.007$), hemorrhoids (25.44% *vs*. 16.63%, $\chi^2 = 22.08$, $P < 0.001$), insomnia (13.14% *vs*.7.70%, $\chi^2 = 14.74$, $P < 0.001$) and oral ulcers (52.64% *vs*. 32.03%, $\chi^2 = 83.58$, $P < 0.001$), than non-frontline prison officers. The main perceived pressures of frontline prison officers were work and family life can't be balanced (94.73%), overloaded work (77.24%), and being inspected and held accountable (76.32%), and non-frontline prison officers were heavy work responsibilities (79.46%), work and family life can't be balanced (71.76%), and being inspected and held accountable (52.57%). In comparison with non-frontline prison officers, frontline officers had higher rates and score of emotional exhaustion (39.50% *vs*. 23.11%, $\chi^2 = 59.17$, $P < 0.001$; 15.18 ± 7.94 *vs*. 12.32 ± 7.69, $t = 2.48$, $P = 0.014$), and lower rates and score of perceived organizational support (63.10% *vs*. 78.24%, $\chi^2 = 52.30$; 9.52 ± 3.14 *vs*. 10.64 ± 2.82, $t = -2.53$, $P = 0.011$). ***Conclusion*** Frontline prison officers had more physical problems and psychological distress with perceived pressure and emotional exhaustion but less perceived organizational support than non-frontline prison officers. These findings highlight timely strengthen physical and mental health support and intervention, improve organizational support, and reduce work pressure for prison officers, especially for those on the frontline.

Keywords: physical health, perceived pressure, perceived organizational support, emotional exhaustion, prison officers

从心理和谐到人际和谐：宽恕的个体效应与人际效应

姜温君 邓秋月 丁亚童 宿飞扬 陈英敏（通讯作者）

山东师范大学心理学院，济南，250399，通讯作者 cc8030306@163.com

摘 要 和谐自古以来就是中华文明遵循的核心价值理念，它贯穿于个人修为、家庭管理、社会治理等各个层面。党的十六届四中全会第一次提出“和谐社会”概念至今，建构和谐社会成为国家和人民不断为之奋斗的理想目标。但无论个体还是社会的发展总伴随着矛盾与冲突，因此，构建和谐社会其中非常重要的一项任务就是要处理好这些不断出现的纷争。宽恕是中华民族的传统美德，也是指导人们为人处事的基本准则，其在化解冲突、维系和谐方面具有独特的价值。由此，本研究以宽恕为自变量，分别从宽恕者、被宽恕者的视角探讨了宽恕的个体心理和谐效应，与当事人双方的人际和谐以及推及他人的泛人际（社会）和谐效应，并分别考察了情绪的中介作用，具体包括 3 个研究：研究 1 从宽恕者角度出发，采用问卷法探讨宽恕与自身心理和谐的关系以及情绪的中介作用，以揭示宽恕的个体心理和谐效应。结果显示： 宽恕与个体的心理和谐、积极情绪均显著正相关，与消极情绪显著负相关；情绪在宽恕和心理和谐的关系中起中介作用，宽恕水平越高的个体能够体验到更多的积极情绪从而促进其心理和谐水平的提高。研究 2 从被宽恕者角度出发，采用实验法，在情景故事中探讨宽恕对当事人双方人际和谐的影响，以及情绪（感恩、内疚、敌意以及愤怒）的中介作用，结果发现宽恕组比非宽恕组有更高水平的人际和谐，且情绪（感恩、内疚、敌意以及愤怒）在其中起中介作用。研究 3 从被宽恕者角度出发，采用实验法，在情景故事中探讨宽恕对被宽恕者个体与第三方人际和谐的影响以及情绪的（感恩、内疚、敌意以及愤怒）的中介作用，结果发现宽恕组比非宽恕组与第三方有更高水平的人际和谐，且感恩在其中的中介作用显著，揭示了宽恕的“涟漪效应”。研究结果对化解心灵与社会的危机，构建和谐社会具有深远的意义。

关键词 宽恕，情绪，心理和谐，人际和谐

From Psychological Harmony to Interpersonal Harmony : The Individual And Interpersonal Effects of Forgiveness

Jiang Wenjun, Deng Qiuyue, Ding Yatong, Su Feiyang, Chen Yingmin（Corresponding Author）
Department of Psychology, Shandong Normal University, Jinan, 250399,
Corresponding Author cc8030306@163.com

Abstract： Since ancient times, harmony has been the core value concept followed by Chinese civilization, running through various aspects such as personal cultivation, family management, and social governance. The concept of "harmonious society" was first proposed at the Fourth Plenary Session of the 16th Central Committee, and constructing a harmonious society has since become an ideal goal for the country and its people to strive for continuously. However, whether it is individual or social development, it always accompanies contradictions and conflicts. Therefore, one important task in building a harmonious society is to handle these constantly emerging disputes. Forgiveness is a traditional virtue of the Chinese nation and also a basic criterion for guiding people's conduct. It has unique value in resolving conflicts and maintaining harmony. Based on this, this study takes forgiveness as the independent variable and discusses the individual psychological and harmonious effects of forgiveness from the perspectives of the forgiver and the forgiven. It also explores the interpersonal harmony between the parties involved and the general interpersonal (social) harmony effects that extend to others. The study examines the mediating role of emotions, including three specific researches: Research 1, starting from the perspective of the forgiver, uses questionnaires to explore the relationship between forgiveness and individual psychological harmony, as well as the mediating role of emotions, revealing the individual psychological harmony effect of forgiveness. The results show that forgiveness is significantly positively correlated with individual psychological harmony and positive emotions, and significantly negatively correlated with negative emotions; emotions play a mediating role in the relationship between forgiveness and psychological harmony, and individuals with higher levels of forgiveness are more likely to experience more positive emotions, thus promoting an improvement in their psychological harmony levels. Research 2, starting from the perspective of the forgiven, uses experimental methods to explore the impact of forgiveness on interpersonal harmony between the parties involved in scenario stories, as well as the mediating role of emotions (gratitude, guilt, hostility, and anger). The results show that the forgiveness group has a higher level of interpersonal harmony compared to the non-forgiveness group, and emotions (gratitude, guilt, hostility, and anger) play a mediating role in this relationship. Research 3, starting from the perspective of the forgiven, uses experimental methods to explore the impact of forgiveness on interpersonal harmony between the forgiven individuals and third parties in scenario stories, as well as the mediating role of emotions (gratitude, guilt, hostility, and anger). The results show that the forgiveness group has a higher level of interpersonal harmony with third parties compared to the non-forgiveness group, and gratitude plays a significant mediating role in this relationship, revealing the "ripple effect" of forgiveness. The study is of profound significance for resolving crises in individuals' minds and society and building a harmonious society.

Keywords： forgiveness, emotions, psychological harmony, interpersonal harmony

死亡凸显对网络强迫性购买的影响：物质主义的中介作用

李玥[1] 黄春梅[2] 范卡敏[3]（通讯作者）
四川师范大学心理学院，成都，610068
通讯作者 E-mail：1151957785@qq.com

摘要 死亡凸显是指通过人为的方法将个体暴露在死亡信息下，来强迫唤起个体的死亡意识，引发其对于死亡的思考。根据恐惧管理理论，当人们暴露在死亡信息之下时，会采用不同的心理防御机制来应对死亡威胁，维护文化世界观和自尊追求是两种基本的恐惧管理机制。而财富和物质消费是成功的指标和自尊的来源 ，因此，当个体面对死亡凸显时，消费者会通过增加他们的物质主义进行消费以此来减缓死亡的威胁。但如果过度，可能就会导致不良消费行为，例如强迫性购买。但随着 5G 时代的到来，人们也越来越依赖互联网和社交媒体来购物和满足其他消费需求，即网络强迫性购买，指个体难以抑制网络购物冲动，无法控制网络购物行为。尽管网络购物给个体造成了诸多负性影响，个体仍持续过度地进行网络购物。本研究旨在探究死亡凸显对网络强迫性购买的影响及心理机制。实验以 128 名高校大学生作为被试，采用死亡凸显(死亡凸显组 vs 非死亡凸显组)单因素被试间实验设计。通过回忆书写任务诱发两种情绪,随后被试随机分配到不同的组别进行死亡凸显的启动或者非死亡凸显的启动，然后被试依次完成死亡想法操纵性检验、PANAS 情绪量表、分心任务、网络强迫性购买量表、物质主义价值观量表以及人口统计学变量，如性别、年龄、月均可支配收入等的测量。

结果表明：（1)死亡凸显组相对于非死亡凸显组会增加网络强迫性购买,即死亡凸显对网络强迫性购买具有正向的预测作用,进行死亡提醒后的个体更可能表现出较高的网络强迫性购买倾向;(2)物质主义在死亡凸显与网络强迫性购买起部分中介作用。本研究为消费者在面临重大危机性事件时，他们可以掌握正确的应对方式缓冲死亡凸显带来的威胁，进行合理消费。

关键词 死亡凸显，网络强迫性购买，物质主义,恐惧管理理论

The Influence of Mortality Salience on online compulsive-buying: the mediating role of materialism

Li Yue [1] Huang Chunmei[2]Fan Kamin [3] (corresponding author)
School of Psychology, Sichuan Normal University, 5 Jing'an Road, Chengdu 610068, PR China.

Abstract: Mortality Salience refers to exposing individuals to death information to arouse the awareness of death and arouse their thinking about death. According to fear management theory, when people are exposed to death information, they will adopt different psychological defense mechanisms to deal with death threat. Maintaining the cultural worldview and self-esteem pursuit are two basic fear management mechanisms. Wealth and material consumption are indicators of success and sources of self-esteem, so when individuals face death, consumers will consume by increasing their materialism to mitigate the threat of death. But if excessive, it may lead to bad consumption behavior, such as compulsive purchases. However, with the advent of the 5G era, people are becoming more and more dependent on the Internet and social media to shop and meet other consumer needs, that is, online compulsive purchase, which means that individuals are difficult to restrain the online shopping impulse and cannot control the online shopping behavior. Although there are many negative effects of online shopping on individuals, individuals continue to excessive online shopping. This study aims to explore the impact of death and the psychological mechanism of its prominence on online compulsive buying. The experiment took 128 college students as the subjects, and adopted the single-factor experiment design of Mortality Salience (Mortality Salience

group vs non-Mortality Salience group). By recall writing task induced two emotions, then subjects randomly assigned to different groups for the start or the death, and then the death idea manipulative test, PANAS emotional scale, distraction task, network compulsive purchase scale, materialism values scale and demographic variables, such as gender, age, monthly disposable income, etc.

The results show that: (1) the Mortality Salience group will increase the non-Mortality Salience group of online compulsive-buying, online compulsive-buying has a positive prediction effect on online compulsive-buying, and the individuals after death reminder are more likely to show a high network compulsive purchase tendency; (2) materialism plays a partial intermediary role in Mortality Salience and online compulsive-buying . This study shows that when consumers face a major crisis event, they can master the right way to deal with the threat brought by death and make reasonable consumption.

Keywords: Mortality Salience, Online compulsive-buying, Materialism， Terror Management Theory

忙碌感对地位消费的影响及其机制

李权升[1] 崔锦圣[1] 王咏尔[1] 钟建安[1]（通讯作者）
1 浙江大学心理与行为科学系，杭州，310058，通讯作者 E-mail：jiananzhong@zju.edu.cn

摘 要 忙碌感是个体对自己近期或预期的客观忙碌状态进行评估后产生的一种被很多任务占据的主观心理感知。当下，忙碌成为了中国人的主要特征和标签。而随着对忙碌生活的讨论愈发热烈，越来越多的品牌广告中出现忙碌的相关因素，描绘消费者不断提高的忙碌感。因此，有必要关注忙碌感如何影响消费者的购买决策。本文通过三个研究探讨了忙碌感对地位消费的影响，同时探索其内在的心理机制和边界条件：心理特权的中介作用和品牌显著性、公众自我意识的调节作用。通过 3 项实验得出结果：1）心理特权在忙碌感和地位消费之间起部分中介作用，高心理特权的个体为了维持和证明膨胀的自我形象，会积极寻求地位提升，提高对地位产品的购买意愿；2）高忙碌感个体的心理特权对地位消费的积极影响只对低品牌显著性的地位产品显著；3）公众自我意识起到调节作用，高公众自我意识的个体在忙碌感导致高心理特权时，会更倾向于进行地位消费；而在低公众自我意识下，削弱了心理特权对地位消费的促进作用。本研究拓展了忙碌感和心理特权在消费行为学领域内的研究，丰富了自我一致性理论的应用证据，同时为商家制定地位产品营销策略提供了一些思路。

关键词 忙碌感，心理特权，地位消费，品牌显著性，公众自我意识

The Effects of Busyness on Status Consumption and Its Underlying Mechanism

Li Quansheng[1] Cui Jinsheng[1] Wang Yonger[1] Zhong Jianan[1]（Corresponding author）
1 Department of Psychology and Behavioral Science, Zhejiang University; 866 Yuhangtang Rd., Hangzhou, 310058, China. E-mail：jiananzhong@zju.edu.cn

Abstract：Busyness is a subjective psychological perception of being occupied by many tasks that arises from an individual's assessment of his or her recent or expected objective state of busyness. Nowadays, busyness has become the main characteristic and label of Chinese people. And as the discussion of busy life becomes more popular, and more brand advertisements feature busyness-related factors, to depict ever-increasing busyness sense of consumers. Therefore, it is necessary to focus on how busyness influences consumers' purchase decisions. This paper examines the impact of busyness on status consumption through three studies while exploring its underlying psychological mechanisms and boundary conditions: the mediating role of psychological privilege and the moderating role of brand salience and public self-consciousness. The results from the three experiments were: 1) psychological privilege partially mediates the relationship between busyness and status consumption, and individuals with high psychological privilege will actively seek status advancement and increase their willingness to purchase status products in order to maintain and justify an inflated self-image; 2) the positive effect of psychological privilege on status consumption for individuals with high busyness is only significant for status products with low brand salience; 3) public self-consciousness plays a moderating role, and individuals with high public self-consciousness will be more inclined to engage in status consumption when their sense of busyness leads to high psychological privilege, while under low public self-consciousness, it weakens the facilitating effect of psychological privilege on Status consumption. This study expands the research on busyness and psychological

privilege within the field of consumer behavior, enriches the evidence for the application of self-consistency theory, and provides some ideas for merchants to develop marketing strategies for status products.
***Keywords*：** Perceived Busyness, Psychological Entitlement, Status Consumption, Brand Prominence, Public Self-Consciousness

内外群体榜样在择偶复制过程中的分离效应

解佳佳[1] 李林[2] 卢洋[3,6] 庄锦英[4] 吴雨嫣[5] 李鹏[4] 郑丽[3,6]（通讯作者）

1 青岛大学师范学院，青岛，266071

2 华东师范大学心理与认知科学学院上海市心理健康与危机干预重点实验室，上海，200062

3 复旦大学复旦老龄研究院，上海，200433

4 华东师范大学心理与认知科学学院，上海，200062

5 华东师范大学物理与电子科学学院上海市磁共振重点实验室，上海，200062

6 国家发展与智能治理综合实验室

通讯作者邮箱：zheng_l@fudan.edu.cn

摘 要 择偶复制被认为是个体通过观察同性别榜样的配偶选择收集关于潜在配偶的社会信息进而指导自身择偶的一种社会学习。既有研究表明，同性别榜样的个体属性会影响这一择偶领域的社会学习行为（择偶复制），然而，同性别榜样的群体属性是否同样影响以及如何影响择偶复制还尚未可知。本研究旨在借助行为研究和功能性磁共振成像研究探讨这一问题。研究中，女性被试需要在观察群体内或群体外同性别榜样对潜在配偶表示出接受、拒绝或未表达意愿态度的前后，分别对她们选择潜在配偶作为男朋友的意愿进行评分。行为结果表明，女性被试在观察同性别榜样对潜在配偶的接受和拒绝态度后都发生了复制行为，与对拒绝态度的复制效应相比，女性被试对接受态度的复制效应更强；同时，对接受态度的复制受到了榜样群体属性的调控。功能性磁共振结果表明，对接受态度的复制过程中，相对于内群体榜样，当同性别榜样属于外群体时，颞顶联合区表现出更强地激活，并且颞顶联合区与前内侧前额叶皮层之间存在更强地功能连接；同时，在此条件下，颞顶联合区和前内侧前额叶皮层之间的功能连接强度与女性被试的评分变化呈显著正相关。这些结果表明，个体在学习群体外榜样决策过程中，尤其是复制榜样的接受态度时，可能需要更多的资源加工来推断外群体成员的意图，并克服学习过程中的内群体偏见。

关键词 人类择偶复制，内外群体，心智化，颞顶联合区，前内侧前额叶皮层

Learning from in-group and out-group models induces separative effects on human mate copying

Jiajia Xie[1], Lin Li[2], Yang Lu[3, 6], Jinying Zhuang[4], Yuyan Wu[5], Peng Li[4], Li Zheng[3, 6*]

[1] Department of Psychology, Normal College, Qingdao University, Qingdao, China, 266071

[2] Shanghai Key Laboratory of Mental Health and Psychological Crisis Intervention, School of Psychology and Cognitive Science, East China Normal University, Shanghai, China, 200062

[3] Fudan Institute on Ageing, Fudan University, Shanghai, China, 200433

[4] School of Psychology and Cognitive Science, East China Normal University, Shanghai, China, 200062

[5] Shanghai Key Laboratory of Magnetic Resonance, School of Physics and Electronic Science, East China Normal University, Shanghai, China, 200062

[6] MOE Laboratory for National Development and Intelligent Governance

* Corresponding author: Li Zheng, Fudan Institute on Ageing, Fudan University, Shanghai, China, 200433; Email: zheng_l@fudan.edu.cn

Abstract： Mate copying refers to a social learning process in which individuals gather public information about

potential mates by observing models' choices. Previous studies have reported that individual attributes of observed female models affect human mate copying; yet little is known about whether and how the group attributes of models influence mate copying. In the current behavioral and fMRI studies, female participants were asked to rate their willingness to choose the depicted males as potential romantic partners before and after observing in-group or out-group female models accepting, rejecting, or being undecided (baseline) about the males. Behavioral results showed that participants changed their ratings to align with the models' acceptance or rejection choices. Compared to rejection copying, the effect of acceptance copying was stronger and regulated by in- and out-group models. At the neural level, stronger activity of the temporo-parietal junction (TPJ) and connectivity between the TPJ and anterior medial prefrontal cortex (amPFC) were observed during acceptance copying when female models belonged to the out-group. Meanwhile, the strength of the functional connection between the TPJ and amPFC was positively correlated with changes in ratings when participants learned from out-group models. These findings suggest that participants might require more resources to infer out-group members' intentions and overcome the in-group bias during acceptance copying.

Keywords: human mate copying, in- and out-group, mentalizing, TPJ, amPFC

面孔相似性对择偶复制的影响：基于深度学习算法的评估

徐思元（通讯作者） 冯喜珍 邸美琴 连培琴

山西师范大学教育科学学院，太原，030000，xusiyuan19971206@126.com

摘 要 择偶复制是一种非独立的择偶现象，指的是当个体选择配偶时，通过了解同性个体对潜在配偶的择偶意愿，会倾向于选择被其它同性个体喜好的潜在配偶。以往研究发现，个体与同性榜样的面孔相似性作为一种亲缘线索影响择偶复制并存在性别差异。然而，由于定量评估面孔相似性存在困难，因此，在以往的研究中，研究者通常采用软件合成法，通过合成被试与榜样人物的“合成脸”来控制面孔相似性。而在自然面孔条件下，面孔相似性对择偶复制的影响目前仍不清楚。本研究通过深度学习算法“Arcface”定量评估自然面孔条件下的面孔相似性，并考察面孔相似性在榜样人物不同态度下对择偶复制效应的影响及性别差异。研究采用 2（面孔相似性：高相似组/低相似组）×2（榜样人物对择偶目标的态度：感兴趣/不感兴趣）×2（性别：男/女）的混合实验设计，使用择偶复制的经典范式，以后测与前测的差值（即择偶复制效应量）为因变量。结果发现：（1）榜样人物态度主效应显著，表明存在择偶复制效应。（2）面孔相似性与性别交互作用显著，具体而言，男性被试在高面孔相似性条件下具有更高的择偶复制效应；面孔相似性在女性被试中对择偶复制效应的影响不显著。研究结果为理解择偶复制这一复杂的非独立择偶现象提供了更多依据。此外，本研究使用的深度学习算法也在技术层面为评估面孔相似性提供了新的思路。

关键词 择偶复制，面孔相似性，深度学习算法

The Influence of Facial Resemblance on Mate Choice Copying: Based on Deep Learning Algorithms

Xu Siyuan, Feng Xizhen, Di Meiqin, Lian Peiqin

Institute of Education Science of Shanxi Normal University, Taiyuan 030000, China

***Abstract*:** Mate choice copying is a kind of non-independent mate choice phenomenon, which means that when an individual chooses a mate, by understanding the mate selection intention of the same sex individual to the potential mate, he will tend to choose the potential mate who is favored by other same sex individuals. Previous studies have found that facial resemblance between individuals and same-sex role models, as a kinship cue, affects mate choice copying and has gender differences. However, due to the difficulty of quantitative assessment of facial resemblance, in previous studies, researchers usually used software synthesis method to control face similarity by synthesizing "synthetic faces" of subjects and role models. However, the effect of facial similarity on mate selection replication under natural face conditions remains unclear. In this study, the deep learning algorithm “Arcface” was used to quantitatively assess the facial resemblance under the condition of natural face, and the influence of facial resemblance under different attitudes of role models on the replication effect of mate choice copying and gender differences were investigated. The study adopted a mixed experimental design of 2 (facial resemblance: high similarity group/low similarity group) ×2 (role model's attitude towards mate selection goal: interested/not interested) ×2 (gender: male/female). The classical paradigm of mate selection replication was used, and the difference between post-test and pre-test (i.e. mate selection replication effect size) was used as the dependent variable. The results showed that: (1) the main effect of role model attitude was significant, indicating the existence of mate choice copying effect. (2) The interaction between face similarity and gender is significant. Specifically, male subjects with high facial resemblance have higher mate choice copying effect; The effect of facial resemblance on mate choice copying effect was not significant in female subjects. The results provide more evidence for understanding the complex phenomenon of mate choice copying. In addition, the deep learning algorithms used in this study also provides a new way to evaluate facial resemblance at the technical level.

***Keywords*:** mate choice copying, facial resemblance, deep learning algorithms

社交排斥与短视频成瘾的关系:无聊和自我控制的中介作用

朱文倩[1] 张亚利[2]

1 河北师范大学教育学院，石家庄，050000

2 河北师范大学教育学院，石家庄，050000，zhangyali531@sina.com

摘 要 继网络游戏障碍之后，短视频成瘾成为研究者关注的新现象。短视频成瘾是个体反复、频繁、不受控制地使用短视频的一种强迫性状态。短视频成瘾引起了家长、学校和社会的关注，并成为心理学、教育学和社会学等许多学科的重要话题。因此，探索短视频成瘾的危险因素，科学预防短视频成瘾，保护用户身心健康是十分必要的。本研究旨在探讨无聊感和自我控制在社交排斥与短视频成瘾之间的中介作用。本研究采用多阶段调查法，对 532 名大学生进行调查，其中男性 39%;平均年龄 19.32±1.23 岁)，包括社会排斥量表、无聊倾向量表、自我控制量表和短视频成瘾量表。使用 Hayes 开发的 SPSS 22.0 和 Process 3.2 进行数据分析，检验其中介效应。结果表明，社交排斥与无聊、短视频成瘾显著正相关，与自我控制显著负相关。无聊与自我控制呈显著负相关，与短视频成瘾呈显著正相关。自我控制与短视频成瘾呈显著负相关。结果还表明，社交排斥对短视频成瘾有直接影响。无聊在社交排斥与短视频成瘾之间起着显著的中介作用。此外，自我控制在社交排斥与短视频成瘾之间起着重要的中介作用。无聊和自我控制在社交排斥与短视频成瘾之间的连锁中介效应也显著。另外，无聊和自我控制可以依次中介社交排斥与短视频成瘾之间的关系。理论上，本研究对 I-PACE 模型进行了修正。在实践中，研究结果提示学校应减少同伴排斥，提高学生心理健康素养，减少无聊感，增强自我控制能力，从而有效预防短视频成瘾。本文首次从中国短视频成瘾的普遍问题出发进行了探讨。并且从人际关系的角度，首次分析了社会排斥对短视频成瘾的诱导作用，以及无聊和自我控制在两者关系中的中介作用。本研究不仅丰富了国内短视频成瘾的相关研究，而且有助于与其他国家的类似研究形成对比，更全面地了解短视频成瘾的形成机制和跨文化差异。

关键词:社会排斥;无聊;自我控制;短视频成瘾

The association between social exclusion and short video addiction: the mediating role of boredom and self-control

Wenqian Zhu

Hebei Normal University，Shijiazhuang

Abstract:Following internet gaming disorder, short video addiction has become a new phenomenon concerned by researchers. Short video addiction is an obsessive state in which individuals repeatedly, frequently, and uncontrollably use short videos. Short video addiction has attracted the attention of parents, schools, and society and has become an important topic in many disciplines, including psychology, pedagogy, and sociology. Therefore, exploring the risk factors of short video addiction to prevent it scientifically and protect users' physical and mental health is necessary.This study aimed to explore the mediating role of boredom and self-control between social exclusion and short video addiction. This study adopted a Multi-stage investigation and investigated 532 college students (39% males; mean age 19.32 ± 1.23 years) with social exclusion scale, boredom tendency scale, self-control scale, and short video addiction scale.SPSS 22.0 and Process 3.2, developed by Hayes, were used for

data analysis and tested mediating effect..The results showed that social exclusion was significantly positively correlated with boredom and short video addiction and significantly negatively correlated with self-control. Boredom was significantly negatively associated with self-control and positively correlated with short video addiction. Self-control was significantly negatively correlated with short video addiction.The results also showed that social exclusion could directly affect short video addiction.boredom played a significant mediating role between social exclusion and short video addiction. In addition, self-control played an important mediating role between social exclusion and short video addiction. The chain mediating effect of boredom and self-control between social exclusion and short video addiction was also significant. Theoretically, this study modified the I-PACE model. Practically, the results suggested that schools should reduce peer rejection and improve students' mental health literacy to reduce boredom and enhance self-control, thus effectively preventing short video addiction. This study discusses for the first time based on the common problem of short video addiction in China. From the perspective of interpersonal relationships,and analyzed for the first time the inducing effect of social exclusion on short video addiction and the mediating effect of boredom and self-control in the relationship between them.This study not only enriches the relevant research on short video addiction in China but also helps to form a comparison with similar studies in other countries to have a more comprehensive understanding of the formation mechanism and cross-cultural differences of short video addiction.

Keywords: social exclusion; boredom; self-control; short video addiction

人在做，“天”在看：公共服务动机与社会存在对亲社会行为的影响

贺晓玲 那琳娜

南昌大学公共政策与管理学院心理学系 江西南昌 330031

摘 要 公共服务动机作为公共管理领域的重点研究概念，近年来在心理学领域也逐渐受到关注。本研究从行为公共管理学视角出发，通过心理学实验方法详细探讨公共服务动机与社会存在对亲社会行为的影响。研究一与研究二采用独裁者博弈与志愿者困境博弈两种任务范式，操纵内隐、外显两种社会存在线索，以此探讨公共服务动机与社会存在对捐赠行为和自我牺牲行为的影响，即考察在不同线索类型与情境类型下，不同水平公共服务动机者的亲社会行为是否发生变化以及社会存在是否会与个体的特质(公共服务动机)交互作用影响个体的行为。结果显示，公共服务动机与眼睛线索、他人在场存在交互作用，内隐社会存在线索(眼睛线索)与外显社会存在情境(他人在场)能够显著促进个体的亲社会行为，但对低公共服务动机者的影响更为明显。上述结果对于在实际应用中提升不同水平公共服务动机个体的亲社会行为表现具有现实意义，体现了行为公共管理学“用心求理”的特色。

关键词 公共服务动机；眼睛线索；他人在场；亲社会行为；捐赠；自我牺牲

Man is doing, heaven is watching: the influence of public service motivation and social presence on prosocial behavior

He Xiaoling, Na Linna

School of Public Policy and Administration,Nanchang University,Nanchang 330031

Abstract: As a key research concept in the field of public management, public service motivation has gradually attracted attention in the field of psychology in recent years. From the perspective of behavioral public management, this study explores the influence of public service motivation and social existence on prosocial behavior in detail through psychological experimental methods. In study 1 and study 2, two task paradigms of dictator game and volunteer dilemma game were used to manipulate implicit and explicit social existence cues, so as to explore the influence of public service motivation and social existence on donation behavior and self-sacrifice behavior, that is, to investigate whether the prosocial behavior of people with different levels of public service motivation changes under different cue types and situation types, and whether social existence will interact with individual characteristics (public service motivation) to affect individual behavior. The results show that there is an interaction between public service motivation and eye cues and the presence of others. Implicit social presence cues (eye cues) and explicit social presence situations (the presence of others) can significantly promote individual prosocial behavior, but the impact on people with low public service motivation is more obvious. The above results are of practical significance for improving the prosocial behavior of individuals with different levels of public service motivation in practical application, reflecting the characteristics of " seeking reason with heart " in behavioral public management.

Keywords:Public service motivation ， Eye clues， Presence of others ， Prosocial behavior，Donation ，

Self-sacrifice

亲社会水平与公平性对第三方道德判断的影响：

来自行为与 ERPs 的证据

吴珺[1]　崔芳[1]（通讯作者）

1 深圳大学心理学院，深圳，518060，通讯作者 E-mail：cuifang0826@gmail.com

摘 要　道德判断指人们根据一定的道德标准对他人做出判断，评价他人品质并衡量是否与其进行交往，是具有进化价值的。第三方旁观者与第一方决策者的关系有亲有疏，个体对他人行为的评判也容易受到社会距离的影响。在进行道德判断时，被评价者表现出的亲社会水平和公平性则是关于行为本身的重要参考信息。然而，在实际生活中，两者并不常常保持一致，乐于助人的人未必是公平的人。

本研究采用改编自独裁者博弈范式结合事件相关电位技术，考察了社会距离、亲社会水平与公平性如何交互影响第三方旁观者对决策者进行的道德评价及其神经反应。本研究为 2 社会距离（群体内、群体外）×2 亲社会水平（高、低）×2 公平性（高、低）三因素被试内设计。实验情境设置为：陌生人 A 和 B 都将接受一段令人感到不愉悦的强噪音。在前测中，系统赋予来自群体内/外的被试人均 100 枚代币，既可分给 A 或 B 以帮助他们消除噪音，也可留给自己换取金钱。本次实验中，被试将看到系统从前测实验中抽取的分配方案，并对提出该方案的分配者进行道德评分或合作意愿评分。

行为结果发现：(1)高亲社会条件下两种公平程度的道德评分之差大于低亲社会条件下的二者之差，合作意愿评分的结果与其一致；(2)当分配方案处于高亲社会水平时，不公平的提议下，相较于社会距离近的分配者，社会距离远的分配者会得到更高的道德评分，但在该条件下，被试更倾向于跟社会距离近的分配者进行合作。事件相关电位结果进一步发现：(1)高亲社会条件下高低公平性的分配方案诱发的 FRN 波幅之差大于低亲社会条件下的二者之差，P3 的结果也与其一致；(2)当分配方案处于公平却低亲社会的情况下，相较于社会距离远的分配者，社会距离近的分配者所诱发的 FRN 波幅显著更小。

本研究揭示了亲社会水平、公平性和社会距离如何影响第三方对决策方的道德判断及后续合作意愿，并在分配方案呈现后的早期和晚期，三个变量交互调节了反应结果评价过程的 FRN 和 P3 波幅。

关键词　道德判断，社会距离，亲社会，公平，事件相关电位

Influence of prosociality and fairness on third-party moral judgments:Evidnece from behavior and ERPs study

Jun Wu[1], Fang Cui[1]
1 School of Psychology, Shenzhen University, Shenzhen 518060, China

Abstract： Moral judgment refers to the process in which individuals evaluate others based on specific moral standards, aiming to assess their qualities and determine whether to engage in interactions with them, which holds evolutionary significance. The relationship between third-party observers of social decisions and first-party decision-maker varies in closeness in real-life situations, leading individuals' judgments of others' behavior to be susceptible to the influence of social distance. When engaging in moral judgments, prosociality and fairness demonstrated by the evaluated individual act as critical reference information concerning the nature of the behavior. However, these two factors are not always align consistently in actual life, individuals who exhibit a propensity for helping others may not necessarily demonstrate fairness in their actions.

This study employed a modified version of the dictator game paradigm combined with event-related potentials (ERPs) technology to investigate how social distance, prosociality, and fairness interactively affect third-party observers' moral evaluations and their neural responses to decision-makers. It was a three factor within-subject experimental desigh of 2 social distance (ingroup/outgroup member), 2 prosociality (high, low), and 2 fairness (high, low). Specifically, two strangers labeled as A and B, served as recipients and were exposed to a certain duration of strong and unpleasant noise. The system allocated 100 tokens per person to two groups of allocators during the pre-test experiment. These tokens could be utilized in two ways: either kept for oneself to exchange for money after the task or distributed to either A or B to help them eliminate the noise. In current experiment, participants were presented with allocation schemes randomly selected from the pre-test experiment and asked to provide moral evaluations and cooperative intention ratings for the allocators who proposed that specific allocation.

Behavioral results revealed that: (1) Compared to low prosocial, the difference in moral ratings between the two levels of fairness was greater under high prosocial conditions. The results of cooperative intention ratings aligned with this pattern as well. (2) When the allocation exhibited high prosocial but was unfair, allocators who are socially distant received higher moral ratings compared to socially close allocators. However, under this condition, participants showed a greater inclination to cooperate with socially close allocators, despite the higher moral ratings given to socially distant allocators. ERP results revealed that: (1) Compared to low prosocial, the difference in FRN amplitudes between the two levels of fairness was greater under high prosocial conditions. The results of P3 amplitudes aligned with this pattern as well. (2) The fair but low prosocial allocation of distant allocator induced a larger FRN.

This study revealed how prosociality, fairness, and social distance impact third-party observers' moral judgments and subsequent cooperative intentions. Moreover, these three variables interactively modulate the FRN and P3 amplitudes, which reflect the evaluation process of the outcomes, during early and late stages following the presentation of allocations.

Keywords： moral judgment, social distance, prosocial, fair, event-related potentials

英雄才能救美？性别偏见场景中旁观者性别对受害者对抗意愿的影响：有调节的中介模型

杨婉婷[1]　廖宗卿[1]（通讯作者）
1 四川师范大学心理学院，成都，610000，zongqing.liao@sicnu.edu.cn

摘 要　性别偏见潜伏在人们的日常生活中，它不仅给女性受害者造成了许多身心上的负面影响，而且还限制了她们的个人成长与发展。研究者们认为旁观者干预能使偏见情境朝着更积极的方向发展，并进一步激发女性受害者的对抗意愿，从而形成反性别偏见同盟。本研究进一步构建了两个有调节的中介模型，旨在分别探究旁观者干预（实验一）和旁观者忽视（实验二）的条件下，女性受害者应对性别偏见的具体心理机制，以及旁观者性别的影响。实验一共招募了 81 名被试，被试在观看了一段以第一人称视角拍摄的性别偏见经历的视频后，填写了有关情绪、权力感以及对抗意愿的测量问卷。结果显示:在旁观者干预的条件下，受害者的权力感在愤怒与对抗意愿之间起显著的完全中介作用，而旁观者性别调节了中介模型的前半段路径。即只有在旁观者是男性的情况下，女性受害者的愤怒程度才能正向预测其权力感知；而在旁观者是女性时，并未发现类似效应。实验二共招募了 127 名被试，整体流程基本与实验一相同，中间增加了对施害者的负面评价测量。结果显示:在旁观者忽视的条件下，受害者对施害者的负面评价在愤怒与对抗意愿之间起显著的部分中介作用，而旁观者性别分别调节了中介模型的前半段和后半段路径。即只有在旁观者是男性的情况下，女性受害者的愤怒程度才能正向预测其对施害者的负面评价。更进一步，只有在旁观者是男性时，女性对施害者的负面评价才能正向预测其对抗意愿。而当旁观者为女性时，并未发现类似效应。本研究进一步丰富了前人的性别偏见研究理论，深入探究了旁观者行为及性别的影响，对帮助偏见情境中的女性受害者有重要意义。

关键词　性别偏见，旁观者干预，对抗意愿，有调节的中介模型

Only heroes can save beauty? The effect of bystander gender on victim's willingness to confront in gender-biased scenarios: two moderated mediation models

Wanting Yang　　Zongqing Liao*
College of Psychology, Sichuan Normal University, Chengdu

***Abstract*:** Gender bias is lurking in People's Daily life. It not only causes many negative physical and mental effects on female victims but also limits their personal growth and development. Researchers believe that bystander intervention can change the bias situation in a more positive direction, and further stimulate the willingness of female victims to fight, so as to form an anti-gender bias alliance. This study further constructed two moderated mediation models to explore the specific psychological mechanisms of female victims coping with gender bias in bystander intervention (Study 1) and bystander neglect (Study 2), as well as the influence of

bystander gender. Study 1 involved 81 participants who, after watching a first-person video of their experience of gender bias, filled out questionnaires measuring emotions, feelings of power and willingness to confront. The results showed that in the bystander intervention condition, the victim's sense of power played a significant role in mediating the relationship between anger and confrontation intention, and the bystander gender moderated the first half of the path of the mediation model. In other words, only when the bystander is male, the female victim's anger can positively predict her power perception. No similar effect was found when the bystanders were women. A total of 127 subjects were recruited in Study 2, and the overall process was basically the same as in Study 1, with the addition of bad evaluation measurement of the perpetrator in the middle. The results show that: in the condition of bystander neglect, the victim's bad evaluation of the perpetrator plays a significant partial mediating role between anger and confrontation intention, and the bystander gender moderates the first half and the second half of the mediating model, respectively. That is, only when the bystander is male, the anger level of the female victim can positively predict her bad evaluation of the perpetrator. Furthermore, women's bad evaluation of the perpetrator positively predicted their willingness to confront only when the bystander was male. No similar effect was found when the bystanders were women. This study contributes to the existing body of research on gender bias by providing additional insights and delving into the impact of bystander behavior and gender. The findings of this study hold significant implications for effectively supporting female individuals who find themselves in biased circumstances.

***Keywords*:** Gender bias, Bystander intervention, Willingness to confront, Moderated mediation model

社会阶层对利他惩罚的影响——分与受的双重视角

罗丽丽[1]于春梅[2]聂爱青[2]（通讯作者）

山西师范大学教育科学学院，太原，030031，nieaiq@126.com

摘 要 公平是人类社会的基本社会规范，利他惩罚的对象往往是不公平的分配者，一般认为在最后通牒博弈中拒绝不公分配的行为称之为第二方利他惩罚。以往研究表明个体主观社会阶层可以正向预测往利他惩罚，但是，现有研究只关注到了利他惩罚发出者（接受者）的社会阶层，并未意识到分配者的社会阶层在影响人们利他惩罚决策中所扮演的重要角色。同时，社会认知理论认为不同社会阶层会影响人们的自我建构，而不同自我建构倾向在维护社会公平中具有显著差异。因此本研究采用问卷法和实验法相结合，同时考虑分配者、接受者社会阶层与自我建构，探究双重视角下利他惩罚的阶层差异。研究一采用 2（分配者社会阶层：高、低）×2（接受者社会阶层：高、低）×2（分配方案：相对不公平、绝对不公平）的混合实验设计，考察人们在面对不同社会阶层的不公分配者时的利他惩罚。首先，测量被试的主、客观社会阶层；其次，被试根据所给材料对分配者阶层进行判定；然后基于最后通牒改编情景材料，对不同阶层的不公分配方案进行道德判断,决定是否进行利他惩罚。研究二采用 2（分配者社会阶层：高、低）×2（自我建构类型：独立型、依存型）×2（接受者社会阶层：高、低）×2（分配方案：相对不公平、绝对不公平）的混合实验设计。采用经典十级梯子范式启动被试对自我高低阶层的感知，并测量自我建构，后续研究流程同研究一。研究一表明：分配者社会阶层、接受者主观社会阶层及分配水平的主效应显著。即高社会阶层的被试做出更多的利他惩罚；无论自身社会阶层高低，人们在面对低社会阶层不公分配时会做出更少的利他惩罚。研究二表明：分配者与接受者社会阶层的主效应显著，自我建构能够调节接受者社会阶层对利他惩罚的影响。即高阶层独立型自我建构的被试做出更多的利他惩罚。本研究表明分配者和接受者的社会阶层与自我建构会共同影响个体的利他惩罚，对于揭示利他惩罚的内在机制具有一定的启示意义。

关键词 社会阶层，利他惩罚，双重视角，自我建构

The Impact of Social Class on Altruistic Punishment ——A Dual Perspective of Distributors and Recipients

Lili Luo[1]，Chunmei Yu[2]，Aiqing Nie[2]

Department of Psychology, College of Educational Sciences, Shanxi Normal University,Taiyuan, 030031

Abstract：Fairness is a basic social norm in human society, and the target of altruistic punishment is often the unfair distributor. The behavior of rejecting unfair allocation in the ultimatum game is generally considered to be called second-party altruistic punishment. Previous studies have shown that individuals' subjective social class can positively predict forward altruistic punishment, but existing studies have only focused on the social class of the sender (receiver) of altruistic punishment, and have not realized the important role that the social class of the distributor plays in influencing people's altruistic punishment decisions. Meanwhile, social cognitive theory suggests that different social classes affect people's self-construal, and different self-construal tendencies have significant differences in maintaining social justice. Therefore, this study used a combination of questionnaire and experimental methods to explore the class differences in altruistic punishment from a dual perspective by considering both allocator and recipient social classes and self-construal. Study 1 used a mixed experimental design of 2 (allocators social class: high/ low) × 2 (recipients social class: high/ low) × 2 (allocation scheme: relative unfairness, absolute unfairness) to examine people's altruistic punishment of the face of unfair allocators from different social classes. First, the subjects' subjective and objective social classes were measured; second, the subjects judged the distributor class based on the given materials; and then based on the ultimatum adapted situational materials, they made moral judgments and decided whether to punish altruistically when confronted with unfair distribution schemes for different classes. Study 2 used a mixed experimental design of 2 (distributors social class: high, low) × 2 (self-construal type: independent, dependent) × 2 (recipients social class: high, low) × 2 (distribution scheme: relatively unfair, absolutely unfair). The classical ten-step ladder paradigm was used to initiate subjects' perception of high and low Self-social class and measured self-construal, and the subsequent research processes were the same as that of Study 1. Study 1 showed that the main effects of allocator social class, recipient subjective social class, and allocation level were significant. That is, subjects of high social class made more altruistic punishments; regardless of their own social class, people would make less altruistic punishments in the face of unfair distribution of low social class. Study 2 showed that there was a significant main effect of allocator and recipient social class, and that the self-construal moderated the effect of recipient social class of altruistic punishment. That is, subjects with high class-independent self-construals made more altruistic punishments. This study suggests that the social class and self-construal of the distributor and the recipient jointly affect individuals' altruistic punishment, which is revealing for the inner mechanism of altruistic punishment.

Keywords：Social class, altruistic punishment, dual perspective, self-construal

计算式思维与道德妥协：一项被调节的中介模型

王士祺[1] 陈迪[1] 刘玉昕[1] 王璇[1] 谈欣[1] 陈文惠[1] 周洁仪[1] 赵珂冰[1] 许筑媛[1] 吴明证[1] （通讯作者）

1 浙江大学心理与行为科学系，杭州，310058

通讯作者 E-mail：psywu@zju.edu.cn

摘 要 计算式思维(calculative mindset)作为一种无意识的认知倾向，指个体以数学方式分析(非定量)问题。根据古典经济学的理性选择理论，计算式思维倾向强的个体会对周围的事物进行成本效益分析，并进行计算，寻求并做出利益最大化的选项。这类个体会对经济、财务方面遇到的事情进行计算，以谋求最大利润，也会对不可计算的社会关系等社会价值进行计算，比如在选择朋友、职业、配偶时会先计算成本以及收益，再进行选择。已有研究表明，计算式思维对人们的社会交往和人格形成都有着不良的影响，但较少有研究探讨计算式思维与道德决策的关系。基于此，本研究拟探讨计算式思维是否影响人们的道德妥协倾向。道德妥协指的是个体在道德价值观与世俗价值观的选择上选择世俗价值观，从而在道德价值观上做出让步与妥协的行为倾向。因此，当个体对道德价值观与世俗价值观进行计算权衡时，更有可能进行道德妥协。

本研究包括三项子研究，研究一通过问卷法与实验法，探究计算式思维与道德妥协之间的关系。问卷研究结果表明，计算式思维能够有效预测个体的道德妥协倾向；实验研究结果表明，启动被试的计算式思维能够导致个体表现出更强的道德妥协倾向，验证了计算式思维与道德妥协的因果关系。

研究二通过问卷法与实验法，探究道德推脱在计算式思维与道德妥协中的中介作用。问卷研究结果表明，计算式思维与个体的道德推脱倾向呈正相关，且道德推脱在计算式思维与道德妥协之间发挥着中介作用。实验结果表明，启动被试的计算式思维会提升被试的道德推脱倾向，并由此导致个体做出更多的道德妥协行为。

研究三通过问卷法，探究道德注意性在计算式思维与道德妥协关系中的调节作用。研究发现，道德注意性在计算式思维与道德妥协的关系中发挥着调节作用，道德注意性会减弱道德推脱对道德妥协的影响。

综上，计算式思维能够导致个体的道德妥协，道德推脱在其中起到中介作用，且道德推脱的中介作用受到道德注意性的调节。

关键词 计算式思维 道德妥协 道德推脱 道德注意性

Calculative mindset and ethic compromise: A Moderated Mediation Model

WANG Shiqi[1], CHEN Di[1], LIU Yuxin[1], WANG Xuan[1], TAN Xin[1], CHEN Wenhui[1], ZHOU Jieyi[1], ZHAO Kebing[1], XU Zhuyuan[1], WU Mingzheng[1]

Department of psychology and behavioral science, ZheJiang University

Abstract ： Calculative mindset is an unconscious cognitive tendency in which an individual analyzes (non-quantitative) problems mathematically. According to the rational choice theory of classical economics, individuals with a strong tendency of calculative mindset will conduct cost-benefit analysis of the things around them, and make calculations to seek and make options to maximize benefits. These individuals will calculate economic and financial events in order to maximize profits, and will also calculate social values such as non-calculable social relationships, such as the cost and benefit of choosing friends, careers, and spouses. Previous

studies have shown that calculative mindset has a negative impact on people's social interaction and personality formation, but few studies have explored the relationship between calculative mindset and moral decision-making. Based on this, this study aims to explore whether calculative mindset affects people's ethical compromise tendency. Ethical compromise refers to the behavior tendency of an individual to choose the secular values between the moral values and the secular values, so as to make concessions and compromises on the moral values. As a result, individuals are more likely to make ethical compromises when they make calculated trade-offs between moral values and secular values.

This study includes three sub-studies. Study 1 explores the relationship between calculative mindset and ethical compromise by questionnaire and experiment. The results of the questionnaire show that calculative mindset can effectively predict the individual's ethical compromise tendency. The experimental results show that the initiation of calculative mindset can lead to a stronger tendency of ethical compromise, which verifies the causal relationship between calculative mindset and ethical compromise.

The second study explores the mediating role of moral disengagement in calculative mindset and ethical compromise through questionnaire and experiment. The results of the questionnaire show that calculative mindset is positively correlated with the tendency of moral disengagement, and moral disengagement plays a mediating role between calculative mindset and ethical compromise. The experimental results show that activating the subjects' calculative mindset can enhance the subjects' moral disengagement tendency and lead to more ethical compromise behavior.

Study 3 explores the moderating effect of moral attentiveness on the relationship between calculative mindset and ethical compromise by means of questionnaire. It is found that moral attentiveness plays a moderating role in the relationship between calculative mindset and ethical compromise, and moral attentiveness weakens the influence of moral disengagement on ethical compromise.

To sum up, calculative mindset can lead to individual ethical compromise, in which moral disengagement plays a mediating role, and the mediating role of moral disengagement is regulated by moral attentiveness.

***Keywords*：calculative mindset, ethical compromise, moral disengagement, moral attentiveness**

客体化媒体信息形式对女性自我客体化的影响

黄亚博 （通讯作者） 李娜 宋柯柯
山西师范大学教育科学学院，太原，030000，hebeauty00@163.com

摘 要 客体化理论指出，女性倾向于从第三视角看待自己，更注意自己的外表。相关研究表明客体化媒体信息形式对女性自我客体化产生不同影响。国外研究发现自我认同女权主义者和非自我认同的女权主义者在女性自我客体化没有差异。但由于文化背景不同，本研究将探讨客体化媒体信息形式对女性自我客体化的影响以及自我认同女权主义在客体化媒体信息对女性自我客体化的影响的保护作用。研究 1 采用单因素实验设计，236 名被试为两组分别观看客体化媒体信息和天气媒体信息，之后完成自我客体化的测量。研究结果表明客体化媒体信息条件相较于控制条件下女性自我客体化水平更高。研究 2 采用 128 名女大学生进行 2（客体化图片、客体化视频）×2（自我认同女权主义、非自我认同女权主义）实验设计检验客体化媒体信息形式对女性自我客体化的不同影响以及自我认同女权主义的调节作用。研究结果表明客体化视频条件下的自我客体化水平显著高于客体化图片条件，并且客体化视频条件下的自我认同女权主义者比非自我认同女权主义者表现出更低水平的自我客体化。本研究发现视频比图片更易使个体受到客体化媒体信息影响，导致自我客体化程度升高；自我认同女权主义者自我客体化水平较低，在客体化媒体信息对自我客体化水平的影响中女权主义起到保护作用。

关键词 客体化媒体信息，自我客体化，女权主义

The influence of objectified media information forms on women's self-objectification

Huang Yabo,Li Na,Song Keke
Shanxi Normal University,Taiyuan,030000,hebeauty00@163.com

Abstract：Objectification theory states that women tend to see themselves from a third perspective and pay more attention to their appearance. Relevant studies show that objectified media information forms have different effects on female self-objectification. Foreign studies have found that there is no difference between self-identified feminists and non-self-identified feminists in female self-objectification. However, due to different cultural backgrounds, this study will explore the impact of objectified media information forms on women's self-objectification and the protective role of self-identity feminism in the impact of objectified media information on women's self-objectification. In study 1, a single-factor experimental design was adopted. 236 subjects watched objectifying media information and weather media information respectively for two groups, and then completed self-objectifying measurements. The results show that women's self-objectification level is higher under the condition of objectified media information than under the control condition. In study 2, 128 female college students were selected to conduct 2 (objectifying pictures, objectifying videos) ×2 (self-identified feminism and non-self-identified feminism) experimental design to examine the different influences of objectifying media information forms on female self-objectifying and the moderating effects of self-identified feminism. The results show that the level of self-objectification in the objectification video condition is significantly higher than that in

the objectification picture condition, and the self-identified feminists in the objectification video condition show a lower level of self-objectification than non-self-identified feminists. This study found that video is more likely than pictures to make individuals affected by objectified media information, resulting in an increased degree of self-objectification. Self-identified feminists have a low level of self-objectification, and feminism plays a protective role in the influence of objectified media information on the level of self-objectification.
Keywords：Objectified media information,self-objectification,feminism

自主选择权对学龄前儿童社会善念的影响

殷馨宇[1]（通讯作者） 于航[2] 郑欣[1]
1 青岛滨海学院教育学部，青岛，266555，psyyinxinyu@163.com
2 江苏省龙潭监狱，南京，211313

摘 要 社会善念是指个体与他人沟通和交往过程中，有意识关注并保护他人自主需要、选择权力的行为。这有助于良好人际关系的建立。已有研究证实高社会善念水平的个体拥有更积极开放的社交姿态，更容易得到对方的信任，达成合作。学龄前期是社会性发展的关键时期，其中人际交往是幼儿社会学习的重要内容。本文探究，学前儿童的自主选择权（被保留或被剥夺）对其后续表现出社会善念行为的影响，并且，关注学前儿童做出社会善念行为与否所付出的心理成本是否存在差异。研究以 75 名 5-6 岁儿童为研究对象，采用社会善念范式，采用单因素被试间实验设计，自变量为自主选择权（剥夺 vs. 保留 vs. 不需要），因变量为社会善念行为。实验分为两个阶段，在第一阶段通过控制虚拟玩家 A 的选择，使被试进入自主选择权的三种情境。在不需要自主选择权条件下，各试次不存在唯一物品，设置虚拟玩家 A 选择任意物品；自主选择权被保留条件下，设置虚拟玩家 A 选择非唯一物品；自主选择权被剥夺条件下，设置虚拟玩家 A 选择唯一物品；然后被试剩下的物品中进行选择。在第二阶段，被试作为优先选择者，进行物品选择，该过程每种材料包含两种组合形式，被试在同种实验材料下的两种组合形式中均选择非唯一物品，计 1 分。研究结果发现，（1）被保留自主选择的学前儿童，后续社会善念行为显著高于被剥夺自主选择权的学前儿童；不需要自主选择权情境下，学前儿童后续做出社会善念行为与前期被保留、被剥夺自主选择权的学前儿童均无显著差异；（2）学前儿童做出社会善念行为与否，付出的心理成本无显著差异。综上所述，自主选择权影响学前儿童社会善念行为的发生，但不是唯一因素。本研究对探究学龄前儿童社会善念的发生机制及发展水平具有重要意义。

关键词 社会善念，学龄前儿童，社会性发展，自主选择权，社会互动

The Effect of the Autonomy of Choice on Social Mindfulness

Xinyu Yin[1](Corresponding author), Hang Yu[2], Xin Zheng[1]
1 Qingdao Binhai College, Qingdao, Shandong, 266555, psyyinxinyu@163.com
2 Longtan Prison of Jiangsu province, Nanjing, Jiangsu, 211313

***Abstract*：** Social Mindfulness refers to the behavior of an individual who consciously pays attention to and protects the autonomous needs and power of choice of others in the process of communicating and interacting with them. It contributes to the establishment of good interpersonal relationships. Individuals with high levels of social mindfulness have been shown to have a more positive and open social stance, and are more likely to gain the other party's trust and easier cooperation. Preschool is a critical period for social development, in which interpersonal interactions are an important part of social learning. So, in this study, we explored whether the autonomy of choice (deprived vs. retained) affects preschoolers' subsequent socially mindful behaviors. And, focused on whether there are differences in the psychological costs to preschoolers of performing socially mindful behaviors or not. We adopted the social mindfulness paradigm, using a one-way between-subjects experimental design, with the independent variable being autonomy of choice (deprived vs. retained vs. unwanted) We recruited 75 5-to-6-year-old children to participate in the study. The experiment was divided into two phases, in the first phase, the virtual player A made different choices, and the subjects entered three autonomous choice situations. In the "unwanted" condition, there was no unique item in each trial, and virtual player A was set to choose any item; in

the "retained" condition, virtual player A was set to choose a non-unique item; in the "deprived" condition, virtual player A was set to choose a unique item. Then the subjects were left to choose among the remaining items. In the second phase, subjects acted as preferred choosers. The process contained two combination forms per material, and subjects were scored 1 point for choosing non-unique items in both combination forms under the same experimental material. Our findings are as follows. First, preschoolers who were preserved autonomous choice had significantly higher subsequent socially mindful behaviors than preschoolers who were denied autonomous choice. The preschoolers' social mindfulness scores in the context of not needing the right to make autonomous choices were not significantly different from those in the deprivation and retention contexts. Second, There was no significant difference in the psychological cost to preschoolers of performing socially mindful behaviors or not. In conclusion. The autonomy of choice affects the occurrence of preschoolers' socially mindful behaviors, but it is not the only factor. Our research makes great contributions to the investigation of the occurrence mechanism and developmental level of social mindfulness in preschoolers.

Keywords： social mindfulness, preschoolers, social development, the autonomy of choice, social interaction

社会排斥对社会善念的影响：

道德认同的中介作用以及感恩的调节作用

连培琴　柴彩霞　邸美琴　徐思元　冯喜珍（通讯作者）

山西师范大学教育科学学院，太原，030000，517824719@qq.com

摘 要　社会善念作为一种低成本的亲社会行为，契合“勿以善小而不为”的理念，也符合社会主义核心价值观中“友善”的价值遵循，近年来受到研究者的广泛关注。研究显示，社会善念会受到情境的影响，而社会排斥是一种常见的社会现象，小到同学间的忽视，大到校园霸凌，屡见不鲜。研究表明，遭受社会排斥个体的归属需求、关系需求受损，社会善念会减少，但也有学者指出遭受社会排斥的个体会为了重新寻求社会连接而增加社会善念。社会排斥与社会善念之间的关系如何有待探究。需要一威胁时间模型指出，遭受社会排斥会影响个体的认知、情绪及行为，社会排斥作为一种不公正现象，可能会通过降低个体的道德认同进而减少社会善念，而感恩作为一种情感变量，可以引发个体的亲社会行为。基于此，本研究采用《大学生社会排斥问卷》、《道德认同问卷》、《大学生感恩量表》以及《社会善念量表》，以 466 名大学生为研究对象，考察了社会排斥对社会善念的影响以及道德认同和感恩在其间的作用机制。结果显示：（1）社会排斥与道德认同、感恩、社会善念呈显著负相关，道德认同与感恩、社会善念呈显著正相关，感恩与社会善念呈显著正相关；（2）道德认同在社会排斥对社会善念的影响中起到中介作用；（3）感恩调节了“社会排斥→道德认同→社会善念”的后半段，即当大学生的感恩水平较高时，道德认同对社会善念的促进作用增强。本研究从“小善”角度关注遭受社会排斥的大学生的社会善念情况，可为培养大学生的社会善念，特别是遭受社会排斥的大学生的社会善念提供研究证据。同时也启示学校培养学生品德，不仅要重视道德认知的提高，也应加强道德情感的培养，知、情、意协同联动，共同促进学生道德行为的增加。

关键词　社会排斥，道德认同，感恩，社会善念

The impact of social exclusion on social mindfulness: the mediating role of moral identity and the moderating role of gratitude

Lian Peiqin,Chai Caixia,Di Meiqin,Xu Siyuan,Feng Xizhen (Corresponding author)

Institute of Education Science, Shanxi Normal University, TaiYuan

Abstract：As a kind of low-cost prosocial behavior, social mindfulness accords with the idea of “Don't to small and not for good, it is a sin to steal a pin” and the value of “Kindness” in the core values of Chinese socialism, in recent years, researchers have paid much attention to it. Research shows that social mindfulness is influenced by context, and social exclusion is a common social phenomenon, ranging from neglect among classmates to bullying on campus. The research shows that social mindfulness will decrease when the need of belonging and relationship is impaired, but others point out that socially excluded individuals increase social mindfulness in order to reconnect. The relationship between social exclusion and social mindfulness remains to be explored. Temporal Need-threat Model shows that social exclusion, as an unjust phenomenon, may reduce the moral identity of the individual and thus the social mindfulness will be reduced, gratitude, as an emotional variable, can lead to prosocial behavior. Based on this, 466 college students were investigated with the questionnaire of social exclusion, the questionnaire of moral identity, the scale of gratitude for college students and the scale of social mindfulness,

this paper examines the impact of social exclusion on social mindfulness and the mechanism of moral identity and gratitude. The results show that: (1) social exclusion has a significant negative correlation with moral identity, gratitude and social mindfulness, while moral identity has a significant positive correlation with gratitude and social mindfulness, and gratitude has a significant positive correlation with social mindfulness; (2) moral identity plays a mediating role in the influence of social exclusion on social mindfulness; (3) Gratitude regulates the latter part of "Social exclusion → moral identity → social mindfulness", that is, when the level of gratitude of college students is high, the role of moral identity in promoting social mindfulness is enhanced. This study focuses on the social mindfulness of college students who suffer from social exclusion from the angle of"Small kindness", it can provide research evidence for the cultivation of social mindfulness of college students, especially the social mindfulness of those who suffer from social exclusion. At the same time, in order to foster the moral character of the students, educators should not only pay attention to the improvement of moral cognition, but also strengthen the cultivation of moral emotion, knowledge, emotion and will act together to promote the increase of students' moral behavior.

Keywords：social exclusion,moral identity,gratitude,social kindness

谦逊能够降低集体自恋吗？自尊的中介作用

赵国军[1]（通讯作者） 杨松滨[1] 慕沛[1] 郭晓晓[1] 杨环[1]

1 西北师范大学心理学院，兰州，730000, zhaogj@nwnu.edu.cn

摘 要 集体自恋指的是个体认为自身所属内群体是卓越的并且值得优待，但却并未充分得到他人承认的一种信念。研究表明集体自恋者会表现出更多的消极群际态度或行为，例如对外群体的偏见和敌意情绪。如何降低集体自恋成为亟待解决的问题。谦逊作为一种积极的特质，具有多种特征，例如低自我关注、承认自身的不足和对其他观点持开放态度等。谦逊不仅能够促使个体对自身有着更加准确的认识，还能够促使个体克制自我提升的倾向。因此我们假设谦逊能够降低集体自恋。但关于谦逊的本土研究表明，谦逊也会促使个体进行自我贬低，降低个体的自尊水平。而自尊正是集体自恋的一个重要前因变量，低自尊的个体会通过夸大内群体的价值来补偿自尊的缺失。研究发现在排除内群体满意度的干扰后，个体的自尊水平能够负向预测集体自恋。因此我们假设谦逊能够负向影响自尊，自尊又会负向影响集体自恋，进而产生与直接效应符号相反的间接效应。研究一中，采用测验法，在网络平台上招募了 388 名被试，使用诚实—谦逊量表中的谦虚分量表、罗森博格自尊量表和集体自恋量表等进行调查，结果发现，在控制年龄、性别、年龄、受教育水平和内群体满意度后，谦逊的直接效应负向预测集体自恋，但通过自尊正向预测了集体自恋，该结果验证了自尊所产生的与直接效应相反的中介作用。研究二中我们采用实验法，从网络平台共招募了 217 名被试，随机分配至谦逊组（n=113）和控制组（n=104），谦逊组被要求回忆并写下一次让自己感到谦逊的经历，控制组则写一次体验到中性情绪的日常经历。最后被试填写状态自尊量表和集体自恋量表等量表。研究二进一步验证了研究一中的结果，谦逊的直接效应负向预测集体自恋，自尊产生了相反的中介效应。两项研究从特质谦逊和状态谦逊两个层面揭示了虽然谦逊能够直接降低集体自恋，但通过自尊却能够提升集体自恋。未来研究可以进一步探讨在何种情况下谦逊能够促进自尊，从而降低集体自恋。

关键词 谦逊，自尊，集体自恋

Can Humility Reduce Collective Narcissism? The Mediating Role of Self-Esteem

Guojun Zhao[1](Corresponding Author), Songbin Yang[1], Pei Mu[1], Xiaoxiao Guo[1], Huan Yang[1]

1 School of Psychology, Northwest Normal University, Lanzhou 730000, China, zhaogj@nwnu.edu.cn

Abstract： Collective narcissism refers to a belief that one's in-group is exceptional and entitled to privileged treatment, but it's not sufficiently recognized by others. Previous researches have shown that collective narcissists exhibit more negative intergroup attitudes or behaviors, such as prejudice and hostility towards out-groups. Therefore, how to reduce collective narcissism is necessary. Humility, as a positive trait, characterized by low self-focus, acknowledgment of one's limitations, and openness to other viewpoints, could potentially reduce collective narcissism. Humility not only leads to a more accurate self-assessment but also resist the tendency towards self-enhancement. We hypothesize that humility can reduce collective narcissism. However, Chinese researches on humility indicate that humility may lead individuals to self-deprecation, and further reduce their self-esteem. Since self-esteem is a crucial antecedent of collective narcissism, individuals with low self-esteem may exaggerate the worth of their in-group to compensate for their lacking self-esteem. It has been found that individual self-esteem can negatively predict collective narcissism after excluding the influence of in-group satisfaction. Thus, we propose that humility can negatively affect self-esteem, which in turn negatively impacts

collective narcissism, resulting in a indirect effect that is opposite in sign to the direct effect. In Study 1, we recruited 388 participants via an online platform and conducted a survey using the modest subscale of the Honesty-Humility Scale, the Rosenberg Self-Esteem Scale, and the Collective Narcissism Scale. The results show that, after controlling for age, gender, education level, and in-group satisfaction, humility directly and negatively predicted collective narcissism, but self-esteem positively predicted collective narcissism, confirming the opposite indirect effect by self-esteem. In Study 2, we employed an experimental method, recruiting 217 participants from an online platform. They were randomly assigned to either a humility group (n=113), who were asked to recall and write about an experience that made them feel humble, or a control group (n=104), who wrote about a daily experience with neutral emotions. Finally, all participants completed the State Self-Esteem Scale and the Collective Narcissism Scale. The results further confirmed the findings of Study 1: humility directly and negatively predicted collective narcissism, while self-esteem showed a opposite indirect effect. These two studies have revealed that although humility can reduce collective narcissism directly, it can enhance collective narcissism through self-esteem. Future research should further explore the mechanism that humility can promote self-esteem, and thereby reduce collective narcissism.

Keywords：humility, self-esteem, collective narcissism

经济不平等感知减弱国家认同对控制感的促进作用：一个有中介的调节模型

赵国军 1（通讯作者） 杨松滨 1 曹杪 1 李丹 1 王蕊 1

1 西北师范大学心理学院，兰州，730000, zhaogj@nwnu.edu.cn

摘 要 国家认同不仅能够提升个体的自尊水平和促进个体间的合作行为，同时也能够提升个体的控制感，满足个体自主的需要。而经济不平等作为严重的社会问题，也在影响着个体如何看待整个国家群体。随着经济不平等感知的提升，个体会倾向于认为整个社会氛围是竞争性的，对他人的社会警觉升高，并且认为大多数人都更加的自我，更加强调个人目标而不是社会目标。我们认为感知到的经济不平等造成的消极影响能够干扰到国家认同提升控制感的效应。本研究假设当个体的经济不平等感知调节国家认同对控制感的积极影响。并且根据群体控制理论，仅当群体主体性较高时，群体认同才能促进控制感。群体主体性是指个体感知到的群体内是否有共同目标和为了达成目标的协调行动。我们假设群体主体性中介了经济不平等感知的调节作用，经济不平等感知高时，群体主体性降低，国家认同不能够积极影响控制感。研究一(n=213)为测验法，检验不平等感知对国家认同和控制感关系的直接调节作用。使用改编的国家认同量表、经济不平等感知量表和控制感量表等进行测量。结果显示，经济不平等感知的调节作用显著，只有经济不平等感知低时，国家认同能够正向预测控制感。在研究二与研究三中使用了不同的方式操纵国家认同，旨在验证国家认同对控制感的因果效应，但两个研究中的操纵方式都没有达到显著结果，所以在两个研究中仍然使用量表测得的国家认同作为自变量。研究二（n=255）操纵经济不平等感知检验其直接调节作用。结果显示仅在低经济不平等感知组中，国家认同正向预测了控制感。研究三(n=266)操纵不平等感知检验群体主体性的中介作用。结果显示首先经济不平等感知的直接调节效应显著；其次经济不平等感知能够负向预测群体主体性；最后群体主体性对国家认同和控制感的调节作用显著，仅当群体主体性高时，国家认同能够正向预测控制感。结果说明经济不平等感知高时，群体主体性降低，进而促使国家认同不能够提升控制感。上述结果说明经济不平等感知调节了国家认同对控制感的积极影响，而群体主体性中介了这一调节作用。

关键词 经济不平等感知，国家认同，控制感，群体主体性

Perceived Economic Inequality Weaken the Promoting Role of National Identification on Perceived Control: A Mediated Moderation Model

Guojun Zhao[1], Songbin Yang[1], Miao Cao[1], Dan Li[1], Rui wang[1]

1 School of Psychology, Northwest Normal University， Lanzhou 730000, China , zhaogj@nwnu.edu.cn

Abstract： National identification not only elevates individuals' self-esteem and promotes cooperative behavior, but enhances individuals' perceived control, and further satisfies the need for autonomy. Economic inequality, as a serious societal issue, affects how individuals perceive their national group. Higher perceived economic inequality may lead individuals to perceive the social climate as competitive, elevate social vigilance toward others, and perceive that most people as individualistic placing more emphasis on personal goals than social goals. We argue that the negative effects of perceived economic inequality can interfere with the effects of national identification

on promoting the perceived control. We hypothesized that individuals' perceived economic inequality moderates the positive effect of national identification on the perceived control; the higher inequality perception, the weaker this facilitating effect. And according to the group-based control theory, group identification promotes the perceived control only when group is agentic. Group agency refers to whether individuals can perceive a common goal within the group and coordinated actions to achieve it. We hypothesized that group agency could mediate the moderating effect of perceived economic inequality, and with the high perception of inequality, group agency decreases and national identification would fail to enhance the perceived control. In Study 1 (n=213), a survey method was used to examine the direct moderating effect of perceived economic inequality on the relationship between national identification and perceived control. The adapted version of the national identification scale, perceived economic inequality scale, and perceived control scale were used. The results showed that the moderating effect of perceived economic inequality was significant; specifically national identification could positively predict the perceived control only when perceived economic inequality was low. In study 2 and 3 we used different methods to manipulate national identification, aiming to verify its causal effect on the perceived control. However, both manipulations did not achieve a expected effect, thus measured national identification were still used as independent variables. In Study 2 (n=255), perceived economic inequality was manipulated to test its direct moderating effect. The results showed that only in the low perceived economic inequality group, national identification positively predicted the perceived control. In Study 3 (n=266), perceived economic inequality was manipulated to test the mediating effect of collective agency. The results firstly showed a significant direct moderating effect of perceived economic inequality. Secondly, economic inequality perception could negatively predict collective agency. Lastly, the moderating effect of group agency on national identification and perceived control was significant; only when collective agency was high, could national identification positively predict perceived control. The results indicate that when perceived economic inequality is high, group agency decreases, which in turn contributes to the failure of national identity to enhance perceptions of control. These results demonstrate that perceived economic inequality moderates the positive effect of national identification on perceived control, and this moderating effect is mediated by group agency.

Keywords：perceived economic inequality, national identification, perceived control, group agency

超自然信念性别刻板印象基于不同冲突水平的表达及对人物评价的影响

戴东源[1]　孙美荣[1]（通讯作者）

1 北京体育大学心理学院，北京，100084，leer@bsu.edu.cn

摘 要　超自然信念是一种非理性信念，即人们认为逻辑上不相关的物体、行为等会影响事件进程的结果。本研究首先探索了外显与内隐超自然信念性别刻板印象是否存在，然后进一步探寻两者在不同冲突水平下的表达是否存在差异，及其对人物评价的影响如何。

研究 1 首先采用问卷法检验了外显超自然信念性别刻板印象的存在；其次采用 2(语义一致性：一致 vs. 不一致) x 2(被试性别：男性 vs.女性) 的混合实验设计，通过语义启动范式探究内隐超自然信念性别刻板印象的存在；最后通过操控冲突水平，采用 2(被试性别：男性 vs.女性) x 2(语义一致性：一致 vs.不一致) x 3(冲突水平：高 vs 中 vs 低) 的混合实验设计，观察该内隐刻板印象表达过程中的抑制情况。结果表明，被试均持有“女性比男性更偏好超自然信念”的外显和内隐的超自然信念性别刻板印象。当冲突水平增高时(语义不一致试次比例为 80%)，内隐超自然信念性别刻板印象的表达会被抑制；而当冲突水平较低时，刻板印象的表达没有被抑制。

研究 2 进一步从外显和内隐两层面探究超自然信念性别刻板印象对人们在热情和能力维度的人物评价的影响。首先采用问卷法，记录被试在外显层面上对是否符合刻板印象的个体的人物评价分数。结果表明，刻板印象一致的个体在热情水平的评价较高，而能力水平无显著差异。其次，采用 2(被试性别：男性 vs. 女性) x 2(刻板化：一致 vs. 不一致)混合设计，通过内隐关系评估程序记录被试的人物评价得分。结果发现，在内隐层面,人们对不同性别的超自然信念性别刻板印象一致个体持有不同的评价,符合超自然信念刻板印象的女性被评价为更热情，而不符合超自然信念刻板印象的男性被评价为能力较低。综上所述，我们的研究印证了人们普遍认为女性更偏好超自然信念，较高的冲突水平会抑制内隐超自然信念性别刻板印象的表达。此外，人们倾向于认为符合刻板印象的女性更热情，不符合刻板印象男性则被认为能力偏低。这些结果对于我们更好地了解和调节超自然信念提供了一定的实证依据。

关键词　超自然信念性别刻板印象，内隐关系评估程序，冲突水平，人物评价

Supernatural beliefs: gender stereotypes are based on the expression of different levels of conflict and their influence on character evaluation

Dongyuan Dai　Meirong Sun

School of Psychology, Beijing Sport University, Beijing 10091, China

Abstract： A supernatural belief is an irrational belief that logically unrelated objects, actions, etc., affect the outcome of the course of events. This study first explores whether explicit and implicit supernatural belief gender

stereotypes exist, and then further explores whether there are differences in their expression at different conflict levels and how they affect character evaluation.

In study 1, the existence of gender stereotypes of explicit supernatural beliefs was tested by questionnaire method. Second, 2(semantic consistency: consistent vs. inconsistent) x 2(subject gender: male vs. The mixed experimental design of female) explores the existence of gender stereotypes of implicit supernatural beliefs through semantic priming paradigm; Finally, by manipulating the conflict level, 2(subject gender: male vs. female) x 2(semantic consistency: consensus vs. Inconsistent) x 3(conflict level: high vs medium vs low) mixed experimental design to observe the suppression of the implicit stereotype expression. The results showed that all subjects held the explicit and implicit gender stereotype of supernatural belief that "women prefer supernatural belief more than men". When the level of conflict increased (80% of semantic inconsistencies), the expression of implicit supernatural belief gender stereotypes was suppressed. When the level of conflict was low, the expression of stereotypes was not suppressed.

Study 2 further explores the influence of gender stereotypes of supernatural beliefs on people's character evaluation in the dimensions of warmth and competence from both explicit and implicit levels. Firstly, a questionnaire method was used to record the scores of the subjects' evaluation of the individuals who conform to the stereotypes on the explicit level. The results showed that the stereotyped individuals were rated higher in the level of warmth, but there was no significant difference in the level of competence. Second, use 2(subject gender: male vs. female) x 2(Stereotyping: consistent vs. In a hybrid design, subjects' character evaluation scores were recorded through an implicit relationship evaluation procedure. The results showed that, at the implicit level, people had different evaluations of the supernatural belief gender stereotyped individuals of different genders. Women who conform to the supernatural belief stereotype were evaluated as more enthusiastic, while men who did not conform to the supernatural belief stereotype were evaluated as less competent. In summary, our study supports the common belief that women prefer supernatural beliefs and that higher conflict levels inhibit the expression of implicit supernatural belief gender stereotypes. In addition, women who fit the stereotype tend to be perceived as more enthusiastic, while men who don't fit the stereotype are perceived as less competent. These results provide a certain empirical basis for us to better understand and regulate the supernatural belief.

Keywords **:** Supernatural beliefs gender stereotypes, implicit relationship assessment procedures, cognitive control strategies, character evaluations

不确定无法忍受性和环境不确定性对自我损耗的影响：一个有调节的中介模型

李箫 [1,2] 宋静静 [1,2,3]（通讯作者）

1 中国地质大学（武汉）教育研究院心理学系，武汉，430074

2 中国地质大学（武汉）心理科学健康研究中心，武汉，430074

3 中国地质大学（武汉）心理学系，武汉，430072，jingsong321@126.com

摘 要 我们生活在一个充满各种不确定性的环境中，对不确定性的认知和感受会直接影响人们情绪和行为的适应性反应。不确定性减少理论指出，环境不确定性作为一种压力和威胁条件，会降低个体的生活满意度，损害人际关系及心理健康，人们倾向于通过寻求更多的信息来减少不确定性。自我损耗是指人们在完成一项需要付出自我控制努力的任务后，面对新的任务时，往往会表现较差的心理现象。本研究旨在探讨不确定无法忍受性和环境不确定性对自我损耗的交互作用及其机制。采用不确定无法忍受性量表、环境不确定性量表、消极应对方式量表和自我损耗量表对 292 名大学生（Mage=18.23, SD age=0.593,男生 173 人、女生 119 人）进行调查。结果显示：（1）不确定无法忍受性直接预测自我损耗（(B=0.24,p＜0.001），不确定无法忍受性通过消极应对方式对自我损耗产生间接影响（B=0.18, p＜0.01；B=0.17, p＜0.01）；（2）环境不确定性在不确定无法忍受性通过消极应对方式影响自我损耗的前半段路径中起到调节作用（B=0.09, p＜0.05）。具体来看，在低环境不确定性条件下，消极应对方式在不确定性不容忍与自我损耗之间的中介作用不显著（simple slope=0.08，t=1.08，p＞0.05）。在高环境不确定性条件下，消极应对方式在不确定性不容忍与自我损耗之间的中介作用显著（simple slope=0.07，t=3.78，p＜0.001）。总体而言，不确定无法忍受性与自我损耗关系中的条件过程模型得到了验证，为反推应对不确定无法忍受性和环境不确定性的积极方式创造了理论基础，在一定程度上为减少不确定无法忍受性和环境不确定性对个体或群体产生的负面影响提供了理论启示。

关键词 不确定无法忍受性，环境不确定性，消极应对方式，自我损耗

The Effect of Uncertainty Intolerance and Environmental Uncertainty on Ego Depletion: A moderated mediating model

Li X[1,2], Song J [1,2] (Corresponding author)

1 Department of Psychology, School of Education, China University of Geosciences, Wuhan 430074

2 Health Research Center of Psychological Sciences , China University of Geosciences, Wuhan, 430074 jingsong321@126.com

Abstract: We have been living an environment full of various uncertainties, and the cognition and feeling of uncertainty will directly affect people's adaptive responses to emotions and behaviors. The uncertainty reduction theory pointed out that environmental uncertainty, as a kind of pressure and threat condition, would reduce individual life satisfaction and damage interpersonal relationship and mental health. People tend to seek more information to reduce uncertainty. Ego depletion refers to completing a task expanding self-control, leads to psychological exhaustion and poor performance. The purpose of current study is to explore the interaction of uncertainty intolerance and environmental uncertainty on ego depletion and its mechanism. A total of 292 college students voluntarily participated in the research though internet survey, including 173 male and 119 female (Mage=18.23, SD age=0.593). They were investigated by uncertainty intolerance scale, environmental uncertainty scale, negative coping style scale and ego depletion scale. The results showed that: (1) Uncertainty intolerance directly predicted ego depletion (B=0.24, $p< 0.001$), and uncertainty intolerance indirectly affected ego depletion through negative coping styles (B=0.18, $p<0.01$; B=0.17, $p<0.01$); (2) Environmental uncertainty played a moderating role in the first half of the pathway in which uncertainty intolerance affected ego depletion through negative coping styles (B=0.09, $p<0.05$). Specifically, under conditions of low environmental uncertainty, negative coping styles had no significant mediating effect between uncertainty intolerance and ego depletion (simple slope=0.08, t=1.08, $p>0.05$). Under the condition of high environmental uncertainty, negative coping style had a significant mediating effect between uncertainty intolerance and ego depletion (simple slope=0.07, t=3.78, $p<0.001$). In general, the conditional process model of the relationship between uncertainty intolerance and ego depletion has been verified, which created a theoretical basis for the positive response to uncertainty intolerance and environmental uncertainty, and provided theoretical enlightenment for reducing the negative impact of uncertainty intolerance and environmental uncertainty on individuals or groups to a certain extent.

Keywords： Uncertainty intolerance, Environmental uncertainty, Negative coping style, Ego depletion

类别国家形象与品牌定位的匹配效应：品牌犯错的调节作用

陈莉[1]（通讯作者），范帅帅[1]，王艺童[1]，李童[2]，吴胜涛[3]
1 西北师范大学心理学院，兰州，730070；
2 四川省社会科学院社会学研究所，成都，610000；
3 厦门大学社会与人类学院，厦门，361005：
通讯作者：陈莉 电子邮件：chenli_198286@163.com

摘 要 匹配效应是一种能够有效提升消费者品牌态度的传播策略，以往的研究多集中于消费者和具体的品牌、产品之间，而忽略了国家形象对于品牌形象的影响。本文基于图式一致性理论，通过 3 个研究探索匹配效应对国内外乳制品品牌的影响及边界条件。研究 1 通过自编问卷的方式明晰了中国消费者对中外乳制品的类别国家形象现状。结果表明中国消费者认为国产乳制品品牌更热情、可信任，而进口乳制品品牌更富有竞争力、能力强。在此基础上，研究 2 探明了类别国家形象与品牌定位的匹配效应能够有效提升消费者的品牌态度。研究 3 分析了品牌犯错对类别国家形象与品牌定位的匹配效应是否具有调节作用，结果表明，在低犯错情景下，与类别国家形象一致的品牌定位比不一致的品牌定位对消费者品牌态度起到更加积极的作用。相比之下，在高犯错情景下，与类别国家形象不一致的品牌定位比一致的品牌定位将更能引起消费者的积极品牌感知，高品牌犯错能够压倒匹配效应的积极作用。本研究丰富了匹配效应在国家形象微观层面的相关研究，充实了匹配效应的理论框架，为中国国产乳制品品牌摆脱“三鹿”事件的阴影，重构良好的品牌形象提供新思路。

关键词 刻板印象内容模型，品牌犯错，图式一致性，品牌态度，乳制品

The Matching Effect of Category Country Image and Brand Positioning: Moderating Effect of Brand Mistakes

Li Chen[1], Shuaishuai Fan[1], Yitong Wang[1], Tong Li[2]，Shengtao Wu
[1] School of Psychology, Northwest Normal University, Lanzhou, China;
[2]Institute of Social Studies, Sichuan Academy of Social Sciences, China;
[3]School of Sociology and Anthropology, Xiamen University, China;

***Abstract*：** The matching effect is a communication strategy that can effectively enhance consumers' brand attitudes, and previous studies have mostly focused on the relationship between consumers and specific brands and products, while ignoring the impact of national image on brand image. This paper explores the impact of the matching effect on domestic and international dairy brands and boundary conditions through three studies based on the theory of graphical consistency. Study 1 clarified the current status of Chinese consumers' category national images of Chinese and foreign dairy products by means of a self-administered questionnaire. The results show that Chinese consumers perceive domestic dairy brands as more enthusiastic and trustworthy, while imported dairy brands are more competitive and capable. Study 3 analyzed whether brand faults moderated the matching effect of category country image and brand positioning, and showed that in low fault scenarios, brand positioning that is consistent with category country image plays a more positive role in consumer brand attitudes than inconsistent brand positioning. In contrast, in a high-fault scenario, a brand positioning that is inconsistent with the category's country image will elicit more positive brand perceptions from consumers than a consistent one, and a high brand fault can overwhelm the positive effects of the matching effect. This study enriches the research on the matching effect at the micro level of national image, enriches the theoretical framework of the matching effect, and provides new ideas for China's domestic dairy brands to get rid of the shadow of the "Sanlu" incident and rebuild a good

brand image.

***Keywords*：** Stereotype content model, Brands Make Mistakes, Graphical consistency, Brand attitudes, Dairy products

垂直方向定位和距离对他人和自我领导力知觉的具身实验

陈晓[1,2]（通讯作者） 苏嘉琪[3]

1 广东白云学院 应用心理学系，广州，510450

2 北京师范大学 未来教育学院，珠海，519087 psychenxiao@126.com

3 北京师范大学珠海分校 教育学院，珠海，519087

摘 要 本研究通过两个实验考察不同垂直方向（上 VS.下）和不同距离（长 VS.短）是否影响目标领导者（他人和自我）的权力感知判断。实验一（n=70）采用 2*2 实验设计，采用掩盖目实验，给被试呈现 A 经理所在公司的简短信息及组织框架图，不同方向的条件下，被试被随机分配到上方（A 经理处于组织框架图的上方）或下方（A 经理处于组织框架图的下方）；不同距离条件下，在短距离情况下，被试看到 A 经理和下属之间的距离只有 2cm,在长距离情况下，A 经理和下属之间的距离有 7cm 有七厘米，随后被试进行对 A 经理的领导力知觉判断。结果显示：1）当 A 经理处于组织框架图上方，与下属距离长的领导力显著高于与下属距离短的领导力；2）经理处于组织结构图下方，距离的长短对领导力知觉无显著影响。实验二（n=74）与实验一实验设计相似，不同的是要求被试把 A 经理想象是自己。结果显示：1）处于组织框架图中的上方时，垂直距离长短在自我领导力的感知上无显著差异；2）处于组织框架图中的下方时，垂直距离短的条件下的被试所感知到的自己的领导力显著大于垂直距离长的被试。领导力知觉既受到目标对象的垂直方向影响，同时也受到目标与下属的距离影响，对他人的领导力知觉与自我的领导知觉呈现相反的模式。

关键词 领导力，权力感知，具身理论

The Influences of Vertical Position and Distance on the Perception of Leadership in others and self

Chen Xiao[1,2] Su Jiaqi[3]

4. Department of Applied Psychology, Guangdong Baiyun University, Guangzhou, 510450
5. College of Education for the Future, Beijing Normal University, Zhuhai, 519087, Email: psychenxiao@126.com
6. School of Education, Beijing Normal University, Zhuhai campus, Zhuhai, 519087

Abstract：This study conducted two experiments to investigate the influences of different vertical directions (up vs. down) and different distances (long vs. short) on perception of leadership in target leaders (others vs. oneself). Experiment 1 (n=70) used a 2x2 experimental design with a cover story paradigm. Participants were presented with brief information about manager A and an organizational framework. Participants were randomly assigned to the upper (with the manager positioned above in the organizational framework diagram) or lower (with the manager positioned below in the organizational framework diagram) condition. Under different distance conditions, in the short distance condition, participants saw a distance of only 2cm between the manager and subordinates, while in the long distance condition, the distance between the manager and subordinates was 7cm. Participants

made judgments about the leadership of the manager. Results showed that: 1) When the manager was positioned above in the organizational framework diagram, he was perceived more powerful in the long distance than that in the short distance; 2) When the manager was positioned below in the organizational framework diagram, the length of the distance did not significantly influence leadership perception. Experiment 2 (n=74) was similar to Experiment 1, except that participants were required to imagine themselves as the manager. The results showed that: 1) When positioned above in the organizational framework diagram, there was no significant difference in self-leadership perception between long and short vertical distances; 2) When positioned below in the organizational framework diagram, participants perceived significantly greater self-leadership under the condition of short vertical distance compared to long vertical distance. The perception of leadership is influenced both by the vertical direction of the target leader and the distance between the target and subordinates. Different patterns of leadership perception were observed for others' leadership perception and self-leadership perception.

***Keywords*：** Leadership, Power perception, Embodiment theory

工作负荷对工作满意度的影响：工作权变自尊的调节作用

周文欣 詹芷怡 刘亚辉 梁娟（通讯作者）
湖北大学心理学系，武汉，430062，liangjuan@hubu.edu.com

摘　要　近年来，组织生产模式的转型使组织内部的工作更加复杂，要求更高，这进而导致员工的工作负荷逐渐增加。以往的研究中多在资源保存理论框架下认为工作负荷会损耗个体资源，带来消极影响，降低员工的工作满意度。然而根据自我决定理论，当个体从事活动是为了活动本身时，将会使个体感受到幸福，提高满意度。工作权变自尊是指个体将工作上的成功看作是自我价值的来源，相比于低工作权变自尊的个体，高工作权变自尊的个体更容易享受工作本身。因此，工作权变自尊可能会缓冲工作负荷对工作满意度的负面影响。

基于此，本研究拟探究工作负荷与工作满意度的关系及工作权变自尊的调节作用。研究采用工作负荷量表、工作满意度量表和工作权变自尊量表，分别在 2023 年 5 月中旬(时间点 1)和 2023 年 6 月初(时间点 2)对 42 名在职企业员工进行测量。结果表明：(1)工作负荷与工作满意度呈负相关；(2)工作权变自尊的调节作用显著，对于低工作权变自尊的个体而言，工作负荷与工作满意度之间存在显著的负相关；对于高工作权变自尊的个体而言，工作负荷与工作满意度之间的相关不显著。结果验证了工作权变自尊对工作负荷与工作满意度关系的调节作用，丰富了工作负荷和工作权变自尊领域的研究，并为企业管理者提供了一定的实践启示。

关键词　工作负荷，工作满意度，工作权变自尊，自我决定理论

The effect of workload on job satisfaction: The moderating role of work contingent self-esteem

Zhou Wenxin; Zhan Zhiyi; Liu Yahui; Liang Juan(Corresponding Author)
Department of Psychology, Hubei University, Wuhan, 430062, liangjuan@hubu.edu.com

***Abstract*:** In recent years, the transformation of the organization's production model has made the work within the organization more complex and more demanding, which in turn has led to a gradual increase in the workload of employees. In the previous studies, under the framework of resource conservation theory, most of them believed that workload would consume individual resources, bring negative effects, and reduce employees' job satisfaction. However, according to self-determination theory, when an individual engages in an activity for the sake of the activity itself, it will make the individual feel happy and improve satisfaction. Work contingent self-esteem means that individuals regard success at work as the source of self-worth. Compared with individuals with low work contingent self-esteem, individuals with high work contingent self-esteem are more likely to enjoy work itself. Therefore, work contingent self-esteem may buffer the negative impact of workload on job satisfaction.

Based on this, this study intends to explore the relationship between workload and job satisfaction and the moderating effect of work contingent self-esteem. The workload scale, job satisfaction scale and job discretionary self-esteem scale were used to measure 42 employees in mid-May 2023 (time point 1) and early June 2023 (time point 2), respectively. The results show that: (1) Workload is negatively correlated with job satisfaction; (2) work contingent self-esteem has a significant moderating effect. For individuals with low work contingent self-esteem, there is a significant negative correlation between workload and job satisfaction; For individuals with high work contingent self-esteem, there is no significant correlation between workload and job satisfaction. The results verify the moderating effect of work contingent self-esteem on the relationship between workload and job satisfaction, enrich the research in the field of workload and work contingent self-esteem, and provide some practical enlightenment for enterprise managers.

***Keywords*:** workload, job satisfaction, work contingent self-esteem, self-determination theory

农民工焦虑情绪与其城乡流动意愿有关：来自网络分析的证据

周续珠，王惠惠（通讯作者），雍少宏，沙晓娟，周金恩，王睿娴，马小红
宁夏大学教师教育学院，银川，750021
通讯作者 E-mail: wanghh_nx168@163.com

摘 要 城乡流动是中国经济社会转型时期的一个重大变革，农民流动是城市化发展的产物，相比于老一代农民工，新生代农民工的流动更加频繁。以往研究很少将农民工的焦虑情绪以及其城乡流动意愿相联系，故本研究主要目的是探讨引发农民工焦虑情绪的相关因素，并探索农民工焦虑情绪与其城乡流动意愿的关系。对来自中国西部地区的 250 名农民工进行调查，采用焦虑自评量表（SAS）评估焦虑情绪，生活满意度量表（SWLS）评估城乡流动意愿，使用网络分析方法分析变量之间的相关关系。结果表明，养老问题、子女教育问题以及家庭收入问题是焦虑情绪的主要诱发因素；焦虑题项内部之间有较强的正相关，生活满意度得分与焦虑部分题项显著负相关；在整个网络中，焦虑自评问卷第 1 题，“我觉得比平常更容易紧张或着急”，为强度中心性最高的题项，是网络分析中最重要的节点。本研究揭示了农民工焦虑情绪和城乡流动意愿之间的相关关系，研究结果对于理解农民城乡流动意愿的情绪性相关因素有一定参考价值。
关键词 农民工，焦虑，城乡流动意愿，网络分析

Migrant workers' anxiety is linked to their willingness to move between urban and rural areas: Evidence from network analysis

Xuzhu Zhou, Huihui Wang, Shaohong Yong, Xiaojuan Sha, Jin'en Zhou, Ruixian Wang, Xiaohong Ma
College of Teacher Education, Ningxia University, Yinchuan, 750021

Abstract: The movement of people between urban and rural areas, known as urban-rural mobility, is a significant aspect of China's economic and social transition. Within this context, the mobility of farmers is a consequence of urbanization, with the younger generation of migrant workers exhibiting higher levels of mobility compared to their older counterparts. Previous studies have rarely explored the connection between the anxiety experienced by migrant workers and their willingness to move between urban and rural areas. Therefore, the primary objective of this study is to investigate the factors that contribute to the anxiety experienced by migrant workers and to examine the relationship between this anxiety and their willingness to relocate. To achieve this, a survey was conducted involving 250 migrant workers from western China. The Self-Assessment Scale for Anxiety (SAS) was employed to assess levels of anxiety, while the Satisfaction with Life Scale (SWLS) was used to measure the willingness to move between urban and rural areas. Network analysis techniques were applied to analyze the correlations between the variables. The findings revealed that issues related to old age, children's education, and family income were the main triggers of anxiety. Additionally, there were strong positive correlations among the various anxiety items, and the scores indicating satisfaction with life were significantly negatively correlated with the anxiety component of the questions. In terms of network analysis, question 1 of the Self-Assessment of Anxiety Questionnaire (SAS), namely "I feel more likely to be nervous or anxious than usual," emerged as the most important node in the network analysis, exhibiting the highest intensity centrality. This study sheds light on the relationship between anxiety and the intention of migrant workers to move between rural and urban areas, providing valuable insights into the emotional factors influencing farmers' decisions regarding rural-urban

mobility.

Keywords: Migrant workers, Anxiety, Urban-rural mobility behaviour, Network analysis

不同群体条件下内外群体对道德判断的影响：群体认同的调节作用

宋柯柯（通讯作者） 黄亚博 李娜
山西师范大学教育科学学院心理系，太原，030031，1981151826@qq.com

摘 要 本研究基于社会认同理论和害群之马效应，旨在探讨一般社会群体和最简单群体条件下人们对内外群体成员的道德判断是否具有差异。实验 1 采用单因素两水平(群体身份：内群体、外群体)的被试间实验设计，来探究在一般社会群体条件下，个体对内外群体成员违规行为的道德判断。分别测量两组被试对内外群体违规行为的惩罚意向及惩罚严重程度。预期结果：被试对内群体成员的惩罚程度高于外群体成员。实验 2 采用 2(群体身份：内群体、外群体)×2(社会规范：违规、符合)的被试间设计，运用最简群体范式中的点估计任务将被试随机分为不同群体，采用 Cyberball 范式来操纵群体成员的行为是否符合规范，排斥行为即可视为违规行为，通过测量被试作为观察者对内外群体违规行为的第三方惩罚程度，来探究最简单群体条件下，人们对不同群体成员的道德判断是否具有差异。预期结果：群体身份和社会规范的交互作用显著，人们对内群体成员出现违规行为的第三方惩罚程度高于外群体，呈现害群之马效应。实验 3 纳入变量群体认同，采用 2(群体身份：内群体、外群体) ×2(社会规范：违规、符合)×2(群体认同：高、低)的被试间设计，通过测量被试对群体成员积极态度和消极态度，来探究群体认同在道德判断过程中的调节作用。预期结果：群体身份和社会违规的交互作用显著，同实验 2；社会规范和群体认同的交互作用显著，在符合规范条件下，相比群体认同低的被试，群体认同高的被试对群体成员的态度更积极；在违反规范条件下，群体认同高的被试对群体成员的态度更消极；群体身份和群体认同的交互作用显著，群体认同高的被试对内群体成员的态度更积极。研究发现不同群体身份对道德判断过程会产生影响，因此对不道德行为进行惩罚决策时要考虑群体身份这一因素。

关键词 内/外群体，道德判断，群体认同

The influence of internal and external groups on moral judgments under different group conditions: the moderating role of group identity

Song Keke,Huang Yabo,Li Na
Shanxi Normal University,Taiyuan,030031, 1981151826@qq.com

Abstract： Based on the theory of social identity and the black sheep effect, this study aims to explore whether people's moral judgments of the members of the internal and external groups differ between the general social group and the simplest group conditions. In experiment 1, a single-factor, two-level (group identity: in-group, out-group) inter-subject experimental design was used to explore the moral judgment of individuals on violations of internal and external group members under the conditions of general social groups. The punishment intention and punishment severity of the two groups were measured respectively. Expected result: Subjects punished in-group members more than out-group members. Experiment 2 adopts 2(group identity: in-group, out-group) × 2(social norm: violation, conformity). By using the point estimation task in the simplest group paradigm, the subjects were randomly divided into different groups, and the Cyberball paradigm was used to manipulate whether

the behaviors of group members were in line with the norms, and the exclusion behavior could be regarded as the violation behavior. By measuring the degree of third-party punishment of the subjects as observers for the internal and external group violations, to explore whether people's moral judgments of different group members are different under the simplest group conditions. Expected results: The interaction between group identity and social norms is significant, and the degree of third-party punishment for violations of in-group members is higher than that of out-group members, showing a black sheep effect. Experiment 3 included variables of group identity. The inter-subject design of 2(group identity: in-group, out-group) × 2(social norm: violation, conformity) × 2(group identity: high, low) was adopted to explore the moderating role of group identity in the process of moral judgment by measuring subjects' positive and negative attitudes towards group members. Expected results: The interaction between group identity and social transgression was significant, same as experiment 2; The interaction between social norms and group identity is significant. Under the condition of conforming to norms, subjects with high group identity have more positive attitudes towards group members than those with low group identity. Under the norm violation condition, the subjects with high group identification had more negative attitude towards group members; The interaction between group identity and group identity is significant, and the subjects with high group identity have more positive attitudes towards internal group members. It is found that different group identities have an impact on the process of moral judgment, so it is necessary to consider the factor of group identity when making punishment decisions for immoral behaviors.

Keywords：In-group/Out-group, Moral judgment, Group identity

金钱和情绪反馈对第三方惩罚中群体偏差的影响

杜创一 伍珍（通讯作者）
清华大学心理学系，北京，100084，通讯作者 E-mail: zhen-wu@mail.tsinghua.edu.cn

摘 要 个体会对一系列不公平行为做出惩罚，包括自身利益没有受损的旁观者，即第三方惩罚(TPP)。作为一种亲社会行为，在既往的社会实践中大多采用金钱奖励进行强化。但是这一措施是否切实有效，以及个人情绪偏差在其中是否存在自我强化作用，都还尚未可知。围绕以上问题，本研究采用经济决策范式对大学生样本($N = 51$)进行了测试，同时也进一步考虑了群体偏差对于 TPP 行为带来的影响。参与者观看内群或外群分配者对接受者实施的不公平分配，然后决定是否进行有代价的 TPP，惩罚行为将有 80%的概率得到金钱奖励。参与者将持续决策 40 轮，逐试次学习社会的金钱奖励以及个人的情绪反馈，并依此调整惩罚行为。

主要结果如下：1）TPP 行为上表现出内群偏好，惩罚内群少于外群。2）对于试次内部的学习来看，无论何种情境，被试得知不公平分配方案的初始情绪越负面，越可能会产生惩罚行为；在外群情境中，预期做出惩罚后的情绪唤醒越强，被试越可能产生惩罚行为，但是在内群情境中则为初始情绪的唤醒越弱，被试越可能产生惩罚行为；另外在外群情境中，预期做出惩罚后的情绪唤醒相比于得知方案的初始情绪越强，被试越可能产生惩罚行为，但是在内群情境中，预期情绪比初始情绪越积极，被试越可能产生惩罚行为。3）对于跨试次的学习来看，金钱的激励作用只存在于外群体情境；并且对于内群情境而言，被试得知不公平分配方案的初始情绪越积极，预期做出惩罚行为的情绪越消极，以及真正做出选择之后的情绪相较于初始情绪更消极，被试在下一轮更倾向于选择惩罚行为；对于外群情境而言，被试做出选择之后的真实情绪较为消极和微弱，并且相较于初始情绪更消极，被试在下一轮更倾向于选择惩罚行为。

研究有助于揭示 TPP 行为背后有关金钱和情绪的复杂强化机制，也为制定有效的干预措施和社会奖励政策提供了参考。除了对于“见义勇为”行为的金钱鼓励外，也可以从认知的角度进一步干预个体对不公平行为的情绪体验，从而利于促进 TPP 这一亲社会行为。

关键词 第三方惩罚，金钱奖励，情绪反馈，群体偏差

The Effect of Money and Emotional Feedback on Group Bias in Third-party Punishment

Chuangyi Du, Zhen Wu
Department of Psychology, Tsinghua University, Beijing 100084

***Abstract*:** Individuals, including bystanders whose self-interest is not compromised, may mete out punishment for a series of unfair behaviors, which is referred to as third-party punishment (TPP). As a prosocial behavior, TPP has mostly been reinforced through monetary rewards in previous practices. However, the effectiveness of this method and whether individual emotional prediction error play a role in self-reinforcement remains unknown. To address these questions, this study used an economic decision-making paradigm to test a sample of college students ($N = 51$), while also considering the influence of group bias on TPP behavior. Participants observed unfair allocations made by in-group or out-group allocators to recipients and then decided whether to engage in costly TPP, where the punitive action had an 80% chance of receiving a monetary reward. Participants made continuous decisions for 40 trials, learning from social monetary rewards and personal emotional feedback to adjust their punishment

behavior.

The main findings are as follows: 1) TPP behavior exhibited an in-group preference, with less punishment towards the in-group compared to the out-group. 2) Regarding within-trial learning, regardless of the scenario, participants who experienced more negative initial emotions upon learning about the unfair allocation scheme were more likely to engage in punishment. In the out-group scenario, the stronger the anticipated emotional arousal after deciding on the punishment, the more likely participants were to engage in punishment. However, in the in-group scenario, the weaker the initial emotional arousal, the more likely participants were to engage in punishment. Furthermore, in the out-group context, the stronger the emotional arousal after anticipating punishment, compared to the initial emotional arousal upon learning about the scheme, the more likely participants were to engage in punishment. In the in-group scenario, the more positive anticipated emotions compared to the initial emotions, the more likely participants were to engage in punishment. 3) Concerning cross-trial learning, the incentive effect of money was only present in the out-group context. For the in-group context, the more positive the initial emotions upon learning about the unfair allocation scheme, the more negative the emotional arousal when anticipating punishment, and the more negative the emotions after making the actual choice compared to the initial emotions, the more likely participants were to choose punishment in the next trial. In the out-group scenario, the emotions after making the actual choice were more negative and weaker compared to the initial emotions, and the more negative the emotions after making the actual choice, the more likely participants were to choose punishment in the next trial.

This research helps uncover the complex reinforcement mechanisms of money and emotions underlying TPP behavior, providing insights for the development of effective intervention measures and social policies. Apart from monetary incentives for "doing the right thing", interventions could also be directed at individuals' emotional perception of unfair behavior, thereby promoting TPP as a pro-social behavior from a cognitive perspective.

***Keywords*:** Third-party punishment, Monetary reward, Emotional feedback, Group bias

心理特权和情绪的动机强度对大学生道德决策的影响：基于 CAN 算法的分析

杨霄楠[1] 陆增颜[2] 桑青松[2]（通讯作者）

1 安徽商贸职业技术学院学生工作处，芜湖，241002

2 安徽师范大学教育科学学院，芜湖，241000，s7210qs1@ahnu.edu.cn

摘 要 万物莫不尊道而贵德，随着人工智能的迅猛发展，衍生出了一系列有关责权划分以及道德决策等方面的问题。双加工理论认为，道德决策是推理反应与直觉反应并存的一种信息加工过程。心理特权作为一种人格特质，常表现出对自身福祉、权利与地位等方面的过度关注和认知不明。情绪的动机维度模型指出，高动机强度（趋近/回避）情绪易使个体发生注意力窄化，已有研究根据该模型证实了高动机强度情绪会导致功利主义道德决策，但情绪的动机强度对道德决策的影响是否存在适应性变化尚未明晰。因此，本研究以双加工理论为基础，借助 CAN 算法探讨了心理特权水平和情绪的动机强度对大学生道德决策的影响。以安徽省某高校 224 名大学生(*Mage*=19.28, *SD*=1.78)为研究对象，采用心理特权量表、情绪启动材料以及道德两难情境材料，运用 E-prime 软件设计情绪启动实验，对大学生道德决策进行探索。结果显示，无论在趋近情绪还是回避情绪中，心理特权水平与情绪的动机强度在道德决策部分参数上均呈现显著交互作用。具体而言，在趋近情绪中，高动机强度情绪使高心理特权水平大学生表现出了更高的结果敏感性，总体行动倾向以及道德规范与后果原则遵循度；而在回避情绪中，高动机强度情绪使低心理特权水平大学生表现出了更高的规范敏感性，以及道德规范与后果原则遵循度，即不同心理特权水平的大学生关注点的差异，导致情绪的动机强度对大学生道德决策的影响在心理特权水平上出现了适应性变化。本研究的发现有助于拓宽情绪对道德决策的影响研究，并且强调心理特权这一特质在道德教育中的重要作用。

关键词 道德决策，心理特权，情绪，动机强度，CAN 算法

The Influence of Psychological Entitlement and Motivational Intensity of Emotion on Moral Decision-Making of College Students: An Analysis Based on CAN Algorithm

Yang Xiaonan[1], Lu Zengyan[2], Sang Qingsong[2]
1 Department of Student Affairs, Anhui Business College, Wuhu, 241002
2 College of Education Sciences, Anhui Normal University, Wuhu, 241000,
s7210qs1@mail.ahnu.edu.cn

Abstract **:** All things and beings revere Dao and cherish virtue, with the rapid development of artificial intelligence, a series of problems related to the division of responsibilities and rights and moral decision-making have arisen. According to the double processing theory, moral decision-making is a kind of information processing process in which reasoning response and intuitive response coexist. Psychological entitlement, as a personality trait, often shows excessive concern and confusion about one's own well-being, rights and status. The motivational dimension model of emotion points out that emotions of high motivational intensity (approach/avoidance) tend to narrow individuals' attention. According to this model, some studies have confirmed that emotions of high motivational intensity will lead to utilitarian moral decision-making, but whether there is an adaptive change in the impact of motivational intensity of emotion on moral decision-making is not clear. Therefore, based on the double processing theory and CAN algorithm, this study explores the influence of psychological entitlement level and motivational intensity of emotion on college students' moral decision-making. A total of 224 college students (*Mage*=19.28, *SD*=1.78) in a university in Anhui Province were selected as the research objects. By using psychological entitlement scale, emotional priming materials and moral dilemma materials, E-prime software was used to design an emotional priming experiment to explore the moral decision-making of college students. The results show that psychological entitlement level and motivational intensity of emotion have significant interaction on some parameters of moral decision-making in both approach and avoidance emotions. Specifically, in the approach emotion, the emotion of high motivational intensity makes the college students witn high psychological entitlement level show a higher consequence sensitivity, the overall action preference and the degree of adherence to moral norms and consequence principles; However, in avoidance emotion, high motivational intensity makes college students with low psychological entitlement level show higher norm sensitivity, and the degree of adherence to moral norms and consequence principles, that is, the differences in the concerns of college students with different levels of psychological entitlement, resulting in adaptive changes in the impact of motivational intensity of emotion on college students' moral decision-making at the level of psychological entitlement. The findings of this study help to broaden the study of the influence of emotion on moral decision-making and emphasize the important role of psychological entitlement in moral education.

Keywords **:** Moral Decision-Making, Psychological Entitlement, Emotion, Motivational Intensity, CAN Algorithm

中华民族认同对幸福感的影响机制：社会支持的中介作用

申洁琳[1]　孙腾巍[2]　靳宇倡[1]（通讯作者）
1 四川师范大学心理学院，成都，610068
2 Department of Developmental Psychology, Utrecht University, Utrecht, 3584CS
通讯作者 jinyuchang@gmail.com

摘 要　幸福感意为人们积极生活的侧面反映，主要体现在与他人建立良好的人际关系、对生命意义的体会以及追逐目标时获得的成就感等方面，它既是构成积极心理品质的重要部分，也与人们的心理健康息息相关。当前社会不确定性丛生，由此易滋生重大风险事件，从而对民众心理及幸福感产生负面影响。通过不确定性-认同理论和社会认同理论，处于不确定性环境中的个体倾向于对某一群体产生认同，以此来掌控或降低不确定性，重构幸福感，因此民族认同可能是应对此心理危机的重要潜在机制，但其具体作用仍停留于理论猜想层面，缺乏实证支撑。此外，现有的相关研究仅限于讨论民族认同和幸福感之间的关系，基于此，本研究针对更符合我国社会背景的中华民族认同这一概念进行深入探索，并尝试引入社会支持以构建中介模型进行检验。因此，本研究以双重态度理论为方法论指导，从外显和内隐角度探究不确定性背景下中华民族认同对个体的幸福感的影响机制。研究 1 通过问卷调查(N=1082)发现，中华民族认同与幸福感之间存在显著正相关，且社会支持在中华民族认同和幸福感之间起中介作用。研究 2(N=80)设计了一个双因素前后测混合实验，启动内隐中华民族认同和风险事件的负面心理，结果表明风险事件造成的负面心理会降低个体的幸福感，而中华民族认同能有效缓冲风险事件带来的负面心理，重建个体的幸福感。本研究从双重态度理论视角交互验证了中华民族认同对幸福感的影响，为不确定性环境中风险事件影响下的民众心理健康干预提供了参考。

关键词　中华民族认同, 幸福感, 社会支持, 社会认同理论

The influence mechanism of Chinese national identity on well-being: The mediating role of social support

Jielin Shen[1]　Tengwei Sun[2]　Yuchang Jin[1](corresponding author)
1 School of Psychology, Sichuan Normal University, 5 Jing'an Road, Chengdu 610068, PR China.
2 Department of Developmental Psychology, Utrecht University, Utrecht, 3584CS

Abstract：Well-being is a reflection of people's positive life, which is mainly reflected in the establishment of good interpersonal relationships with others, the experience of the meaning of life, and the sense of fulfillment when pursuing goals, etc. It is an important part of positive psychological qualities, and is also closely related to people's mental health. Uncertainty in the current society is prone to major risk events, which negatively affects people's psychology and well-being. According to the uncertainty-identity theory and social identity theory, individuals in an uncertain environment tend to identify with a certain group to control or reduce uncertainty and reconstruct their well-being. Therefore, national identity may be an important potential mechanism to cope with this psychological crisis, but its specific role remains at the level of theoretical conjecture and lacks empirical evidence to support it. In addition, existing related studies are limited to discussing the relationship between national identity and well-being. Based on this, this study explores the concept of Chinese national identity, which is more in line with the social context of China, and tries to introduce social support to construct a mediation

model for testing. Therefore, this study takes dual attitude theory as a methodological guide to examine the mechanism of Chinese national identity's influence on individuals' well-being in the context of uncertainty from both explicit and implicit perspectives. Study 1 found that there was a significant positive correlation between Chinese national identity and well-being through a questionnaire survey (N=1082), and that social support mediated the relationship between Chinese national identity and well-being. Study 2 (N=80) designed a two-factor pre- and post-test mixed experiment to initiate the negative psychology of risky events and implicit Chinese national identity, and the results showed that the negative psychology caused by risky events would reduce individuals' well-being, whereas Chinese national identity could effectively buffer the negative psychology caused by risky events and rebuild individuals' well-being. This study interactively verifies the effect of Chinese national identity on well-being from the dual attitude theory perspective, which provides a reference for the intervention of people's mental health under the influence of risky events in an uncertain environment.

Keywords：Chinese national identity, well-being, social support, social identity theory

社交网站使用强度对相对剥夺感的影响：一个有调节的链式中介模型

王洪阳[1] 于佳[2]

1 成都市第四人民医院，成都，610036

2 陕西中医药大学陕西中药资源产业化省部共建协同创新中心，咸阳，712000

摘 要 随着互联网的快速普及，社交网站给人们带来了极大的便利，但过度依赖社交媒体，会给人们的身心带来负面影响。研究发现，人们倾向于在社交媒体上呈现经过整饬而形成的积极、正面的信息，从而导致社交网站信息展示存在一定的偏向性，加剧了人们的社会比较现象。社会比较的其中一个结果就是相对剥夺感。所谓相对剥夺感就是指个体或群体通过与参照群体比较而感知到自身出于不利地位，进而体验到愤怒和不满等负性情绪的一种主观认知和情绪体验，中国古人“不患寡而患不均”正是此心理的写照。社交网站中的信息呈现更易诱发上行社会比较，而上行社会比较会降低个体的自我评价水平，影响个体的自尊水平。因此，本研究通过梳理前人研究假设，社交网站使用强度通过上行社会比较和自尊的中介作用影响相对剥夺感。此外，有研究发现不同特质正念水平的个体面对冲突和压力时的表现存在差异，因此本研究构建了一个有调节的链式中介模型。本研究采用社交网站使用强度量表、上行社会比较量表、自尊量表、相对剥夺感量表和正念觉知注意量表对四川成都、南充、绵阳、江西九江、广西等几所大学的 1100 余名大学生进行测量，最终回收问卷 880 份，剔除无效作答、存在缺失值的样本后，共获得有效问卷 817 份(N=817, M_{age}=18.81±1.79, 男性占比 297 人)。结果发现：(1)社交网站使用强度与相对剥夺感显著正相关(0.14, p<0.01)，自尊与相对剥夺感显著负相关(-0.30，p<0.01)，特质正念与自尊显著正相关(0.52, p<0.01)；(2)中介效应检验表明，上行社会比较和自尊的链式中介作用显著(Ind3=0.02, CI=[0.02,0.07]，占比 20%)，且上行社会比较(Ind3=0.02, CI=[0.02,0.07]，占比 20%)和自尊(Ind2=-0.02, CI=[-0.04,-0.01]，占比 20%)的独立中介作用也均显著；(3)调节中介效应检验表明，有调节的链式中介效应存在，调节的路径为自尊的独立中介作用和链式中介作用，调节中介效应指数(Index of moderated mediation)分别为 0.0006，95%CI=[0.0002, 0.0011]和-0.0009，95%CI=[-0.0018, -0.0002]。调节中介效应说明，在高特质正念水平下，自尊的独立中介效应和链式中介效应才会显著，而在低特质水平下，上述效应均不显著。这一发现为社交网站使用的问题性使用提供了理论依据。

关键词 社交网站使用强度，上行社会比较，自尊，相对剥夺感，特质正念

The Effect of Social Networking Site Use Intensity on of Relative Deprivation: A Moderated Chain Mediation Model

Wang Hongyang[1] Yu Jia[2]

([1]The Fourth People's Hospital of Chengdu, Chengdu)

([2]Shaanxi Collaborative Innovation Center of Chinese Medicinal Resources Industrialization, Xianyang)

Abstract: With the rapid popularization of the Internet, social networking sites have brought great convenience to people, but excessive reliance on social media will bring negative effects on people's body and mind. The study found that people tend to present the positive information formed by the rectification on social media, which leads to a certain bias in the information display on social networking sites and intensifies the phenomenon of social comparison. One of the consequences of social comparison is relative deprivation. Relative deprivation refers to the subjective cognition and emotional experience of individuals or groups perceiving themselves at a disadvantage by comparing with the reference group, and then experiencing negative emotions such as anger and dissatisfaction. The ancient Chinese "not suffering from quantity but suffering from imbalance" is the embodiment of this psychology. Information presentation in social networking sites is more likely to induce upward social comparison, and upward social comparison can reduce the level of self-evaluation and self-esteem of individuals.

Therefore, by combing through previous studies, this study hypothesized that the intensity of social networking site use affects relative deprivation through the mediating effect of ascending social comparison and self-esteem. In addition, some studies have found that individuals with different levels of trait mindfulness behave differently in the face of conflict and stress, so a moderated chain mediation model was constructed in this study. In this study, more than 1100 college students from Chengdu, Nanchong, Mianyang, Jiujiang, Guangxi and other universities were investigated by using the Intensity of Social Networking Site Use Scale, Upward Social Comparison Scale, self-esteem scale, Relative deprivation scale and Mindful awareness attention scale. Finally, 880 questionnaires were collected. A total of 817 valid questionnaires were obtained (N=817, Mage=18.81±1.79, 297 males).

The results showed that: (1) The intensity of social networking site use was positively correlated with relative deprivation (0.14, $p<0.01$), self-esteem was negatively correlated with relative deprivation (-0.30, $p<0.01$), and trait mindfulness was positively correlated with self-esteem (0.52, $p<0.01$). (2) The mediating effect test showed that the chain mediating effect of upward social comparison and self-esteem was significant (Ind3=0.02, CI= [0.02, 0.07], 20%), and the chain mediating effect of upward social comparison (Ind3=0.02, CI= [0.02, 0.07], 20%) and self-esteem (Ind2=-0.02, CI= [-0.04, -0.01], 20%) were also significant. (3) The test of moderated mediation effect showed that there was a moderated chain mediation effect, and the path of moderation was independent mediation and chain mediation. The Index of moderated mediation was 0.0006, respectively. 95% CI = 0.0002, 0.0011 and 0.0009, 95% CI = [0.0018, 0.0002]. The moderating mediating effect indicated that the independent mediating effect and chain mediating effect of self-esteem were significant only at high trait mindfulness levels, while none of the above effects were significant at low trait levels. This finding provides a rationale for problematic use of social networking site use.

Keywords: social networking site use intensity, upward social comparison, self-esteem, relative deprivation, trait mindfulness

6.15“临床与咨询心理学专业委员会”分组展贴报告

两亚型注意缺陷多动障碍儿童心智空白的行为和脑电研究

方荣[1] 曹龙飞[2] 唐颖[1] 张禹[3] 李杰[2]（通讯作者）
1 杭州师范大学经亨颐教育学院，杭州，311121
2 杭州师范大学附属医院认知与脑疾病研究中心，杭州，311121，lijie.psy@hznu.edu.cn
3 北京体育大学心理学院，北京，100084

摘 要 注意缺陷多动障碍(Attention Deficit Hyperactivity Disorder，ADHD)是儿童时期常见的神经行为障碍。唤醒调节障碍是 ADHD 的核心问题之一，ADHD 患者长期处于紧张性低唤醒状态。而唤醒水平在 ADHD 亚型间存在差异，相较于 ADHD- C(Combined)，ADHD-I(Inattentive)唤醒水平更低。ADHD 的低唤醒与注意缺陷之间存在联系，研究发现相较于高唤醒的健康群体，ADHD 会表现更多注意缺失，经历更频繁的心智空白（Mind Blanking）。心智空白是一种注意缺失现象，表现为个体主观报告意识减少，报告脑中没有想法或无法报告脑中想法，该状态会导致个体注意任务表现下降。由于 ADHD 两亚型之间存在唤醒差异，故两亚型 ADHD 是否都会频繁经历心智空白仍需研究。本研究探究了 ADHD-I 与 C 型患儿于持续性注意任务（Sustained attention to response task, SART）中心智空白频率以及行为与脑电活动表现差异，进一步探讨了两亚型 ADHD 患儿心智空白的行为与脑电活动机制。

本研究于杭州师范大学附属医院招募了 33 名 ADHD-I、23 名 ADHD-C 患儿，于当地小学招募了 30 名健康儿童，采用 SART 作为实验任务。任务过程中每 20 秒-40 秒插入一个思想探针采集心智状态，记录行为、瞳孔和脑电数据。

行为结果显示：(1) 两亚型组报告心智空白占比显著高于对照组(27.19%, 29.34% vs. 18.25%; F=7.78, η^2=.138, p=.005; F=2.63, η^2=.092, p=.009)，亚型间无显著差异(p=.429)。(2)心智空白下，各组漏报率(11.97%, 11.98% vs. 5.36%; F=9.65, η^2=.100, p=.003; F=17.49, η^2=.185, p<.001)和虚报率(79.11%, 77.89% vs. 41.72%; F=60.21, η^2=.470, p<.001; F=61.95, η^2=.446, p<.001)均显著高于对照组，反应时变异性均显著高于对照组(73.16ms, 71.18ms vs. 41.30ms; F=15.19, η^2=.187, p<.001; F=18.05, η^2=.198, p<.001)。瞳孔结果显示：心智空白下，两亚型患儿瞳孔显著小于对照组(1.98mm, 2.23mm vs. 2.34mm; F=60.45, η^2=.515, p<.001; F=6.94, η^2=.129, p=.011)，ADHD-I 组瞳孔显著小于 ADHD-C 组(1.98mm vs. 2.23mm; F=36.80, η^2=.444, p<.001)。脑电结果显示：(1)心智空白下，两亚型患儿后部脑区局部睡眠慢波(Local sleep slow wave, LSSW)数量显著高于对照组，亚型间无显著差异。（2）各心智状态下 LSSW 数量区域差异类似，总体呈现出后部与前额脑区 LSSW 数量显著高于其他脑区。

本研究说明了频繁经历心智空白是两亚型 ADHD 患儿共同的现象，均伴随着持续注意表现下降与瞳孔收缩。心智空白与患儿后部脑区 LSSW 数量增加相关，LSSW 在后部脑区堆积减弱了 ADHD 患儿对外部输入刺激的处理能力，可能是导致 ADHD 患儿唤醒水平低、持续性注意力差的原因。

关键词 注意缺陷多动障碍；心智空白；唤醒水平；局部慢波；持续性注意

Behavioral and EEG studies of mind blanking in children with different subtypes of ADHD

Rong Fang[1], Longfei Cao[2], Ying Tang[1], Yu Zhang[3] and Jie Li[2]
1 College of Education, Hangzhou Normal University, Hangzhou
2 Center for Cognition and Brain Disorders, the Affiliated Hospital, Hangzhou Normal University, Hangzhou
3 School of Psychology, Beijing Sport University, Beijing

Abstract **:** Attention Deficit Hyperactivity Disorder (ADHD) is a prevalent neurobehavioral disorder in childhood. Dysregulation of arousal serves as a key underlying issue within ADHD, whereby individuals with ADHD often experience prolonged states of hypervigilant low arousal. There are variations in arousal levels among different subtypes of ADHD, with ADHD-I (Inattentive) displaying lower levels of arousal compared to ADHD-C (Combined). The connection between low arousal and attention deficits in ADHD has been established, as research indicates that individuals with ADHD exhibit a greater degree of attentional lapses and more frequent episodes of mind blanking compared to healthier populations with higher arousal levels. MB refers to a phenomenon of attentional lapses, characterized by a subjective reduction in conscious awareness, wherein individuals report a lack of any thoughts or an inability to report their thoughts. This state can result in a decline in individual attentional task performance. Due to the arousal differences between the two subtypes of ADHD, it is still necessary to conduct research to determine whether both ADHD-I and ADHD-C subtypes frequently experience episodes of mind blanking. This study aimed to investigate the frequency of mind blanking, as well as the behavioral and electroencephalographic (EEG) differences, during a sustained attention to response task (SART) in children with ADHD-I and ADHD-C. Furthermore, the study sought to further explore the behavioral and EEG mechanisms underlying mind blanking in children with these two subtypes of ADHD.

This study recruited 33 children with ADHD-I and 23 children with ADHD-C from Hangzhou Normal University Affiliated Hospital. Additionally, 30 healthy children were recruited from local elementary schools. SART was utilized as the experimental task. During the task, a thought probe was inserted every 20 to 40 seconds to capture the mental state, and behavioral, pupil, and EEG data were recorded.

Behavioral and pupil data results showed the following:1) The number of reported mind blanking episodes was significantly higher in both ADHD subtypes compared to the control group (27.19%, 29.34% vs. 18.25%; F=7.78, η^2=.138, p=.005; F=2.63, η^2=.092, p=.009), with no significant difference between the subtypes (p=.429).2) During mind blanking episodes, all groups exhibited significantly higher rates of task omissions (11.97%, 11.98% vs. 5.36%; F=9.65, η^2=.100, p=.003; F=17.49, η^2=.185, p<.001) and rates of false alarm accuracy (79.11%, 77.89% vs. 41.72%; F=60.21, η^2=.470, p<.001; F=61.95, η^2=.446, p<.001)compared to the focused attention state. Reaction time variability was significantly higher during mind blanking episodes compared to the focused attention state (73.16ms, 71.18ms vs. 41.30ms; F=15.19, η^2=.187, p<.001; F=18.05, η^2=.198, p<.001). The Pupil size measurements in all ADHD subtypes were smaller than those in the control group (1.98mm, 2.23mm vs. 2.34mm; F=60.45, η^2=.515, p<.001; F=6.94, η^2=.129,

p=.011). In comparison between ADHD-I and ADHD-C groups, pupil size in the ADHD-I group was significantly influenced by mental states (1.98mm vs. 2.23mm; F=36.80, η^2=.444, p<.001), with significantly smaller pupil size during mind blanking episodes compared to the focused attention state (p<.001). The EEG data results are as follows:1) During mind blanking episodes, children with both ADHD subtypes exhibited a significantly higher number of local sleep slow waves in the posterior brain regions compared to the control group. There was no significant difference between the subtypes.2) Across all three groups, there were similar regional differences in the number of local sleep slow waves across different mental states. Overall, there were significantly more local sleep slow waves in the posterior brain regions during mind blanking compared to the on task state.

Therefore, this study demonstrates that mind blanking is a shared phenomenon among children with different subtypes of ADHD. It is accompanied by a decline in sustained attention performance and pupil constriction. The occurrence of mind blanking is correlated with an increase in the number of local sleep slow waves in the posterior brain regions, the accumulation of local sleep slow waves in the posterior brain regions diminishes the ability of children with ADHD to process external stimuli effectively. This is likely one of the contributing factors to their lower levels of wakefulness and poor sustained attention. Local sleep slow waves may be a valuable but neglected indicator of brain electrical activity to explain the cognitive and behavioral performance of ADHD patients.

Keywords：attention deficit hyperactivity disorder; mind blanking; arousal; local sleep slow wave; sustained attention

元认知疗法干预强迫症的临床对照研究

姜帆[1]　刘晓明[2]（通讯作者）

[1、2] 东北师范大学大学心理学院，长春，130024，jiangf581@nenu.edu.cn

摘 要　**目的：**明确元认知疗法对中国强迫临床样本的实际干预效果，并与暴露与反应预防疗法进行多维度的比较。**方法：**将首诊强迫临床被试 32 名分为元认知疗法（MCT）组、暴露与反应预防疗法（ERP）组及心理健康宣教组（对照组），分别进行 12 周的集中干预，采用耶鲁布朗强迫量表（Y-BOCS）与元认知问卷（MCQ-30）执行评估任务，分别在干预前、干预后、干预后 12 周施测，同时考察各组被试应答率、脱落率及复发率。**结果：**干预前各组量表得分无显著差异；干预后 3 组 Y-BOCS 得分均较干预前显著下降（$p<0.05$），MCT 组与 ERP 组的 Y-BOCS 得分无显著差异，两组 Y-BOCS 得分下降率均较对照组更高（$p<0.05$）；干预后 MCT 组 MCQ-30 得分显著小于 ERP 组与对照组（$p<0.05$）；干预后 12 周 MCT 组 Y-BOCS 与 MCQ-30 得分均显著低于 ERP 组（$p<0.05$）与对照组（$p<0.01$）；应答率方面，MCT 组与 ERP 组无显著差异，两组均高于对照组（$p<0.05$）；脱落率方面，MCT 组显著低于 ERP 组与对照组（$p<0.05$）；复发率方面，MCT 组显著低于 ERP 组与对照组（$p<0.05$）。**结论：**MCT 与 ERP 均可改善强迫症状，MCT 的干预效果较 ERP 维持更久，脱落率及复发率更低，能够较好适用于中国强迫症群体。并且，其核心机制可能在于元认知信念的改善，提示强迫症心理机制与功能失调性元认知有关，研究结果为强迫症的元认知理论模型提供了佐证。

关键词　强迫症，元认知疗法，元认知理论，暴露与反应预防

Application of metacognitive therapy for obsessive-compulsive disorder: a controlled clinical study

Jiang Fan[1]　Liu Xiaoming[2]

[1,2]NorthEast Normal University,Changchun,130024,China

***Abstract*：Aim:** To determine the effect of metacognitive therapy on compulsive clinical samples in China and to compare it with exposure and response prevention in multiple dimensions. **Method:** The 32 first compulsive clinical patients were divided into metacognitive therapy (MCT) group, exposure and response prevention therapy (ERP) group and mental health education group (control group), respectively, and were subjected to 12-week intensive intervention. The assessment tasks were performed using Yale-Brown Compulsive Scale (Y-BOCS) and metacognitive questionnaire (MCQ-30). The test was performed before, after and 12 weeks after intervention, and the response rate, shedding rate and recurrence rate of each group were investigated. **Results:** Before intervention, there was no significant difference in scale scores among all groups. After intervention, Y-BOCS scores of the three groups were significantly decreased compared with those before intervention ($p < 0.05$), while Y-BOCS scores of the MCT group and ERP group had no significant difference, and the decrease rate of Y-BOCS scores of the two groups was higher than that of the control group ($p < 0.05$). After intervention, the MCQ-30 score of MCT group was significantly lower than that of ERP group and control group ($p < 0.05$). At 12 weeks after intervention, Y-BOCS and MCQ-30 scores in MCT group were significantly lower than those in ERP group ($p < 0.05$) and

control group ($p < 0.01$). In terms of response rate, there was no significant difference between MCT group and ERP group, both groups were higher than control group ($p < 0.05$). The shedding rate of MCT group was significantly lower than that of ERP group and control group ($p < 0.05$). The recurrence rate of MCT group was significantly lower than that of ERP group and control group ($p < 0.05$). **Conclusion:** Both MCT and ERP can relieve obsessive-compulsive symptoms. The intervention effect of MCT is longer than that of ERP, and the shedding rate and recurrence rate are lower, which can be better applied to Chinese obsessive-compulsive disorder group. In addition, the core mechanism may be the improvement of metacognitive belief, suggesting that the psychological mechanism of OCD is related to dysfunctional metacognition, and the research results provide evidence for the metacognitive theoretical model of OCD.

Keywords **:** obsessive-compulsive disorder,Metacognitive Therapy,Metacognition Theory,Exposure and Response Prevention

死亡反省干预对大学生死亡焦虑和生命意义感影响的效果研究

刘威彤[1]　唐苏勤[2]（通讯作者）
1 北京师范大学心理学部，珠海，519087
2 深圳大学心理学院，深圳，518060，jasminetsq@hotmail.com

摘 要　在忌讳死亡的中华文化背景下，随着新冠疫情等卫生事件的突发，死亡教育不足的问题日益凸显，包括课程内容缺乏死亡理论支撑，课程效果研究缺乏严谨的随机对照试验设计。本研究基于死亡反省理论，将实验室诱发死亡反省的操纵进行适应性修订，形成干预方案，考察新开发干预方案对缓解中国大学生死亡焦虑和提升生命意义感的干预效果。本研究采用随机对照试验，研究设计为 2×3 混合实验设计，其中被试间变量为干预类型（干预组与对照组），被试内变量为时间（干预前、干预后、干预后一个月）。共纳入 47 名体验到死亡焦虑（死亡焦虑总分≥35）的大学生，随机分配至干预组（n = 24）和对照组（n = 23）：干预组接受为期 8 周的死亡反省书写任务干预，干预任务包含了死亡反省的核心成分：面对真实死亡、生命回顾和他人视角；对照组进行自由书写，书写日期和时长与干预组一致，书写内容为自由书写当天或当周的生活事件及心情。干预前、干预后、干预后一个月随访的问卷调查包括死亡焦虑（中文版死亡焦虑量表）、生命意义感（中文版生命意义感问卷）和死亡反省（中文版死亡反省量表）。结果显示，全样本和高水平（55 < 死亡焦虑总分 ≦ 75，n = 25）死亡焦虑组的大学生死亡焦虑水平与生命意义感在两组间均无显著差异。中等水平（35 ≦ 死亡焦虑总分 ≦ 55，n = 22）死亡焦虑大学生在干预前后死亡焦虑显著降低：在后测时，干预组死亡焦虑水平显著低于对照组（$F = 10.664$，$p = 0.005$）；随访时，两组死亡焦虑差异不显著（$F = 1.79$，$p = 0.199$）。本研究揭示，基于死亡反省理论开发的干预适用于我国文化背景下的大学生，干预方案能显著降低中等水平死亡焦虑大学生的死亡焦虑水平，未来研究应进一步研发适用于高水平死亡焦虑大学生的干预方案，并继续探索如何有效提升大学生的生命意义感。

关键词　死亡反省，死亡焦虑，生命意义感，随机对照试验，大学生

EFFECTS OF A DEATH REFLECTION INTERVENTION ON DEATH ANXIETY AND MEANING IN LIFE AMONG COLLEGE STUDENTS

Liu Weitong[1]　Tang Suqin[2]
1 Faculty of Psychology, Beijing Normal University, Zhuhai 519087, China
2 School of Psychology, Shenzhen University, Shenzhen 518060, China

Abstract：With the Chinese culture of death taboos and the emergence of public health events such as the COVID-19 pandemic, insufficient death education has become a increasingly prominently problem, including a

lack of theoretical support for death course contents and a lack of rigorous randomized controlled experimental designs for course effectiveness studies. Based on death reflection theory, this study adapted a foreign laboratory-induced death reflection manipulation to form an intervention protocol and examined the effectiveness of the newly developed intervention protocol on death anxiety and meaning in life among Chinese college students. This study was a randomized controlled trial and a 2×3 mixed experimental design, with the between-subjects variable being the type of intervention (intervention group vs. control group) and the within-subjects variable being time (pre-intervention, post-intervention, and one-month post-intervention). A total of 47 college students experiencing death anxiety (death anxiety total score ≥ 35) were included and randomly assigned to the intervention (n = 24) and control (n = 23) groups. The intervention group received an 8-week intervention with a death reflection writing task that incorporated the core components of death reflection, namely confronting a real death, life review, and thinking from others' perspectives. The control group underwent free writing with the same date and duration as the intervention group, and the writing consisted of free writing about life events and moods of the day or week. Death anxiety (Chinese version of the Templer-Death Anxiety Scale), sense of meaning in life (Chinese Meaning in Life Questionnaire), and death reflection (Chinese version of the Death Reflection Scale) were measured before and after the intervention, as well as at the one-month follow-up. The results showed no significant differences in death anxiety and meaning in life between the control and intervention groups among students in both the full sample and high level (55 < death anxiety total score ≦ 75, n = 25) death anxiety group. Moderate-level (35 ≦ death anxiety total score ≦ 55, n = 22) death anxiety college students had significantly lower death anxiety before and after the intervention. To specific, the level of death anxiety of the intervention group was significantly lower than that of the control group at post-intervention (F = 10.664, p = 0.005), yet the difference in death anxiety between the two groups was not significant at follow-up (F = 1.79, p = 0.199). This study reveals that the intervention developed based on death reflection theory is applicable to college students in the Chinese culture, and the intervention significantly reduced death anxiety levels in college students with moderate levels of death anxiety. Future research should further develop interventions applicable to college students with high level of death anxiety and continue to explore how to effectively enhance the sense of meaning in life among college students.

Keywords： death reflection, death anxiety, meaning in life, randomized controlled trial, college students

哀伤记忆特征对大学生丧亲后适应的影响

唐任之慧[1] 谢童[1] 王建平[1]（通讯作者）
1 北京师范大学心理学部，北京，100875
1 北京师范大学心理学部，北京，100875，wjphh@bnu.edu.cn

摘 要 在经历亲人或朋友去世后，丧亲者会出现一系列严重的哀伤反应，通常以对逝者强烈地思念和渴望、沉湎于有关逝者的想法或记忆为核心症状，伴随一系列诸如愤怒、内疚、自责等的强烈情绪痛苦，以及身份紊乱、难以接受死亡、回避提醒物等表现。随着时间流逝，部分丧亲者会逐渐从这种哀伤反应中恢复，但仍有 10%左右的丧亲者会沉溺与哀伤之中，发展为延长哀伤障碍。哀伤的认知行为概念化模型指出，自传体记忆的整合不充分是哀伤症状维持的一个重要因素。既往实证研究也强调了对丧失记忆的暴露疗法在治疗延长哀伤障碍中的重要性。鉴于整合记忆在哀伤中的重要作用，对丧失相关记忆特征的研究具有重要的临床及理论意义。本研究尝试引入牛津哀伤记忆特征问卷，进行中文版修订，探究中国大学生样本群体丧失相关记忆问卷的结构模型，并考察修订后的问卷信度和效度，为本研究及后续研究者提供可靠的测评工具。

关键词 丧亲后适应，丧亲大学生，哀伤记忆特征，延长哀伤障碍，创伤后成长

Psychometric Characteristics of the Oxford Grief Memory Characteristics Scale and Its Relationship With Symptoms of Prolonged Grief Disorder in Bereaved College Students

Renzhihui Tang, Tong Xie, Jianping Wang
Faculty of Psychology, Beijing Normal University, Beijing, 100875

Abstract：After the death of relatives or friends, the bereaved will have a series of serious grief reactions, usually with strong yearning and longing for the deceased, indulging in the thoughts or memories of the deceased as the core symptoms, accompanied by a series of strong emotional pain such as anger, guilt, self blame, as well as identity disorder, difficulty accepting death, avoiding reminders and other manifestations. With the passage of time, some bereaved people will gradually recover from this grief reaction, but about 10% of the bereaved people will become addicted to grief and develop into extended grief disorder. Theoretical models of prolonged grief hypothesise that symptoms of grief result from a failure to integrate information about the reality of the loss into the autobiographical memory base. Empirical studies have also highlighted the importance of exposure therapy for memory in the treatment of grief symptoms. In view of the important role of integrated memory in grief, the study of the characteristics of loss related memory has important clinical and theoretical significance. This study attempts to introduce the Oxford grief memory characteristics scale, revise the Chinese version, and investigate the reliability and validity of the revised questionnaire, so as to provide a reliable evaluation tool for future studies.

Keywords：Grief adaptation, bereaved college students, grief memory characteristics, prolonged grief disorders, post traumatic growth

自我同情对高社交焦虑个体情节式未来思考中记忆偏向的影响

祝珂[1]　李洁[2]

1 江西师范大学心理学院，南昌，330022

2 江西师范大学心理教育中心，南昌，330022，598389101@qq.com

摘　要　先前研究表明社交焦虑个体存在负性记忆偏向，但目前关于社交焦虑个体记忆偏向的研究大多集中在对实验刺激材料的再认偏向和自传体回忆偏向，而对于情节式未来思考中社交焦虑个体的记忆偏向及其影响机制尚不清楚。由于担忧未来是焦虑的核心表现之一，在研究消极未来想法对焦虑的影响时，更深入地考察这些想象的事件是如何随着时间的推移而被留存是有必要的。此外，已有研究发现自我同情可以缓解焦虑相关的情绪障碍，但其具体作用机制还未明晰。采用 2（组别：实验组、控制组）×2（线索组类别：积极、消极）的混合实验设计，以回忆准确性为因变量，检验高社交焦虑个体在情节式未来思考中的记忆偏向及自我同情对这种记忆偏向的影响。共 57 名高社交焦虑被试参与实验，实验组 28 人，控制组 29 人。采用自我同情写作任务对实验组被试进行自我同情的诱导，实验组和控制组被试均完成了状态自我同情和状态焦虑的测量、未来情节模拟任务以及第二天的回忆任务。结果发现：（1）实验组自我同情水平显著高于控制组，状态焦虑程度低于控制组，自我同情操纵有效；（2）实验组在积极线索条件下的回忆准确性显著高于消极线索条件下的回忆准确性，而控制组在消极线索条件下的回忆准确性显著高于积极线索条件下的回忆准确性，且实验组在积极线索组条件下的回忆准确性显著高于控制组。结果表明高社交焦虑个体在情节式未来思考中存在负性记忆偏向，且自我同情写作可以降低状态焦虑水平并消除负性记忆偏向。本研究首次综合多种实验任务揭示自我同情的作用机制和高社交焦虑个体在情节式未来思考中的记忆偏向，对自我同情缓解焦虑症状的起效机制进行了部分的验证，并有助于进一步完善社交焦虑认知模型。

关键词　自我同情，社交焦虑，记忆偏向，情节式未来思考

The Effect of Self-Compassion on Memory Bias in Episodic Future Thinking of Individuals with High Social Anxiety

Zhu ke[1], Li Jie[2]

([1]School of Psychology, Jiangxi Normal University, Nanchang, 330022)

([2]Psychological Education Center of Jiangxi Normal University, Nanchang, 330022)

***Abstract*：** Previous research has demonstrated the existence of negative memory biases in socially anxious individuals, but most of the current research on memory bias in socially anxious individuals has focused on the memory bias for experimental stimulus material and autobiographical memory biases, whereas the memory bias of socially anxious individuals in episodic future thinking and the mechanisms that influence it are not clear. Worrying about the future as one of the core manifestations of anxiety, it is necessary to examine more deeply how these imagined events are retained over time when considering the impact of negative future thoughts on anxiety. Besides, self-compassion has been found to alleviate anxiety-related mood disorders, but the exact mechanism of action is not yet clear. The present study used a 2 (group: experimental, control) × 2 (cue group category: positive, negative) mixed experimental design to examine the recall bias in episodic future thinking and the effect of self-compassion on this recall bias in individuals with high social anxiety, where recall accuracy was the dependent variable. A total of 57 valid high social anxiety subjects were tested, 28 in the experimental group and 29 in the control group. The self-compassion writing task was used to induce self-compassion in the experimental group subjects, and both experimental and control group subjects completed measures of state self-compassion and

state anxiety, a future episode simulation task, and a second day recall task. The results found that (1) the experimental group had significantly higher levels of self-compassion than the control group, lower state anxiety than the control group, and the self-compassion manipulation was effective; (2) the experimental group's recall accuracy in the positive cue condition was significantly higher than the recall accuracy in the negative cue condition, while the control group's recall accuracy in the negative cue condition was significantly higher than the recall accuracy in the positive cue condition, and the experimental group's recall accuracy in the positive cue group condition had significantly higher recall accuracy than the control group. The results suggest that individuals with high social anxiety have a negative recall bias in episodic future thinking, and that self-compassionate writing reduces state anxiety levels and eliminates the negative recall bias. This study is the first to integrate multiple experimental tasks to reveal the mechanism of action of self-compassion and memory bias in episodic future thinking among individuals with high social anxiety, which partially validates the mechanism of action of self-compassion to alleviate anxiety symptoms and contributes to the further refinement of the cognitive model of social anxiety.

Keywords：self-compassion, social anxiety, memory bias, episodic future thinking

青少年创伤后应激障碍与成长的共存模式及社会支持、共情与应对方式的作用

甄宝华[1,2]　姚本先[2]（通讯作者）
1 南京师范大学心理学院，南京，210097
2 安徽师范大学心理学系，芜湖，241000，ybx7756@126.com

摘 要　新冠疫情的爆发和持续可能使个体产生创伤体验，导致人们出现创伤后应激障碍(PTSD)和创伤后成长(PTG)等心理反应。这些积极或消极心理反应性质不同，却能够共存于经历创伤的人群中，对个体的认知和行为功能具有广泛的影响。以往研究多从变量角度探究不同因素对个体 PTSD 和 PTG 的影响，但这种方式忽略了个体存在的异质性，采用个体中心对个体创伤后心理反应进行分析的研究较少。针对这些问题，同时考虑到青少年心理发展的重要性，本研究基于创伤后心理反应的破碎世界假设和情感-认知加工模型，探究青少年 PTSD 和 PTG 共存的潜在类别及社会支持、共情与应对方式的作用。采用问卷方式对湖北省某初中学生进行调查，获得有效问卷 921 份，对数据进行潜在剖面分析，并通过多元 Logistic 回归探索青少年 PTSD 和 PTG 的潜在类别及其影响因素。结果发现，青少年 PTSD 与 PTG 共存模式可以分为成长组(42.5%)，低症状组(20.9%)和压力抗争组(36.6%)三种类型。社会支持、共情、积极应对和消极应对方式可以预测青少年的潜在类别状况。这些结果说明，青少年创伤后心理反应存在成长组、低症状组和压力抗争组三种潜在类别，表明青少年创伤后心理反应具有异质性和稳定性的特点。因此，对青少年创伤后心理反应进行干预时既要重视积极因素的普遍性影响，也要关注个体差异，以更好促进青少年成长。
关键词　PTSD，PTG，社会支持，共情，潜在剖面分析

Analysis of co-existence patterns and influencing factors of posttraumatic stress disorder and growth among adolescents

Zhen Baohua[1,2], Yao Benxian[2] (Corresponding author)
1 School of Psychology, Nanjing Normal University, Nanjing 210097, China
2 Department of Psychology, Anhui Normal University, Wuhu 241000, China

Abstract: Coronavirus disease 2019 (COVID-19) causes individuals to experience trauma, lead to various positive and negative psychological reactions. Posttraumatic stress disorder (PTSD) and post-traumatic growth disorder (PTG) are two of the common psychological reactions. As two posttraumatic outcomes with distinct valence, PTSD and PTG may coexist in people with traumatic experience, and have extensive effects on individuals' cognitive and behavioral functions. Previous studies found that PTSD and PTG were affected by different factors, such as environmental, emotional and behavioral factors. However, most studies explored the effect used the variable-centered analysis, and few studies analyzed posttraumatic psychological reactions from person-center. In order to solve these problems, and considering the importance of adolescent psychological development, based on shattered assumptions and affective-cognitive processing model of post-traumatic psychological reactions, the present study explored the latent patterns of adolescent PTSD and PTG, and the role of social support, empathy and coping styles. A self-report questionnaire was used to investigate the students of a

junior middle school in Hubei Province, and 921 valid questionnaires were obtained. The latent profile analysis was used to explore the latent patterns of PTSD and PTG in adolescents, which were finally identified into three subtypes: growth group (42.5%), low symptoms group (20.9%), stressed and struggled group (36.6%). Multiple logistic regression found that social support, empathy, positive coping and negative coping styles could predict adolescents' latent patterns. These results suggested that there are three latent patterns of adolescent posttraumatic psychological reactions, indicating that adolescent posttraumatic psychological reaction has the characteristics of heterogeneity and stability. Therefore, in the intervention of adolescents' posttraumatic psychological reactions, attention should be paid to both universal influence of positive factors and individual differences, so as to better develop the growth of adolescents.

Keywords: PTSD, PTG, Social support, Empathy, Latent profile analysis

孤独症诊断知情和行为特征对孤独症儿童污名、道德判断和共情的影响

曾莉婷[1]　苏娃浔[1]　王乾东[2]（通讯作者）

1 北京师范大学心理学部，北京，100875

2 北京师范大学心理学部，北京，100875，wangqd@bnu.edu.cn

摘 要　孤独症是以社交交流障碍和重复刻板行为或局限兴趣为主要特征的神经发育障碍，是一个长期遭受污名（歧视和偏见）的疾病。这种污名使孤独症儿童在学校学习和未来社会就业等方面受到排斥的风险更高，严重影响他们的身心健康。因此，探究孤独症污名的影响因素有利于了解污名的产生机制并进行干预，以改善孤独症儿童的生活环境，促进他们的身心健康的发展。本研究探究孤独症标签化的疾病诊断结果和异常行为对污名的影响。同时，本研究还测量了人们对孤独症儿童的道德判断和共情以全面了解大众对孤独症的认知、情感和行为反应。实验 1 探究诊断知情的影响。60 名被试阅读一名被诊断为孤独症的儿童（未描述孤独症的典型行为特征）的信息和一名正常发育儿童的信息，随后完成对这两名儿童的社会距离、道德评价和共情的问卷调查。实验 2 探究行为特征的影响。60 名被试阅读一名具有孤独症典型行为特征的儿童（未提供孤独症的诊断知情）的信息和一名正常发育儿童的信息，随后完成对这两名儿童的社会距离、道德评价和共情的问卷调查。结果发现，相比于正常发育儿童，被试对被诊断为孤独症（实验 1）或是具有孤独症行为特征（实验 2）的儿童的社会距离更远(社会回避)，即存在污名。然而，当描述儿童做了不道德的事以及受伤时，相比于正常发育儿童，被试对被诊断为孤独症或具有孤独症行为特征的儿童的道德评价更高，并且更共情。进一步对比实验 1 和实验 2 的结果发现与具有孤独症行为特征的儿童相比，被试对被诊断为孤独症的儿童的社会距离更近，认为他们更有道德，并更共情他们。这些结果说明孤独症诊断知情和行为特征均会影响大众对孤独症儿童的污名、道德判断和共情：人们对孤独症儿童“既爱又憎”。虽然孤独症诊断知情和行为特征会让人们对孤独症儿童更共情、更认为有道德，但是更不愿意接近他们。同时，揭露孤独症的诊断可能能降低孤独症的污名。

关键词　孤独症，污名，社会距离，道德判断，共情

The Influence of Diagnostic Awareness and Behavioral Characteristics of Autism on Stigma, Moral Judgment, and Empathy in Children with Autism

Zeng Liting [1] Su Waxun [1] Wang Qiandong [2] (corresponding author)
1 Faculty of Psychology, Beijing Normal University, Beijing, 100875
2 Faculty of Psychology, Beijing Normal University, Beijing, 100875, wangqd@bnu.edu.cn

Abstract: Autism is a neurodevelopmental disorder characterized by social communication deficits, repetitive stereotyped behaviors and restricted interests. It is a condition that has long suffered from stigma. This stigma results in a higher risk of exclusion for autistic childrenin school learning and future employment, significantly impacting their physical and mental well-being. Therefore, exploring the factors influencing the stigmatization of autism is beneficial for understanding the mechanisms behind stigma and implementing interventions to improve the living environment and promote the physical and mental health development of autistic children. This study investigated the impact of diagnostic awareness and behavioral characteristics on the stigmatization of autism. Additionally, we measured participants' moral judgments and empathy towards autistic children to gain a comprehensive understanding of the public's cognitive, emotional, and behavioral responses towards autism. Experiment 1 explored the influence of diagnostic awareness. Sixty participants read information about a child diagnosed with autism (without describing typical autistic behavioral features) and about a typically developing child. They then completed questionnaires on social distance, moral evaluation, and empathy towards these two children. Experiment 2 investigated the influence of behavioral characteristics. Sixty participants read information about a child displaying typical autistic behavioral features (without mentioning autism diagnosis) and information about a typically developing child. Similar questionnaires were administered to assess social distance, moral evaluation, and empathy towards both children. The results revealed that compared to typically developing children, participants exhibited greater social distance (i.e., more social avoidance), indicating stigmatization, towards children diagnosed with autism (Experiment 1) or displaying typical autistic behavioral features (Experiment 2). However, when the children's actions were described as immoral or when they were depicted as being injured, participants displayed higher moral evaluations and increased empathy towards children diagnosed with autism or displaying autistic behavioral characteristics compared to typically developing children. Furthermore, comparisons between Experiment 1 and Experiment 2 revealed that participants showed less social distance towards children diagnosed with autism, perceived them as more moral, and exhibited higher empath, compared to children displaying autistic behavioral features. These findings indicate that both diagnostic awareness and behavioral characteristics of autism influence public stigmatization, moral judgments, and empathy towards autistic children, leading to ambivalent attitudes of both affection and aversion. Although diagnostic awareness and autistic behavioral characteristics may enhance empathy and moral evaluation towards autistic children, people are still reluctant to approach them. Nonetheless, disclosing autism diagnosis could potentially reduce the stigma associated with the condition.

Keywords: Autism, Stigma, Social distance, Moral judgment, Empathy

长期在线学习对中学生焦虑、抑郁和网络成瘾的影响：来自一项交叉面板网络分析方法的启示

陶言强[1] 王书剑[1] 马紫娟[2] 张亮[3] 刘翔平[1]（通讯作者）

1 北京师范大学心理学部，北京，100875

2 华南师范大学心理学院，广州，510631

3 东北农业大学心理健康中心，哈尔滨，150030

通讯作者 E-mail：89034@bnu.edu.cn

摘 要 **目的：**在过去的研究中，主要运用以变量为中心的方法，如潜变量模型，探索了中学生焦虑、抑郁和网络成瘾之间的关系。然而，长期的 COVID-19 大流行使得这三种心理障碍之间的相互关系变得更加严重，并且缺乏症状视角的相关研究。因此，本研究采用网络分析方法，评估了这些障碍症状的潜在动态变化。

方法：在跨度为四个月的时间，累计有 2,356 名中国中学生参与了调查，完成了广泛焦虑障碍量表、患者健康问卷和网络成瘾测试。本研究主要采取横断面的症状网络（CSSN）和交叉滞后面板网络（CLPN）分析。

结果：通过比较两个不同时期的 CSSN，确定了“无法控制的担忧”、“离线时情绪低落/易怒”和“工作表现或生产力下降”这几个症状具备最有影响力的中心症状且在时间上保持一致。此外，CLPN 的结果显示，“烦恼时容易发脾气或表现出厌烦”这个症状表现出最强的内部中心性，即被网络中其他症状预测最强的症状。同时，“无欢乐感”（抑郁症状）和“易怒”（焦虑症状）表现出对网络中其他症状具有最高的外部中心性，即触发症状。

结论：针对中心症状进行适当的干预可能有助于预防或减少焦虑、抑郁和网络成瘾的风险。本研究结果提供了指导制定相关干预措施的重要线索，例如针对无法控制的担忧、离线时情绪低落/易怒和工作表现或生产力下降的干预措施。此外，了解烦恼时容易发脾气或表现出厌烦的症状与网络成瘾之间的关联，也有助于制定干预策略，以减少网络成瘾的风险。

关键词 焦虑，抑郁，网络成瘾，网络分析，纵向数据

The Effect of Long-term Online Learning on Anxiety, Depression, and Internet Addiction Among Secondary School Students: Insight from A Cross-Lagged Panel Network Approach

Yanqiang Tao [1], Shujian Wang [1], Zijuan Ma [2], Liang Zhang [3], Xiangping Liu [1*]

[1] Faculty of Psychology, Beijing Normal University, Beijing, 100875, China

[2] School of Psychology, South China Normal University, Guangzhou, 510631, China

[3] College Students' Mental Health Education Center, Northeast Agricultural University, Harbin, 150030, China

***Abstract*: Objectives:** Previous research has examined the relationship between anxiety, depression, and Internet addiction (IA) using variable-centered approaches among secondary school students. However, the ongoing COVID-19 pandemic is exacerbating the relationship between the three mental disorders. Therefore, the present study assessed the underlying dynamic changes in the symptoms of these disorders using a network analysis approach.

Methods: A total of 2,356 Chinese secondary school students were followed for four months at baseline by completing the Generalized Anxiety Disorder Scale, Patient Health Questionnaire, and Internet Addiction Test surveys. Cross-sectional symptom network (CSSN) and cross-lagged panel network (CLPN) analyses were used for statistical analysis.

Results: Two comorbidity CSSNs were compared, and the symptoms "uncontrollable worry", "depressed/moody/nervous being offline", and "work performance or productivity suffer" were identified as influential central symptoms and consistent over time. In addition, the CLPN revealed that the symptom "snap or act annoyed when bothered" was the highest "in" expected influence IA symptom predicted by other symptoms, and "anhedonia" (i.e., a depression symptom) and "'irritability" (i.e., an anxiety symptom) had the highest "out" expected influence.

Conclusions: Appropriate interventions targeting core symptoms may potentially prevent or reduce the risk of anxiety, depression, and IA.

***Keywords*:** Anxiety, Depression, Internet addiction, Network analysis, Longitudinal data

共情对中学生智能手机的问题使用和攻击性之间双向关系的影响：一项调节网络分析

陶言强[1] 邹欣原[1] 唐绮惠[1] 王书剑[1] 马紫娟[2] 张亮[3] 刘刚[4] 刘翔平[1]（通讯作者）

1 北京师范大学心理学部，北京，100875

2 华南师范大学心理学院，广州，510631

3 东北农业大学心理健康中心，哈尔滨，150030

4 南京医科大学附属南京脑科医院精神科，南京, 210029

通讯作者 E-mail：89034@bnu.edu.cn

摘 要 **背景：**现有的关于智能手机的问题使用（PSU）和攻击性之间关系的文献主要集中在研究它们的单向关系，对于这种关系的双向性质，尤其是考虑共情的作用，关注较少。本研究采用一种新颖的调节网络方法，研究智能手机的问题使用和攻击性之间的双向关系，并探讨共情在其中的的调节作用机制。

方法：本研究共有来自中国哈尔滨市 35 所初高中的 2,469 名学生参与，其中女性占 49.1%，平均年龄为 13.83 岁，年龄标准差为 1.48。使用基本共情量表、巴斯-沃伦攻击问卷和手机成瘾指数评估共情水平、攻击性和智能手机的问题使用症状。

结果：分析结果显示智能手机的问题使用和攻击性之间的关系是复杂且双向的。无论是认知共情网络，还是情感共情网络，本研究揭示最强关联的症状对为在“敌意”和“回避/逃避”。此外，“愤怒”在情感和认知调节网络模型中的中心性（EI）最高。研究还发现了在不同水平的情感共情下，“效率下降”和“身体攻击”的可调节的条件效应。具体来说，在较低水平的情感共情下，“效率下降”和“身体攻击”之间存在正向的双向关系。然而，在较高水平的情感共情下，这种关系变为负向且双向。

结论：这些研究结果有助于更全面地理解智能手机的问题使用和攻击性之间的复杂动态，并强调有必要针对性地推进情感共情，以减轻过度手机使用带来的负面后果，并需要针对性的干预措施。

关键词 智能手机的问题使用，攻击，共情，调节网络

Effects of empathy on the bidirectional relationships between problematic smartphone use and aggression among secondary school students: A moderated network approach

Yanqiang Tao [1], Xinyuan Zou [1], Qihui Tang [1], Shujian Wang [1], Zijuan Ma [2], Liang Zhang [3], Gang Liu [4], Xiangping Liu [1*]

[1] Faculty of Psychology, Beijing Normal University, Beijing, 100875, China

[2] School of Psychology, South China Normal University, Guangzhou, 510631, China

[3] College Students' Mental Health Education Center, Northeast Agricultural University, Harbin 150030, China

[4] Department of Psychiatry, Affiliated Nanjing Brain Hospital, Nanjing Medical University, Nanjing, 210029, China

***Abstract*: Background:** Existing literature on the relationship between problematic smartphone use (PSU) and aggression has primarily focused on examining their unidirectional association, with limited attention paid to the bidirectional nature of this relationship, particularly when considering the role of empathy. This study employs a novel moderated network approach to examine the bidirectional relationship between problematic smartphone use and aggression, while also investigating the moderating mechanism of empathy.

Methods: A total of 2,469 students (49.1% female, Mean age = 13.83, SD age = 1.48) from 35 junior and senior high schools in Harbin, China, participated in this study. Empathy level, aggressiveness, and PSU symptoms were assessed using the Basic Empathy Scale, the Buss-Warren Aggression Questionnaire, and the Mobile Phone Addiction Index.

Results: Analysis revealed that the relationship between PSU and aggression was complex and bidirectional. The strongest association was observed between "hostility" and "withdrawal/escape". In addition, "anger" had the highest ExpectedInfluence (EI) in both affective and cognitive moderate network models. An important discovery was also made regarding the conditional effect of "productive loss" and "physical aggression" across different levels of affective empathy. Specifically, at lower levels of affective empathy, a positive bidirectional relationship was found between "productive loss" and "physical aggression". However, this relationship turned negative and bidirectional at higher levels of affective empathy.

Conclusions: The findings contribute to a more comprehensive understanding of the complex dynamics between PSU and aggression and highlight the need for targeted interventions that promote affective empathy to mitigate the negative consequences of excessive smartphone use.

***Keywords*:** Problematic smartphone use, Aggression, Empathy, Moderate network analysis

长期在线学习对抑郁中学生网络成瘾症状的影响：一项交叉滞后网络分析

陶言强[1] 邹欣原[1] 唐绮惠[1] 刘翔平[1] 张亮[2]（通讯作者）

1 北京师范大学心理学部，北京，100875

2 东北农业大学心理健康中心，哈尔滨，150030

通讯作者 E-mail：zhangliangpsy@neau.edu.cn

摘 要 **背景：**COVID-19 的肆虐以及受此影响而采取的在线学习课堂，增加了青少年网络成瘾的风险，尤其是那些有抑郁倾向的的青少年群体。本研究旨在使用交叉滞后面板网络分析方法，寻找具备抑郁倾向的青少年群体中网络成瘾的核心症状，以及网络成瘾症状的动态轨迹变化。为了解网络成瘾症状之间的相互关联提供新的视角。

方法：最初有 2,415 名学生参与了研究，但经过匹配后，仅有 342 名学生（14.16%的抑郁发病率）具备抑郁倾向，因此用于最终数据分析。所有的参与者均完成了网络成瘾测试和患者健康问卷。采用交叉滞后面板网络分析方法，考察了网络成瘾症状随时间的自回归和交叉滞后的轨迹。

结果：在网络成瘾的网络结构中，“预期”症状表现出最高的外在影响力，其次是“在线时间延长”和“工作(学习)表现或生产力受损”。在抑郁症状网络结构中，“工作（学习）表现或生产力受损”具有最高的内在影响力，其次是“生活乏味空虚”，“发脾气或感到烦躁”，“在做事之前检查电子邮件/社交网络”，以及“学校成绩受损”。最后，研究发现，在第 1 波和第 2 波之间的全局网络强度和网络结构没有显著的差异。

结论：这些研究结果对于制定更有效的干预措施和政策，以减轻患有抑郁症的青少年在在线学习中的网络成瘾水平具有重要意义。

关键词 在线学习，网络成瘾，抑郁，中学生，网络分析

The Influence of Prolonged Online Learning on Internet Addiction Symptoms in Depressed Secondary School Students: A Cross-Lagged Panel Network Study

Yanqiang Tao [1], Xinyuan Zou [1], Qihui Tang [1], Xiangping Liu [1], Liang Zhang [2*]

[1] Faculty of Psychology, Beijing Normal University, Beijing, 100875, China

[2] College Students' Mental Health Education Center, Northeast Agricultural University, Harbin 150030, China

Abstract **: Background:** The COVID-19 pandemic and the shift to online learning have increased the risk of Internet addiction (IA) among adolescents, particularly those with depression. This study aims to identify the core symptoms of IA among depressed adolescents using a cross-lagged panel network framework, which offers a novel perspective on understanding the interconnectedness of IA symptoms.

Methods: Initially 2,415 students were recruited, but after matching only 342 students (14.16% depression incidence rate) were retained for final data analysis. Participants completed the Internet Addiction Test and the Patient Health Questionnaire-9. A cross-lagged panel network analysis was conducted to examine the autoregressive and cross-lagged trajectories of IA symptoms over time.

Results: Within the IA network, the symptom "Anticipation" showed the highest unexpected influence, followed by "Staying online longer" and "Work performance or productivity suffers". For the depression symptom network, "Work performance or productivity suffer" had the highest unexpected influence, followed by "Life boring and empty", "Snap or act annoyed when bothered", "Check email/SNS before doing things" and "School grades suffer". No significant differences in global network strength and network structure were found between Wave 1 and Wave 2.

Conclusions: These findings have important implications for the development of more effective interventions and strategies to mitigate IA in depressed adolescents engaged in online learning.

Keywords**:** Online Learning, Internet Addiction, Depression, Secondary School Students, Network analysis

中国农村学龄儿童焦虑和抑郁症状的内在联系及其与问题行为的关联：一项网络分析

桂洁[1] 唐绮惠[2] 邹欣原[2] 马紫娟[3] 陶言强[2]（通讯作者）

1 江苏电子信息职业学院建筑装饰与艺术学院，淮安，223003

2 北京师范大学心理学部，北京，100875

3 华南师范大学心理学院，广州，510631

通讯作者 E-mail：psyxuele2020@163.com

摘 要 **目标：**研究表明焦虑、抑郁和问题行为之间可能存在双向关系。但是，关于抑郁、焦虑和问题行为之间关系的研究还很有限。同时，探讨这种关系中的性别差异的研究几乎没有。本研究旨在通过网络方法检验中国学龄儿童焦虑、抑郁和问题行为之间的复杂关系，并探索网络结构是否存在性别上的差异。

方法：本研究采用中科院心理所的“农村儿童心理健康数据库”，共有 1,601 名学生参与（平均年龄=11.22 岁，标准差=1.32 岁），分为女孩组（N=846）和男孩组（N=755）。抑郁、焦虑和问题行为的水平分别通过儿童抑郁量表、广泛性焦虑障碍量表和儿童行为检查表进行评估。本研究主要采用症状网络方法来实现研究目的。

结果：在抑郁和焦虑网络中，“无欢愉感”和“感觉不被爱”被确定为最具影响力的症状。同时，在所有农村学龄儿童中，“学业表现下降”和“缺乏友谊”之间存在最强的边的联系。此外，在农村女孩中，“自尊心低”和“感到害怕”是沟通抑郁和焦虑网络的关键侨联症状，而在农村男孩中，“无法控制的担忧”和“过度担忧”则是沟通抑郁和焦虑网络的关键侨联症状。此外，问题行为与农村女孩的“缺乏友谊”症状和农村男孩的“学业表现下降”症状具备最强的直接关联。

结论：本研究深化了我们对农村学龄儿童抑郁、焦虑和问题行为之间关系的理解，并揭示了其中的性别差异。

关键词 焦虑，抑郁，问题行为，网络分析

The interrelationship of symptoms between anxiety and depression and its association with problem behaviors in Chinese rural school-aged children: A network analysis

Jie Gui [1] Qihui Tang [2] Xinyuan Zou [2] Zijuan Ma [3] Yanqiang Tao [2]

[1] Faculty of Architectural Decoration and Art, Jiangsu Vocational College of Electronics and Information, Huaian, 223003, China

[2] Faculty of Psychology, Beijing Normal University, Beijing, 100875, China

[3] School of Psychology, South China Normal University, Guangzhou, 510631, China

***Abstract*：Objectives:** Studies revealed the relationship between anxiety, depression, and problem behaviors (PBs) may be bidirectional. But studies on the relationship between depression, anxiety, and PBs are limited. Meanwhile, studies exploring gender differences in the relationship are even more scarce. This study aimed to examine the complex relationship between anxiety, depression, and PBs among children and explore the gender differences in this relationship through a network approach.

Methods: The current study, conducted on the Database on Rural Children's Mental Health, included 1,601 students ($Mean_{age}$ = 11.22, SD_{age} = 1.32) divided into girl (N = 846) and boy (N = 755) groups. The levels of depression, anxiety, and PBs were accessed by the Children's Depression Inventory, Generalized Anxiety Disorder Scale, and Child Behavior Checklist separately. The symptom network approach and the flow network approach were used.

Results: "Anhedonia" and "feeling unloved" were identified as the most influential symptoms in the network of depression and anxiety. Meanwhile, the strongest edges existed between "school performance decrement" and "lack of friendship" among all rural school-aged children. Moreover, "low self-esteem" and "feeling afraid" served as the bridge symptoms among rural girls, while "uncontrollable worry" and "excessive worry" were the bridge symptoms among rural boys. Furthermore, in the flow network, PBs shared the strongest connection to "lack of friendship" among rural girls and "school performance decrement" among rural boys.

Conclusion: The study deepened our understanding of the relationship between depression, anxiety, and PBs among rural school-aged children and disclosed the gender difference in it.

***Keywords*：** Depression, Anxiety, Problem behaviors, Network analysis

抑郁症情绪失调的动态特征：情绪动力学的视角

吴朝毅[1]　王振[1](通讯作者)

1 上海交通大学医学院附属精神卫生中心，上海，200030，Email：wangzhen@smhc.org.cn

摘 要　抑郁症在 DSM-5 中界定的核心特征是持久的情绪紊乱，如过度悲伤和急剧减少的愉悦情绪体验。过去的研究主要基于人格的特质模型，将情绪视为反映个体情绪体验整体水平的特质，从静态的、特质性的整体情绪强度出发探索抑郁症情绪失调的特征。然而，现实生活中，情绪是由社交互动、个体评估过程和外界环境等多种因素共同影响的动态过程。情绪动力学将情绪的时间维度和波动性视为情绪的本质特征，该理论强调：抑郁症临床人群的情绪失调不局限于高消极情绪平均强度和低积极情绪平均强度，还表现为异常的情绪动态模式。本综述系统地纳入 18 篇采用生态瞬时评估探究日常生活中抑郁症临床人群的情绪动态特征的文献，结果表明：(1) 相比于健康对照组，抑郁症患者消极情绪波动幅度更大，表现为更大的消极情绪变异性和消极情绪不稳定性。(2) 抑郁症患者的情绪系统僵化且缺乏灵活性，表现为更大的消极情绪惯性和更密集的情绪网络。(3) 抑郁症患者情绪反应性存在异常，表现为经历积极事件后的心境点亮效应，经历消极事件后更大的消极情绪反应性。(4) 患者情绪系统的复杂度下降，表现为更低的情绪分化水平。(5) 处于抑郁症缓解期的个体也表现出一定程度的情绪失调。本综述首次从情绪动力学的视角总结了抑郁症情绪失调的特征。研究结果进一步佐证了复杂动态系统理论和网络理论等精神障碍的动态模型，并且有助于为抑郁症的个体化医疗和复发预防提供潜在的、具有高生态效度的干预靶点。

关键词　抑郁症，情绪动力学，情绪失调，生态瞬时评估

The Dynamic Features of Emotion Dysregulation in Major Depressive Disorder：An Emotion Dynamics Perspective

WU Chaoyi[1] WANG Zhen[1]

1 Shanghai Mental Health Center, Shanghai Jiao Tong University School of Medicine, Shanghai, 200030, China

***Abstract*：** The core feature of major depressive disorder, as defined in the DSM-5, is persistent mood disturbances such as excessive sadness and drastically reduced pleasant emotional experiences. Previous studies have mainly relied on the trait model of personality, which regards emotion as trait that reflects an individual's overall level of emotional experience. These studies explore the characteristics of depressive emotional disorder by examining the static and trait-related aspects of overall emotional intensity. However, in real life, emotion is a dynamic process influenced by social interaction, individual evaluation processes and external environment. Emotion dynamics considers the temporal dimension and volatility as the essential characteristics of emotions. Research on emotion dynamics has emphasized that the emotion dysregulation in major depressive disorder is not limited to the high average intensity of negative emotion and low average intensity of positive emotion. It is also manifested as abnormal patterns of emotion dynamics. This review systematically included 18 literatures using ecological momentary assessment to explore everyday emotion dynamics in major depression. The results showed that patients with current depression had greater negative mood fluctuations compared with the healthy control group. These fluctuations were manifested as greater negative emotion variability and negative emotion instability. Additionally, depressed patients exhibit a rigid and inflexible emotional system, which is characterized by greater negative emotion inertia and denser emotion networks. Moreover, there are abnormalities in the emotion reactivity of depressed patients. This is manifested as the mood brightening effect after positive events and greater negative emotion reactivity after negative events. Furthermore, the complexity of the patient's emotional system decreases, manifested as a lower level of emotion differentiation. Finally, Patients with remitted depression also exhibit some degree of mood dysregulation. This review is the first to elucidate the main features of emotion dysregulation in major depressive disorder viewed from emotion dynamics. The results enhance support for dynamic models of mental disorders such as complex dynamical system theory and network theory, and provide potential intervention targets with high ecological validity for individualized treatment and relapse prevention of depression.

***Keywords*：** Major Depressive Disorder, Emotion Dynamics, Emotion Dysregulation, Ecological Momentary Assessment

抑郁症情绪失调的动态特征：情绪动力学的视角

吴朝毅[1]　王振[1](通讯作者)

1 上海交通大学医学院附属精神卫生中心，上海，200030，Email：wangzhen@smhc.org.cn

摘 要　抑郁症在 DSM-5 中界定的核心特征是持久的情绪紊乱，如过度悲伤和急剧减少的愉悦情绪体验。过去的研究主要基于人格的特质模型，将情绪视为反映个体情绪体验整体水平的特质，从静态的、特质性的整体情绪强度出发探索抑郁症情绪失调的特征。然而，现实生活中，情绪是由社交互动、个体评估过程和外界环境等多种因素共同影响的动态过程。情绪动力学将情绪的时间维度和波动性视为情绪的本质特征，该理论强调：抑郁症临床人群的情绪失调不局限于高消极情绪平均强度和低积极情绪平均强度，还表现为异常的情绪动态模式。本综述系统地纳入 18 篇采用生态瞬时评估探究日常生活中抑郁症临床人群的情绪动态特征的文献，结果表明：(1) 相比于健康对照组，抑郁症患者消极情绪波动幅度更大，表现为更大的消极情绪变异性和消极情绪不稳定性。(2) 抑郁症患者的情绪系统僵化且缺乏灵活性，表现为更大的消极情绪惯性和更密集的情绪网络。(3) 抑郁症患者情绪反应性存在异常，表现为经历积极事件后的心境点亮效应，经历消极事件后更大的消极情绪反应性。(4) 患者情绪系统的复杂度下降，表现为更低的情绪分化水平。(5) 处于抑郁症缓解期的个体也表现出一定程度的情绪失调。本综述首次从情绪动力学的视角总结了抑郁症情绪失调的特征。研究结果进一步佐证了复杂动态系统理论和网络理论等精神障碍的动态模型，并且有助于为抑郁症的个体化医疗和复发预防提供潜在的、具有高生态效度的干预靶点。

关键词　抑郁症，情绪动力学，情绪失调，生态瞬时评估

The Dynamic Features of Emotion Dysregulation in Major Depressive Disorder：An Emotion Dynamics Perspective

WU Chaoyi[1] WANG Zhen[1]

1 Shanghai Mental Health Center, Shanghai Jiao Tong University School of Medicine, Shanghai, 200030, China

***Abstract*：** The core feature of major depressive disorder, as defined in the DSM-5, is persistent mood disturbances such as excessive sadness and drastically reduced pleasant emotional experiences. Previous studies have mainly relied on the trait model of personality, which regards emotion as trait that reflects an individual's overall level of emotional experience. These studies explore the characteristics of depressive emotional disorder by examining the static and trait-related aspects of overall emotional intensity. However, in real life, emotion is a dynamic process influenced by social interaction, individual evaluation processes and external environment. Emotion dynamics considers the temporal dimension and volatility as the essential characteristics of emotions. Research on emotion dynamics has emphasized that the emotion dysregulation in major depressive disorder is not limited to the high average intensity of negative emotion and low average intensity of positive emotion. It is also manifested as abnormal patterns of emotion dynamics. This review systematically included 18 literatures using ecological momentary assessment to explore everyday emotion dynamics in major depression. The results showed that patients with current depression had greater negative mood fluctuations compared with the healthy control group. These fluctuations were manifested as greater negative emotion variability and negative emotion instability. Additionally, depressed patients exhibit a rigid and inflexible emotional system, which is characterized by greater negative emotion inertia and denser emotion networks. Moreover, there are abnormalities in the emotion reactivity of depressed patients. This is manifested as the mood brightening effect after positive events and greater negative emotion reactivity after negative events. Furthermore, the complexity of the patient's emotional system decreases, manifested as a lower level of emotion differentiation. Finally, Patients with remitted depression also exhibit some degree of mood dysregulation. This review is the first to elucidate the main features of emotion dysregulation in major depressive disorder viewed from emotion dynamics. The results enhance support for dynamic models of mental disorders such as complex dynamical system theory and network theory, and provide potential intervention targets with high ecological validity for individualized treatment and relapse prevention of depression.

***Keywords*：** Major Depressive Disorder, Emotion Dynamics, Emotion Dysregulation, Ecological Momentary Assessment

高中生心理健康网络的性别差异：基于 MHSMSS 量表

张正 [1,2] 邱安迪 [3] 陈慧 [1] 周嘉玮 [1] 周建松 [1*]

1 中南大学湘雅二医院，国家精神心理疾病临床研究中心，国家精神疾病医学中心，精神病学科

2 安徽师范大学心理学系

3 The University of Sheffield

通讯作者 E-mail：周建松 zhoujs2003@csu.edu.cn

摘 要 【目的】高中生的身体、心理和社会角色都在发生重大变化，他们需要面对许多新的挑战和适应不同的环境。尤其是学业压力、家庭关系、社交困难等。既往研究表明，高中生心理健康存在性别差异，但大多数仅关注水平高低，忽视了心理健康的内部结构的关联。心理健康的内部结构多元复杂，仅仅关注水平高低无法全面了解心理健康问题的本质。网络分析方法可以从“共病网络”角度出发，解释各个症状、各类心理障碍之间相互影响、相互作用的机制。因此，本研究旨在探讨高中生心理健康网络结构及其性别差异。【方法】研究采用了 MHSMSS（Middle School Students Mental Health Scale）量表作为测量工具，对 3769 名高中生（包括 1563 名女性）进行问卷调查和数据分析。【结果】方差分析显示了高中生在强迫症状、偏执、敌意、人际敏感性、抑郁、焦虑、学业压力和情绪不稳定方面存在着性别差异（F＞4.493，P＜0.05）；网络分析结果表明高中生心理健康问题共存于同一个心理病理网络中（Sparsity=0.13）；中心性结果表明男生的核心症状是抑郁（Expected influence=1.189），女生的核心症状是焦虑（Expected influence=1.472）。【结论】高中生心理健康网络存在性别差异。上述发现有助于我们更好地理解高中生心理健康网络的性别差异，并为高中生心理社会服务提供基于性别视角的针对性参考。

关键词 高中生，心理健康，网络分析，性别

Gender Differences in Mental Health Networks of High School Students: A Study Based on the MHSMSS Scale

Zhang Zheng [1,2] Andi QIU[3] Chen Hui[1] Zhou Jiawei [1] Zhou Jiansong [1*]

1 Department of Psychiatry, National Clinical Research Center for Mental Disorders, and National Center for Mental Disorders, The Second Xiangya Hospital of Central South University, Changsha, Hunan, China.

2 College of Educational Sciences, Anhui Normal University, Wuhu, Anhui, China

3 The University of Sheffield

Abstract **：** During adolescence, high school students experience significant changes in their physical, psychological, and social roles, which expose them to various challenges and the need to adapt to different environments. This study aims to investigate the gender differences in the network structure of psychological health among high school students, using the MHSMSS (Middle School Students Mental Health Scale) as a measurement tool. The study surveyed and analyzed data from 3769 high school students, including 1563 females. The findings reveal significant gender differences in symptoms such as obsessive-compulsive tendencies, paranoia, hostility, interpersonal sensitivity, depression, anxiety, academic stress, and emotional instability ($F > 4.493$, $P < 0.05$). Network analysis demonstrates that psychological health issues coexist within the same psychopathological network among high school students (Sparsity = 0.13). Centrality analysis indicates that depression is the core

symptom for males (Expected influence = 1.189), while anxiety is the core symptom for females (Expected influence = 1.472). These findings enhance our understanding of gender differences in the psychological health network of high school students and provide targeted insights from a gender perspective for psychological and social services in high schools.

Keywords：High school students, Mental health, Network analysis, Gender

对比有无童年创伤经历青少年的抑郁、焦虑和压力症状—来自一项网络分析的证据

邹欣原[1] 陶言强[1] 桂洁[2] 唐绮慧[1] 刘刚[3] 刘翔平[1]（通讯作者）

[1]北京师范大学心理学部，北京，100875

[2]江苏电子信息职业学院建筑装饰与艺术学院，淮安，223003

[3]南京医科大学附属南京脑科医院精神科，南京，210029

通讯作者 E-mail：lxp599@163.com

摘 要 **目的：**童年创伤会严重影响个人发展，甚至引起创伤后应激障碍、抑郁、焦虑等多种精神疾病。但目前基于症状学视角研究童年创伤和精神疾病间的研究还很有限，本研究旨在比较遭受童年创伤和未遭受童年创伤的青年的焦虑、压力和抑郁症状特点。

方法:本研究使用童年创伤问卷(CTQ)和抑郁、焦虑和压力量表(DASS-21)对 4469 名在校大学生的童年创伤，焦虑、抑郁和压力进行了测量。根据参与者在童年创伤问卷中的得分，按照童年创伤各维度的最低阈值（即情感忽视≥15、情感虐待≥13、身体忽视≥10、身体虐待≥10 和性虐待≥8），将其分为创伤组(3427 人)和对照组(1042 人)。采用症状网络分析法进行分析，对比两组症状网络是否存在差异。

结果:经受过童年创伤的大学生在 DASS-21 各项目上的得分均显著高于未经受过童年创伤的学生。虽然经受过童年创伤与未经受过童年创伤大学生的症状网络整体强度之间无显著差异（$S = 0.08, p = 0.085$），但两组的网络结构之间存在显著差异($M = 0.25, p = 0.000$)，具体表现为“颤抖”-“消耗精力”，“消沉”-“易激惹”，“易激惹”-“敏感”，“敏感”-“恐惧”这几对症状间的关联性在两组间存在显著差异。值得注意的是，在经受过童年创伤的大学生的症状网络中，“不积极”、“不主动”、“不期待”、“消沉”这四个抑郁症状是沟通其抑郁-焦虑-压力症状网络的关键侨联症状。不同的是，在没经受过童年创伤经历的大学生症状网络中，“过度反应”、“颤抖”、“消耗精力”和“心律不齐”，这四个涉及焦虑和压力属性的关键症状则是沟通抑郁-焦虑-压力症状网络的关键侨联症状。

结论:目前的研究表明，经历过童年创伤的大学生的焦虑、抑郁和压力症状显著区别于未经历过童年创伤的大学生的焦虑、压力和抑郁症状。经历过童年创伤的大学生的症状特点表明，以改善情绪状态和重建生活意义为目标的干预措施可能能够有效缓解其抑郁、焦虑和压力。

关键词 童年创伤，抑郁，焦虑，压力，网络分析

Comparison symptoms of anxiety, depression, and stress between adolescents with and without childhood trauma—Evidence from a network analysis

Xinyuan Zou [1] Yanqiang Tao [1] Jie Gui [2] Qihui Tang [1] Gang Liu [3] XiangPing Liu [1]

[1] Faculty of Psychology, Beijing Normal University, Beijing, 100875, China

[2] Faculty of Architectural Decoration and Art, Jiangsu Vocational College of Electronics and Information, Huaian, 223003, China

[3] Department of Psychiatry, Affiliated Nanjing Brain Hospital, Nanjing Medical University, Nanjing, 210029, China

***Abstract*：** **Objectives:** Childhood trauma can leave lasting influence on individuals and contribute to mental disorders, including post-traumatic stress disorder, depression, anxiety. The current study aimed to compare the symptomatic characteristic of depression, anxiety, and stress between adolescents with and without childhood-trauma.

Methods: In order to assess the depression, anxiety, stress, and childhood trauma of college students, total of 4469 college students (2,570 males and 1,899 females) in China complete the Childhood Trauma Questionnaire (CTQ) and the Depression, Anxiety, and Stress Scales (DASS-21). The participates were divided into trauma group (N=3427, $Mean_{age}$ = 19.70, SD_{age} = 1.42) and control group (N=1042, $Mean_{age}$ = 19.80, SD_{age} = 1.20) based on their score on CTQ and the cut-off scores for each type of abuse or neglect (a score of ≥8 was used to classify sexual abuse, a score of ≥8 for physical abuse, a score of ≥10 for emotional abuse, a score of ≥10 for physical neglect, and a score of ≥15 for emotional neglect). The symptom network analysis was employed.

Results: Students with childhood trauma scored significantly higher on all DASS-21 items than students without childhood trauma. No significant difference was found in the global strength between the network of students with and without childhood trauma (S = 0.08, p = 0.085), but the network structures of the two groups differ significantly (M = 0.25, p = 0.000). Specifically, the difference between two groups existed in the edge weights of Trembling (DASS7) - Nervous energy (DASS8), Down-hearted (DASS13) - Intolerant (DASS15), Intolerant (DASS15) - Touchy (DASS18), and Touchy (DASS18) - Scared (DASS20). Notably, among students with childhood trauma, four depression-related symptoms, namely No positive (DASS3), No initiative (DASS5), No look forward (DASS10), and Down-hearted (DASS13) served as the bridge symptoms connecting depression, anxiety, and stress, whereas two stress-related symptoms, namely Over-react (DASS6) and Trembling (DASS7), and two anxiety-related symptoms, namely Nervous energy (DASS8) and Heart aware (DASS19), were identified as the bridge symptoms among students without childhood trauma.

Conclusion: The current study suggested that the symptomatic characteristic of depression, anxiety, and stress was unique among college students with childhood trauma. Indeed, interventions targeted on improving mood state and re-constructing the meaning of life may be efficient in alleviating the depression, anxiety, and stress among college students with childhood trauma.

***Keywords*：** Childhood trauma, Depression, Anxiety, Stress, Network analysis

青少年自尊依存性的异质性及其与抑郁、社交焦虑状况的关系

梁芃伟[1] 张航[1] 张蕊[1] 边玉芳[1,2]（通讯作者）

1 北京师范大学中国基础教育质量监测协同创新中心，北京，100875

2 北京师范大学儿童家庭教育研究中心，北京，100875，bianyufang66@163.com

摘 要 **目的：**青春期早期是个体自我意识和自尊发展的重要时期。自尊依存性是个体将其自尊依存于生活事件、并在发生积极或消极事件时，其自尊相应上升或下降的一种特质。高自尊依存性的青少年被证明存在更高水平的抑郁和焦虑。然而，将自尊依存性作为一个单向的概念整体分析，可能掩盖了将自尊依存于积极事件或消极事件可能给个体带来的不同影响。本研究采用潜在剖面分析区分青少年的自尊依存性的不亚类型，并考察人口学因素对不同亚类型的影响，以及不同自尊依存性亚类型青少年的抑郁和社交焦虑水平的差异。**方法：**采用青少年自尊依存性量表、Kutcher 青少年抑郁量表和青少年社交焦虑量表，对云南省某中学 844 名初中学生进行调查。**结果：**（1）根据青少年在积极和消极事件中自尊依存性的不同可以区分出三种模式：低依存组（42.9%），在积极和消极事件都具有普遍低水平的自尊依存性；高依存组（41.1%），在积极和消极事件都具有高水平的自尊依存性；积极依存组（16.1%），其特征为仅对积极事件表现出较高水平的自尊依存性，而对消极事件则表现出较低水平的自尊依存性。（2）多元逻辑回归分析表明，较高的家庭社会经济地位的青少年更有可能归属于积极依存组；男性相较于女性更有可能归属于积极依存组。（3）不同自尊依存性亚类型青少年抑郁(F=36.47, p<.001)以及社交焦虑水平(F=101.18, p<.001)存在显著差异：积极依存组的抑郁(M=2.40)与社交焦虑(M=32.77)水平均低于高依存组($M_{抑郁}$=7.38, $M_{社交焦虑}$=49.47)(p<.001)和低依存组($M_{抑郁}$=6.60, $M_{社交焦虑}$=40.47)(p<.001)，低依存组的社交焦虑水平低于高依存组(p<.001)，高、低依存组在抑郁水平之间无显著差异(p=.076)。**结论：**本研究验证了青少年自尊依存性存在异质性，发现了积极依存组这一较为特殊的亚类型。该类型青少年能够更倾向于关注积极经历，从而帮助他们保持较低水平的抑郁与社交焦虑状况。这提示在学校和家庭教育中需要关注高依存性个体的心理健康状况，培养向上依存性性自尊，从而减少焦虑抑郁风险，也提示研究者需要进一步关注自尊依存性这一青少年心理健康状况的发展与异质性。

关键词 自尊依存性，潜在剖面分析，抑郁，社交焦虑，积极依存组

Heterogeneity in Adolescent Self-Esteem Contingency and Its Relationship with Depression and Social Anxiety

Liang Pengwei[1], Zhang Hang[1], Zhang Rui[1], Bian Yufang[1,2](corresponding author)

1 Collaborative Innovation Center of Assessment toward Basic Education Quality at Beijing Normal University, Beijing

2 Child and Family Education Research Center at Beijing Normal University, Beijing

***Abstract*：Objective:** Early adolescence is a crucial period in the development of self-awareness and self-esteem. Self-esteem contingency refers to the trait in which an individual's self-esteem is reliant on life events, and correspondingly increases or decreases with positive or negative experiences. Adolescents with high self-esteem contingency are found to exhibit higher levels of depression and anxiety. However, treating self-esteem contingency as a unidimensional construct may mask the varying impacts deriving from contingencies based on

positive or negative events. This study uses latent profile analysis to differentiate subtypes of self-esteem contingency among adolescents and investigates the effects of demographic factors on these subtypes, as well as the variations in depression and social anxiety levels among adolescents with different self-esteem contingency subtypes. **Method:** Using the Adolescent Self-Esteem Contingency Scale, Kutcher Adolescent Depression Scale, and Adolescent Social Anxiety Scale, a survey was conducted on 844 middle school students in a school in Yunnan Province. **Results:** (1) Adolescents can be divided into three groups based on their self-esteem contingencies in positive and negative events: low contingency group (42.9%) with universally low levels of self-esteem contingency in both positive and negative events; high contingency group (41.1%) displaying high levels of self-esteem contingency in both types of events; positive contingency group (16.1%) characterized by higher levels of self-esteem contingency in positive events and lower in negative ones. (2) Multivariate logistic regression analysis indicated that adolescents from higher socioeconomic status families and males are more likely to belong to the positive contingency group. (3) There are significant differences in depression (F=36.47, p<.001) and social anxiety (F=101.18, p<.001) levels among adolescents with different self-esteem contingencies: the depression (M=2.40) and social anxiety (M=32.77) levels of the Upward Contingency Group are lower than those of the High Contingency Group ($M_{\text{depression}}$=7.38, $M_{\text{social anxiety}}$=49.47) (p<.001) and Low Contingency Group ($M_{\text{depression}}$=6.60, $M_{\text{social anxiety}}$=40.47) ($p$<.001), the social anxiety level of the Low Contingency Group is lower than that of the High Contingency Group (p<.001), there is no significant difference in depression levels between the High and Low Contingency Groups (p=.076). **Conclusion:** This study confirms the heterogeneity of adolescent self-esteem contingency and discovers the relatively special subtype of Upward Contingency Group. Adolescents of this type are more inclined to focus on positive experiences, thus helping them maintain lower levels of depression and social anxiety. This also suggests the need to pay attention to the mental health status of high contingency individuals in school and family education, to foster upward contingent self-esteem, thereby reducing the risk of anxiety and depression, and also suggests that researchers need to further pay attention to the development and heterogeneity of adolescent self-esteem contingency.

***Keywords*：** Self-esteem contingency, latent profile analysis, depression, social anxiety, positive contingency group

相似经历对共情选择的影响：未完成事件的调节作用

谭凤娥　朱旭（通讯作者）

华中师范大学心理学院，武汉，430079，通讯作者 E-mail：xzhu@ccnu.edu.cn

摘 要　研究者们对相似经历如何影响共情的观点相互矛盾，本研究将从未完成事件角度细化相似经历的类型，以共情选择（在备选任务中选择共情的次数）作为共情的指标。研究一旨在引进和修订 Singh 的未完成事件量表(Unfinished Business Resolution Scale, UFB-RS)。选取华中地区在校大学生进行施测，收集有效样本 1（n=843）和样本 2（n=251）；采用 SCL-90 的人际敏感和敌对两维度、接纳与行动问卷第二版(AAQ-II)和愤怒反刍量表(ARS）作为效标工具；2 周后对样本 2 中的 60 人进行重测。结果显示：（1）修订后中文版未完成事件量表包含 11 个条目和 2 个因子（感受和需要、共情接纳），解释总变异的 57.29%，验证性因素分析表明 2 因子模型拟合良好（$\chi 2/df$=2.92, *CFI*=0.93, *TLI*=0.91, *SRMR*=0.05, *RMSEA*=0.08）；（2）未完成事件量表得分与各效标量表均为显著负相关（*r*=-0.30～-0.13）；（3）量表总分及各维度的内部一致性信度为 0.68~0.88，重测信度为 0.63~0.75。因此，中文版未完成事件量表信效度良好，可用于相关测量。研究二选取有失恋经历的在校大学生 154 名，以有效反应失恋经历的人物图片为实验材料，用中文版未完成事件量表进行测量，采用共情选择任务范式(被试在共情任务和描述任务中二选一)，从未完成事件角度探究不同类型相似经历在共情选择和认知成本上的差异，进一步采用拟合两水平广义线性模型检验认知成本各成分对共情选择的预测作用。结果发现：（1）有相似经历的两组共情选择比例显著高于无相似经历组，其中未完成组共情选择比例显著高于随机概率(0.5)；（2）未完成组共情效能感和厌恶感都最高，已完成组次之，无相似经历组最低；（3）与描述任务相比，共情任务效能感更低，厌恶感和心理努力更高；（4）试次显著负向预测共情选择，共情效能感显著正向预测共情选择。说明相似经历能够通过降低共情认知成本来增加共情选择，未完成组尤其显著。这是因为未完成组关于失恋经历的情绪记忆更易被激活，对这种情景也更熟悉。本研究从未完成事件的角度划分相似经历类型，为以往研究矛盾发现提供了解释，为寻求更有效共情者提供了实践指导。

关键词　相似经历，未完成事件，共情选择 ，大学生

The impact of similar experiences on empathy choice and accuracy: the moderating effect of unfinished business

Tan Fenge　Zhu Xu(corresponding author)

School of Psychology, Central China Normal University, Wu Han, 430079,

Correspondence: xzhu@ccnu.edu.cn

Abstract：Researchers have conflicting views on how similar experiences affect empathy. This study will refine the types of similar experiences from the perspective of unfinished business, using empathy choice (the number of times empathy is selected in alternative tasks) as an indicator of empathy. The first study aims to introduce and revise Singh's Unfinished Business Resolution Scale (UFB-RS). College students in Central China were selected to conduct the survey, and valid sample 1 (n=843) and sample 2 (n=251) were collected; Using the interpersonal sensitivity and hostility dimensions of SCL-90, the Acceptance and Questionnaire II (AAQ-II) , and the and Anger Rumination Scales (ARS) as tools for criterion related validity; After 2 weeks, retest 60 people in sample 2. The results showed that: (1) The revised Chinese version of the unfinished business resolution scale　contained 11 items and 2 factors (feelings and needs, empathic acceptance), accounting for 57.29% of the total variance. Confirmatory factor analysis showed that the 2-factor model fitted well(χ^2/df=2.92, *CFI*=0.93, *TLI*=0.91, *SRMR*=0.05, *RMSEA*=0.08). (2) The scale and its factors scores were significantly negatively correlated with the scores of various criteria-related validity instruments (*r*=-0.30~-0.13). (3) The Cronbach's α coefficient of the total scale and its various dimensions was 0.68~0.88. Re-test reliability was 0.63~0.75. Therefore, the Chinese version

of the unfinished business resolution scale has good reliability and validity, and can be used for relevant measurements. Study 2 selected 154 college students who had experienced heartbreak and used images of characters that effectively reflected their experiences as experimental materials. The Chinese version of the unfinished business resolution scale was used for measurement, and the empathetic selection task paradigm (participants chose between empathetic and descriptive tasks) was used to explore the differences in empathy choice and cognitive costs among participants with different types of similar experiences from the perspective of unfinished business. Furthermore, a two-level Generalized linear model was used to test the predictive effect of cognitive cost components on empathy choice. The results showed that: (1) the proportion of empathy choice in the two groups with similar experiences was significantly higher than that in the group without similar experiences, with the proportion of empathy choice in the unfinished group being significantly higher than the random probability (0.5). (2) The unfinished group had the highest sense of empathy and disgust, followed by the finished group, and the group without similar experiences had the lowest. (3) Compared with descriptive tasks, empathy tasks had lower efficacy, higher aversion, and higher psychological effort. (4) The number of trials in the experiment significantly negatively predicted empathy choice, while empathy efficacy significantly positively predicted empathy choices Similar experiences can increase empathy choice by reducing the cost of empathy cognition, especially in the unfinished group. This is because the unfinished group is more likely to activate their emotional memory about their breakup experiences and are more familiar with this situation. This study categorizes similar types of experiences from the perspective of unfinished business, providing an explanation for conflicting findings in previous studies and practical guidance for seeking more effective empathy.

***Keywords*：** Similar experiences,Unfinished business,Empathy choice,College students

中文版未完成事件量表在大学生群体中的修订及信效度检验

谭凤娥　朱旭（通讯作者）

华中师范大学心理学院，武汉，430079，通讯作者 E-mail：xzhu@ccnu.edu.cn

摘 要　目的：引进和修订 Singh 的未完成事件量表(Unfinished Business Resolution Scale, UFB-RS)，并在大学生中检验其信效度。方法：应用中文翻译版未完成事件量表对 843 名大学生进行初测，对初测数据进行项目分析和探索性因素分析，以形成正式问卷。以 SCL-90 的人际敏感和敌对两维度、接纳与行动问卷第二版(AAQ-II)和愤怒反刍量表(ARS）为效标，以 251 名大学生被试对正式量表进行信、效度检验，2 周后对样本 2 中的 60 人进行重测。结果：（1）修订后中文版未完成事件量表包含 11 个条目和 2 个因子（感受和需要、共情接纳），共解释总变异的 57.29%，验证性因素分析表明 2 因子模型拟合良好（$\chi 2/df$=2.92, *CFI*=0.93, *TLI*=0.91, *SRMR*=0.05, *RMSEA*=0.08）；（2）未完成事件量表得分与各效标量表得分均显著负相关（r=-0.30～-0.13）；（3）量表总分及其各维度的内部一致性信度为 0.68~0.88，重测信度为 0.63~0.75。结论：修订后的中文版未完成事件量表信效度良好，可用于相关测量。

关键词　未完成事件量表，信度，效度，大学生

Revision and reliability and validity of Chinese version of Unfinished Business Resolution Scale (UFB-RS) in College Students

Tan Fenge　Zhu Xu(corresponding author)

School of Psychology, Central China Normal University, Wu Han, 430079,

Correspondence: xzhu@ccnu.edu.cn

Abstract: Objective: To introduce and revise Singh's Unfinished Business Resolution Scale (UFB-RS) and test its reliability and validity among college students. Method: A preliminary test was conducted on 843 college students using the Chinese translation version of the unfinished business resolution scale. Item analysis and exploratory factor analysis were conducted on the preliminary data to form a formal questionnaire. Using the interpersonal sensitivity and hostility dimensions of SCL-90, the Acceptance and Action Questionnaire Second Edition (AAQ-II), and the Anger Rumination Scale (ARS) as the criteria-related validity instruments. 251 college students were tested for the reliability and validity of the formal scale. Two weeks later, 60 students in sample 2 were retested. Results: (1) The revised Chinese version of the unfinished business resolution scale contained 11 items and 2 factors (feelings and needs, empathy acceptance), which accounted for the total variance 57.29%. The confirmatory factor analysis(CFA) showed that the 2-factor structure fitted well($\chi 2/df$=2.92, *CFI*=0.93, *TLI*=0.91, *SRMR*=0.05, *RMSEA*=0.08); (2) The scale and its factors scores were significantly negatively correlated with the scores of various criteria-related validity instruments (r=-0.30~-0.13); (3) The Cronbach's α coefficient of the total scale and its various dimensions was 0.68~0.88. Re-test reliability was 0.63~0.75. Conclusion: The revised Chinese version of the unfinished business resolution scale has good reliability and validity, and can be used for relevant measurements.

Keywords: Unfinished business scale,Reliability,Validity,College students

公共卫生突发事件下大学生复杂创伤后应激障碍症状和创伤后成长的动态关系:交叉滞后面板网络分析

刘艾祎[1] 张漠子[1] 黄柳玥[2] 迟新丽[3](通讯作者)

1 北京师范大学心理学部，北京，100875

2 澳门大学社会科学学院心理学系，澳门特别行政区

3 深圳大学心理学院，广东，519087，xinlichi@126.com

摘 要 研究目的：复杂创伤后应激障碍（CPTSD）作为一种独立的诊断提出尚早，其与创伤后成长（PTG）之间关系的研究存在空白。新兴的交叉滞后网络模型提供了细化研究 CPTSD 各症状与 PTG 各特征之间关联的可能。本纵向研究旨在利用追踪数据建立 CPTSD 和 PTG 构成要素的交叉滞后网络模型，以揭示在公共卫生突发事件下因封校被隔离在家的大学生群体中，这两种创伤后心理反应的关系及方向。方法：我们采用自我报告量表评估 CPTSD 和 PTG 的状态。对 1361 名在 2020 年 5 月中至 5 月底由于封校而经历家庭隔离的大学生进行了基线评估（时间点 1，T1）。随后，我们在 3 个月（时间点 2，T2）和 6 个月（时间点 3，T3）的时间间隔进行了随访评估。最终，保留了参与了三次调查的 701 名被试。结果：CPTSD 的两个构成要素，即 PTSD 和自我组织障碍（DSO），与 PTG 呈现截然不同的关系。在 T1→T2 网络中，再体验和高警觉症状正向预测了 PTG 的构成要素，回避性症状则对 PTG 有消极的预测作用。而这些预测关系在 T2→T3 网络中减弱。然而，在两个网络中，DSO 中的消极自我概念和情绪紊乱始终对 PTG 的多个维度有负向预测作用。结论：本研究强调了 PTSD 和 DSO 症状与 PTG 构成要素之间的差异及关系，既揭示了 CPTSD 作为独立诊断与 PTSD 症状表现的不同，也提示了心理干预工作者可以从减轻 DSO 症状并促进 PTSD 症状的积极改变中受益。

关键词 复杂性创伤后应激障碍，创伤后成长，交叉滞后网络分析，大学生，重大公共卫生突发事件

The longitudinal course of complex posttraumatic stress disorder symptoms and posttraumatic growth among college students during the coronavirus disease (COVID-19) pandemic: Cross-lagged panel network analyses

Aiyi Liu[1], Lake Mozi Zhang[1], Liuyue Huang[2], Xinli Chi[3*]

[1] Faculty of Psychology, Beijing Normal University, Beijing 100875, China

[2] Department of Psychology, Faculty of Social Sciences, University of Macau, Macau SAR, China

[3] School of Psychology, Shenzhen University, Shenzhen 518061, China

Abstract ： *Background and Objective:* There is a gap in the literature concerning the relationship between complex posttraumatic stress disorder (CPTSD) and posttraumatic growth (PTG). The recent network analysis provided opportunities to investigate the associations between CPTSD and PTG on a more fine-grained level. This longitudinal study aimed to model cross-lagged network of components of CPTSD and PTG with longitudinal data to unveil the direction of their relationships among college students exposed to the COVID-19 pandemic. *Method:* We utilized self-report measures to evaluate the presence of CPTSD and PTG. We conducted a baseline assessment on 1361 college students who experienced home isolation due to school closures during the COVID-19 pandemic from mid-to-late May 2020 (Time 1, T1). Subsequently, we performed follow-up assessments at 3-month (Time 2, T2) and 6-month (Time 3, T3) intervals. Ultimately, 701 participants who participated in three surveys were

retained. *Results:* Two components of CPTSD, PTSD and disturbances in self-organization (DSO) shared vastly different relationships with PTG. In T1→T2 network, Re-experiencing and Sense of current threat positively predicted components of PTG, Avoidance exhibited negative predictive value on PTG. These predictive relationships were weakened in T2→T3 network. However, Negative self-concept and Affective dysregulation in DSO negatively predicted multiple dimensions of PTG in both networks. *Conclusions:* The study highlighted the differential relationships that PTSD and DSO symptoms shared with the PTG components, suggesting that interventions could benefit from mitigating DSO symptoms and incorporating PTSD symptoms into positive change.

Keywords: CPTSD, PTG, cross-lagged panel network, college students, COVID-19

6.16“军事心理学专业委员会”分组展贴报告

压力知觉对军医大学研究生心理健康的影响：一般自我效能感、职业使命感与职业倦怠的中介作用

林鑫鑫[1] 崔迪[1] 李翊君[1] 武圣君[1] 刘旭峰[1]（通讯作者）

空军军医大学军事医学心理学系，西安，710000，通讯作者 E-mail：lllfmmu@fmmu.edu.cn

摘 要 目的：研究压力知觉对军医大学研究生心理健康的影响，并探讨一般自我效能、职业使命感与职业倦怠的中介作用。方法：采用压力知觉量表(CPSS)、职业使命感量表(CCS)、一般自我效能感量表（CSES）、职业倦怠量表（MBI-GS）和中国心理健康量表（CPHI）对 1393 名军医大学研究生施测。结果：压力知觉女性高于男性(p<0.05)，一般自我效能感男性高于女性(p<0.05)，延期学生的压力知觉和职业倦怠高于其他年级学生(p< 0.05, p<0.01)，延期学生一般自我效能感和心理健康水平低于其他年级(p< 0.05, p <0.01)。压力知觉与职业倦怠呈正相关（r=0.233, p <0.01）；自我效能与职业使命感呈正相关（r=0.536, p <0.01）；一般自我效能、职业使命感与心理健康呈正相关（r=0.536, p <0.01；r=0.512, p <0.01）；压力知觉与自我效能、职业使命感、心理健康呈负相关（r=-0.579, p <0.01；r=-0.473, p <0.01；r=-0.652, p <0.01）；职业倦怠与一般自我效能、心理健康呈负相关（r=-0.075, p <0.01；r=-0.167, p <0.01）。压力知觉对心理健康有直接的负向预测作用,直接效应值为-0.455。一般自我效能感、职业使命感与职业倦怠在压力知觉对心理健康的影响中起部分中介的作用（-0.1965[95%CI：-0.229,-0.164]），并且可以通过四条部分中介路径影响心理健康：第一条为压力知觉通过工作倦怠影响心理健康,其效应值为-0.0091；第二条为压力知觉通过自我效能影响心理健康,其效应值为-0.0857；第三条为压力知觉通过职业使命感影响心理健康,其效应值为-0.0525；第四条为压力知觉通过自我效能影响职业使命感从而影响心理健康,其效应值为-0.0492。间接效应量共-0.1965，间接效应95%置信区间[-0.229,-0.164]，其区间不包含 0，中介效应显著。总效应量为-0.652，说明压力知觉可解释心理健康 65.2%的变异。结论：可以通过降低职业倦怠或提高军人缓解压力的能力、职业使命感和一般自我效能提高军人的心理健康水平。

关键词 军医大学研究生，压力知觉，职业使命感，职业倦怠，心理健康

The Impact of Stress Perception on the Psychological Health of Postgraduates in Military Medical Universities: the Mediation Model of General Self-Efficacy, Career Calling and Burnout

Lin Xinxin[1], Cui Di[1],Li Yijun[1], Wu Shengjun[1], Liu Xufeng[1]
Department of Military Medical Psychology, Air Force Military Medical University，Xi'an

Abstract：Objective: To study the impact of stress perception on the psychological health of postgraduates in military medical universities, and to explore the mediating role of self-efficacy, career calling and burnout. Methods: Using the Chinese Perceived Stress Scale (CPSS), Career Calling Scale (CCS), General Self-Efficacy Scale (GSES), Maslach Burnout Inventory General Survey (MBI-GS) and Chinese Psychological Health Inventory (CPHI) to compare 1393 postgraduate of a military medical university administered the test. Results: The stress perception of females was higher than males (p<0.05). The self-efficacy of males was higher than females (p<0.05). The stress perception and burnout of deferred students were higher than other grades (p< 0.05, p<0.01). And the general self-efficacy and mental health of deferred students were lower than other grades (p< 0.05, p<0.01). The stress perception was positively correlated with burnout (r=0.233, p<0.01). The self-efficacy was positively correlated with career calling (r=0.536, p<0.01). The self-efficacy, career calling and psychological health were positively correlated (r =0.536, p<0.01; r=0.512, p<0.01). The stress perception is negatively correlated with self-efficacy, career calling, and psychological health (r=-0.579, p<0.01; r=-0.473, p<0.01; r=-0.652, p<0.01). The burnout is negatively correlated with psychological health r=-0.167, p<0.01).

General self-efficacy, career calling and burnout play a mediating role in the impact of stress perception on psychological health (-0.1965[95%CI: -0.229, -0.164]). There are four paths in it. The first one is that the stress perception affects the psychological health through the burnout, and its effect value is -0.0091. The second one is that the stress perception affects the psychological health through the self-efficacy, and its effect value is -0.0857. The third one is that the stress perception affects the psychological health through the career calling, and its effect value is -0.0525. The last one is that the stress perception affects the career calling through the self-efficacy and thus affects the psychological health, and its effect value is -0.0492. Conclusion: The psychological health of soldiers can improve their self-efficacy and the career calling, so as to reduce the burnout, and then achieve the purpose of maintaining the psychological health.

Keywords：postgraduates of military medical university, stress perception, career calling, burnout, psychological health

团体心理训练对军校大学生情绪的影响

蒲昭君，张芫蓓，杨梦圆，武圣君

空军军医大学军事医学心理学系,西安，710032，wushj@fmmu.edu.cn

摘 要 **目的** 探讨团体心理训练对军校大学生情绪的干预效果。**方法** 采用实验组和对照组前后测实验设计,每组16人,利用自编教材和团体辅导活动方案,分别进行为期6周的情绪干预。其中实验班采用情绪调节的团体心理辅导(每周1次，每次1.5h)，在此期间对照组每周1次集中参加常规心理健康教育活动。以抑郁自评量表(SDS)、广泛性焦虑量表(GAD)、情绪调节量表（ERQ）和心率变异性(HRV)指标进行干预前后的评定。两组在基线与6周后分别测评抑郁自评量表、焦虑自评量表、情绪调节量表和心率变异性(HRV)指标。**结果** 组间比较显示，实验组焦虑、抑郁、认知重评得分6周后均低于对照组(P＜0.01)，表达抑制得分6周后则高于对照组(P＜0.01)；组内比较显示，6周干预后实验组焦虑、抑郁、认知重评得分均低于基线期(P＜0.01)，而表达抑制得分则高于基线期(P＜0.01)。实验组6周前后R-R间期标准差(SDNN)、相邻R-R间期差值的均方根(RMSSD)、低频功率(LF)、高频功率(HF)的差值明显低于对照组，正常R-R间期标准差(SDANN)、低频功率与高频功率之比(LF/HF)差值明显高于对照组(P＜0.01或P＜0.05)。**结论** 团体心理训练能能够有效的改善军校大学生的焦虑、抑郁情绪,提升主观认知重评的能力，并可能增加患者的迷走神经活性、减低交感神经激活。

关键词 军校大学生，团体心理干预,焦虑,抑郁,HRV

The effect of group psychological training on the emotions of military college students

Pu Zhaojun,Zhang Yuanbei,Yang Mengyuan,Wu Shengjun

Department of Military Medical Psychology, Air Force Military Medical University, Xi'an,710032，

wushj@fmmu.edu.cn

Abstract: **Objective** To explore the intervention effect of group psychological training on the emotions o f military college students. **Methods** A pre and post-test experimental design was adopted for the experi mental and control groups, with 16 participants in each group, who underwent a 6-week emotional interv ention using self-developed teaching materials and a group counseling activity program, respectively. Amo ng them, the experimental class used group counseling for emotion regulation (1 time per week, 1.5 h ea ch time), and the control group participated in regular mental health education activities centrally once a week during this period. The depression self-assessment scale (SDS), generalized anxiety scale (GAD), em otion regulation scale (ERQ), and heart rate variability (HRV) indexes were used for pre- and post-interve ntion evaluation. Depression Self-Rating Scale, Anxiety Self-Rating Scale, Emotion Regulation Scale, and Heart Rate Variability indexes were measured in both groups at baseline and after 6 weeks. **Results** Betw een-group comparisons showed that the anxiety, depression, and cognitive reassessment scores of the expe rimental group were lower than those of the control group after 6 weeks (P<0.01), whereas the expressio n inhibition score was higher than that of the control group after 6 weeks (P<0.01); within-group compar isons showed that the anxiety, depression, and cognitive reassessment scores of the experimental group w ere lower than those at the baseline period after 6 weeks of intervention (P<0.01), while the expression i nhibition score was higher than that at the baseline period (P<0.01). The standard deviation of R-R interv al (SDNN), root mean square of the difference between adjacent R-R intervals (RMSSD), low frequency power (LF), and high frequency power (HF) were significantly lower in the experimental group than in t

he control group before and after the 6-week period, and the difference between the standard deviation of normal R-R intervals (SDANN), and the ratio of low-frequency to high-frequency power (LF/HF) was significantly higher than that in the control group ($P<0.01$ or $P<0.05$). **Conclusion** Group psychological training can effectively improve the anxiety and depression of military college students, enhance the ability of subjective cognitive reappraisal, and may increase vagal activity and decrease sympathetic activation.

Keywords:Military college students, group psychological intervention, anxiety, depression, HRV

陆军某部军人知觉压力与职业适应性的关系：应激后成长的中介效应

王旭[1] 刘玉[2] 彭李[1] 许辰[1] 李敏[1]（通讯作者）

1 陆军军医大学医学心理系军事心理学教研室，重庆，400038，通讯作者 E-mail ：2474591914@qq.com

2 中国人民解放军 75738 部队，广东河源，517139

摘 要 **目的**：分析陆军某部军人的知觉压力、应激后成长及其与职业适应性的关联，探讨知觉压力影响军人职业适应性的心理机制，考察应激后成长的中介作用。**方法**：本研究为横断面调查研究。2023 年 5-6 月，以陆军某部 340 名军人为研究对象，采用中文版压力知觉量表（Chinese version perceived stress scale，CPSS）评估其知觉压力水平，简易心理弹性量表（Connor-Davidson Resilience Scale-10，CD-RISC-10）测试其心理弹性状况，军人职业适应性问卷（Military Career Adaptability Questionnaire，MCAQ）评估该部军人的职业适应性，中文版本应激后成长量表（Chinese version of Posttraumatic Growth Inventory，PTGI-C）测量该部军人的应激后成长，以及自编一般情况调查表搜集基本信息。**结果**：陆军军人的知觉压力得分为（15.79±9.20）分，心理弹性得分为（30.80±7.38）分，应激后成长得分为（83.19±18.90）分。知觉压力与职业适应性呈负相关（r=-0.584，p<0.01），心理弹性与职业适应性呈正相关（r=0.615，p<0.01），应激后成长与职业适应性呈正相关（r=0.526，p<0.01）。中介效应分析显示，知觉压力可以直接影响职业适应性（直接效应β=-0.4229，p<0.01），也可以通过影响应激后成长继而影响职业适应性（间接效应β=-0.1609，p<0.01）。**结论**：知觉压力不仅可以直接影响陆军军人职业适应性，也可以通过创伤后成长的间接作用影响职业适应性，应激后成长在知觉压力对职业适应性影响的模型中起到中介作用，并且为不完全中介。应激后成长是职业适应性的积极促进因素。

关键词 陆军，军人，职业适应，心理弹性，应激后成长

The Relationship between Perceived Stress and Occupational Adaptation in Army Soldiers: The Mediation Effect of Post Stress Growth

Wang Xu[1] Liu Yu[2] Peng Li[1] Xu Chen[1] Li Min[1] (Corresponding author)

1Department of Military Psychology, Army Medical University (Third Military Medical University) , Chongqing, 400038, China , E-mail ： 2474591914@qq.com

2 Unit 75738 of the People's Liberation Army, Heyuan, Guangdong, 517139

***Abstract*： Objective**: To analyze the perceived stress, post stress growth, and its correlation with occupational adaptability of soldiers in a certain army unit, explore the psychological mechanism of the impact of perceived stress on soldiers' occupational adaptability, and examine the mediating role of post stress growth. **Method**: This study is a cross-sectional survey. From May to June in 2023, 340 soldiers from a certain army department were taken as the research objects, and their perceived stress level were assessed with the Chinese version of perceived stress scale (CPSS), and their Psychological resilience were tested with the Connor Psychological resilience Scale-10 (CD-RISC-10), The Military Career Adaptability Questionnaire (MCAQ) evaluated the professional adaptability of soldiers in the department, and the Chinese version of Posttraumatic Growth Inventory (PTGI-C) measured the post stress growth of soldiers in the department. A self-designed general situation questionnaire was also used to collect basic information. **Results**: The scores of perceived stress, psychological resilience and posttraumatic growth were (15.79 ± 9.20), (30.80 ± 7.38) and (83.19 ± 18.90) respectively. Perceived stress was

negatively correlated with occupational adaptability (r=-0.584, p<0.01), psychological resilience was positively correlated with occupational adaptability (r=0.615, p<0.01), and posttraumatic growth was positively correlated with occupational adaptability (r=0.526, p<0.01). Mediation effect analysis shows that perceived stress can directly affect occupational adaptability (direct effect β=- 0.4229, p<0.01), and perceived stress can also affect occupational adaptability by influencing post stress growth (indirect effect β=- 0.1609, p<0.01). **Conclusion**: Perceived stress can not only directly affect the occupational adaptability of army soldiers, but also indirectly affect occupational adaptability through the effect of post traumatic growth. Posttraumatic growth plays a mediating role in the model of the impact of perceived stress on occupational adaptability and is an incomplete mediator. Post stress growth is a positive promoting factor for occupational adaptability.

Keywords： Army, military, occupational adaptation, psychological resilience, post stress growth

6.17“人格心理学专业委员会”分组展贴报告

气质性乐观研究述评

陈庆华[1,2]（通讯作者） 叶静娴[1]

1 合肥师范学院教育与心理科学学院，合肥，230601

2 青少年心理健康与危机智能干预安徽省哲学社会科学重点实验室，合肥，230601

通讯作者 E-mail：873498616@qq.com

摘　要 乐观作为心理资本的重要组成部分之一，在积极心理学研究中受到广泛关注。综观国内外对于乐观的研究，目前主要有能力论与气质论两种取向，能力论把乐观看作一种具有稳定性的解释风格，气质论认为乐观是一种稳定的人格特质，即气质性乐观。气质性乐观这一概念最早是由 Scheier 和 Carver 等人于 1985 年根据动机的期望价值理论提出，并被定义为个体对未来结果的产生总体的、积极、对行为具有调节作用的预期的一种稳定人格特质。随着气质性乐观研究的不断深入，研究者提出气质性乐观的结构维度包含单维模型、二维模型、多维模型和等级模型四种设想。目前测量气质性乐观的问卷主要为生活定向测验量表（The Life Orientation Test, LOT）、个人和社会乐观评定问卷，以及相关的修订版与扩展版问卷。通过文献梳理发现，性别、年龄等个体差异，文化背景、社会支持等环境因素，积极认知图式和负性事件均为影响气质性乐观的重要因素。研究证明，气质性乐观会促进个体身心健康和积极的行为结果，增强免疫、降低传染病感染风险、减少疾病发生，有效提高主观幸福感、自我效能感等积极心理要素，降低焦虑、压力和抑郁等负面影响，促进认知能力和社会适应发展。气质性乐观的后续研究可在以下几方面进一步拓展：一是气质性乐观的理论模型还需完善；二是加强对气质性乐观研究的实际应用探索；三是气质性乐观的本土化研究有待深入，特别是缺乏适宜我国国情的测量工具等。

关键词　气质性乐观，期望价值理论，积极心理学，心理资本

A Review of Research on Dispositional Optimism

Chen Qinghua[1,2] (Corresponding author)，Ye Jingxian[1]

1 School of Education And Psychology, Hefei Normal University, Hefei, 230601

2 Key Laboratory of Philosophy and Social Sciences of Anhui Province

for Adolescent Mental Health and Crisis Intelligent Intervention，Heifei，230601
Corresponding Author，E-mail：873498616@qq.com
Abstract：Optimism, as an important component of psychological capital, has received widespread attention in positive psychology research. Throughout the research on optimism both domestically and internationally, there are currently two main orientations: the competence theory and the temperament theory. Competency theory views optimism as a stable explanatory style, while temperament theory views optimism as a stable personality trait, namely dispositional optimism. The concept of dispositional optimism was first proposed by Scheier and Carver et al. in 1985 based on expectancy-value theory of motivation, and was defined as a stable personality trait in which individuals have overall, positive, and regulatory expectations for future outcomes. With the continuous deepening of research on dispositional optimism, researchers have proposed four structural dimensions of dispositional optimism: single dimensional model, two-dimensional model, multidimensional model, and hierarchical model. At present, the main questionnaires used to measure dispositional optimism are the Life Orientation Test (LOT), the Personal and Social Optimism Assessment Questionnaire, and related revised and expanded versions of the questionnaire. Through literature review, it was found that individual differences such as gender and age, environmental factors such as cultural background and social support, positive cognitive schemata, and negative events are all important factors affecting dispositional optimism. Research has shown that dispositional optimism can promote individual physical and mental health and positive behavioral outcomes, enhance immunity, reduce the risk of infectious disease infection, reduce disease occurrence, effectively improve positive psychological factors such as subjective well-being and self-efficacy, reduce the negative effects of anxiety, stress, depression and so on, also facilitate the development of cognitive ability and social adaptation. The follow-up research on dispositional optimism can be further expanded in the following aspects: Firstly, the theoretical model of dispositional optimism still needs to be improved. Secondly is to strengthen the exploration of the practical application of research on dispositional optimism. Thirdly, there is a need for in-depth research on the localization of dispositional optimism, especially the lack of measurement tools suitable for China's national conditions.
Keywords：dispositional optimism，expectancy-value theory，positive psychology，psychological capital

核心自我评价与创造力倾向之间的关系：自我效能感的中介作用

肖秦[1]

1 清华大学附属中学管庄学校，北京，100024，xiaoqin_0808@163.com

摘 要　在当今以创新型人才竞争为核心的知识经济时代背景下，创造力的研究越来越重要。创造力已成为一个人能否很好的适应社会、充满竞争力的关键因素。创造力的这种倾向是具有积极性的，它调节着个体的生理和心理，是创造活动产生的重要条件。创造力会受到来自自我评价的影响，但以往研究者却较少探讨核心自我评价对创造力的影响机制。为此，本研究采用问卷调查法，通过问卷星平台在 9 省市高校随机招募 393 名被试，考察其对于核心自我评价、自我效能感和创造力倾向之间的关系。结果发现：（1）在创造力倾向水平上存在显著的性别差异，男生的创造力倾向和自我效能感显著高于女生，且男生在创造力的好奇性维度上显著高于女生，其他维度如冒险性、想象力和挑战性方面无显著差异。（2）核心自我评价能够正向预测自我效能感和创造力倾向。（3）自我效能感在核心自我评价对创造力倾向的影响中发挥完全中介作用。本研究证实了核心自我评价和自我效能感是影响创造性倾向的两个重要因素，为开拓个体创造性发展的途径提供了借鉴，具有重要的实践意义。根据本研究得到的结论，通过提升核心自我评价和自我效能感两个内部因素，可以更直接、有效地提升个体的创造性水平，进而对其自身毕生的发展，推动社会的进步都具有重要意义。

关键词　核心自我评价，自我效能感，创造力倾向

The Relationship Between Core Self-evaluation and Creative Tendencies: The Mediating Effect of Self-efficacy

Xiao Qin

Tsinghua University High School-Guanzhuang, Courtyard 6 Kangyue Middle Street, Chaoyang District, Beijing

Abstract：In the context of the competition for innovative talents, research on creativity is becoming increasingly important. Creativity has become a key factor in a person's ability to adapt to society and be competitive. The creative tendencies is positive, regulating individual physiology and psychology, and is an important condition for creative activities to occur. Creativity is influenced by self-evaluation, but previous researchers have rarely explored the mechanism by which core self-evaluation affects creativity. Therefore, this study adopted a questionnaire survey method and randomly recruited 393 participants from universities in 9 provinces and cities through the Questionnaire Star platform to investigate the relationship between their core self-evaluation, self-efficacy, and creativity tendencies. The results showed that: (1) there were significant gender differences in the level of creativity tendency, with boys having significantly higher levels of creativity tendency and self-efficacy than girls, and boys having significantly higher levels of curiosity in creativity than girls. There were no significant differences in other dimensions such as adventure, imagination, and challenge. (2) Core self-evaluation can positively predict self-efficacy and creativity tendencies. (3) Self efficacy plays a completely mediating role in the impact of core self-evaluation on creativity tendencies. This study confirms that core self-evaluation and

self-efficacy are two important factors affecting creative tendencies, providing reference for exploring ways for individual creative development and having important practical significance. According to the conclusions drawn from this study, by enhancing the internal factors of core self-evaluation and self-efficacy, an individual's level of creativity can be more directly and effectively improved, which is of great significance for their lifelong development and promoting social progress.

Keywords：Core self-evaluation, self-efficacy, creative tendencies

体育活动心理投入对儿童心理健康的影响：BMI 的调节作用

祝欣怡　　丁雪辰（通讯作者）

上海师范大学心理学系，上海，200234，通讯作者 E-mail：dingxuechen_psy@163.com

摘要　体育活动是儿童心理发展的重要课程，积极参与体育活动的儿童在认知灵活性、情绪适应能力、同伴关系等方面都表现出较好的结果，而肥胖是阻碍个体参与体育活动的一大原因。为明确积极参与体育活动对儿童心理健康的益处，本研究旨在（1）确定心理投入(认知、情感、联结感三个维度）与个体心理健康（抑郁、主观幸福感）之间的联系，（2）构建调节效应模型，探索在不同学段、性别群体中，身体质量指数(body mass index，简称 BMI)对于这两者关系的影响差异。被试选取上海某小学三至五年级的 555 位处于童年晚期的学生和上海某初中 306 位处于青春期早期的学生，记录他们的身高和体重计算 BMI。研究采用参与度调查量表收集儿童在认知、情感、联结感维度上对自己参与体育活动的心理投入程度，以及实际的体育活动行为参与度，并且采用自评式的儿童抑郁量表和 Stirling 儿童主观幸福感量表测量抑郁和主观幸福感作为心理健康的两个指标，使用 SPSS 26.0 进行数据的描述性统计和相关分析，并检验调节效应模型。结果发现：（1）无论是小学生还是初中生，在控制性别和行为参与度的条件下，对体育活动的心理参与程度越积极的儿童往往表现出更低的抑郁水平和更高的主观幸福感；（2）相比小学生，初中生的 BMI 会影响体育活动心理投入和心理健康之间的关系，也就是说，高 BMI 的儿童所表现的抑郁水平受到心理投入程度的变化更敏感，主要表现在联结感维度上；（3）就性别而言，高 BMI 初中男生的抑郁水平受到联结感投入带来的影响更大，低 BMI 的初中男生的抑郁水平在不同的联结感投入水平上无显著差异。因此，本研究表明积极的体育活动心理投入能够给儿童提供心理发展的支持，这类儿童往往更加心理健康。但是儿童进入初中后，体型特征带来的影响变得显著，学校应当注意引导高 BMI 的学生（尤其是男生）寻找到体育活动的乐趣和联结感，以此改善他们的心理健康。

关键词　体育活动，BMI，抑郁，主观幸福感

The effect of psychological engagement in physical activity on children's mental health: the moderating role of BMI

ZHU Xinyi　　DING Xuechen

(Department of Psychology, Shanghai Normal University, Shanghai 200234, China)

Abstract：Physical activity is an important course during children's psychological development. Children who actively participate in physical activity show better results in cognitive flexibility, emotional adaptability, peer relationship and other aspects, while obesity is a major reason that prevents individuals from participating in physical activity. In order to clarify the benefits of active participation in physical activity on children's mental health, the purpose of this study was to (1) determine the relationship between psychological engagement (cognitive, affective, and relational/spiritual items) and individual mental health(depression, well-being), and (2) construct a moderating effect model to explore the the effect of BMI(body mass index) between this relationship among children with different ages or genders. The subjects were selected from 555 students during late childhood from grade 3 to 5 of a primary school and 306 students during early adolescence of a middle school in Shanghai, and their height and weight were recorded to calculate BMI. The Snapshot Survey of Engagement tool was used to collect children's psychological involvement in physical activity in terms of cognition, affect and relation/spirit, as well as their actual behavior. Childhood Depression Inventory and Stirling Children's Well-being Scale were used

to measure depression and well-being as two indicators of mental health. SPSS 26.0 was used for descriptive statistics, correlation analysis, and testing the moderating effect. The results show that: (1) Whether students in primary school or in middle school, controlling gender and behavioral participation, the children with more active psychological engagement in physical activity tend to show lower depression level and higher well-being; (2) Compared with primary school students, middle school students' BMI affect the relationship between psychological engagement in physical activity and mental health. In other words, the depression level of children with high BMI is more sensitive to psychological engagement, mainly in the relational/spiritual items; (3) In terms of gender, the depression level of boys with high BMI in middle school is more affected by relation/spiritual engagement, while the depression level of boys with low BMI in middle school shows no difference whether their relation/spiritual engagement is much or little. Therefore, this study shows that active psychological engagement in physical activity can provide psychological support for children who tend to be more psychologically healthy. However, as children enter middle school, the impact of body type becomes more pronounced, and schools should pay attention to guiding high BMI students(especially boys) to find the fun and relatedness during physical activity to improve their mental health.

Keywords：physical activity, BMI, depression, well-being

黑暗人格与抑郁症状间关系的网络分析

李佳怡[1,2]　刘畅[3]　任垒[1,2]（通讯作者）

1 武警后勤学院军事心理学教研室，天津，300309，rl_fmmu@163.com

2 军队心理健康服务与研究中心，天津，300309

3 莫纳什大学 BrainPark，克莱顿，3168

摘 要　人格被认为是抑郁（Depression）发展和维持的重要影响因素。目前的研究大多关注大五人格（The Big Five personality traits），而大五人格无法完全捕捉到人格中与抑郁关联更紧密的“黑暗”一面。本研究旨在探索黑暗三联征（Dark Triad，DT）的不同方面与抑郁不同症状之间的关联模式以及黑暗三联征的哪些方面是抑郁症状的重要影响因素，从而为相关预防和干预提供一定参考。以吉林省、陕西省 1327 名大学生为研究对象。采用黑暗十二条（Dirty Dozen, DD）测量黑暗三联征；采用抑郁症筛查量表（PHQ-9）测量抑郁各症状。使用软件 R 中 qgraph 包的 ggmModSelect 方法构建非正则化偏相关网络（Unregularized partial correlation network）并进行可视化呈现，重点关注网络中黑暗三联征和抑郁症状之间的关联模式以及黑暗三联征不同方面的桥预期影响（Bridge expected influence）。结果表明：1）马基雅维里主义同“内疚/自我评价低”，以及自恋同“心情低落”存在正性关联；2）马基雅维里主义和精神病态均与“自杀意念”存在正性关联；3）在黑暗三联征的不同方面中，精神病态具有最高的正性桥预期影响，意味着其对抑郁可能具有更高的风险性作用。本研究从网络视角出发，为黑暗三联征与抑郁之间的关系提供了更精细的视角。同时，研究结果为抑郁的预防和干预方案提供了新的思路，例如通过数字化人格干预方法以及认知重评干预方法来预防和缓解精神病态程度较高群体的抑郁症状。

关键词　黑暗三联征，抑郁，网络分析

The relations between Dark Triad traits and depression symptoms: A network analysis

LI Jiayi[1,2], LIU Chang[3], REN Lei[1,2,*]

1Military Psychology Section, Logistics University of PAP, Tianjin, 300309, rl_fmmu@163.com

2Military Mental Health Services & Research Center, Tianjin, 300309

3BrainPark, Monash University, Clayton, 3168

Abstract Personality traits have been implicated as triggers for depression. Although the work on the relationship between personality traits and depression has been fruitful, most of it has focused heavily on the "Big-Five" personality. Some negative valence factors that are not covered by the Big Five model may better capture the "dark" side of personality traits, and these personality traits are more closely related to depression. The present study (N=1287) measured the Dark Triad (DT) traits and depression using the 12-item Dirty Dozen (DD) and the Patient Health Questionnaire-9 (PHQ-9). We used the ggmModSelect method of the qgraph package in software R to construct the non-regularized partial correlation network to understand: 1) differential associations between specific traits of the DT and symptoms of depression, and 2) the importance of each trait in heightening the risk for depression. Results showed positive pathways between Machiavellianism and feelings of worthlessness, narcissism and depressed or sad mood, and between Machiavellianism and psychopathy and thoughts of death. Moreover, our findings suggested that targeting psychopathy may be promising in reducing depression from the context of the DT. This study provides a deeper understanding of the relationship between the Dark Triad traits and depression from a network perspective. It also offers new ideas for related prevention and intervention programs, such as digital personality change interventions and brief reappraisal interventions, that may be helpful in preventing and alleviating depressive symptoms for individuals with dark personality traits.

Keywords dark triad traits, depression, network analysis

社交媒体使用行为与人格特质的关系

周庆庆[1] 王卉澜[1] 陈哲惠[1] 张鹏美[1] 李倩[1]（通讯作者）

1 温州肯恩大学心理系，温州，325000，qli@kean.edu

摘 要 随着互联网发展和社交需求增加，社交媒体日益流行且呈现多样化趋势。以往研究表明，社交媒体使用行为与人格特质相关，不同性格的用户在不同的平台呈现出不同行为，例如头像特征和文本内容的情绪特征。然而，过去研究主要集中在国外的社交媒体平台，比如推特和脸书，针对国内的社交媒体平台及其差异的研究鲜见。本研究旨在通过用户在微信、微博和小红书三个主流社交平台上发布的文本内容、头像照片和社交关系的特征，分析用户社交媒体使用行为与其人格特质之间的关系，并比较不同平台上使用行为的差异与一致性。本研究的被试为拥有三个平台账户、近两个月内至少发布一次文字信息、拥有好友、粉丝或关注者的用户。我们记录了被试两个月内在三个平台的使用行为，包括发布的文本内容；头像照片（记录六个维度的信息：颜色、类型、人数、是否包含本人、脸部特征和拍照方式）；社交关系（好友或关注者数量，好友列表中真实好友比率）。本研究使用混合性研究方法，采用了质性研究方法通过“文心”中文心理分析系统对用户发布的文本内容在五个维度上进行分析，包括文字标准计数，心理过程，相关性(关于时间，过去，未来的内容)，个人关注(如职业，金钱，健康)，以及其他维度(标点符号，脏话等)。同时，采用了量化方法对被试的社交媒体使用行为与其人格特质（开放性、宜人性、外向性、尽责性和负面情绪性）之间的相关关系进行了统计分析。研究一结果发现用户社交媒体发布文案内容和社交关系与人格特质相关。例如，微信文案中尽责性与健康词频呈正相关，微博文案中宜人性与脏话频率呈负相关。另外，尽责性与微信真实好友比率呈负相关。研究二对比微博、微信和小红书上用呈现的性格差异。结果表明微博的真实好友比率显著低于微信和小红书，用户的开放性与三个平台的总真实好友比率呈负相关。本研究帮助用户认识自己和他人在社交网络中的行为差异，并对社交媒体平台用户使用行为的研究具有积极意义。

关键词 社交媒体使用行为，人格特质，社交关系

The Relationship between Social Networking Services Behavior and Personality

Qingqing Zhou[1] Huilan Wang[1] Zhehui Chen[1] Pengmei Zhang[1] Qian Li[1](Corresponding author)
[1]Department of Psychology, Wenzhou-Kean University, Wenzhou, 325000

Abstract： With the rapid development of the internet and the increasing demand for social interactions, Social Networking Services (SNS) have become increasingly popular and diversified. Previous research has shown that individuals' SNS behavior is related to personality traits, and users with different personalities exhibit distinct behaviors across different platforms, such as profile picture features and emotional valence of text content. However, previous studies have predominantly focused on platforms such as Twitter and Facebook, with limited studies addressing domestic SNS platforms and their differences. This study aims to explore the relationship between SNS behavior and personality traits and identify the differences in users' SNS behavior by examining the features of text content, profile pictures, and social network across the three major SNS platforms in China: WeChat, Weibo, and Little Red Book. Participants in this study include users who have accounts on all three SNS platforms, have posted text content at least once within the past two months, and have friends or followers. We documented their SNS behavior on the three platforms over two months, including the content of their posts, profile picture (six characteristics: color, type, number of people, whether it includes oneself, facial features, and photo-taking method), and social connections (number of friends or followers, and the ratio of real friends in their friend list). This study employed a mixed research method. Qualitative research was conducted using the "TextMind" Chinese psychological analysis system to analyze five major dimensions of the text content posted by users, including word counts, psychological processes, relevance (related to time, past, and future words), personal concerns (such as occupation, money, health), and other dimensions (punctuation marks, count of swear words). Meanwhile, quantitative methods were used to statistically analyze the correlation between users' SNS behavior and personality traits (openness, agreeableness, extraversion, conscientiousness, and negative emotionality). Results of Study 1 revealed that the features of text content and social connections on SNS platforms were correlated with users' personality traits. For instance, users' conscientiousness showed a positive correlation with the frequency of health-related words in their WeChat posts, while agreeableness exhibited a negative correlation with the frequency of swear words in their Weibo posts. Moreover, conscientiousness showed a negative correlation with the ratio of real friends on WeChat. In Study 2, we compared users' SNS behavior across WeChat, Weibo, and Little Red Book and found that the ratio of real friends on Weibo was significantly lower than that on WeChat and Little Red Book. In addition, users' openness was negatively correlated with the ratio of real friends across all three platforms. This study helps understand the differences in SNS users' own and others' behaviors on multiple SNS platforms and has positive implications for research on SNS behavior.

Keywords： Social Networking Services behavior, Big Five personality traits, social connection

6.18"工程心理学专业委员会"分组展贴报告

经颅直流电刺激联合工作记忆训练对航空听觉警报失聪的影响

朱荣娟[1]　惠琪[1]　游旭群[2]（通讯作者）
1 西安科技大学管理学院，西安，710054

2 陕西省行为与认知重点实验室，陕西师范大学心理学院，西安，710062，youxuqun@snnu.edu.cn

摘 要 听觉警报失聪是指在高负荷任务中，个体无法感知周围环境中出现的意外听觉刺激。这种现象是导致飞行事故的主要原因之一，对航空安全构成巨大威胁。听觉警报失聪可能与认知资源有限性有关，高负荷任务消耗大部分认知资源导致没有足够资源加工额外的听觉刺激。而工作记忆被认为是人类认知活动的核心，能够最直观地反映认知资源的可用性。有关工作记忆与听觉警报探测的关系研究提出了单路径和双路径两种不同的理论。单路径理论从资源有限性角度阐释了工作记忆容量较高的个体具有丰富的中央注意资源用于加工意外刺激。双路径理论从认知控制和资源有限性两个视角阐述了工作记忆容量较高的个体其抑制控制能力较强，过度抑制控制导致意外刺激不被知觉；而工作记忆容量较低的个体没有足够的注意资源分配到意外刺激之上。本研究基于上述理论，旨在通过两个实验探索不同类型的工作记忆和航空听觉警报失聪之间的关系，以及从工作记忆增强的角度探索规避航空听觉警报失聪的有效途径。实验 1 采用模拟高负荷航空着陆决策情境，分别探究了视空间和言语工作记忆、以及中央执行功能的个体差异对听觉警报探测的影响。结果发现，视空间和言语工作记忆较高与较低的个体在航空听觉警报探测绩效上没有显著差异，符合双路径理论。而中央执行功能越高的个体其听觉警报反应敏感性较强，符合单路径理论。针对此，实验 2 进一步探索基于经颅直流电刺激（tDCS）技术的中央执行功能训练能否减少高负荷条件下听觉警报失聪的发生。实验中被试被分为阳极刺激训练组、伪刺激训练组和单独刺激组，刺激脑区为右侧背外侧前额叶皮层，电流大小为 1.5mA，每次持续作用 20 分钟,训练时间为 4 周。结果发现，阳极 tDCS 联合训练组不仅能提高工作记忆执行功能，还能提升高负荷情境下的听觉警报反应敏感性。本研究结果提示高负荷情境下的听觉警报失聪与个体的中央执行功能有关，且 tDCS 联合中央执行功能训练可能成为提升高负荷情境下听觉警报反应敏感性的有效途径之一。

关键词 航空听觉警报失聪，背外侧前额叶皮层，经颅直流电刺激，中央执行功能训练，工作记忆

The Effect of Transcranial Direct Current Stimulation Combined with Working Memory Training on Auditory Alarm Deafness in Aviation

Rongjuan Zhu[1], Qi Hui[1], Xuqun You[2]

1 School of Management, Xi'an University of Science and Technology, Xi'an 710054, China

2 Key Laboratory for Behavior and Cognitive Neuroscience of Shaanxi Province, School of Psychology, Shaanxi Normal University, Xi'an 710062, China

***Abstract*:** Auditory alarm deafness refers to the inability of individuals to perceive unexpected auditory stimuli in high-load tasks. This phenomenon is one of the main causes of aviation accidents, posing a significant threat to aviation safety. Auditory alarm deafness may be related to the limited cognitive resources, as high-load tasks consume most of the cognitive resources, leaving insufficient resources to process additional auditory stimuli. Working memory is considered the core of human cognitive activity and can intuitively reflect the availability of cognitive resources. Studies on the relationship between working memory and auditory alarm detection have proposed two different theoretical models: the single-route and dual-route theories. The single-route theory indicates that individuals with high working memory capacity have abundant central attention resources to process unexpected stimuli due to limited resources. In contrast, the dual-route theory explains that individuals with higher working memory capacity have stronger inhibitory control, and excessive inhibition leads to the failure of perceiving unexpected stimuli. On the other hand, individuals with lower working memory capacity lack sufficient

attention resources to allocate to unexpected stimuli. Based on these theoretical frameworks, this study aims to explore the relationship between different types of working memory and auditory alarm deafness in aviation and investigate effective ways to mitigate auditory alarm deafness through enhancing working memory. Experiment 1 investigated the effects of visual-spatial and verbal working memory, as well as central executive function, on the detection of auditory alarm during a simulated high-load aviation landing decision-making scenario. The results showed that individuals with higher visual-spatial and verbal working memory did not exhibit significant differences in auditory alarm detection performance compared to those with lower working memory, supporting the dual-route theory. However, individuals with higher central executive function displayed stronger auditory alarm sensitivity, in line with the single-route theory. Based on the findings from Experiment 1, Experiment 2 further explored whether transcranial direct current stimulation (tDCS) combined with central executive function training could reduce auditory alarm deafness under high-load conditions, with the right dorsolateral prefrontal cortex as the stimulation site. Participants were randomly divided into anodal tDCS + training group, sham tDCS + training group and tDCS group, respectively. The current was 1.5mA and the duration of tDCS was 20 minutes. The whole training time lasted for 4 weeks. The results revealed that anodal tDCS combined with training not only improved working memory executive function but also enhanced auditory alarm sensitivity in high-load conditions. These findings suggest that auditory alarm deafness in high-load conditions is related to individuals' central executive function, and tDCS combined with central executive function training may serve as an effective approach to enhance auditory alarm sensitivity in such scenarios.

***Keywords*：** aviation auditory alarm deafness, dorsolateral prefrontal cortex, tDCS (transcranial direct current stimulation), central executive function training, working memory

动态习得信任在人机交互中的影响因素及变化模式

戚萌[1]　侯艺婷[1]　常明[2]（通讯作者）

1 陕西师范大学心理学院，陕西省西安市，710062

2 陕西师范大学心理学院，陕西省西安市，710062，changming@snnu.edu.cn

摘 要　信任是人机交互的重要前提，而恰当的信任水平是维持人机良好合作的核心要素之一。以往研究缺乏对人-机组队和人-人机组队下人机信任的对比研究，可靠性等外部因素对情景信任和动态信任的影响也存在争议，影响动态信任变化的机制也尚不清晰。因此，本研究目的在于阐明人机交互中不同组队方式下动态信任的影响因素及变化模式。本研究共开展两个实验。实验 1 包含 40 名被试，采用 2(自动化可靠性：高可靠性、低可靠性)× 2(组队方式：人-机组队、人-人机组队)两因素混合设计。被试内变量为组队方式，被试间变量为自动化可靠性，因变量为信任量表分数，探讨自动化可靠性与人机组队方式对情景信任的影响。实验 2 包含 40 名被试，采用 2(自动化可靠性：高可靠性、低可靠性)×2(组队方式：人-机组队、人-人机组队)× 2(交互表现：判断正确、错误)的三因素混合设计。被试内变量为组队方式和交互表现，被试间变量为自动化可靠性，因变量为动态信任评分，探讨可靠性、人机组队方式与交互表现模式对动态信任变化模式的影响。研究结果发现：（1）自动化可靠性对情境信任的主效应显著，被试对高可靠性自动化的情境信任水平显著高于低可靠性自动化；（2）人机组队方式对动态信任变化量的主效应显著，人-机组队下的动态信任变化程度显著大于人-人机组队；（3）交互表现模式对动态信任变化模式的主效应显著；（4）人机组队方式与交互表现模式对动态信任变化的交互效应显著。本研究主要结论：（1）自动化可靠性影响情景信任；（2）人机组队方式影响情景信任和动态习得信任；（3）人机交互表现模式影响动态信任变化，其中自动化建议的表现决定信任变化的方向，个体表现、自动化表现和组队表现共同影响信任变化的程度。上述结论丰富了人机交互的人机组队理论、信任影响因素以及动态习得信任变化模式的影响机制，为人机组队优化、信任训练提供了理论依据和实践建议。

关键词　人机交互，人机组队，人机信任，情景信任，动态习得信任

The influencing factors and changing patterns of dynamic learned trust in Human-Machine Interactions

QI Meng[1], HOU Yiting[1], CHANG Ming[2]

1 School of Psychology, Shaanxi Normal University, Xi'an, China,710062

2 School of Psychology, Shaanxi Normal University,

Xi'an,China,710062,changming@snnu.edu.cn

***Abstract*:** Trust is an important prerequisite for human-computer interaction, and the appropriate level of trust is one of the core elements to maintain proper human-automation collaboration. Previous research lacks comparative studies of trust in automation under human- automation(HA) teaming and human-human-automation (HHA) teaming, and the effects of external factors such as reliability on situational and dynamic trust are controversial, in addition the mechanisms influencing dynamic learned trust changes are unclear. Therefore, the purpose of this study is to elucidate the influencing factors and changing patterns of dynamic trust under different teaming methods in human-computer interaction. Two experiments were conducted in this study. Experiment 1 contained 40 participants in a 2 (automation reliability: high reliability vs low reliability) × 2 (teaming: HA teaming vs HHA teaming) two-factor mixed design. The within-subjects variable was teaming, the between-subjects variable was automated reliability, and the dependent variables were trust scale scores. The study investigated the effects of automation reliability and human teaming on situational trust. Experiment 2 contained 40 participants in a 2 (automation reliability: high reliability vs low reliability × 2 (teaming: HA teaming vs HHA teaming) × 2 (interactive performance pattern: correct vs wrong) three- factor mixed design. The within-subjects variables were teaming and interactive performance pattern, the between-subjects variable was automation reliability, and the dependent variable were dynamic trust scores. This study investigated the effects of automation reliability, teaming, and interactive performance on dynamic trust variation patterns. The findings revealed that (1)The main effect of automation reliability on situational trust was significant, and the level of situational trust in high-reliability automation was significantly higher than that in low-reliability;(2)The main effect of human-automation teaming ondynamic trust was significant, and the degree of dynamic trust variation under HA teaming was significantly greater than that under HHA teaming;(3) The main effect of interactive performance patterns on dynamic trust was significant;(4) The interaction effect of human-automation teaming and interactive performance patterns on dynamic trust variation is significant. The main conclusions of this study are as follows:(1)Automation reliability affects situational trust;(2)Teaming affects situational trust and dynamic learned trust; (3) Interactive performance patterns affect dynamic trust variation, where the performance of automation recommendations determines the direction of trust variation, and individual performance, automation performance, and teaming performance jointly affect the degree of trust variation. The above conclusions enrich the theory of human- automation teaming formation in human-computer interaction, the influencing factors of trust, and the influence mechanism of dynamic variation patterns. The findings also provide a theoretical support and practical suggestions for the optimization of Human-Machine teaming formation and the training of trust.

***Keywords*:** human-computer interaction,human-machine teaming, trust in automation, situational trust, dynamic learned trust, human-robot interaction

基于文献计量分析法的人-机器人信任修复研究

蔡敏敏[1] 蔡杰[2]

[1]浙江理工大学心理系，杭州，310018

[2]浙江理工大学心理系，杭州，310018，caijei@zstu.edu.cn

摘 要 随着机器人技术的发展，人-机器人信任研究已逐渐成为心理学、人机交互等领域中的研究热点。其中，如何修复人类对机器人的信任对于促进人机协同效率、提高人机合作绩效具有重要意义，并已成为人-机器人信任研究领域中的新兴热点话题。为更好地了解人-机器人交互中信任修复的研究现状及发展趋势，本研究以 Web of Science(WoS)核心合集和 Scopus 两大数据库为主要数据源，以(“trust” or “trustworthiness”) and (“repair” or “recovery”) and (“robot” or “robotics” or “HRI” or “human-robot interaction”)为检索关键词，筛选得 2015 - 2023 年间 60 篇人-机器人信任修复文献，采用文献计量分析软件 CiteSpace6.2 R2 进行分析。结果发现，（1）从 2015-2023 年，该领域的文献发表量呈逐年增长趋势。（2）共被引分析表明，共被引期刊频次前 5 位的专业期刊以及会议依次为:《Human Factors》、《Academy of Management Review》、《ACM/IEEE International Conference on Human-robot Interaction》、《Organizational Behavior and Human Decision Processes》和《Ergonomics》。（3）共词分析表明，研究最多的 10 个关键词依次是信任修复、自动化、人机交互、性能、人工智能、模型、态度、道歉、拟人化和可信度。（4）时间线谱图分析表明，2016 年至 2020 年的研究热点是人工智能、性能和信息。2021 年以来的研究热点是用户信任框架违约、组织、智能机器人、人与代理团队、合作修复、虚假知识信息。本研究证实人-机器人信任修复研究已逐步受到研究人员的关注，有助于相关科研人员了解人-机器人信任修复的研究现状，把控人-机器人信任修复的热点变化，并为其确立相关科研方案提供一定的理论参考。

关键词 信任修复，文献计量，人机交互

Research on human-robot trust repair based on bibliometric analysis

Minmin Cai, Jie Cai

Department of Psychology, Zhejiang Sci-Tech University, Hangzhou, Zhejiang

Abstract: With the development of robot technology, human-robot trust research has gradually become a research hotspot in psychology, human-robot interaction and other fields. Among them, how to restore human trust in robots is of great significance to promote human-robot cooperation efficiency and improve human-robot cooperation performance, and has become an emerging hot topic in the field of human-robot trust research. In order to better understand the research status and development trend of trust repair in human-robot interaction, this study uses two databases, Web of Science(WoS) core collection and Scopus, as the main data sources. Take (" trust "or" trustworthiness ") and (" repair "or" recovery ") and (" robot "or" robotics "or" HRI "or" human-robot interaction ") as the keywords, 60 literatures on human-robot trust repair from 2015 to 2023 were selected, which were analyzed using bibliometric analysis software CiteSpace6.2 R2. The results show than t (1) From 2015 to 2023, the amount of literature published in this field shows an increasing trend year by year. (2) Co-citation analysis shows that, The top 5 professional journals and conferences with a total frequency of citations are: *Human Factors, Academy of Management Review, ACM/IEEE International Conference on Human-Robot Interaction, Organizational Behavior and Human Decision Processes,* and *Ergonomics*. (3) Co-word analysis shows that the top 10 most researched keywords are trust repair, automation, human-robot interaction, performance, artificial intelligence, model, attitude, apology, anthropomorphism, and trustworthiness. (4) Timeline analysis shows that the research hotspots from 2016 to 2020 are artificial intelligence, performance and information. The research hotspots since 2021 are user trust

framework breach, organization, intelligent robots, human and agent team, repair in cooperation, and false knowledge information. This study confirms that the research on human-robot trust repair has gradually attracted the attention of researchers, which is helpful for relevant researchers to understand the research status of human-robot trust repair, grasp the hotspots of human-robot trust repair, and provide some theoretical references for establishing relevant scientific research programs.
Key words: trust repair, bibliometric, human-robot interaction

立体刺激的加工表现总优于平面？对立体航空多任务范式（MATB-II）加工的高认知负荷

车翔[1] 林靖康[1] 唐睿翼[1] 惠琪[2] 兰继军[1]（通讯作者）
1 陕西师范大学心理学院，陕西省行为与认知重点实验室，西安，710062, xingzhilab@126.com
2 西安科技大学管理学院，西安，710054

摘 要 多任务加工处理在我们的日常生活和人-机交互环境中非常常见。在航空领域，MATB-II 任务是美国航空航天局(NASA)于 1992 年开发的用于测量航空多任务性能并广泛使用的范式。在该范式中，所有子任务都在 PC 显示器的不同空间位置上呈现，在每个子任务上的绩效被计算以评估总体 MATB-II 航空多任务的绩效。近年来，有研究者深度信息可以提高工作记忆和选择性注意的表现。然而，其他研究人员提出，在两个深度平面之间串行切换注意会导致更高的注意成本和较高的认知负荷。本研究的目的是调查 MATB-II 在立体(虚拟现实)和平面(桌面显示器)环境下的性能和机制。我们招募了 49 名大学生参与者(M = 18.63 岁，SD = 0.78，女性= 24)，要求他们完成 MATB-II 中的需要飞行摇杆操纵的“追踪任务(Tracking)”和模拟飞行仪表监控的“系统监控任务(System monitoring)”作为子任务。我们采用了 2 (任务需求：低、高)× 3 (深度情况：无深度(No Depth; ND)、追踪任务远-系统监控近(Tracking Far - System monitoring Near; TF-SN)、追踪任务近-系统监控远(Tracking Near - System monitoring Far; TN-SF)的被试内实验设计，并测量了每个任务期间的 NASA 任务负荷量表(NASA-TLX)和心率变异性(HRV)以衡量任务期间的认知负荷。因变量是各子任务的正确率、NASA-TLX 的总分和 HRV 的 RMSSD 指标。我们发现深度对追踪任务(F(2, 96) = 115.01, p < .001, η_p^2 = 0.706)和系统监控任务(F(2, 96) = 10.32, p < .001, η_p^2 = 0.177)有显著主效应，无深度条件(ND)的表现优于有深度的追踪任务近-系统监控远(TN-SF)条件和追踪任务远-系统监控近(TF-SN)条件。此外，这些结果与深度的 NASA-TLX 主效应(F(2, 96) = 10.489, p < .001, η_p^2 = 0.179)和 HRV 的 RMSSD(F(2, 96) = 4.462, p = .014, η_p^2 = 0.085)一致。这表明相对于有深度的立体条件，无深度条件的 NASA-TLX 总分较低且 RMSSD 值较高。综上所述，本研究推进了我们对用户如何感知和处理具有不同深度的多任务的理解。在处理不同深度平面上的多任务时，相比于平面场景，立体有深度场景的表现较差可能是由于更多的主观和客观认知负荷。

关键词 MATB-II, 多任务，虚拟现实，心率变异性，认知负荷

Stereo stimuli processing are always better than flat? A high

cognitive load in processing stereo multi-tasking evidenced by MATB-II

Xiang Che[1] Jingkang Lin[1] Ruiyi Tang[1] Qi Hui[2] Jijun Lan[1*]
1 School of Psychology, Shaanxi Normal University, Key Laboratory for Behavior and Cognitive Neuroscience of Shaanxi Province,710062, China
2 School of Management, Xi'an University of Science and Technology, Xi'an, 710054, China

Abstract： Multi-tasking is common in our daily life human-computer interaction environment. Multi-Attribute Task Battery (MATB) II is a widely used tool in measuring aviation muti-task performance developed by NASA. The all sub-tasks were presented on the varied spatial location of the PC monitor, and their performance on each sub-task were calculated to evaluated the overall MATB-II performance. Recently, depth information can benefit both working memory and selective attention performance Yet, other researchers suggested more attentional cost in switching serially attention between two depths planes and induce high cognitive load. The aim of the present study is to investigate the performance and the mechanism of MATB-II under stereo (VR) and flat (PC monitor) environment. We recruited 49 participants (M = 18.63 years, SD = 0.78, female = 24) and require them to finish "Tracking task" and "System monitoring task" which as sub-task in the MATB-II. We adopted 2(task demand: low, high) × 3(Depth (No depth(ND), Tracking Far - System monitoring Near (TF-SN), Tracking Near - System monitoring Far (TN-SF)) within-subjects experimental design and measures NASA-TLX and HRV during each tasks to measure cognitive load. The dependent variable is task accuracy, total score of NASA-TLX and RMSSD of HRV. We found there was a significant main effect of depth (F(2, 96) = 115.01, p < .001, η_p^2 = 0.706) on Tracking task and System monitoring task (F(2, 96) = 10.32, p < .001, η_p^2 = 0.177). ND condition was performed better than TN-SF and TF-SN condition. Furthermore, these result is in line with NASA-TLX on main effect of depths (F(2, 96) = 10.489, p < .001, η_p^2 = 0.179) and RMSSD of HRV (F(2, 96) = 4.462, p = .014, η_p^2 = 0.085), indicates ND condition performed higher score of NASA-TLX and lower value of RMSSD than other conditions. In summary, this study advances our understanding of how users perceive and processing multi-tasks with different depth. Worse performance in processing multi-tasks in different depth plane than same depth plane may result in more cognitive load subjectively and objectively induced.

Keywords： MATB-II, muti-task, Virtual Reality (VR), Heart rate variability (HRV), cognitive load

6.19"决策心理学专业委员会"分组展贴报告

跨期决策中的自我–他人差异：眼动证据

杨钰兰[1] 王嘉伟[1] 梁彦[1] 魏子晗[2] 刘洪志[1]（通讯作者）
1 南开大学周恩来政府管理学院社会心理学系，天津, 300350, liuhz@nankai.edu.cn
2 天津师范大学心理学部，天津, 300387

摘 要 跨期决策是指对发生在未来不同时间点上的结果做出选择的决策过程，它需要决策者在眼前利益与未来利益之间做出权衡与取舍，是关乎国计民生的重要决策类型。前人研究发现，个体在跨期决策中存在自我–他人决策差异，即，相比于为自己决策，个体在为他人进行跨期决策时会表现得更有耐心。然而，这种自我–他人决策差异的成因及心理机制尚缺乏足够证据。为检验跨期决策中自我–他人差异的认知加工

机制，本研究采用眼动追踪技术，基于被试内设计，考察了个体在为自己决策和为他人决策两种情境下行为指标和眼动指标的差异。研究结果发现：（1）在行为结果上，相比于为他人决策，在为自己进行跨期决策时，个体更倾向于选择小而近的选项，并表现出较高的时间折扣率，这与前人发现是一致的。（2）在眼动指标上，相比于为他人决策，在为自己进行跨期决策时，个体表现出更多的注视次数，决策前注视的信息比例更高，对结果维度的注视比例更低，随机眼跳指数越低。此外，这些眼动指标可以中介决策任务对跨期选择的效应。（3）决策任务调节了选项注视时间优势对选择的预测效应，即相比于为自己决策任务，选项注视时间优势在为他人决策任务中的预测效应更强，这表明为他人决策任务存在更多的自下而上的信息加工。（4）人际距离调节了决策任务对选择的预测作用，即人际距离越远，自我–他人决策差异越大。这些结果提示，相比于为他人决策，个体在为自己决策任务中表现出更高的卷入度和策略一致性，从而导致其在跨期决策中变得更加不耐心。本研究发现为解释自我–他人跨期决策差异提供过程检验的认知加工证据，并为今后的自我–他人决策差异研究提供了重要参考。
关键词　跨期决策, 自我–他人差异, 眼动追踪, 折扣率

Self-other discrepancies in intertemporal choice: Eye-tracking evidence

Xing-Lan Yang[1]　Jia-Wei Wang[1]　Yan Liang[1]　Zi-Han Wei[2]　Hong-Zhi Liu[1*]

[1]Department of Social Psychology, Zhou Enlai School of Government, Nankai University, Tianjin 300350, China; *Email: liuhz@nankai.edu.cn

[2]Faculty of Psychology, Tianjin Normal University, Tianjin 300387, China

***Abstract*:** Intertemporal choice refers to decisions that involve tradeoffs among outcomes at different points of time. It is not only a unique characteristic of human behavior, but is also a relevant matter to policymaking and national welfare. Previous studies have revealed the self-other discrepancies in intertemporal choices, wherein individuals exhibited more patience when making intertemporal choices for others than for themselves. However, there is a lack of sufficient evidence on the underlying mechanisms of the self-other decision discrepancies. To examine the cognitive processing mechanisms underlying self-other discrepancies in intertemporal choice, the present study used eye-tracking techniques to examine the differences in behavioral and eye-tracking measures between decision for self and others in a within-subject design. The results revealed that: (1) individuals preferred the smaller-but-sooner options and showed greater discounting rate when making intertemporal choices for themselves compared with making decisions for others, which is consistent with previous findings. (2) Individuals showed more fixations, higher percentage of total information searched, lower outcome-gaze-proportion, and lower proportion of random transitions when making intertemporal choices for themselves than making decisions for others. In addition, these eye-tracking measures mediated the effect of the decision task on intertemporal choices. (3) The task moderated the predictive effect of option-based dwell advantage on choice. That is, the predictive effect of option-based dwell advantage was stronger in the decision-for-other task than the decision-for-self task, suggesting more bottom-up information processing in the decision-for-other task. (4) Interpersonal distance moderated the predictive effect of the decision task on choice. The farther the interpersonal distance, the greater the self-other decision discrepancies. These results suggest that compared with the decision-for-other task, individuals show higher engagement and strategic consistency in the decision-for-self task, leading to more impatience in intertemporal choice. The findings of this study provided cognitive processing evidence to explain self-other discrepancies in intertemporal choice and highlighted implications for future studies focusing on self-other discrepancies.

Keywords：intertemporal choice, self-other discrepancies, eye-tracking, discounting rate

外卖软件中营养标签对消费意愿的影响

刘翔宇[1]　刘洪志[1]（通讯作者）

1 南开大学周恩来政府管理学院社会心理学系，天津, 300350, liuhz@nankai.edu.cn

摘 要　营养标签是指预包装食品标签上向消费者提供食品营养信息和特性的说明，包括营养成分表、营养声称等内容。目前来看，学界关于营养标签对消费者行为影响的研究相对较少，营养标签在移动端软件上的应用研究也相对空缺。随着互联网经济的发展，移动端购物方式也越来越普遍，便捷的外卖成为非常广泛的就餐途径。根据《中国居民膳食报告》，我国居民的膳食存在严重的不平衡现象。基于《“健康中国2030”规划纲要》的指导，我国在营养均衡和营养知识普及上还需进一步努力，因此了解移动端软件中营养标签的影响对于改善现代消费者饮食结构具有十分重要的作用。本研究通过两个实验，系统考察了营养标签对个体的消费选择、购买意愿及健康评价等方面的影响。实验一考查了移动端外卖软件中营养标签对于店铺选择的影响。结果发现，消费者更可能选择有营养标签的店铺，且对有营养标签店铺的健康评价和信赖度比无营养标签店铺更高。实验二考查了影响标签对菜品选择的影响。结果发现，消费者对有无营养标签的菜品在选择上并无差异，但营养标签会提高消费者对菜品的积极评价。本研究结果表明，在移动端外卖软件上，相比于在菜品上标记营养标签，在店铺上标记营养标签的效果更好。本研究结果提示了个体对营养标签的认知特点，对营养标签在消费行为中的应用具有一定的指导作用，对食品健康领域的实践具有一定的启发。未来研究可考虑在本研究基础上进一步构建助推研究，帮助完善营养标签体制和监督市场，促进居民的饮食健康水平。

关键词　营养标签，移动端外卖软件，健康评价，购买意愿

The influence of Front-of-Pack nutrition label on consumers' purchase intention in mobile software

Xiang-Yu Liu[1] Hong-Zhi Liu[1*]

[1] Department of Social Psychology, Zhou Enlai School of Government, Nankai University, Tianjin 300350, China; *Email: liuhz@nankai.edu.cn

Abstract：The nutrition label refers to the description on the pre-packaged food that provides consumers with the nutritional information and characteristics of the food, including the nutrition facts table and nutrition claims. In recent years, few studies focused on the impact of nutrition labels on consumer behavior, and the application of nutrition labels on mobile software is also under development. With the growth of the digital economy, mobile shopping has become increasingly common, and convenient take-out has emerged as a popular dining option. According to the “Chinese Residents’ Dietary Report”, there is a significant imbalance in the dietary habits of Chinese residents. The “Healthy China 2030” program suggested that the Chinese government should make further efforts in popularizing nutritional knowledge. Therefore, understanding the impact of nutrition labels in mobile

software seems significant in improving the dietary patterns of the populations. Through two experiments, the present study systematically investigated the effect of nutrition labels on individual consumer choices, purchase intentions, and health evaluations. In Experiment 1, we examined the impact of nutrition labels in mobile delivery software on store preference. The results revealed that consumers are more likely to choose the stores with nutrition labels, and they hold higher health evaluations and trust for the stores with nutrition labels than the stores without labels. In Experiment 2, we examined the effect of labels on cuisine preference. The results showed that there was no significant difference in consumers' choices between cuisines with or without nutrition labels, but the nutrition labels had a positive effect on consumers' evaluation of the cuisine. Our findings suggest that, in the context of mobile delivery software, labeling nutrition information on stores is more effective than labeling it on the cuisine. These results shed light on individuals' cognitive characteristics related to nutrition labels, providing valuable guidance for the application of nutrition labels in consumer behavior and serving as an inspiration for the practices in the field of food health. Future research could consider further conducting nudge research based on our findings to help improve the nutrition label system and market supervision, so as to promote the dietary health levels of residents.

Keywords：nutrition label, mobile deliver software, health evaluation, purchase intention

偶然情绪对动态决策的影响：来自行为与 ERPs 的证据

赵睿楠[12] 赵迪[2] 徐雯静[1] 周丽清[1]（通信作者）

1 杭州师范大学经亨颐教育学院心理系，杭州，311100，zhouliqing@hznu.edu.cn

2 上海市精神卫生中心，上海，201109

摘 要 在社会生活中，人类经常需要在信息不完备的情况下做出决策，并从决策的结果反馈中习得规律，完成决策目标。以往研究大多关注情绪如何影响描述性决策，但情绪对动态决策的影响机制尚且不清楚，特别是动态决策的认知神经机制。本研究采用单因素（情绪类型：积极、消极、中性）被试间设计，要求被试在接受情绪处理后完成动态决策任务并达到决策目标，同时记录了其在完成动态决策任务时的行为和神经反应。结果发现，积极情绪组的决策正确率显著大于中性情绪组（$p<0.01$）。在决策结果反馈阶段，分数增加反馈比分数减小反馈诱发了更正的 P2 成分，分数减小反馈比分数增加反馈诱发更负的 FRN 成分。研究结果表明积极情绪更有利于决策目标的达成，在动态决策任务中，分数增加反馈诱发个体更强的认知冲突，分数减小反馈诱发个体在决策中预期与结果之间的更大偏离。在动态决策任务中，选择分数增加项会使下一次决策的每个选项分数都增加，而选择分数减小项会使下一次决策的每个选项分数都减小，而在每次决策中，分数增加项对应的分数总是小于分数减小项，从单个决策选择来看，选择分数减少项为最佳选择。然而，在整个动态决策过程中选择分数增加选项可以使累计的总分更高，更有利于目标分数的达成。个体需要从分数减小反馈中觉察到决策规律并调整决策，并克服认知冲突所造成的影响，最终达成决策的目标。本研究为情绪对动态决策的影响机制，以及动态决策的认知加工过程提供了初步的行为与电生理依据。

关键词 动态决策任务，偶然情绪，反馈，P2，FRN

The influence of contingent emotions on dynamic decision making: evidence from behavior and ERPs

Zhao Ruinan [12] Zhao Di[2] Xu Wenjing[1] Zhou Liqing[1] (Corresponding author)

1Hangzhou Normal University, Hangzhou, 311100,zhouliqing@hznu.edu.cn

2 Shanghai Mental Health Center, Shanghai ,201109,

Abstract **:** In social life, human beings often need to make decisions under the condition of incomplete information, and learn the rule from the feedback of the decision results to complete the decision goal. Most previous studies have focused on how emotion affects descriptive decision making, but the mechanism of emotion's influence on dynamic decision making is still unclear, especially the cognitive neural mechanism of dynamic decision making. In this study, a single factor (emotion type: positive, negative, neutral) inter-subject design was adopted. Subjects were required to complete the dynamic decision making task and reach the decision goal after receiving the emotion processing, and their behavior and neural response during the completion of the dynamic decision making task were recorded. The results showed that the decision accuracy of the positive emotion group was significantly higher than that of the neutral emotion group (p< 0.01). In the feedback stage of decision result, the increase of score induces the correct P2 component, and the decrease of score induces the more negative FRN component. The results show that positive emotion is more conducive to the achievement of decision-making goals. In dynamic decision-making tasks, the increase of score feedback induces stronger cognitive conflict, while the decrease of score feedback induces greater deviation between expectation and outcome in decision-making. In a dynamic decision making task, choosing the score increase item will increase the score of each option in the next decision, while choosing the score decrease item will decrease the score of each option in the next decision, and in each decision, the score corresponding to the score increase item is always

smaller than the score decrease item. From a single decision choice, choosing the score decrease item is the best choice. However, selecting the score increase option in the whole dynamic decision-making process can make the cumulative total score higher and more conducive to the achievement of the target score. Individuals need to perceive the decision rule from the feedback of score reduction and adjust the decision, and overcome the impact of cognitive conflict, and finally achieve the goal of decision. This study provides a preliminary behavioral and electrophysiological basis for the mechanism of emotional influence on dynamic decision making and the cognitive processing of dynamic decision making.

Keywords：dynamic decision task, contingent emotion, feedback, P2, FRN

社会距离对不同社会价值取向个体自我-他人风险决策的影响研究

石生浩　黄浦江　刘志远(通讯作者)
陕西师范大学心理学院，西安，710062
通讯作者邮箱：zyliu@snnu.edu.cn

摘 要　在自我-他人风险决策领域中，现有研究结论并不一致，这可能与研究者们没有充分考虑个体的人格特质与决策情境等因素有关系。目前，社会距离是否会对不同社会价值取向个体自我-他人风险决策产生影响还不清楚。为了探究该问题，我们设置三项研究：研究 1 基于大样本的问卷调查(N = 422)探究不同社会价值取向个体的自我-他人风险决策特点；研究 2 利用连续风险决策任务对研究 1 结果进行验证，并探究个体对决策结果的情绪反应在自我-他人风险决策中的作用；在研究 2 的基础上，研究 3 将他人区分为朋友和陌生人，探究社会距离对不同社会价值取向个体自我-他人风险决策的影响。研究 1 发现，亲自我价值取向个体为他人决策比为自己决策有更强的风险偏好，而亲社会价值取向个体为自己和他人决策时在风险偏好上无显著差异。研究 2 与研究 1 结果相一致，且还发现亲自我价值取向个体在为他人决策时若获得较差结果，其对该结果的消极感受程度更弱；而亲社会价值取向个体在为自己和他人决策获得较差结果时的消极感受程度无显著差异。研究 3 发现相比于为自己做决策，亲自我价值取向个体仅在为陌生人做决策时表现出更加冒险，遇到较差决策结果时消极感受程度更弱，而为朋友做决策在冒险行为及情绪上均没有显著差异；此外，亲社会价值取向个体为自己决策、为朋友决策和为陌生人决策在冒险行为和情绪上均无显著差异。综上，本研究表明社会价值取向这一人格特质与社会距离这一决策情境对自我-他人风险决策的影响存在着交互作用。这一发现有助于更加全面的了解自我-他人风险决策的内在机制，且对于理解人们在现实生活社会互动过程中的风险决策行为有着重要的启示作用。

关键词 自我-他人风险决策，社会价值取向，社会距离

Research on the impact of social distance on self-other risk decision-making for individuals with different social value orientations

Shenghao Shi, Pujiang Huang, and Zhiyuan Liu[CA]
School of Psychology, Shaanxi Normal University, Xi'an, 710062.

***Abstract*:** In the field of self-other risk decision-making, research findings are inconsistent, which may be related to researchers not fully considering individual personality traits and decision-making contexts. Currently, it is unclear whether social distance affects self-other risk decision-making for individuals with different social value orientations. To explore this question, we conducted three studies: Study 1 used a large sample questionnaire survey (N = 422) to investigate the characteristics of self-other risk decision-making for individuals with different social value orientations; Study 2 validated the results of Study 1 using a continuous risk decision-making task and explored the role of individuals' emotional reactions to decision outcomes in self-other risk decision-making; Building on Study 2, Study 3 differentiated others into friends and strangers to examine the impact of social distance on self-other risk decision-making for individuals with different social value orientations. Study 1 found that individuals with a strong self-value orientation had a stronger risk preference for others' decisions compared to their own decisions, while individuals with a strong social value orientation showed no significant difference in risk preference between their own and others' decisions. Study 2 confirmed the results of Study 1 and also found that individuals with a strong self-value orientation had weaker negative feelings towards poor decision outcomes when making decisions for others. However, individuals with a strong social value orientation showed no significant difference in negative feelings towards poor decision outcomes when making decisions for themselves or others. Study 3 found that compared to making decisions for themselves, individuals with a strong self-value orientation exhibited more risk-taking behavior only when making decisions for strangers, and they had weaker negative feelings towards poor decision outcomes. There were no significant differences in risk-taking behavior and emotions when making decisions for friends. Additionally, individuals with a strong social value orientation showed no significant differences in risk-taking behavior and emotions when making decisions for themselves, friends, or strangers. In conclusion, this study demonstrates that the interaction between social value orientation as a personality trait and social distance as a decision-making context influences self-other risk decision-making. This

finding contributes to a more comprehensive understanding of the underlying mechanisms of self-other risk decision-making and provides important insights into people's risk decision-making behavior in real-life social interactions.

Keywords：self-other risk decision-making, social value orientation, social distance,

接受-拒绝框架对跨期决策的影响：选项吸引力的调节效应

魏李帆[2] 杨钰兰[1] 刘洪志[1] 魏子晗[2]（通讯作者）

1 南开大学周恩来政府管理学院社会心理学系，天津，300350

2 天津师范大学心理学部，天津，300387 E-mail：weizihan@tjnu.edu.cn

摘 要 跨期决策是指在不同时间点权衡成本和收益的决策，通常要求个体在一个小而近和一个大而迟的选项间进行抉择，以考察个体的跨期偏好。以往研究总是在接受框架下考察跨期决策，根据个体选择接受哪个选项来构建提问框架。但已有研究表明，在“接受”和“拒绝”两种不同的提问框架下，个体的偏好并不总是保持一致，接受-拒绝框架对跨期决策的影响尚缺乏相关研究。本研究通过 3 个实验探究了接受-拒绝框架对跨期决策的影响及其认知机制。

实验一考察了接受-拒绝框架对跨期决策影响，结果发现，接受和拒绝框架下决策者的跨期偏好有显著差异，且受到选项吸引力差值的调节作用。具体来讲，当大而迟选项（LL 选项）的吸引力大于小而近选项的吸引力（SS 选项）时，决策者在接受框架下比拒绝框架下更偏好 LL 选项；当 LL 选项的吸引力小于 SS 选项的吸引力时，决策者在接受框架下比拒绝框架下更偏好 SS 的选项。实验二进一步采用眼动追踪技术探究了接受-拒绝框架对跨期决策影响的认知机制，依据强调假说理论，决策者在拒绝框架下认知负荷更大，决策难度更高，辨别力更弱，因此更不容易受到选项吸引力的影响。实验二的行为结果和眼动结果支持了这一理论，实验二的结果发现，接受比拒绝框架更受选项吸引力的影响，决策者在接受框架下比拒绝框架下更偏爱选项吸引力高的选项，并且与接受框架相比，被试在拒绝框架下的反应时和平均注视时长更长，说明其在拒绝框架下的认知负荷更大。实验三在理财储蓄和网络购物两种更自然的情景中再次检验了接受-拒绝框架对跨期决策的影响以及选项吸引力差异的调节作用。

本研究丰富和拓展了接受拒绝框架效应领域的相关研究，为跨期决策中的接受-拒绝框架效应提供了过程证据，有助于相关理论的进一步完善和发展。

关键词 跨期决策，接受-拒绝框架，眼动追踪技术，选项吸引力

The Impact of accept-reject frame on intertemporal choice: the moderating effect of option attractiveness

Li-Fan Wei[2] Xing-Lan Yang[1] Hong-Zhi Liu[1] Zi-Han Wei[2] (Corresponding Author)

1Department of Social Psychology, Zhou Enlai School of Government, Nankai University, Tianjin, 300350

2Faculty of Psychology, Tianjin Normal University, Tianjin, 300387 E-mail: weizihan@tjnu.edu.cn.

Abstract： Intertemporal choices refer to decisions involving tradeoffs between costs and benefits at different

times. individuals are usually asked to choose between a small sooner (SS) option and a large later (LL) option in order to examine their intertemporal preferences. Previous studies have always examined intertemporal choices in the accept-frame, wherein the choices were framed in terms of which option one would choose to accept. However, it has been demonstrated that individuals' preferences are not always consistent under accept-frame and reject-frame. There is a lack of research on the impact of accept-reject frame on intertemporal choice. The present research investigated the impact of accept-reject frame on intertemporal choice and its cognitive mechanisms behind through three experiments.

Study 1 examined the impact of accept-reject frame on intertemporal choice and found that participants' intertemporal choices are influenced by accept-rejection frames and this accept-reject frame effect was moderated by the option attractiveness differences. Specifically, when the option attractiveness of the large later (LL) option is greater than that of the small sooner(SS) option, decision maker are more likely to choose the LL option in the accept-frame than in the reject-frame; whereas, when the option attractiveness of the LL option is less than the SS option, the decision maker are more likely to choose the SS option in the accept-frame than in the reject-frame. Study 2 further explored the cognitive mechanism of the accept-reject frame effect on intertemporal choice using eye-tracking technology. And based on the accentuation hypothesis, the reject-frame is more difficult, people have to devote more effort to understanding the task itself, leaving fewer cognitive resources available for processing the options. People are less discriminating in the reject-frame than in the accept-frame, therefore less influenced by the attractiveness of options. Study 2 examined this account behind the reject-frame effect. The results showed that participants are more likely to choose the more attractive option in the accept-frame than in reject-frame, indicating that their preference was more likely to be influenced by option attractiveness in accept-frame compared to reject-frame. In addition, participants reaction time and mean fixation duration in reject-frame were longer than that in accept-frame, indicating that there are more cognitive load in reject-frame than than in accept-frame. Study 3 re-examed the impact of accept-reject frame effect in intertemporal choice and the moderating effect of option attractiveness differences in more natural scenarios.

This study provides process evidence for the accept-reject frame in intertemporal choice and contributes to the further improvement and development of related theories.

Keywords： intertemporal choice, accept-reject frame, eye-tracking technique, option attractiveness

应用振动影像技术预测飞行员模拟飞行中的风险决策

黄睿[1]　刘映杰[1]（通讯作者）

1 华北理工大学心理与精神卫生学院，河北，唐山，063210

摘 要　随着民用航空的发展，飞行安全成为公众关注的焦点，其中飞行员的风险决策能力——即综合各种可能的结果和概率信息并制定最优行动方案的能力，尤为重要。本研究应用振动影像技术采集头面部肌肉振幅信息，采用 2（任务情境：正常和紧急）×2（锚定条件：高锚定启发和低锚定启发）×5（决策组块：组块 1 至组块 5）的混合实验设计，同时使用决策树算法模型进一步探索飞行员风险决策的预测指标，以此实现对飞行员风险决策的评估。研究共招募 41 名民航飞行员，要求他们在不同任务情境和认知启发条件下进行分阶段的飞行模拟驾驶和爱荷华赌博任务。结果发现，在紧急状态下飞行员更易做出风险决策，而在高锚定启发条件下则相反；在紧急情境下，低锚定启发条件更可能促使飞行员做出风险决策。根据决策

树算法模型，结果发现振动影像信息中的焦虑指数能够有效地预测飞行员在飞行过程中的风险决策。研究表明，高锚定启发的条件诱发了飞行员对飞行环境的关注和风险行为的高度认知，因此降低了他们在异常飞行情况下的风险决策，而通过分析飞行员头面部的焦虑指数信息能够更好地预测他们对于风险的“盲视”。本研究为预测飞行员风险决策提供了一种新的研究方法，能够为飞行训练提供新的参考。振动影像技术可作为一种新型的、非侵入式的生理信号监测方法，能够在飞行员认知评估领域提供有力支持。

关键词　驾驶决策，飞行员，振动影像，风险决策

Predicting Pilot's Risk Decision-Making during Simulated Flight Using VibraImage Technology

Rui Huang[1], Yingjie Liu[1] (Corresponding Author)
School of Psychology and Mental Health, North China University of Technology, Tangshan, Hebei, 063210, China

***Abstract*：** As the civil aviation industry advances, flight safety is garnering significant public attention, particularly the pilot's risk decision-making ability, which can integrate possible outcomes and probability information to devise optimal action plans. This research employs Vibraimage technology to collect facial muscle amplitude data from the head and face, implementing a 2 (task conditions: normal and emergency) × 2 (anchoring situations: high anchoring heuristic and low anchoring heuristic) × 5 (decision-making blocks: block1 to block5) mixed experimental design. Concurrently, a decision tree algorithm model was utilized to investigate predictive indicators of pilot risk decision-making further, thereby providing a comprehensive assessment. The research recruited a cohort of 41 aviation pilots, requiring them to perform sequential flight simulation tasks and the Iowa Gambling Task under various task conditions and cognitive heuristic situations. The results illustrate that pilots are more inclined to make risk decisions in emergencies, whereas the opposite is true in high anchoring heuristic conditions. Pilots are more likely to make risk decisions under emergencies with low anchoring heuristic conditions. Based on the decision tree model, it was revealed that the anxiety index within Vibraimage information could effectively predict pilot risk decisions during flights. The findings suggest that high anchoring heuristics conditions induced an elevated cognitive awareness and focus on the flight environment and risk-related behavior among pilots, thereby reducing their propensity for risky decision-making during abnormal flight situations. Analyzing facial anxiety index information provides a more accurate prediction of their risk of 'blindness'. This study offers a novel approach to predicting pilot risk decision-making, providing fresh insights for flight training. Vibraimage technology, as a non-invasive physiological signal monitoring method, can provide substantial support within the field of pilot cognition assessment.

***Keywords*：** Driving Decision, Pilots, VibraImage, Risk Decision-Making

第三方决策权对多人公平决策的影响

陆晓清　李特　李葆明　杨仲（通讯作者）
杭州师范大学基础医学院脑科学研究所，杭州，311121

摘 要　公平是人类社会的基本价值理念和行为准则，人们的公平决策行为不仅取决于自己是否受到公平对待，也会考虑到其他的社会成员。前人基于多人最后通牒博弈范式的研究表明，对第三方可能同时存在不平等厌恶和社会比较两种心理机制，且可能会受到第三方身份的调控。然而，这两种心理机制在不同情境中是如何变化的仍不清楚，且不平等厌恶理论不能很好地解释已有的多人公平决策研究结果。为了阐明不同情境下多人公平决策的心理机制，本研究采用了修改版的三人最后通牒博弈范式，并结合计算建模的方法，探讨第三方决策权（无决策权 vs.有决策权）对多人公平决策行为的影响。研究结果表明相比于第三方无决策权条件，第三方有决策权条件下对自己公平/第三方不公平方案的接受率更高。另外，混合线性模型的结果显示，尽管第三方收益在两种决策条件下都会影响决策行为，但第三方有决策权时的影响相对更小。计算建模结果表明，在第三方无决策权时，人们会采用公平准则进行决策，对第三方同时存在不利不平等厌恶和有利不平等厌恶；在第三方有决策权时，人们会同时采用公平准则和社会比较的准则进行决策，对第三方存在不利不平等厌恶和有利不平等偏好。基于此，本研究的结果扩展了不平等厌恶理论的内涵，指出对不同身份的对象可能存在不同程度的不平等厌恶，甚至可能存在不平等偏好。

关键词　公平决策，三人最后通牒博弈，不平等厌恶，社会比较

The Influence of Third-Party's Decision-Making Power on Multi-person Fairness Decision-Making

Xiaoqing Lu Te Li Baoming Li Zhong Yang
Institute of Brain Science, School of Basic Medical Sciences, Hangzhou Normal University, Hangzhou, 311121

Abstract **：** Fairness is a fundamental value and behavioral norm of human society. People's fairness decision-making depends not only on whether they themselves are treated fairly, but also on their consideration of other members of society. Previous studies based on the multi-person ultimatum game have shown that people can exhibit both inequity aversion and social comparison when it comes to their perception of third party, which may be regulated by the identity of the third party. However, it is still unclear how these two motivations vary in different contexts, and the inequity aversion theory does not catch well the existing results from studies on multi-person fairness decision-making. In order to clarify the psychological mechanisms underlying multi-person fairness decision-making in different scenarios, we employed the modified three-person ultimatum game and combined it with computational modeling methods to investigate the influence of third-party's decision-making power (powerless vs. power) on multi-person fairness decision-making. Our results indicated that compared to the condition where the third party was powerless, the acceptance rates of Self-Fair/Other-Unfair offer were higher. Furthermore, the results of the mixed linear model indicated that although the third-party payoff influenced decision-making in both conditions, its impact was relatively smaller when the third party has power. Computational modeling results suggested that when the third party was powerless, people tended to make decisions based on the fairness norm and exhibited both disadvantageous and advantageous inequity aversion towards the third party. When the third party has power, people made decisions based on both the fairness norm and social comparison, exhibiting both disadvantageous inequity aversion and advantageous inequity preference towards the third party. This study may contribute to the expansion and improvement of the theory of inequity aversion, suggesting that there may be varying levels of inequity aversion and even inequity preferences, for individuals with different identities.

Keywords：fairness decision making, three-person ultimatum game, inequity aversion, social comparison

6.20"老年心理学专业委员会"分组展贴报告

积极视角的综合干预对老年人心血管健康促进：一项随机对照实验

翟博宇[1,2] 刘笑梅[1,2] 朱心怡[1,2] 郑志伟[1,2] 李娟[1,2]（通讯作者）
1 中国科学院心理研究所心理健康重点实验室老年心理研究中心，北京，100101
2 中国科学院大学心理学系，北京，100049

摘 要 心血管疾病作为健康的主要威胁之一，在老年人群中的发病率尤为突出。已有研究发现，改善老年人的心理健康对于促进心血管健康具有重要意义。积极的心理健康可直接影响生理功能，如降低血压、控制血糖。同时，促使个体采取更健康的行为，如加强体育锻炼，从而改善心血管健康。遗憾的是，少有研究系统性融合积极心理和生活方式两大方面对心血管健康进行综合干预。因此，本研究的目标是通过 6 个月的积极心理与生活方式管理综合干预，提升有心血管健康风险的社区老年人的心理和身体健康。纳入标准为：（1）年龄：60-80 岁；（2）社区常住居民；（3）初中及以上学历；（4）心脑血管病风险评估

10 年风险指数≥5%；（5）存在可改变的心血管健康风险因素。排除标准为：（1）因身体功能受限或健康状况影响，无法参与干预活动；（2）存在认知功能损伤；（3）存在重度负性情绪症状。正式试验共招募了 253 名符合入组标准的社区老年人，平均年龄为 69.08 岁（范围=60-80 岁，*SD*=5.19）。采用随机对照试验设计，被试被随机分配到综合干预组（*n*=85）、生活方式组（*n*=84）和消极对照组（*n*=84）。综合干预组采用团体辅导的形式，每组约 14 人（范围=11-16 人），每周进行 1 次约 1 小时的活动，共进行 24 次。干预内容包括积极心理辅导（自身认知、情绪体验、人际关系）和积极生活方式管理（膳食、运动、睡眠等）。生活方式组的干预内容与综合干预组的积极生活方式管理主题内容相同，同样采用团体活动形式，每 3 周 1 次，每次活动约 1 小时。消极对照组维持日常活动，不接受任何形式的干预。前期预试验结果显示，干预方案在可行性和依从性方面表现良好，并且被试的身心健康呈现改善的趋势。本研究将为进一步了解积极心理对心血管健康的影响提供新的证据支持。同时，本研究对推动老年人心理健康和健康生活方式的发展、改善心血管健康、提高老年人的生活质量具有重要的现实意义。
关键词　心血管健康，老年人，积极心理干预，生活方式管理，心理健康

Ameliorate Cardiovascular Condition through Positive Psychology and Lifestyle Intervention in China (ACCOMPLI-CH): A Randomized Controlled Trial

ZHAI Boyu[1 2] LIU Xiaomei[1 2] ZHU XinYi[1 2] ZHENG ZhiWei[1 2] LI Juan[1 2]

1 Center on Aging Psychology, CAS Key Laboratory of Mental Health, Institute of Psychology, Chinese Academy of Sciences, Beijing

2 Department of Psychology, University of Chinese Academy of Sciences, Beijing

Abstract：Cardiovascular diseases, as one of the major health threats, have a high prevalence, particularly among older adults. Previous research has found that psychological well-being improvement is of significant importance for promoting cardiovascular health. Positive psychological health has a direct impact on physiological functions, such as lowering blood pressure and controlling blood glucose level. Additionally, individuals with a higher level of psychological well-being are more likely to adopt healthy behaviors, for instance engaging in regular physical exercise, which in turn would improve cardiovascular health. Unfortunately, there is limited research that systematically incorporates both positive psychological intervention and lifestyle management as a multidomain intervention approach for cardiovascular health. Therefore, this study aimed to enhance the psychological and physical health of community-dwelling older adults who are at risk of cardiovascular health issues through a comprehensive multidomain intervention of positive psychological intervention and lifestyle management over a period of six months. The inclusion criteria for participants were as follows: (1) aged between 60-80 years; (2) permanent residents in the community; (3) at least a junior high school education; (4) 10-year cardiovascular risk assessment index ≥5%; (5) presence of modifiable cardiovascular risk factors. Exclusion criteria include: (1) limited physical functioning or poor health conditions that prevented from participation in intervention activities; (2) cognitive impairment (assessed using the Mini-Mental State Examination, MMSE score<24); (3) severe negative mood symptoms. A total of 253 eligible community-dwelling older adults were enrolled in the intervention study, with an average age of 69.08 years (range=60-80 years, *SD*=5.19). The study employed a randomized controlled trial design, and participants were randomly assigned to the multidomain intervention group (*n*=85), lifestyle intervention group (*n*=84), or control group (*n*=84). The multidomain intervention group received

group counseling sessions with approximately 14 participants per group (range= 11-16), which was delivered once a week for approximately one hour, totaling 24 sessions. The intervention content encompassed positive psychological counseling (self-cognition, emotional experience, and relationships) and healthy lifestyle management (diet, physical exercise, and sleep). The training curriculum in the lifestyle intervention group were the same as those covered in the multidomain intervention group, and it was delivered every three weeks with each session for about one hour. The control group maintained their regular activities without any form of intervention. Preliminary results of pilot trial indicated good feasibility and compliance with the intervention, with trends of improvement in the outcomes for health and psychological well-being. This study is expected to provide new evidence for further understanding the impact of positive psychological well-being on cardiovascular health. Additionally, the research holds significant practical implications in enhancing psychological well-being and healthy lifestyle, cardiovascular health, and quality of life among older adults.
Keywords **：** Cardiovascular health, older adults, positive psychological intervention, lifestyle management, well-being

轻度认知障碍老人注意网络间交互作用模式的改变

马玲[1]，何昊[1,2]，陈娟[1]，邱月虹[1]，陈毅琦[1,3]，关青[1,2]（通讯作者）

[1]深圳大学心理学院,深圳,518060，hehao@szu.edu.cn

[2]深港脑科学创新研究院,深圳,518055

[3]曼海姆大学,心理学系,曼海姆, 68159

摘 要 以往研究证实了轻度认知障碍(mild cognitive impairment, MCI)老人的注意功能网络出现损伤，但尚不清楚其中警报、定向、执行控制三个子网络之间的交互模式是否伴随 MCI 而改变。为回答这一问题，本研究招募了 21 名 MCI 老人和 27 名健康对照(HC)老人，采用改进的注意网络测试(ANT-R)来测量注意网络及其相互作用。结果发现，在网络主效应方面，与 HC 组相比，MCI 组在正确率上表现出了较差的执行控制和有效性效应。在子网络的交互作用方面，执行控制网络与警报网络的交互作用、Flanker 冲突加工与位置冲突加工的交互作用无显著的组间差异。而定向网络对冲突解决的促进作用在 MCI 组和 HC 组之间的表现模式不同：MCI 组较少表现出网络间的交互作用，并且两组在线索有效性与 Flanker 冲突加工的交互作用上存在显著的组间差异。这些结果表明，MCI 老人的注意功能网络的改变主要反映在定向网络和执行控制网络的相互作用上，提示 MCI 老人对线索的敏感性、将注意力从错误线索转移到目标刺激的实际位置、抑制无关信息以解决冲突等诸项能力下降。本研究进一步加深了对 MCI 老人注意力下降的认识，为 MCI 的检测和干预提供了新的思路。
关键词 注意;注意网络;警报;定向;执行控制

Altered interactions between attentional networks in older adults with mild cognitive impairment

Ling Ma[1], Hao He[1,2*], Juan Chen[1], Yuehong Qiu[1], Yiqi Chen[1,3], Qing Guan[1,2*],

[1] Center for Brain Disorders and Cognitive Sciences, School of Psychology, Shenzhen University, Shenzhen, China

[2] Shenzhen-Hong Kong Institute of Brain Science-Shenzhen Fundamental Research Institutions, Shenzhen, China

[3]Department of Psychology, University of Mannheim, Mannheim, Germany

Abstract： Previous studies have found that older adults with mild cognitive impairment (MCI) has a decline in attention ability, especially in the three attentional networks of alerting, orienting, and executive control. This study aimed to further address the question of whether the interactions between these networks are altered in older adults with MCI. Using the revised attention network test (ANT-R), we examined attention networks and their interactions in 21 older adults with MCI and 27 demographically-matched HCs. We observed that compared to the HC group, the MCI group showed poorer executive control and validity effect on accuracy. The executive control network interaction with alerting network and the flanker conflict effect interaction with location conflict effect had no significant group difference. The orienting network fostered conflict resolution with different manifestations between MCI and HC groups, the MCI group showed less interaction between networks, and there was a significant group difference in the validity-flanker interaction. These results showed that the altered attentional function network in older adults with MCI is reflected in the interaction between the orienting network and the executive control network, which suggests that decreased attention function in MCI patients may be due to reduced cue-sensitivity and decreased ability to shift attention from error cues to the actual location of the target stimulus, inhibit irrelevant information to resolve conflict, which deepens the understanding of attention decline and provides a new idea for the detection of MCI and interventions.

Keywords： Attention; Attentional networks; Alerting; Orienting; Executive control

老年人移动支付中的交易金额输入错误特征及界面优化

乔思远　马国杰　庄想灵（通讯作者）

陕西师范大学心理学院，西安，710000，通讯作者邮箱：zhuangxl@snnu.edu.cn

摘 要　老年人在使用微信、支付宝等程序进行移动支付时，往往会出现各种各样的输入错误，导致对移动支付的信任程度大大降低，甚至会拒绝使用。从支付的心理过程看，正确的支付包含金额输入和核查确认过程。与此对应，我们分两个研究分别探讨了老年人金额输入中的错误特征和提高核查绩效的界面优化方

法。研究一招募了 52 名老年人（$M_{年龄}$ = 69.88, SD = 5.05）在有时间压力的条件下模拟使用微信支付界面输入指定交易金额，记录其输入的错误及老人是否意识到错误。通过对收集到的 711 个错误进行分类，根据每一种错误类型中未意识到的错误个数/该类型错误总个数得到的比例来看，397 个未意识到错误中以下四种错误较危险、难觉察，分别是数字转置（84.44%）、小数点错误（64.58%）、数字错误（59.56%）、数字增加或减少（37.01%）。为了提高老年人对数字金额的核查能力，研究二中我们提出了一种模拟纸币交易的人民币图像反馈界面，招募无反馈组 14 名（$M_{年龄}$ = 70.21, SD = 4.84），有人民币图像反馈组 13 名老年人（$M_{年龄}$ = 69.00, SD = 4.51），分别完成模拟的金额核查任务，即判断支付界面的交易金额是否和听到的语音（如“请支付一百二十元”）一致，其中在不一致条件下设置了研究一中的四种错误类型，在模拟金额核查任务后老年人还完成了主观评估。基于信号检测论的分析结果显示，相比于无反馈组，人民币图像反馈组的老年人对错误的辨别力更高，尤其是对最难发现的数字转置和小数点错误，而且人民币图像反馈组的判断标准更低、更宽松，更倾向于将界面的金额判断为错误；另外，人民币图像反馈组的老年人在任务中对错误的识别能力（识别速度、识别准确性、易识别性）和对界面支付透明度的主观评分均显著高于无反馈组。综上，本研究发现了老年人移动支付界面输入的典型错误类型，并提出了增加人民币图像反馈的优化方案，有效提高了老年人对错误金额的辨别能力，增强了老年人对错误金额识别的信心，提升了界面的支付透明度，这为移动支付界面老年版本的设计提供了参考。
关键词　移动支付，输入错误，老年人，人民币图像反馈

Characteristics of Transaction Amount Input Errors and Interface Optimization in Mobile Payment for the Older Adults

Siyuan Qiao, Guojie Ma, and Xiangling Zhuang [CA]
School of Psychology, Shaanxi Normal University, Xi'an, 710000.

Abstract：When older people make mobile payments using programs such as WeChat and Alipay, they tend to make a variety of input errors, leading to a much lower level of trust in mobile payments, and they may even refuse to use them. From the perspective of the psychological process of mobile payment, correct payment

involves inputting and confirmation of the payment amount. Correspondingly, we explored the characteristics of errors in the amount of input and interface optimization methods to improve verification performance among older adults in two studies, respectively. In Study 1, 52 older adults (M_{age} = 69.88, SD = 5.05) were recruited to simulate using the WeChat payment interface to input a specified transaction amount in a time-pressured condition, and their input errors and whether the older adults were aware of the errors were recorded. By categorizing the 711 errors collected, based on the ratio obtained from the number of unrecognized errors in each error type/total number of errors of that type, the following four errors among the 397 unrecognized errors were more dangerous and difficult to detect, which were digit transposition (84.44%), decimal point error (64.58%), digit error (59.56%), and digit increase or decrease (37.01%). To improve older adults' ability to verify numerical amounts, in Study 2 we proposed a RMB image feedback interface that simulated paper money transactions, recruiting 14 older adults in the no-feedback group (M_{age} = 70.21, SD = 4.84) and 13 older adults in the group with RMB image feedback (M_{age} = 69.00, SD = 4.51) to complete the simulated amount verification task, i.e., to determine the payment interface whether the transaction amount was consistent with the voice heard (e.g., "Please pay one hundred and twenty yuan"), where the four error types from Study 1 were presented in the inconsistency condition. The older adults also completed a subjective assessment after the simulated amount verification task. The results of the analysis based on the signal detection theory showed that compared to the no-feedback group, the older adults in the RMB image feedback group had a higher discrimination of errors, especially for the most difficulty in detecting number transposition and decimal point errors, and that the RMB image feedback group had lower and more loose judgmental criteria, and were more inclined to judge the amount of money in the interface as an error; furthermore, the older adults in the RMB image feedback group were more capable of recognizing the errors in the task (measured by speed, accuracy, and ease of recognition) and subjective ratings of the transparency of payment in the interface were significantly higher than those of the no-feedback group. In summary, this study found the typical types of input errors in the mobile payment interface for older adults and proposed an optimization method to increase the RMB image feedback, which effectively improved the ability of the older adults to identify the wrong amount, strengthened the confidence of the older adults in identifying the wrong amount, and enhanced the payment transparency of the interface, which provides a reference for the design of the older adults version of the mobile payment interface.

Keywords：mobile payments, input errors, older adults, RMB image feedback

动态视频中群体情绪判断准确性的年龄差异

金梦菡[1] 彭华茂[1*]（通讯作者）

1 北京师范大学心理学部，北京，100875

2 北京师范大学心理学部，北京，100875，penghuamao@bnu.edu.cn

摘 要 群体情绪（group emotion）是指一个群体表现出来的情绪趋同性。判断群体情绪不仅意味着要观察感知其中每个人情绪，还需要感知群体的整体氛围，这不仅依赖于个体的人际经验，还可能依赖于情绪信息的识别和加工能力。过往研究在关注判断动态视频中人物情绪时，老年人与年轻人的判断准确性并没有一致可靠的年龄差异结论。本研究旨在探究老年人和年轻人在判断动态视频中群体情绪时的年龄特点。

研究共招募了 47 名老年人（M_{age}=65.21±3.30）和 48 名年轻人（M_{age}=19.88±2.1）。实验视频材料来源于三组大学生（每组 4 人）的讨论录像，从中共截取出 30 个片段短视频用于被试观看。被试按照随机顺序

依次观看这 30 段视频，每看完一段视频需要评定这个小组的整体情绪的唤醒度。此外，被试的认知能力（加工速度、工作记忆、抑制能力）和共情倾向也进行了测量。视频中每位学生的心率数据由佩戴的心率腕表所记录和收集，心率被认为是个体情绪唤醒度的客观生理指标。因此，将每个被试的判断准确性定义为在 30 个视频片段中群体情绪唤醒度评定与视频人物平均心率的相关系数 r，r 值越大表示判断越准确。t 检验结果发现，老年人的判断准确性显著低于年轻人的判断准确性（t=4.45，p<0.001）。并且，分层回归分析结果表明，在控制了共情分数之后，年龄组仍然能够显著预测准确性（β=0.39, p<0.001），表现为老年组的判断更不准确。但是当控制了认知能力之后，年龄组的预测作用就不显著了（β=0.20, p=0.329）。

本研究的结果表明，在判断群体情绪时，与年轻人相比，老年人表现出更低的准确性。判断群体情绪与共情倾向无关，但这些年龄差异能一定程度上得到认知能力的解释。具体来说，老年人认知能力的下降可能导致他们在处理和解读动态视频中的情绪线索信息时效率降低，这使得他们更难判断多人的群体情绪。这意味着影响老年人判断群体情绪的关键可能不在于共情能力，而更可能在于加工分析线索信息的能力。
关键词　年龄差异，群体情绪，心率，认知能力

Age Differences in the Accuracy of Video-based Group Emotions Judgment

Menghan Jin[1] Huamao Peng[1*]

[1] Institute of Developmental Psychology, Beijing Normal University, Beijing, China

***Abstract*：** Group emotion refers to the phenomenon where a group exhibits emotional convergence. Judging group emotion not only involves perceiving the emotions of each individual but also sensing the overall atmosphere of the group. This process relies not only on individual interpersonal experiences but also on the recognition and processing of emotional information. Previous studies on judging emotions of characters in dynamic videos have not reached a consistent and reliable conclusion regarding age differences between older and younger adults. This study aims to explore the age characteristics of older and younger adults in judging group emotions in dynamic videos.

The study recruited 47 older adults (M_{age}=65.21±3.30) and 48 younger adults (M_{age}=19.88±2.1). Experimental video materials were obtained from recorded discussions of three groups of university students, with each group comprising four individuals. From these recordings, 30 short video clips were extracted for participants to watch. The participants viewed the 30 video clips in a random order, and after each clip, they were required to rate the overall emotional arousal of the group. Additionally, the participants' cognitive abilities (processing speed, working memory, inhibitory ability) and empathic tendencies were measured. Heart rate data of each student in the video were recorded and collected using a heart rate wristband, which was considered an objective physiological indicator of individual emotional arousal. Thus, the judgment accuracy of each participant was defined as the correlation coefficient (r) between their ratings of group emotional arousal in the 30 video clips and the average heart rate of the characters in the videos. A higher r value indicates higher judgment accuracy. The t-test results revealed that the judgment accuracy of older adults was significantly lower than that of younger adults (t=4.45, p<0.001). Furthermore, hierarchical regression analysis indicated that even after controlling for empathic scores, age remained a significant predictor of judgment accuracy (β=0.39, p<0.001), indicating that the older group's judgments were less accurate. However, after controlling for cognitive abilities, the predictive effect of age was no longer significant (β=0.20, p=0.329).

The results of this study suggest that compared to younger adults, older adults demonstrate lower accuracy in judging group emotions. The judgment of group emotions is unrelated to empathic tendencies, but these age differences may be partly explained by declines in cognitive abilities. Specifically, the decline in cognitive abilities among older adults may result in reduced efficiency in processing and interpreting emotional cues in dynamic videos, making it more challenging for them to judge the emotions of multiple individuals in a group. This suggests that the key factor influencing older adults' judgment of group emotions may not lie in empathic abilities but rather in their ability to process and analyze cue information.

Keywords：Age Difference, Group Emotion, Heart Rate, Cognitive Abilities

老年人社会参与的目标导向和自我调节策略与心理健康的关系

刘小溪[1]　高林[1]　王大华[1]（通讯作者）

1 北京师范大学，北京，100875

1 北京师范大学心理学部，北京，100875，通讯作者 E-mail: wangdahua@bnu.edu.cn

摘 要　基于社会情绪选择理论和毕生发展控制理论，研究老年人参与社会活动的目标导向，自我调节策略，以及其与心理健康的关系。经过专家评定，将 287 位老人报告的持续参与 3 个月以上的一项社会活动分为情感导向和知识导向，使用修订的 16 个条目的老年人自我调节策略问卷，评估以实现活动目标为目的的结合策略和以自我保护为目的的解除策略，该问卷的内部一致性系数为 0.926，重测信度为 0.858。研究采用问卷法对老年人在社会参与过程中的自我调节策略和三个心理健康指标（孤独、抑郁、焦虑）进行了测量，结果没有发现老年人的心理健康指标在以目标导向和情感导向上存在显著差异。但研究发现，老年人在参与社会活动时所采用的结合策略和解除策略与老人心理健康指标存在显著关联，即以实现目标为目的的结合策略得分高的老年人在孤独和抑郁水平上显著低于结合策略得分低的老年人，表明结合策略对心理健康有优势效应；而解除策略得分高的老年人在焦虑水平上显著高于解除策略得分低的老年人，表明对于有参与活动目标的老年人，以自我保护为目的的解除策略并不缓解老年人焦虑的水平。

关键词　社会参与，社会情绪选择理论，毕生发展控制理论，自我调节，老年人

The relationship between goal orientation and self-regulation strategies in the social participation of elderly individuals and their psychological well-being

LIU Xiaoxi[1], GAO Lin[1], WANG Dahua[1]

[1]Insititute of Developmental Psychology, Beijing Normal University, Beijing 100875, China

Abstract：Based on the Socioemotional Selectivity Theory and the Life-Span Theory of Control, this study explores the goal orientations, self-regulation strategies, and their relationship with psychological well-being among elderly individuals participating in social activities. After expert evaluation, 287 elderly participants who engaged in a single social activity for more than 3 months were categorized into two groups: emotion-oriented and knowledge-oriented. The revised 16-item Elderly Self-Regulation Strategy Questionnaire was used to assess

strategies focused on an engagement strategy oriented towards goal pursuit and the other being a disengagement strategy oriented towards self-protection. The Cronbach's α of the questionnaire was 0.926, and the retest reliability was 0.858. The study utilized a questionnaire to measure the self-regulation strategies adopted by the elderly during social participation and three psychological well-being indicators (loneliness, depression, and anxiety). The results did not reveal significant differences in the psychological well-being indicators between elderly individuals with knowledge orientations and those with emotion orientations. However, the study found a significant correlation between the engagement strategies and disengagement strategies used by the elderly in social activities and their psychological well-being indicators. Specifically, elderly individuals with higher scores in engagement strategies demonstrated significantly lower levels of loneliness and depression compared to those with lower scores, indicating a beneficial effect of engagement strategies on psychological well-being. On the other hand, elderly individuals with higher scores in disengagement strategies exhibited significantly higher levels of anxiety compared to those with lower scores, suggesting that disengagement strategies did not alleviate anxiety levels among elderly individuals with activity-related goals.

Keywords ： Social participation, Socioemotional Selectivity Theory, Life-Span Theory of Control, self-regulation, elderly individuals

学习、休闲和社交降低老年抑郁风险：基于机器学习的非线性视角

高林[1]　王大华[1]（通讯作者）

1 北京师范大学发展心理研究院，北京，100875

通讯作者 E-mail：wangdahua@bnu.edu.cn

摘 要　**背景和目的：**以往研究表明，老年人的日常活动模式与抑郁存在关联。然而，这些研究仅从线性视角检验了活动投入水平或种类多样性对抑郁的影响。本研究旨在从基于机器学习的非线性视角进行探究：（1）检验老年人的日常活动特征是否能预测抑郁风险；（2）确定哪些日常活动特征是预测抑郁风险的关键因素。**方法：**我们在国内七个城市的养老社区招募了 564 名老年人（平均年龄 80.58 ± 6.77 岁），并进行了问卷调查。基于简版 CES-D 量表的得分，我们确定了 139 名受访者（24.65%）存在抑郁风险。我们使用极致梯度提升树（XGBoost）算法，将受访者的人口学信息和日常活动特征作为预测变量，预测其是否存在抑郁风险，并使用 SHapley 增量解释值（SHAP）评估特征的重要性。**结果：**模型的预测准确率为 89.35%（95%置信区间：83.53%~95.29%），F1 分数为 90.11%（95%置信区间：84.48%~95.40%），AUC 为 96.38%（95%置信区间：91.52%~99.70%）。学习时长、休闲时长和与朋友聚会是预测抑郁风险最关键的三个活动特征。此外，照料他人呈正向预测抑郁，而在社区活动中心服务和养护绿植呈负向预测抑郁。**结论：**老年人的日常活动特征能够有效地预测抑郁风险。保障老年人群在终身学习、休闲活动和社交关系中的充分投入是降低晚年抑郁风险的关键措施。社区应特别关注有照料负担的老年人的心理健康问题。

关键词　老年人，抑郁，日常活动，机器学习

Learning, Leisure, and Social Interaction Can Reduce Late-Life Depression Risk: A Machine Learning-Based Nonlinear Perspective

Lin Gao[1], Dahua Wang[1]
[1] Institute of Developmental Psychology, Beijing Normal University, Beijing, China

***Abstract*：** **Background and Objectives:** Previous studies have indicated an association between daily activity patterns and depression among older adults. However, these studies have primarily examined the linear effects of activity levels or diversity on depression. This study aimed to explore the relationship from a nonlinear perspective based on machine learning. Specifically, it aimed to (1) examine whether daily activity characteristics can predict depression risk in older adults and (2) identify key factors among daily activity characteristics for predicting depression risk. **Method:** A questionnaire survey was conducted with 564 older adults (mean age = 80.58 ± 6.77 years) recruited from retirement communities in seven cities of China. Based on scores from the brief version of the Center for Epidemiologic Studies Depression Scale (CES-D), 139 participants (24.65%) were identified as being at risk of depression. XGBoost algorithm, a gradient boosting method, was used to predict depression risk using demographic information and daily activity characteristics as predictors. The SHapley Additive exPlanations (SHAP) values were employed to assess the importance of each feature. **Results:** The model achieved an accuracy of 89.35% (95% confidence interval: 83.53%~95.29%), an F1 score of 90.11% (95% confidence interval: 84.48%~95.40%), and an area under the curve (AUC) of 96.38% (95% confidence interval: 91.52%~99.70%). The duration of learning, leisure activities, and gathering with friends were identified as the three key activity features for predicting depression risk. Additionally, caregiving had a positive predictive effect on depression, while serving in community activity centers and plant cultivation had negative predictive effects. **Conclusion:** The daily activity characteristics of older adults can effectively predict depression risk. Ensuring their active engagement in lifelong learning, leisure activities, and social relationships is a key measure for reducing late-life depression risk. Community interventions should pay particular attention to the mental health of older adults burdened with caregiving responsibilities.

***Keywords*：** older adults, depression, daily activity, machine learning

暮年离土、路在何方？
——“老漂族”融归“两难”的困境调查与对策思考

赵玲玲[1]　张雨茜[2]　张鑫宇[3]　华佳颖[3]　管雪娇[4]　朱竞[1]　陈传锋[1]（通讯作者）
1.湖州师范学院教师教育学院，湖州，313000，通讯作者 E-mail:2089178531@qq.com
2.湖州市爱山小学教育集团，湖州，313000
3.湖州师范学院人文学院，湖州，313000
4.湖州师范学院团委，湖州，313000

摘　要　在社会大转型过程中，伴随流动人口的大幅度增长，与留守老年人群相对应，出现了另一类老年人口，即“老漂族”。为了支持子女、照顾孙辈、默默支持二胎三胎生育政策的实施，他们本应在故乡安享幸福晚年，却漂流到陌生的他乡，成为城市中一个被忽视的弱势群体。暮年离土，境况如何，路在何方？通过在全国华东地区五省一市以及

其他地区的部分省份运用访谈法对千名“老漂族”进行调查，并对其中百名困境较为突出、尤其是“漂”在浙江的“老漂族”进行个案分析，**结果发现：**（1）“老漂族”多为女性，以单“漂”、乡-城“漂”、被动“漂”为主，“漂”的原因多为照顾孙辈及家庭。（2）部分“老漂族”虽然体验到生命的价值和家庭的幸福，但多数“老漂族”在生活中多面临“融不进、回不去”的两难困境：“融不进”主要体现在日常生活难以适应、核心家庭难以融入、家庭教育难以提议、地域文化难以调和等方面；“回不去”主要表现在房屋年久失修居无定所、年老体衰生理不济、旧友难寻情感无托等方面。（3）“老漂族”“异乡难融、故里难归”进退两难困境的主要原因是生活差异筑成的现实鸿沟和传统观念导致的情感牢笼，难以调节的生活模式、相互排斥的教养方式、异地政策限制的社会保障等使“老漂族”异乡难融；天伦之乐思想的牵绊、落叶归根念想的无望、对子女“扶上马再送一程”的奉献等使“老漂族”故里难归。为破除“老漂族”进退两难的困境，**研究建议，**针对“漂”在异乡的“老漂族”，从“医、养、乐、学、为”五方面为“老漂族”创建“融得进的城”，针对回归故乡的“老漂族”，可从“居、护、念、宽”四方面为“老漂族”创建“回得去的乡”，使他们漂归皆宜，提升晚年幸福！本项目研究成果不仅对于解决老年人口流动、托老育幼等问题具有重要参考价值，而且可为当前转型社会我国老“漂”友好型社会的建设起到抛砖引玉的作用；同时可为我国孝道文化发展、家庭和谐发展、民生政策改善、三胎政策实施等提供理论参考依据。

关键词 老漂族；异乡融合困境；故里回归困境；“老漂”友好型社会

Where is the road when leave from home town in the old age?

——The dilemmas and countermeasures for the “Lao piao zu”

Zhao Lingling[1]，Zhang Yuxi[2]，Zhang Xinyu[3]，Hua Jiaying[3]，Guan Xuejiao[4]，Zhu Jing[1]，Chen Chuanfeng[1](Corresponding author)

1.College of Teacher Education，Huzhou University，Huzhou 313000，corresponding author E-mail:2089178531@qq.com

2.Huzhou Aishan Primary Education Group，Huzhou，313000

3.College of Humanities，Huzhou University，Huzhou，313000

4.Youth League Committee，Huzhou University，Huzhou，313000

Abstract: With the substantial growth of the floating population，“Lao piao zu” (who leave from their hometown in the old age)， corresponding to the left-behind elderly population， has emerged. In order to support their children，take care of their grandchildren，and support the implementation of the two-child and three-child birth policy，they gave up on enjoying a happy life in their old age at their hometown，and drifted to a strange place and became a neglected and vulnerable group in the city. Then what's their survival status and what's the right way of them to get out of troubles？A survey of interview was conducted among 1,000 “Lao piao zu” in five provinces and one city in eastern China and some provinces in other regions, and case study was conducted in Zhejiang province among 100 “Lao piao zu” who suffered from serious dilemmas in their life . The results are as follows:(1) Most of “Lao piao zu” are women，mainly single “drift”，township-city “drift”and passive “drift” and the reason for drifting is mostly taking care of grandchildren and families. (2)Although some“Lao piao zu” have experienced the value of life and the happiness of their families, most of the them face the dilemma of “can't adapt to city and can't go back hometown”.“Can't adapt to city” is mainly reflected in the difficulty of adapting to daily life，the difficulty of integrating into the nuclear family， the difficulty of proposing family education advise，and the difficulty of reconciling regional culture；“Can't go back their hometown” is mainly manifested in the the disrepairing houses，the weakness of physical，the difficulty of finding emotional support from old friends,etc. (3)The main reasons for the dilemma of “Lao piao zu” are the realistic gap built by life differences between the new residential place and their hometown and the emotional cage caused by traditional concepts.The hard-to-adjust life pattern, the mutually exclusive upbringing styles, the social security restricted by the displaced policy make the“Lao piao zu” difficult to

adapt to city life. The thought of family happiness, the hopelessness of getting back home, and the dedication to their children constantly make them difficult to return to their hometown. In order to break the dilemma of “Lao piao zu”，the study suggests that we should create a “city that can be adapted” from the five aspects，and we can create a "hometown that can go back" from the four aspects to make them have a happiness life in old age！The research results of this project not only have important reference value for solving the problems of elderly population mobility，caring for the elderly and raising children，but also play a role in the construction of China's old “drift” friendly society in the current transition society.At the same time，it can provide theoretical reference for the development of filial piety culture，the harmonious development of families，the improvement of people's livelihood policies，and the implementation of the three-child policy in China.

Keywords:“Lao piao zu”; the dilemma of adaptation to city life; the dilemma of returning hometown; “Lao piao”friendly society

附：作者单位与联系方式

第一作者

赵玲玲：湖州师范学院教师教育学院研究生；联系地址：浙江省湖州市吴兴区二环东路 759 号湖州师范学院；联系方式：手机：19857297389，E-mail:2324044215@qq.com；

通讯作者

陈传锋：湖州师范学院教师教育学院教授，博士，爱尔兰科克大学博士后。

地址：浙江省湖州市吴兴区学士路 1 号 湖州师范学院西校区校史馆 B402 室

手机：13857295136；E-mail:2089178531@qq.com。

公众对失独父母的伦理归咎
及其对公众关于失独父母困境感知的影响

李金凤　王大华（通讯作者）

北京师范大学心理学部，北京，100875，通讯作者 E-mail: wangdahua@bnu.edu.cn

摘 要　失独父母(parents who have lost their only child, PLOCs)指失去了唯一的亲生子女，母亲超过 49 岁且双方无二次生育能力或意愿的夫妇。这是一个亟需社会关注和帮助的弱势群体。一方面，截止 2010 年失独父母大约在 82.1 万人，预估在 2030 年将达到 142.3 万人；另一方面，失独父母面临着养老困难、社交退缩与回避、婚姻冲突、抑郁焦虑等诸多现实困境。以往研究大多基于失独父母这一个体视角，考察失独父母所面临的哀伤、心理健康、社交网络等心理-社会适应问题，忽略了失独父母所处的环境视角。基于布朗分布伦纳生态系统理论，失独父母所处的社会环境对其适应和发展具有重要意义。因此，本研究基于公众这一环境视角，考察公众对失独父母所持有的伦理归咎及其对公众关于失独父母困境感知的影响，试图勾勒出失独父母所处的公众环境轮廓，为政策制定者提供实证指导意义。

本研究从全国共 23 个省会、直辖市抽取共 2029 名非失独家庭被试，采用关于失独父母的伦理归咎量表、社会信任感量表、困境感知问卷以及人口学信息问卷对被试进行测量。基于多元回归分析的统计分析方法，并控制性别、年龄和教育水平等基本人口学变量，结果发现：（1）公众对失独父母的伦理归咎为中

等程度的严苛(M = 2.99, SD = 0.93, 得分范围为 1 ~ 5，分数越高代表公众对失独父母的伦理归咎程度越高)；（2）公众对失独父母的困境感知水平非常低(M = 4.28, SD = 2.09, 得分范围为 1 ~ 11，分数越高代表公众对失独父母所处实际困境的感知水平越高)；（3）伦理归咎负向预测困境感知(b = -.59, p < .001)；（4）社会信任感在伦理归咎与困境感知的关系中起着缓冲作用。具体而言，对于低社会信任感的公众，伦理归咎负向预测困境感知(b = -.64, p < .001)；对于高社会信任感的公众，伦理归咎对困境感知的影响减弱(b = -.46, p < .001)。本研究促进了人们关于公众如何看待和理解失独群体的认识，为政策制定者动员社会公众力量帮助失独群体提供理论依据。
关键词　公众视角，失独父母，伦理归咎，社会信任感，困境感知

The public's ethical attribution towards PLOCs and its impacts on the public's perception of challenges faced by PLOCs

Li Jinfeng Wang Dahua (corresponding author)
Faculty of Psychology, Beijing Normal University, Beijing, 100875, China

Abstract: Parents who have lost their only child (PLOCs) refer to couples who have lost their sole biological child, and where the mother is over 49 years old, and both parents are unable or unwilling to have a second child. This is a vulnerable group in urgent need of social attention and assistance. On one hand, by 2010, the number of PLOCs was approximately 821,000, and it is estimated to reach 1,423,000 by 2030. On the other hand, PLOCs face various real-life challenges, including difficulties in elderly care, social withdrawal and avoidance, marital conflicts, depression, anxiety, and others. Previous research has predominantly adopted an individual perspective to investigate the psychological-social adaptation issues of PLOCs, exploring grief, mental health, social networks, and other factors, but neglecting the environmental perspective in which PLOCs are situated. Based on Bronfenbrenner's ecological systems theory, the social environment surrounding PLOCs holds significant importance for their adaptation and development. Therefore, the current study adopts a public perspective to investigate the ethical attributions held by the general public towards PLOCs and its impact on the public's perception of the challenges faced by PLOCs. The study aims to outline the public environment surrounding PLOCs and provide empirical guidance for policy-makers.

The current study recruited a total of 2,029 participants from 23 provincial capitals and direct-controlled municipalities across the country as non-bereaved family participants. Measurements included the ethical attribution scale for PLOCs, social trust scale, perception of challenges questionnaire, and demographic information questionnaire. Utilizing multiple regression analysis and controlling for basic demographic variables such as gender, age, and education level, the results revealed: (1) The general public held a moderately severe level of ethical attribution towards PLOCs (M = 2.99, SD = 0.93, scores ranged from 1 to 5, with higher scores indicating greater ethical attribution); (2) The public's perception of the challenges faced by PLOCs was at a very low level (M = 4.28, SD = 2.09, scores ranged from 1 to 11, with higher scores indicating a higher level of perception of the actual challenges faced by PLOCs); (3) Ethical attribution negatively predicted the perception of challenges (b = -.59, p < .001); (4) social trust played a buffering role in the relationship between ethical attribution and the perception of challenges. Specifically, for the public with low social trust, ethical attribution negatively predicted the perception of challenges (b = -.64, p < .001); for the public with high social trust, the impact of ethical attribution on the perception of challenges was weakened (b = -.46, p < .001). The present study enhances understanding of how the public perceives the PLOCs group, and provides theoretical evidence for policy-makers to mobilize social forces to assist the PLOCs group.

Keywords: Public perspective, parents who have lost their only child (PLOCs), ethical attribution, social trust, perception of challenges faced by PLOCs

情绪上头就想买买买？主播情绪唤醒度对中老年人直播购物意愿的影响

金梦菡[1] 徐慧[2]（共同一作）龚先旻[3] 彭华茂[1]（通讯作者）
1 北京师范大学发展心理研究院，北京，100875，*penghuamao@bnu.edu.cn
2 浙江金融职业学院心理健康教育指导中心，浙江杭州，310018
3 香港中文大学何鸿燊何海量数据决策分析研究中心，中国香港，999077

摘 要 近年来，直播购物领域发展空前，中老年群体也日渐成为重要的消费群体，其消费决策的心理特点值得关注。过往研究表明，个体能够通过观看视频感知他人所表达的情绪从而实现情绪感染，并进一步影响自身后续的态度与行为。此外，有研究发现较高的情绪唤醒度可能占据更多认知资源，从而影响中老年人的信息加工过程。因此，直播购物中主播的情绪唤醒状态可能通过不同路径对中老年人的购买意愿产生影响。为了考察中老年人的消费决策是否受主播情绪唤醒度影响并探索可能的作用机制，本研究采用两水平（高主播情绪唤醒组，低主播情绪唤醒组）的单因素被试间实验设计，招募被试 193 名（年龄：*M*=65.64, *SD*=4.94；女性 131 人），让被试观看模拟真实的直播购物场景视频并报告其商品购买意愿。后续以被试自身情绪唤醒度、决策过程中的感知信任，以及对不同商品属性的回忆率作为中介变量进行分析。

结果表明，主播情绪唤醒度会显著影响被试的直播购物意愿，高主播情绪唤醒组被试的购买意愿显著高于低唤醒组被试；且高主播情绪唤醒组被试在观看直播片段后对自身唤醒度的评分也显著更高。此外，在高主播情绪唤醒度条件下，被试的总属性回忆率和积极属性回忆率均显著更高，消极属性回忆率的差异不显著。后续中介效应分析的结果发现，在主播情绪唤醒度与购买意愿之间，被试自身的情绪唤醒及感知信任具有显著链式中介效应，而被试对商品属性信息加工的中介效应不显著。

上述结果表明，在购物主播极具感染力的商品宣传下，中老年人在直播购物过程中易表现出“情绪化”的消费决策特点，而非基于理智的信息加工进行消费决策。因此，中老年人更应在直播购物中保持谨慎，避免因受到情绪煽动而盲目信任、产生冲动消费行为。

关键词 直播购物意愿，主播情绪唤醒度，情绪感染

The influence of anchor’s emotional arousal on older consumer’s purchase intention under livestreaming e-commerce situation

Menghan Jin[1] Hui Xu[2] (co-first author) Xianmin Gong[3] Huamao Peng[1]
1 Institute of Developmental Psychology, Beijing Normal University, Beijing, 100875
2 Zhejiang Financial College, Hangzhou, 310018
3 The Chinese University of Hong Kong Research Portal, Hong Kong, 999077

Abstract： The livestreaming e-commerce has grown by leaps and bounds in recent years, which makes older consumers start to pay attention to this new form of consumption. Previous studies have shown that emotional states can be transferred to others via emotional contagion, leading people to experience the same emotions not only real-world communities but also online social media. Emotional contagion can further affect individuals’ subsequent attitudes and behaviors. In addition, some studies have found that higher emotional arousal may occupy more cognitive resource, thus affecting the information processing process of older consumers under livestreaming e-commerce situation.

To examine the effects of anchors’ emotional arousal on older consumers’ willingness to purchase in livestreaming e-commerce context, and further explore the potential mechanism, 193 healthy participants with a

mean age of 65.64 years were recruited and randomly assigned to two groups (high-emotional-arousal vs. low-emotional-arousal). All participants performed the simulated consumer decision-making task, in which decision scenarios were created using video materials shot beforehand.

The results found that: (1) the emotional arousal of the anchor had a positive impact on older people' purchase intention of livestreaming e-commerce; (2) the emotional arousal of the anchor triggered emotional arousal of consumers; (3) the emotional arousal of the anchor had a positive impact on the overall recall and the recall of positive products' attributes; (4) older consumers' emotional arousal and perceived trust mediated the relationship between anchor's arousal emotion and online shoppers' purchase intention.

In conclusion, for older consumers, the purchase intention on the livestreaming e-commerce platform is affected by diverse factors, and the influence of subjective factors such as anchor's emotional arousal, is stronger than objective factors such as commodity attributes, which indicating that older consumers should pay more attention to products, and be alert to impulsive consumption under livestreaming e-commerce situation.

Keywords： Purchase intention, Anchor's emotion arousal, Emotional contagion

6.21"护理心理学专业委员会"分组展贴报告

冠心病患者孤独感的现状及影响因素研究

张静文[1]，向贤程[1]，梅倩[1]，杨晓莉[1]，程利[15*]

（1. 湖北医药学院护理学院，湖北十堰 442000）

通讯作者：程利，Email: piaopiao1125@126.com

摘 要 目的：调查冠心病患者的孤独感的现状，并分析其影响因素。方法：于 2022 年 7 月—2023 年 3 月选取在十堰市某三级甲等医院心血管疾病诊疗中心住院的 248 名冠心病患者作为调查对象，采用一般资料调查表、UCLA 孤独量表（UCLA Loneliness Scale）、心理一致感量表（SOC-13）、社会支持量表（SSRS）、痛苦表露指数量表（DDI）进行调查。结果：冠心病患者孤独感总分为（39.83±8.83）分。分层回归分析结果显示，家庭收入、心理一致感、社会支持是孤独感的主要影响因素（P<0.05）；结论：冠心病患者的孤独感处于一般偏上水平，医务人员应关注冠心病患者的心理状态和情绪变化，根据其文化程度、居住形式、家庭收入、心理一致感、社会支持等制定相应的护理措施，从而降低患者的孤独感，提高生活质量。

关键词 孤独感；冠心病；影响因素；社会支持；心理一致感

The current situation and influencing factors of loneliness in patients with coronary heart disease

Zhang Jingwen[1], Xiang Xiancheng[1], Mei Qian[1], Yang Xiaoli[1], Cheng Li[1*]

1School of Nursing, Hubei University of Medicine, Shiyan, China

Correspondence

Cheng Li, RN, MSN, Professor, School of Nursing, Hubei University of Medicine, Shiyan, China. No. 30, Renmin South Road, Maojian District, Shiyan, Hubei 442000, P. R. China.

Email: piaopiao1125@126.com

Abstract: Objective: To investigate the current situation of loneliness in patients with coronary heart disease and analyze its influencing factors. Methods: From July 2022 to March 2023, 248 patients with coronary heart disease who were hospitalized in the cardiovascular disease diagnosis and treatment center of a tertiary first-class hospital in Shiyan City were selected as the subjects of investigation. The general information questionnaire, UCLA Loneliness Scale, SOC-13, SSRS and DDI were used to investigate. Result: The total score of loneliness in patients with coronary heart disease was (39.83 ± 8.83). The results of stratified regression analysis showed that family income, SOC, and social support were the main influencing factors of loneliness (P<0.05); Conclusion: The loneliness of patients with coronary heart disease is at a generally higher level. Medical staff should pay attention to the psychological state and emotional changes of patients with coronary heart disease, and develop corresponding nursing measures based on their educational level, living form, family income, SOC, social support, etc., in order to reduce the loneliness of patients and improve their quality of life.

Keywords: loneliness; Coronary heart disease; Influencing factors; Social support; Sense of coherence

综合抗逆力干预对遭受工作场所暴力后急诊护士抗逆力提升的干预研究

廖俪雯[1] 王琳[1]（通讯作者）

1 上海交通大学护理学院，上海，200025

1 上海交通大学护理学院，上海，200025，E-mail：wanglsd@shsmu.edu.cn

摘 要 **目的** 本研究通过实施综合性抗逆力干预，旨在提高遭受工作场所暴力后急诊护士的抗逆力水平，维护急诊护士身心健康，为未来医院管理者实施工作场所暴力后医护人员规范化心理干预提供指导。

方法 采用类实验性研究设计，通过整群抽样方法于 2022 年 11 月-2023 年 4 月抽取上海市某三级甲等医院两所院区 71 名遭受工作场所暴力的急诊护士作为研究对象，试验组 35 名，对照组 36 名。试验组接受为期 4 个月的 8 次综合抗逆力干预，主要内容包括：课程引入、融入组织、情绪感知、情绪调节、正念练习、应对暴力、情景演练和回顾课程。对照组予以常规心理干预。在干预前、后采用一般资料调查表、中文版抗逆力简表 、医院焦虑抑郁量表、护士留职意愿量表进行资料收集。采用 SPSS26.0 对数据进行统计分析。

结果 共 71 名遭受过工作场所暴力的急诊护士完成干预。数据分析结果显示，干预前两组急诊护士的一般资料、抗逆力、焦虑抑郁、组织支持和留职意愿得分均无统计学意义（p 均＞0.05）。干预后试验组抗逆力和留职意愿得分均高于干预前，焦虑得分低于干预前，差异具有统计学意义（p 均＜0.05），抑郁得分低于干预前，但差异无统计学意义（p＞0.05）。干预前后对照组抗逆力、焦虑抑郁和留职意愿得分均无统

计学意义（p 均＞0.05）。与对照组相比，干预后试验组焦虑得分显著低于对照组，留职意愿得分显著高于对照组，差异具有统计学意义（p 均＜0.05）；试验组抗逆力与抑郁得分较对照组有所改善，但差异无统计学意义（p＞0.05）。

结论 实施综合抗逆力干预可有效改善遭受工作场所暴力后急诊护士的抗逆力、缓解焦虑抑郁情绪、提高留职意愿。急诊管理者应定期评估遭受工作场所暴力后急诊护士的抗逆力水平，及时采取针对性的心理干预措施以减少工作场所暴力对急诊护士带来的心理创伤。未来可以将该综合抗逆力干预方案整合至急诊护士的职前教育或继续教育中，作为常规心理健康教育课程进行推广，以维护护理人员身心健康，促进护理团队健康发展。

关键词　综合抗逆力干预，工作场所暴力，急诊护士，心理健康

A comprehensive resilience intervention program to enhance the resilience of emergency nurses exposed to workplace violence

Liao LW, Wang L

School of Nursing, Shanghai Jiaotong University, Shanghai, No. 227, South Chongqing Road

***Abstract*:**

Objective

This study aimed to improve the resilience level of emergency nurses exposed to workplace violence by implementing a comprehensive resilience intervention program to maintain physical and mental health and to provide guidance for future hospital administrators to implement standardized psychological interventions for healthcare workers after workplace violence.

Methods

This is a qusi-experimental study. A total of 71 emergency nurses from tertiary-level general hospitals in Shanghai were recruited from November 2022 to April 2023 using the cluster sampling method and assigned to the intervention group (n=35) and control group (n=36). The intervention group received the comprehensive resilience intervention program, which included eight modules: the introduction, integration into the organization, emotion perception, emotion regulation, mindfulness, coping with violence, scenario rehearsal, and review of all sessions. The control group received the general psychological intervention. The outcomes were measured using the Chinese version of the Resilience Scale (CD-RISC-10), the Hospital Anxiety and Depression Scale (HADS), and the Nurse's Intention to Stay Scale. SPSS26.0 was used for data analysis.

Results

71 participants completed our intervention. Before the intervention, no significant differences in demographics, resilience, anxiety, depression, and nurse's intention to stay were observed between the two groups ($p > 0.05$). Comparing the scores before and after the intervention, the scores of resilience and nurse's intention to stay in the intervention group were significantly improved after the intervention, and the score of anxiety was significantly decreased ($p < 0.05$); the scores of depression were decreased, but the differences were not statistically significant ($p > 0.05$). For the control group, there was little change in all variables ($p > 0.05$). Compared with the control group, the score of anxiety in the intervention group showed a significant decrease, and the score of nurse's intention to stay showed a significant increase ($p < 0.05$); the score of resilience and depression in the intervention group was improved, but the differences were not statistically significant ($p > 0.05$).

Conclusion

The comprehensive resilience intervention program was effective in improving resilience, alleviating anxiety and depression, and increasing the nurse's intention to stay in emergency nurses exposed to workplace violence. Emergency departments and managers should prioritize regular assessments of the resilience levels among emergency nurses exposed to WPV and take proactive measures to maintain their emotional well-being. Managers could integrate this comprehensive resilience intervention program into future pre-employment training or continuing education help them boost resilience and promote the development of the nursing team.

Keywords：comprehensive resilience intervention, workplace violence, emergency nurses, mental health

本科实习护生心理弹性与临床沟通能力调查分析

刘芯如[1] 董薇[2](通讯作者)

1 海军军医大学，上海，200433

2 海军军医大学心理系，上海，200433， E-mail：sophiedongwei@163.com

摘 要 目的：了解本科实习护生心理弹性与临床沟通能力水平，分析其相关因素，为改善本科护理专业学生心理弹性状况，提高临床沟通水平提供理论依据。方法：从青岛市几所三级甲等医院随机抽取 212（有效数据 200 名）名本科实习护生进行问卷调查。调查研究工具包括：一般情况调查表,临床沟通能力量表和心理弹性量表(CD-RISC 10)。所有资料经审核后建立数据库,采用 SPSS24.0 软件进行统计分析,包括描述性统计、方差分析及 Pearson 相关分析。结果：1.本科实习护生临床沟通能力总得分为(84.18±14.15),其各维度得分从高到低依次为：建立和谐关系(17.80±3.56)、敏锐倾听(16.40±3.33)、确认患者问题(16.26±3.20)、验证感受(15.77±3.41)、共同参与(9.87±2.31)、传递有效信息(8.08±1.83)。其中,学生干部在沟通能力总分及建立和谐关系、确认患者问题和验证感受维度得分均高于非学生干部,其差异均具有统计学意义(P<0.05)。本科实习护生心理弹性总得分为(29.34 ±7.77)。其中学生干部在心理弹性总分得分高于非学生干部，且该差异具有统计学意义（P<0.0001）。2.Pearson 相关分析显示：本科实习护生的临床沟通能力及其分维度与心理弹性（r=0.167-0.901,P<0.0001)呈显著正相关。结论：本科实习护生临床沟通能力和心理弹性整体水平不高，处于中游水平。本科实习护生的临床沟通能力及其分维度与心理弹性呈显著正相关。这说明心理弹性可直接影响护生临床沟通能力。护理学教育阶段，高校心理健康教育应加强培养学生的心理弹性，从而提高护生的临床沟通能力。

关键词 心理弹性，临床沟通能力，本科实习护生

Investigation and analysis on psychological flexibility and clinical communication ability of undergraduate nursing students

Liu Xinru[1] Dong Wei[2]

Naval Military Medical University Department of Psychology

Address: No. 800, Xiangyin Road, Yangpu District, Shanghai

***Abstract*:** Objective: To understand the psychological resilience and clinical communication ability of undergraduate nursing students, analyze their related factors, and provide a theoretical basis for improving the psychological resilience of undergraduate nursing students and improving the level of clinical communication.Methods: A questionnaire survey was conducted on 212 (200 valid data) undergraduate intern nurses randomly selected from a third-class Grade A hospital in Qingdao. Survey research tools include: general questionnaire, clinical communication ability scale and psychological resilience scale (CD-RISC 10). After all the materials have been reviewed, a database is established and SPSS 24.0 software is used for statistical analysis, including descriptive statistics, analysis of variance and Pearson correlation analysis.Results:The total score of clinical communication ability of undergraduate intern nurses is (84.18 ± 14.15), and the scores of each dimension from high to low are: establishing a harmonious relationship (17.80 ± 3.56), keen listening (16.40 ± 3.33), confirming patient problems (16.26 ± 3.20), verifying feelings (15.77 ± 3.41), joint participation (9.87 ± 2.31), transmitting effective information (8.08 ± 1.83). Among them, student cadres scored higher than non-student cadres in the overall scores of communication skills and the establishment of harmonious relations, confirmation of patient problems and verification of feeling dimensions (P <0.05). The total score of psychological resilience of undergraduate nursing students is (29.34 ± 7.77). Among them, student cadres had higher scores in total mental resilience than non-student cadres, and the difference was statistically significant (P <0.0001).Pearson correlation analysis showed that the clinical communication ability and its sub-dimensions of undergraduate nursing students were significantly positively correlated with psychological resilience (r = 0.167-0.901, P <0.0001).Conclusions: The overall level of clinical communication skills and psychological resilience of undergraduate intern nurses is not high, and is at the midstream level. The clinical communication ability and its sub-dimensions of undergraduate intern nurses are significantly positively correlated with psychological resilience. This shows that psychological flexibility can directly affect the clinical communication ability of nursing students. At the stage of nursing education, psychological health education in colleges and universities should strengthen the training of students' psychological flexibility, so as to improve the clinical communication ability of nursing students.

***Keywords*:** psychological resilience, clinical communication skills, undergraduate nursing students

冠心病病人睡眠障碍的评价与干预研究进展

王文杰[1] 刘金钰[1] 魏一蓝[1] 张爱华[2]

1 山东第一医科大学（山东省医学科学院）护理学院，泰安，271016，第一作者邮箱：wwj11180105@163.com，电话：13573127593

2 山东第一医科大学（山东省医学科学院）护理学院，泰安，271016，通讯作者邮箱：zhangah818@163.com，电话：18805381707

摘 要 近年来，冠心病的发病率和病死率呈上升趋势，其严重危害个体健康。多数冠心病病人常伴随焦虑、抑郁、睡眠障碍等问题，其中睡眠障碍逐渐得到大家的重视及关注。冠心病病人经常经历睡眠障碍，包括睡眠质量下降、入睡困难和夜间觉醒。睡眠障碍的发生会严重影响冠心病病人的心脏状况，增加精神行为异常，降低生活质量，给病人带来较大负担，增加社会经济成本。睡眠质量被确定为焦虑和抑郁的预测因子，这意味着病人的睡眠质量可能会影响心理健康，缺乏有效的睡眠可能会引起焦虑或抑郁等负性情绪。并且睡眠障碍的药物治疗并不令人满意，睡眠药物可能会与其他药物产生重大不良反应，包括身体依赖、镇静和运动能力障碍等。非药物干预作为替代治疗方案和药物治疗的补充，简单可行且远期效果好，逐渐得到关注。鉴于睡眠障碍在冠心病病人中的高患病率和有害影响以及潜在的不良后果，迫切需要为这一群体的睡眠障碍的短期管理提供建议。因此，该文对国内外冠心病患者睡眠障碍的相关研究进行综述，从睡眠障碍的评价工具、干预方法等方面进行归纳总结，指出未来研究方向，使临床医护人员采用适宜的工具有效评估病人的睡眠障碍程度，制定合理的个体化干预措施，尤其是非药物的干预措施，包括物理治疗、认知行为干预、中医疗法、音乐疗法等，进而改善改善冠心病病人的生活质量和远期预后。
关键词 冠心病，睡眠障碍，评价工具，干预，综述

Research progress of evaluation and intervention of sleep disorders in patients with coronary heart disease

WANG Wenjie[1], LIU Jinyu[1], WEI Yilan[1], ZHANG Aihua[2]

[1]School of Nursing, Shandong First Medical University and Shandong Academy of Medical Sciences, Taian, China.

[2]School of Nursing, Shandong First Medical University and Shandong Academy of Medical Sciences, Taian, China.

***Abstract*：** In recent years, the incidence and mortality of coronary heart disease are on the rise, which is seriously harmful to individual health. Most patients with coronary heart disease are often accompanied by anxiety, depression, sleep disorders and other problems, in which sleep disorders gradually get everyone's attention. Patients with coronary heart disease often experience sleep disorders, including decreased sleep quality, difficulty falling asleep and nocturnal awakening. The occurrence of sleep disorders will seriously affect the heart condition of patients with coronary heart disease, increase mental and behavioral abnormalities, reduce the quality of life, bring greater burden to patients, and increase social and economic costs. Sleep quality has been identified as a predictor of anxiety and depression, which means that patients' sleep quality may affect mental health, and lack of effective sleep may cause negative emotions such as anxiety or depression. And the drug treatment of sleep disorders is not satisfactory, sleep drugs may have major adverse reactions with other drugs, including physical dependence, sedation and dyskinesia. As a supplement to alternative treatment and drug therapy, non-drug intervention is simple, feasible and has good long-term effect, and has been paid more and more attention. In view of the high prevalence, harmful effects and potential adverse consequences of sleep disorders in patients with coronary heart disease, there is an urgent need to provide suggestions for the short-term management of sleep disorders in this group. Therefore, this paper summarizes the relevant studies on sleep disorders in patients with coronary heart disease at home and abroad, summarizes the evaluation tools and intervention methods of sleep disorders, and points out the direction of future research. make clinical doctors and nurses use appropriate tools to effectively evaluate the degree of sleep disorders and formulate reasonable individual intervention measures, especially non-drug intervention measures. It includes physiotherapy, cognitive behavior intervention, traditional Chinese medicine therapy, music therapy and so on, so as to improve the quality of life and long-term prognosis of

patients with coronary heart disease.

Keywords：coronary heart disease, sleep disorders, evaluation tools, intervention, review

癌症患者家属心理健康状况追踪研究与干预策略

——基于照顾负担、家庭功能视角

程文丽[1]　徐紫璇[1]　于文军[1]（通讯作者）

1 井冈山大学教育学院，江西吉安，343009

摘 要　目的：癌症患者家属担负着患者的主要生活照顾者、密切接触者和经济负担者等多种重要角色，面对着亲人罹患癌症这样一个重大、持久的应激性生活事件，加之癌症疾病治疗本身具有的高投入和长疗程等特点，致使患者家属长期处于高度的心理应激状态。癌症患者家属容易出现抑郁、焦虑等不良情绪，不仅影响他们自己的生活质量和社会交往等方面而且也在很大程度上影响癌症患者身心健康及疾病康复。但是相比癌症患者本身，患者家属通常容易被忽视，不被社会所关注。因而，系统研究癌症患者家属的心理特征成为当务之急。方法：研究综合采用横向设计与纵向追踪设计，定性定量相结合开展研究。采用访谈法对癌症患者家属心理需求、重点关切，开展定性研究；采用问卷法定量横向研究癌症患者家属照顾负担、家庭功能及心理健康现状；以每间隔 6 个月，为期 1 年，共 3 轮次追踪测量共计 561 人次，定量纵向追踪研究了癌症患者家属照顾负担、家庭功能及心理健康状况随时间动态变化的趋势，并基于照顾负担、家庭功能视角构建了患者家属心理健康预测模型。结果：癌症患者家属承受了沉重的经济负担，癌症改变了患者家属的家庭互动模式；癌症患者的父母照顾负担水平显著高于其他关系的家属。癌症患者家属家庭功能在照顾负担和心理健康之间起部分中介作用。纵向追踪研究显示，癌症患者家属心理健康、照顾负担以及家庭功能在患者确诊之初受到了严重消极影响，但随着时间的推移患者家属心理应激水平有下降趋势，其心理健康消极状态有所缓和，家庭功能也趋于恢复，照顾负担也由起初的高强度出现缓和趋势。第 1 轮家庭功能不能预测患者家属未来的心理健康，但第 2 轮家庭功能可以可靠地预测第 3 轮照顾负担。第 1 轮心理健康预示着第 2 轮照顾负担和家庭功能。第 1 轮照顾负担预测第 2 轮心理健康，第 2 轮照顾负担预测第 3 轮心理健康。在照顾负担和心理健康之间存在动态的互动关系。研究结果将为开展针对癌症患者家属的心理援助提供重要的实践指南。

关键词　癌症患者家属；照顾负担；家庭功能；心理健康；纵向追踪研究

A follow-up study on the mental health of in primary caregivers of cancer patients based on the perspective of caregiving burden and family function

Wenli Chen Zixuan Xu WenjunYu
School of Education, Jinggangshan University, Ji 'an 343009, China

Abstract: The primary caregivers of cancer patients are the main caregivers, close contacts and financial burden of the patients. Faced with such a major and long-lasting stressful life event as cancer, coupled with the characteristics of high investment and long course of cancer treatment itself, the family members of cancer patients are in a high stress state for a long time. The primary caregivers of cancer patients are prone to depression, anxiety and other bad emotions, which not only affect their own quality of life and social communication, but also affect the physical and mental health and disease rehabilitation of cancer patients. However, compared with the cancer patients themselves, the primary caregivers of cancer patients are often easily ignored and not paid attention to by the society. Therefore, it is urgent to systematically study the psychological characteristics of The primary caregivers of cancer patients. Horizontal design and longitudinal tracking design were comprehensively used to carry out the research, both qualitative and quantitative. Qualitative research was carried out on psychological needs and key concerns of family members of cancer patients by interview. Questionnaire method was used to study the caring burden, family function and mental health of cancer patients' family members. A total of 561 patients were tracked in 3 rounds every 6 months for 1 year. The dynamic trends of care burden, family function and mental health of the primary caregivers of cancer patients were tracked quantitatively and longitudedly over time, and a prediction model of mental health of patients' family members was constructed based on the perspective of care burden and family function. The primary caregivers of cancer patients bear a heavy economic burden, and cancer changes the family interaction pattern of patients' family members; The level of caregiving burden of parents of cancer patients is significantly higher than that of family members of other relationships. The family function of cancer patients' family members plays a partial mediating role between care burden and mental health. Longitudinal follow-up studies have shown that the mental health, caring burden and family function of the primary caregivers of cancer patients have been seriously negatively affected at the beginning of the diagnosis of cancer patients, but as time goes on, the psychological stress level of the primary caregivers of cancer patients has a downward trend, their negative mental health has been alleviated, family function has tended to recover, and the caring burden has also been alleviated from the initial high intensity. Round 1 family function did not predict the future mental health of the primary caregivers of cancer patients, but round 2 family function reliably predicted round 3 caregiving burden. Round 1 mental health predicts round 2 caretaking burden and family functioning. The first round of care burden predicted the second round of mental health, and the second round of care burden predicted the third round of mental health. There is a dynamic interaction between care burden and mental health. The results of this study will provide important practical guidelines for the development of psychological assistance for family members of cancer patients.

Keywords: primary caregivers of cancer patients, caregiving burden, family function, mental health, longitudinal study

应急医疗救援人员心理集体主义的潜在剖面分析及其与生命意义感的关系

邓甜甜[1]　封丹珺[1]（通讯作者）

[1]山东大学护理与康复学院，济南，250012，fdj19@sdu.edu.cn

摘 要 **目的** 识别新冠肺炎疫情期间援沪应急医疗救援人员心理集体主义的不同类别，并探讨心理集体主义的不同类别与生命意义感的关系。**方法** 于 2022 年 4-5 月，采用一般资料调查表、心理集体主义量表、生命意义感中文版量表对参与上海新冠肺炎疫情救援工作的 352 名应急医疗救援人员进行调查。**结果** 援沪应急医疗救援人员的心理集体主义情况可被划分为 3 种类别：高心理集体主义型(60.5%)、低主观/高客观型(12.2%)和低心理集体主义型(27.3%)。与低心理集体主义型相比，高心理集体主义型会增加应急医疗救援人员的存在生命意义感(β=0.914, P<0.001)和追寻生命意义感(β=0.605, P<0.001)，低主观/高客观型仅增加应急医疗救援人员的存在生命意义感(β=0.368,P=0.025)。与低主观/高客观型相比，高心理集体主义型会增加应急医疗救援人员的存在生命意义感(β=0.547, P<0.001)和追寻生命意义感(β=0.512, P<0.008)。**结论** 援沪应急医疗救援人员心理集体主义可分为高心理集体主义型、低主观/高客观型和低心理集体主义型 3 种潜在类别，且高心理集体主义型会增加应急医疗救援人员的存在生命意义感和追寻生命意义感，低主观/高客观型会增加应急医疗救援人员的存在生命意义感。可以根据应急医疗救援人员心理集体主义的不同类别为其提供针对性的干预措施，以改善其心理集体主义情况，提高应急医疗救援人员的存在生命意义感和追寻生命意义感。

关键词 应急医疗，心理集体主义，生命意义感，潜在剖面分析

Latent profile analysis of psychological collectivism and its association with meaning in life among emergency medical staff in Shanghai fighting COVID-19

Tiantian Deng[1], Danjun Feng[1*]

[1]School of Nursing and Rehabilitation, Shandong University, Jinan, 250012, fdj19@sdu.edu.cn

***Abstract*: Objective** To identify different profiles of psychological collectivism among emergency medical staff in Shanghai fighting COVID-19 pandemic, and to explore the association between different profiles of psychological collectivism and meaning in life. **Methods** A total of 352 emergency medical staff in Shanghai during COVID-19 pandemic were surveyed with the general information questionnaire, the psychological collectivism scale, and the Chinese version of the meaning in life questionnaire from April to May 2022. **Results** The psychological collectivism of emergency medical staff could be classified into three latent profiles: high psychological collectivism (60.5%), low subjective/high objective (12.2%), and low psychological collectivism

(27.3%). Compared to the low psychological collectivism, the high psychological collectivism increased the presence of meaning in life (β=0.914, P<0.001) and searching for meaning in life (β=0.605, P<0.001) of emergency medical staff, and the low subjective/high objective only increased the presence of meaning of life (β=0.368, P=0.025). Compared to the low subjective/high objective, the high psychological collectivism increased the presence of meaning in life (β=0.547, P<0.001) and searching for meaning in life (β=0.512, P<0.008) of emergency medical staff. **Conclusion** Three latent profiles of psychological collectivism could be identified among emergency medical staff, including high psychological collectivism, low subjective/high objective, and low psychological collectivism. High psychological collectivism increased the presence of meaning in life and searching for meaning in life of emergency medical staff, and low subjective/high objective increased the presence of meaning in life. Targeted interventions can be provided to emergency medical staff according to their different profiles in order to improve their psychological collectivism and increase their presence of meaning in life and searching for meaning in life.

***Keywords*:** emergency medicine, psychological collectivism, meaning in life, latent profile analysis

6.22“语言心理学专业委员会”分组展贴报告

抽象词语加工的神经基础—基于 fMRI 研究的元分析

李想[1]（通讯作者）

1 新乡医学院，新乡，453000，lixiang_psy@163.com

摘 要 抽象词语是语言的重要组成部分。与具体词语相比，抽象词语表示的内容在现实世界中无直接对应的指代物，如“道德/忘记”等，其意义具有模糊性和多样性等特点。根据具身认知的观点，抽象词语和具体词语的意义均植根于知觉和运动经验，因此，词语加工时的神经活动应包含初级的感知觉运动脑区的激活。目前，抽象词语加工有关的神经成像研究尚未获得一致结论，部分研究并未发现感觉运动有关脑区在抽象词语加工中的参与。这可能是因为这些神经成像研究使用了能够引发感觉运动区域更强激活的具体词语作为抽象词语的比较基线；也可能与功能磁共振技术（fMRI）本身的局限性有关，例如单个成像研究可能存在的假阳性或假阴性问题、研究被试数量普遍较少结果不稳定等。因而抽象词语加工的神经基础仍需进一步探究。神经成像数据的元分析能够从多个研究中寻找特定认知加工过程对应的稳定激活脑区，被认为是一种有效整合神经成像数据的可靠方法。

本研究采用 ALE 神经成像元分析（Activation Likelihood Estimation, 激活似然性估计）对探讨以简单视觉符号等非具体词语为比较基线的抽象词语加工的 fMRI 研究进行量化分析和论述，目的是获得抽象词语加工时的稳定激活脑区。在 PubMed、Web Of Science、中国知网等数据库中使用关键词检索文献，将符合 1)实验刺激为抽象名词或动词，基线条件为非具体词语；2)研究报告了全脑激活坐标；3)被试为健康成年人等标准的 13 篇已发表的 fMRI 研究纳入元分析（共包括 181 个 foci 以及 316 名被试），坐标转换及数据分析等均使用 Ginger ALE 软件完成。结果显示，位于大脑左侧的颞中回、中央前回、额内侧回、颞上回，及大脑右侧的颞上回、屏状核等区域在抽象词语加工时稳定激活。这表明除了经典的语言加工脑区（如左侧颞中回、颞上回等），抽象词语加工确实包含中央前回等感觉运动有关脑区的稳定参与，支持了具身认知的观点。本研究结果为进一步深入探讨抽象概念的神经表征提供了基础。

关键词 抽象词语，具身认知，元分析，激活似然性估计

The Neural Basis of Abstract Words Processing: an ALE Meta-analysis

Li Xiang[1]
1 Xinxiang Medical University, Xinxiang, 453000, lixiang_psy@163.com

Abstract: Abstract words, such as "morality/forget", constitute a critical component of human language. The meaning of these words lack the specific referent in the physical world and are independent of sensory motor experiences. As the Emboided Cognition theory holds, the primary sensorimotor system would be activated in the processing of abstract words, just as in the processing of concrete words . However, some neuroimaging studies found the processing of abstract words only relied on the language related areas. This may be caused by the comparing baselines used in these studies. In addition, it is noteworthy that the neuroimaging techniques such as fMRI per se have limitations which may result in the mixed and unstable results. For instance, in a single fMRI study, there are fewer participants and a greater possibility of false-positive or false-negative. The coordinate-based meta-analysis methods of brain imaging -- Activation Likelihood Estimation (ALE) could compare and combine data from diverse studies and provide a more reliable way to explore the neural basis of abstract words processing.

The present study, using the Ginger ALE, conducted an ALE meta-analysis on the data from strictly screened fMRI studies with the aim to investigate the stable activation areas during abstract words processing. Based on the standards including 1) abstract words were used as stimulus and non-concrete words as the comparing baselines; 2) the whole brain activation peak coordinates were reported; 3) participants were healthy and normal adults etc., 13 studies were selected, with a total of 181 foci from 316 participants. The results showed that brain areas located in the bilateral superior temporal gyrus, the left middle temporal gyrus, precentral gyrus, medial frontal gyrus, and the right claustrum were stably activated during abstract words processing. This suggests that sensorimotor related areas are involved in the abstract words processing, in line with the views of Embodied Cognition. To summarize, the present neuroimaging meta-analysis provides a more systematic and reliable evidence to further exploration of the neural basis of abstract words processing.

Key words: abstract words, embodied cognition, meta-analysis, ALE

生命意义概念的隐喻表征：来自大小、上下和重量的证据

赵雨萌 丁凤琴（通讯作者） 张蓉
宁夏大学教师教育学院，银川，750021，dingfqin@nxu.edu.cn

摘 要 生命的意义是一个构成人类存在目的与意义的哲学问题，1962 年 Frankl 率先将生命意义引入心理学领域，认为生命意义就是个人所知觉的主要本体的价值。自此，有关生命意义的问题，成为心理学研究者探讨的热点。生命意义作为抽象概念，人们是如何对其进行理解和加工的呢？Lakoff 和 Johnson(1999)年提出概念隐喻理论，认为抽象概念可通过隐喻的方式在大脑中进行表征，个体在探索未知世界过程中，当遇到无法形容的概念、观点或感觉时，便会自动将身体经验有关的具体概念与抽象复杂的概念形成联结，来对新事物进行描述。具身认知理论也提出，个体对抽象概念的认知加工过程会受到身体感知觉经验的影响。

生命意义是否也可以在具身认知视角下对其进行概念隐喻从而完成意义建构？人们常使用“生命是伟大的”“人命关天，生命至上”“重于泰山，轻于鸿毛”等词句对生命意义进行描述。那么，生命意义与大小、上下和重量之间的具身感知是否存在隐喻联结并符合隐喻一致性假设？本研究将对以上问题进行回答。研究采用三个实验探讨生命意义与大小、上下和重量隐喻的心理现实性。实验 1 采用分离式空间 Stroop 范式探讨生命意义大小隐喻表征，实验 2 同样采用分离式空间 Stroop 范式探讨生命意义的上下隐喻表征，实验 3 采用天平启动范式探索生命意义与重量之间的隐喻关系，并得到如下结果：实验 1 发现，大小知觉促进生命意义词的判断，“大”的概念与高生命意义词联结，“小”的概念与低生命意义词联结。实验 2 发现，上下空间知觉也会促进生命意义词的判断，“上”的概念与高生命意义词联结，“下”的概念与低生命意义词联结。实验 3 发现，重量知觉促进了生命意义词的判断，“重”的概念与高生命意义词联结，“轻”的概念与低生命意义词联结。以上研究说明，生命意义的隐喻表征在大小、上下以及重量维度上存在心理现实性。理论上，丰富了概念隐喻表征的具身理论；实践上，有助于为生命意义具身认知研究提供参考价值，为个体生命教育的建构提供干预依据。
关键词 生命意义，概念隐喻表征，大小隐喻，上下隐喻，重量隐喻

Metaphorical representations of the concept of the meaning of life: Evidence from Size, Vertical and Weight

Zhao Yumeng; Ding Fengqin; Zhang Rong
Teacher education college, Ningxia University, Yinchuan 750021, China

Abstract： The meaning of life is a philosophical question that constitutes the purpose and meaning of human existence. Frankl pioneered the introduction of the meaning of life into the field of psychology in 1962, arguing that the meaning of life is the value of the primary ontology as perceived by the individual. Since then, questions about the meaning of life have become a hot topic for psychological researchers to explore. How do people understand and process the meaning of life as an abstract concept? Lakoff and Johnson (1999) proposed the conceptual metaphor theory in 1999, which argues that abstract concepts can be represented in the brain by means of metaphors, and that individuals, in the process of exploring the unknown world, when encountering indescribable concepts, ideas, or sensations, automatically associate concrete concepts related to bodily experience with the abstract and complex concepts to form associations to describe new things. Embodied cognition theory also proposes that an individual's cognitive processing of abstract concepts is influenced by bodily perceptual experiences. Can the meaning of life also be constructed through conceptual metaphors from an embodied cognition perspective? People often use words and phrases such as “life is great”, “human life is of paramount importance”, “heavier than Mt. Tai, lighter than a feather” to describe the meaning of life. Is there a metaphorical connection between the embodied perception of the meaning of life and size, top and bottom, and weight that is consistent with the assumption of metaphorical consistency? This study will answer these questions. The study used three experiments to explore the psychological realism of the meaning of life in relation to the metaphors of size, up and down, and weight. Experiment 1 used a detached spatial Stroop paradigm to explore the metaphorical representation of the meaning of life in terms of size, Experiment 2 also used a detached spatial Stroop paradigm to explore the metaphorical representation of the meaning of life in terms of up and down, and Experiment 3 used a balance-starting paradigm to explore the metaphorical relationship between the meaning of life and weight, and the following results were obtained: Experiment 1 found that size perception facilitates judgments of meaning-of-life words. The concept of “big” was associated with high life meaning words, and the concept of

"small" was associated with low life meaning words. Experiment 2 found that upper and lower spatial perception also facilitated meaning word judgments, with the concept of "up" being associated with high meaning words and the concept of "down" being associated with low meaning words. Experiment 3 found that weight perception facilitated the judgment of life meaning words, with the concept of "heavy" being associated with high life meaning words and the concept of "light" being associated with low life meaning words. The above study illustrates that metaphorical representations of life meaning are psychologically realistic in terms of size, top and bottom, and weight dimensions. Theoretically, it enriches the embodiment theory of conceptual metaphorical representations; practically, it helps to provide reference value for the study of embodied cognition of life meaning and provides a basis for intervention in the construction of individual life education.

Keywords：meaning of life, conceptual metaphorical representation, size metaphor, vertical metaphor, weight metaphor

认知负荷对健康成年人言语的影响：一项基于 fNIRS 的研究

江紫辉

上海体育大学运动健康学院，上海，邮编 200000，jiangzihui1999@163.com

摘 要　目的：探索基于功能性近红外光谱技术（fNIRS）下增加认知负荷时进行言语时发音质量和大脑激活的差异。

方法：有参与者共 10 例，6 名女性和 4 名男性，平均年龄为 22±0.94 岁。参与者阅读两种不同条件的嵌入式 stroop 句子。句子包含一致和不一致的条件。在一致情况中，颜色的词语和其字体颜色是匹配的（如蓝色字体的颜色是蓝色的），不一致的情况中，颜色的词语和其字体颜色是不匹配的，在一致和不一致的情况下，我们要求参与者说出字体的颜色，而不是字体本身的读音，在不一致情况下，认知要求会更高，从而有低认知负荷和高认知负荷两种不同的负荷条件。用近红外光谱技术(fNIRS)在言语时监测各脑区之间功能连接强度。本研究采用的 fNIRS 设备（NirSmart，丹阳慧创）设备只要由光纤探头、探测器、头帽和软件组成，可进行 39 通道同步测量，以连续波形式记录两种不同波长的近红外光（760，850nm）信号，采样频率为 11Hz，可实时检测受试者大脑中脱氧血红蛋白和含氧血红蛋白的浓度变化。在前额叶（PFC）和运动皮层（MC）采用用 fNIRS 记录氧合血红蛋白浓度信号。利用 praat 软件分析言语表现，采用 NirSpark 工具包在 Matlab R2014b (MathWorks，美国)运行，在 NirSpark 工具包中进行数据预处理。

结果：与低认知负荷条件下相比，高认知负荷条件下年轻人的言语表现变差，主要有停顿时间延长（t=3.679，p=0.005），语速变慢（t=5.24，p=0.001），构音速率减慢（t=3.32，p=0.09），错误次数增加（t=6.0，p<0.001），强度标准差增高（t=5.2，p=0.001）增高。基频（p=0.29）、基频标准差（p=0.59）和强度(p=0.054)在两种负荷条件下没有显著差异。和低认知负荷相比，较高认知负荷下通道 1（p=0.028），通道 4（p=0.045），通道 13（p=0.038），通道 16（p=0.048），通道 19（p=0.048），通道 32（p=0.038），通道 35（p=0.029）通道 39（p=0.01）多个通道发生了显著变化。

结论：结果表明，增加认知负荷增加会损害言语表现，大脑多个通道会发生显著激活。本文为认知负荷影响言语的神经表现提供一定的依据。

关键词 功能性近红外光谱成像技术；stroop；言语；皮质激活

Effects of cognitive load on speech in healthy adults: an fNIRS study

Zihui Jiang
School of Sports and Health, Shanghai Sport University, Shanghai 200000, China

***Abstract*：** Purpose: To explore differences in articulatory quality and brain activation when performing speech under increased cognitive load based on functional near-infrared spectroscopy (fNIRS).

Methods: There were a total of 10 participants, 6 females and 4 males, with a mean age of 22 ± 0.94 years. Participants read embedded stroop sentences in two different conditions. The sentences contained both congruent and incongruent conditions. In the congruent condition, the word for the color and its font color matched (e.g., the color of the blue font was blue), and in the incongruent condition, the word for the color and its font color did not match. in both the congruent and incongruent conditions, we asked participants to name the color of the font rather than the pronunciation of the font itself, and the cognitive demands would be higher in the incongruent condition, leading to a low cognitive load and a high cognitive load two different loading conditions. Functional connectivity strength between brain regions was monitored using near infrared spectroscopy (fNIRS) applied during speech. The fNIRS device (NirSmart, Danyang Huichuang) equipment used in this study, as long as it consists of a fiber optic probe, detector, head cap, and software, can perform 49-channel simultaneous measurements, record two different wavelengths of near-infrared light (760, 850 nm) signals in a continuous-wave format, with a sampling frequency of 11 Hz, and detect the real-time deoxygenated and oxygenated hemoglobin concentration changes in the brain of the subjects. concentration changes. Oxyhemoglobin concentration signals recorded with fNIRS were used in the prefrontal (PFC) and motor cortex (MC). Speech performance was analyzed using praat software, which was run in Matlab R2014b (MathWorks, USA) using the NirSpark toolkit, and data preprocessing was performed in the NirSpark toolkit.

Result: Compared to the low cognitive load condition, young people's speech performance became worse in the high cognitive load condition, mainly due to longer pauses ($t=3.679$, $p=0.005$), slower rate of speech ($t=5.24$, $p=0.001$), slower rate of prosody ($t=3.32$, $p=0.09$), higher number of errors ($t=6.0$, $p<0.001$), and higher intensity standard deviation increased ($t=5.2$, $p=0.001$) increase in the Fundamental frequency ($p=0.29$), standard deviation of fundamental frequency ($p=0.59$), and intensity ($p=0.054$) were not significantly different between the two loading conditions. Compared to the low cognitive load, higher cognitive loads multiple channels changed significantly in channel 1 ($p=0.028$), channel 4 ($p=0.045$), channel 13 ($p=0.038$), channel 16 ($p=0.048$), channel 19 ($p=0.048$), channel 32 ($p=0.038$),channel 35 ($p=0.029$) channel 39 ($p=0.01$) .

Conclusion: The results suggest that increased cognitive load increases impair speech performance and that significant activation of multiple brain channels occurs. This study provides some evidence that cognitive load affects the neural performance of speech.

***Keywords*：** Functional near-infrared spectroscopy; stroop; Speech; Cortical activation

6.23“网络心理学专业委员会”分组展贴报告

大学生错失恐惧对问题性社交媒体使用的影响：社交媒体自我控制失败的多水平纵向中介作用

李佳钰[1]　高雪梅[1]（通讯作者）

1 西南大学心理学部，重庆，400715，通讯作者 E-mail：zhenggao@swu.edu.cn

摘 要　本研究使用特质-状态错失恐惧量表、社交媒体自我控制失败量表和大学生问题性社交媒体使用量表，进行为期半年的三次问卷追踪调查，使用纵向多水平模型对 520 名大学生（平均年龄 20.25±1.83 岁，其中男生 136 名，女生 384 名）的特质和状态错失恐惧水平、社交媒体使用现状进行了调查，并且对社交媒体特异性自我控制失败在二者间的作用进行了探讨。该模型可以用来探究社交媒体自我控制失败在个体间（即，在同一时间点，有更多社交媒体自我控制失败的个体比更少的个体会表现出更高的问题性社交媒体使用风险）和个体内（即，对于同一个体来说，更多的社交媒体自我控制失败会导致后续出现更高的问题性社交媒体使用风险）不同水平的中介效应，结果发现：（1）特质错失恐惧、状态错失恐惧、社交媒体自我控制失败和问题性社交媒体使用在同一时间点和不同时间点均呈显著正相关；（2）在个体间和个体内水平上均发现，在控制性别后，社交媒体自我控制失败在特质和状态错失恐惧与问题性社交媒体使用的关系中起到部分中介作用。具体来说，高水平的特质和状态错失恐惧是个体社交媒体自我控制失败的预测因子，这种特异性自我控制失败又与该时间点问题性社交媒体使用风险的增加呈显著正相关。因此，在问题性社交媒体使用的预防和干预需要考虑错失恐惧和社交媒体自我控制失败的重要作用。

关键词　错失恐惧，特质错失恐惧，状态错失恐惧，社交媒体自我控制，问题性社交媒体使用

Effect of Fear of Missing Out on problematic social media use among Young Adults: Longitudinal Mediating Roles of Social media self-control failure in Between- and Within- person levels

Li Jiayu[1], Gao Xuemei[1]

1 Faculty of Psychology, Southwest University, Chongqing, China

Abstract: This study based on multilevel statistical models using Trait-State Fear of Missing Out Scale, Social Media Self-control Failure Scale and Problematic Mobile Social Media Usage Assessment Questionnaire explored the relationship between fear of missing out (FoMO, including trait-FoMO and state-FoMO) and problematic social media use (PSMU) in young adults (N = 630, M±SD = 20.25±1.83, males = 136, females = 384) with three follow-up measures, taking into account the effects of social media self-control failure (SMSCF). Multilevel statistical models were used to disaggregate between-person effects (i.e., people with SMSCF show more risk of PSMU than those who are less SMSCF at one point in time) and within-person effects (i.e., a person with SMSCF show more risk of PSMU over time). Results showed that: (1) these four variables were significantly and positively correlated with each other, which were significant both at one point in time and over time; (2) at both the between- and within-person levels, after controlling the gender, SMSCF was found to be a significant mediator of

the association between FoMO (i.e., trait-FoMO and state-FoMO) and PSMU. That is, within a given individual, a more favorable perceived trait-FoMO and state-FoMO at a given time point were the significant positive predictors of SMSCF for that individual, and in turn, SMSCF was associated with significantly more risk of PSMU at a particular time point. Thus, both FoMO and SMSCF should be considered in prevention and intervention strategies aimed at reducing the risk of PSMU.
Keywords: fear of missing out, trait fear of missing out, state fear of missing out, social media self-control, problematic social media use

解释偏向与情绪对网络利他行为影响的实验研究

王洁琳[1] 陈琳[1] 李湘琴[1] 周祥森[1] 郑显亮[2]（通讯作者）
1 赣南师范大学教育科学学院，赣州，341000
2 赣南师范大学教育科学学院，赣州，341000，zxl2004@sina.com

摘 要 日常生活中会遇到大量的意义不明的信息，有的个体对这种意义不明的信息做出积极的解释，有的个体对此做出消极的解释，这种差异的存在显示了不同的个体存在不同解释偏向。本研究旨在探讨在不同的解释偏向模式下，对情绪的启动是否会影响个体的网络利他行为，使用实验法通过两个研究对这一问题进行探讨。研究一以 134 名大学生（M = 21.23 岁, SD = 1.76）为被试，采用单因素被试间实验设计，运用情境启动法测量个体的解释偏向（积极、消极）与网络利他行为，探讨不同解释偏向个体对网络利他行为的影响；研究二以 210 名大学生（M = 20.93 岁, SD = 2.14）为被试，采用 2（解释偏向：积极、消极）× 3（情绪分组：快乐情绪组、中性情绪组、愤怒情绪组）被试间实验设计，对情绪的启动采用视频诱发的研究范式，主要探讨加入情绪这一变量后，解释偏向与情绪对网络利他行为的影响。结果表明：（1）研究一中网络利他行为在不同解释偏向上存在显著差异，相对于消极解释偏向组，积极解释偏向组会表现出更多的网络利他行为。（2）网络利他行为在不同情绪类型上（快乐、中性和愤怒）差异显著，相对于中性和愤怒情绪，快乐情绪会增加个体的网络利他行为；相对于快乐和中性情绪，愤怒情绪下的个体网络利他行为明显减少，即快乐情绪能促使网络利他行为的发生，而愤怒情绪减少了网络利他行为的产生。（3）研究二解释偏向与情绪的交互作用显著，在解释偏向分组的条件下，情绪分组中的快乐组和中性组简单效应显著。本研究使用实验法深入揭示了解释偏向对网络利他行为的影响，具有一定的理论和实践意义。
关键词 解释偏向，网络利他行为，情绪，大学生

An Experimental Study on the Influence of Interpretive Bias and Emotion on Online Altruistic Behavior

Wang Jielin[1] Chen Lin[1] Li Xiangqin[1] Zhou Xiangsen[1] Zheng Xianliang[2]
1 School of Education Science, Gannan Normal University, Ganzhou, 34100
2 School of Education Science, Gannan Normal University, Ganzhou, 34100, zxl2004@sina.com

***Abstract*:** In daily life, we will encounter a large amount of information with unknown meaning. Some individuals interpret this information positively while others interpret it negatively. The existence of this difference shows that

different individuals have different interpretation biases. The purpose of this study is to explore whether the priming of emotions will affect individuals' altruistic behavior on the Internet under different interpretive bias models, and to explore this issue through two studies using experimental methods. In the first study, 134 college students (M = 21.23 years old, SD = 1.76) were selected as subjects. A single factor inter-subject experimental design was used to measure the individual's interpretive bias (positive and negative) and online altruistic behavior by using the situation priming method, and the influence of different interpretive bias on online altruistic behavior was investigated. In the second study, 210 college students (M = 20.93 years old, SD = 2.14) were used as subjects, and 2 (explanatory bias: positive, negative) × 3 (emotional grouping: The experimental design among subjects of happy emotion group, neutral emotion group, and angry emotion group adopted the video-induced research paradigm for emotion priming, and mainly discussed the influence of interpretive bias and emotion on online altruistic behavior after adding emotion as a variable. The results show that: (1) In study 1, there are significant differences in interpretation bias of network altruism. Compared with negative interpretation bias group, positive interpretation bias group shows more network altruism behavior. (2) There are significant differences in online altruism among different emotion types (happiness, neutral and angry). Compared with neutral and angry emotions, happy emotions can increase individuals' online altruism. Compared with happiness and neutral emotions, individuals' online altruistic behaviors are significantly reduced under anger emotion, that is, happy emotion can promote the occurrence of online altruistic behaviors, while anger emotion can reduce the occurrence of online altruistic behaviors. (3) In study 2, the interaction between interpretation bias and emotion is significant. Under the condition of interpretation bias grouping, the happy group and neutral group in emotion grouping have significant simple effects. This study uses the experimental method to deeply reveal the influence of interpretive bias on network altruistic behavior, which has certain theoretical and practical significance.
Keywords: Interpretive Bias, Online Altruism Behavior, Emotion, College Students

问题性网络使用与青少年焦虑抑郁的关系：一项交叉滞后研究

于明申[1] 杨凌青[1] 徐梓唯[1] 鲍振宙[1]（通讯作者）

[1]赣南师范大学教育科学学院 赣州 341000 通讯作者 E-mail：baozhenzhou0819@163.com

* 基金项目：教育部人文社会科学研究青年基金项目（编号：21YJC190001）；

江西省社会科学“十四五”（2021 年）基金项目（编号：21JY48）

摘 要 青春期是个体一生发展的重要时期，也是焦虑抑郁的高发时期。青少年的焦虑抑郁可能会损害其心理健康，严重的甚至可能导致自杀。因此，探究青少年焦虑抑郁的影响因素并且实施保护性干预计划是很有必要的。在影响青少年焦虑抑郁的诸多因素中，较少有研究者关注到问题性网络使用这一变量。问题性网络使用是指个体对心理健康、社会适应、学业及工作等方面造成负面影响的网络使用行为。根据社会置换假说，问题性网络使用会导致青少年在虚拟世界中花费过多的时间和精力，缺乏与他人面对面地交流，缺少现实社会的支持，因此有可能提高其焦虑抑郁水平。此外，网络世界的匿名性与自由性能够给予个体所需要的社会支持与成就感，因此有焦虑抑郁情绪问题的个体更有可能通过问题性网络使用减轻自己的不适。综上，问题性网络使用与焦虑抑郁之间可能存在双向关系。目前研究多采用横断设计对二者之间的单向关系进行探讨，对其相互关系的研究相对较少。本研究采用交叉滞后设计来探讨问题性网络使用与青少年焦虑抑郁之间的双向关系，试图阐明二者之间具体的作用机制。

采用问题性网络使用问卷与焦虑抑郁量表对江西省 976 名青少年（M_{age} = 14.33, 48.1%为男生）进行了一学期的追踪调查。结果表明：（1）在一学年内，问题性网络使用与青少年焦虑抑郁均表现出较强的稳定性（$r = 0.62, p < 0.001$; $r = 0.71, p < 0.001$）；（2）学期初的问题性网络使用可以正向预测学期末的焦虑抑

郁（b_1 = 0.07, SE = 0.02, p < 0.001）。同时，学期初的焦虑抑郁也可以正向预测学期末的问题性网络使用（b_2 = 0.17, SE = 0.04, p < 0.001）。上述结果表明，问题性网络使用可能是影响青少年焦虑抑郁的重要风险之一，同时，青少年不良的情绪状态（如焦虑抑郁）也提高了他们问题性网络使用发生的概率。因此，学校及家长应对这种恶性循环予以关注，做好事前预防和事后干预的双途径工作。
关键词 青少年，问题性网络使用，焦虑抑郁，交叉滞后

Problematic Internet Use and Anxiety and Depression among Adolescents: A Cross-Lagged Panel Analysis

Yu Mingshen[1] Yang Lingqing[1] Xu Ziwei[1] Bao Zhenzhou[1] (Corresponding author)
School of Educational Science, Gannan Normal University, Ganzhou, 341000

Abstract ：Adolescence is an important period for an individual's lifelong development, which is also a period with a high incidence of anxiety and depression. Adolescents' anxiety and depression may damage their mental health, and in severe cases, it may result in suicide. Therefore, it is essential to explore the predictive factors of adolescents' anxiety and depression and implement protective intervention plans. Among the factors which may affect adolescents' anxiety and depression, few researchers have paid attention to Problematic Internet Use (PIU). Problematic Internet Use (PIU) refers to use of the Internet that creates psychological, social, school, and/or work difficulties in a person's life. According to the social displacement hypothesis, adolescents who use internet problematically may spend too much time and energy in the virtual world, lacking face-to-face communication with others, and lacking support from the real society, which may lead to the improvement of their anxiety and depression levels. In addition, the anonymity and freedom of the online world can provide adolescents with the social support and sense of achievement they need, therefore, adolescents with negative emotional experiences may be more likely to alleviate their discomfort through the internet. In summary, there may be a bidirectional relationship between PIU and anxiety and depression. At present, research mostly uses cross-sectional design to explore the unidirectional relationship between the two variables, there is relatively little research on their bidirectional relationship. This study used a cross-lagged design to explore the bidirectional relationship between PIU and anxiety and depression among adolescents and attempted to clarify the specific mechanism between the two variables.

Participants 976 adolescents (M_{age} = 14.33, 48.1% were boys) who provided self-report data on PIU and anxiety and depression at the beginning and end of the semester. the results showed that: (1) PIU and anxiety and depression showed strong stability across time (r = 0.62, p < 0.001; r = 0.71, p < 0.001); (2) PIU at the beginning of the semester positively predicted adolescents' anxiety and depression at the end of the semester (b_1 = 0.07, SE = 0.02, p < 0.001). In the meantime, adolescents' anxiety and depression at the beginning of the semester positively predicted PIU at the end of the semester (b_2 = 0.17, SE = 0.04, p < 0.001). Based on the results, PIU may serve as a risk factor for anxiety and depression in adolescents, in the meantime, adolescents with negative emotional states (such as anxiety and depression) also increased the probability of their problematic internet use. Therefore, teachers and parents should pay attention to this vicious cycle and ensure dual-pathway approaches work of prevention and intervention.

Keywords: adolescents, problematic internet use, anxiety and depression, cross-lagged analysis

突发公共卫生事件中信息过载对大学生学习倦怠的影响：一个多重的

中介模型

亢其飞[1] 肖三蓉[2] 肖盈盈[3] 王挺[1](通迅作者) E-mail：125323611@qq.com

1 江西中医药大学人文学院（南昌）330004 ； 2 南昌大学公共政策与管理学院心理学系（南昌）330006；

3 南昌大学教育发展研究院（南昌）330006；

摘 要 双加工理论认为，人们在进行信息加工处理的时候，会采用两种不同的处理方式，分别是启发式处理和系统式处理。启发式处理是快速的，不需要耗费太多认知资源，凭借着以往的经验，就能将呈现出来的一些暗示信息做出判断或决策。而系统式处理通常需要耗费较多的认知资源，经过深思熟虑才能做出决策。在现存的研究中，有关健康有关的信息过载的研究集中于慢性病，对突发公共卫生事件的研究较少。并且已有研究表明，有相关突发公共卫生事件的信息过载会对人们产生负面影响，而对于频繁使用网络的大学生群体，更有必要成为重点关注的研究对象。基于此，本文探究突发公共卫生事件中的信息过载是否通过信息双加工理论对大学生学习倦怠产生影响及其内部心理机制。

本文采用信息过载严重程度量表、大学生学习倦怠量表、网络疑病量表、风险认知量表、焦虑自评量表对江西等地区 842 名在校大学生进行数据调查。结果显示，①突发公共卫生事件信息过载、网络疑症、风险认知和焦虑两两变量之间显著正相关。突发公共卫生事件信息过载与网络疑症、疫情风险认知和焦虑显著正相关（r=0.41，r=0.17,r=0.39,p＜0.01）；网络疑症、风险认知与焦虑呈显著正相关（r=0.44,r=0.22,p＜0.01）；②突发公共卫生事件信息过载对焦虑的直接效应显著，效应值为 0.45，网络疑症和风险认知在信息过载对焦虑之间起单独中介作用，中介效应值分别为 0.24、0.03；③突发公共卫生事件信息过载与焦虑和学习倦怠之间显著正相关（r=0.39、r=0.21，p＜0.01）;焦虑与学习倦怠呈显著正相关（r=0.29,p＜0.01）；④突发公共卫生事件信息过载对学习倦怠的直接效应显著，效应值为 0.23，焦虑在突发公共卫生事件信息过载与学习倦怠之间起单独中介作用，中介效应值为 0.20。结果证明，突发公共卫生事件信息过载可以通过双加工过程中的认知过程和情感过程来影响大学生的焦虑情绪，并通过焦虑情绪来影响大学生的学习倦怠。

关键词 信息过载，网络疑症，学习倦怠，双加工理论，风险认知

The effect of information overload on college students' learning burnout in a public health emergency: a multiple mediation model

Qifei Kang[1] ,Sanrong Xiao[2], Yingying Xiao[3], Ting Wang[1] (Corresponding author) E-mail: 125323611@qq.com

1 College of Humanities, Jiangxi University of Traditional Chinese Medicine, Nanchang, 330004, China

2 Department of Psychology, School of Public Policy and Management, Nanchang University, Nanchang, 330006, China;

3 Institute of Educational Development, Nanchang University, Nanchang, 330006, China;

Abstract： Dual processing theory suggests that people use two different types of processing when processing information, heuristic processing and systematic processing. Heuristic processing is fast and does not require much cognitive resources, and with previous experience, one can make a judgment or decision on some of the implied information presented. Systematic processing, on the other hand, usually requires more cognitive resources and

thoughtful consideration to make a decision. Among the extant studies, research on health-related information overload has focused on chronic diseases and less on public health emergencies. Moreover, studies have shown that information overload related to public health emergencies can have a negative impact on people, and it is necessary to focus on college students who frequently use the Internet. Based on this, this paper investigates whether information overload in public health emergencies affects college students' learning burnout through information dual processing theory and its internal psychological mechanisms.

This paper investigated 842 college students in Jiangxi and other regions using the Information Overload Severity Scale, the College Student Burnout Scale, Cyberchondria Scale, the Risk Perception Scale, and the Anxiety Self-Rating Scale. The results showed that (1) there were significant positive correlations between two variables of information overload of sudden public health events, Cyberchondria, risk perception and anxiety. Information overload of public health emergencies was significantly and positively correlated with Cyberchondria, risk perception of epidemic and anxiety ($r=0.41$, $r=0.17$,$r=0.39$,$p<0.01$); Cyberchondria, risk perception and anxiety were significantly and positively correlated ($r=0.44$,$r=0.22$,$p<0.01$); (ii) information overload of public health emergencies had a significant direct effect on anxiety with an effect (2) The direct effect of information overload on anxiety was significant, with an effect value of 0.45, while Cyberchondria and risk perception mediated the effect of information overload on anxiety, with a mediating effect value of 0.24 and 0.03, respectively; (3) Information overload on public health emergencies was significantly positively correlated with anxiety and burnout ($r=0.39$, $r=0.21$, $p<0.01$); anxiety was significantly positively correlated with burnout ($r=0.29$, $p<0.01$) It is concluded that information overload from public health emergencies can affect college students' anxiety through cognitive and emotional processes in dual processing, and affect college students' learning burnout through anxiety. It is concluded that information overload from public health emergencies can affect college students' anxiety through cognitive and emotional processes in dual processing, and affect college students' learning burnout through anxiety.

Keywords：Information overload,Cyberchondria, learning burnout;dual processing theory,risk perception

问题性短视频使用与大学生日常记忆失败：一个链式中介模型

王丽霞[1,2] 余易达[1,2] 谷传华[1,2]（通讯作者）

1 青少年网络心理与行为教育部重点实验室，武汉，430079

2 华中师范大学心理学院，武汉，guchuanhua@ccnu.edu.cn

摘 要 随着各种移动短视频类应用的迅速发展，短视频已成为人们休闲娱乐、获取信息的极受欢迎的社交媒体形式。大学生是短视频使用的重要群体，也是问题性短视频使用的高发群体。近年来，短视频成瘾对大学生认知功能的影响得到了研究者们的关注。问题性短视频使用与记忆的关系虽然得到了研究者的关注，但由于对两者关系的研究较为有限，尚不清楚问题性短视频使用如何影响日常记忆。因此，本研究以910名大学生为研究对象，采用短视频成瘾量表、注意控制量表、注意相关的认知错误量表和日常记忆失败量表，探讨问题性短视频使用对日常记忆失败的影响及其作用机制。结果发现：(1)在控制了每日短视频使用时长后，问题性短视频使用能显著正向预测注意控制缺陷、注意相关的认知错误以及日常记忆失败，注意控制缺陷显著正向预测注意相关的认知错误和日常记忆失败，注意相关的认知错误显著正向预测日常记忆失败；(2)在控制了每日短视频使用时长后，注意控制缺陷和注意相关的认知错误在问题性短视频使用与日常记忆失败的关系中起部分中介作用。具体而言，问题性短视频使用通过三条路径影响日常记忆失败：

一是注意控制缺陷的单独中介作用；二是注意相关的认知错误的单独中介作用；三是注意控制缺陷—注意相关的认知错误的链式中介作用。研究结果提示问题性短视频使用会损害日常记忆，并在一定程度上揭示了其中的中介机制，丰富了问题性短视频使用对大学生认知功能研究领域的内容，并对指导大学生合理使用短视频具有一定的理论和实践价值。
关键词　问题性短视频使用，注意控制缺陷，注意相关的认知错误，日常记忆失败，大学生

Problematic Use of Short Videos and Everyday Memory Failure in College Students: A Chain Mediation Model

Lixia Wang[1 2], Yida Yu[1 2], Chuanhua Gu[1 2]
1 Key Laboratory of Adolescent CyberPsychology and Behavior, Ministry of Education, Wuhan
2 School of Psychology, Central China Normal University, Wuhan

Abstract：With the rapid development of various mobile short video applications, short videos have become a highly popular form of social media for leisure, entertainment, and information acquisition. College students are an important group in the use of short videos and are also prone to problematic use. In recent years, the impact of short video addiction on the cognitive functions of college students has attracted the attention of researchers. While the relationship between problematic use of short videos and memory has been studied, there is limited understanding of how problematic use of short videos affects everyday memory. Therefore, a questionnaire survey was conducted among 910 college students using the Short Video Addiction Scale, Attention Control Scale, Attention-Related Cognitive Errors Scale, and Everyday Memory Failure Scale to investigate the impact of problematic use of short videos on everyday memory failure and its underlying mechanisms. The results revealed the following: (1) After controlling for daily short video usage duration, problematic use of short videos significantly and positively predicted attention control deficits, attention-related cognitive errors, and everyday memory failure. Attention control deficits significantly and positively predicted attention-related cognitive errors and everyday memory failure, while attention-related cognitive errors significantly and positively predicted everyday memory failure. (2) After controlling for daily short video usage duration, attention control deficits and attention-related cognitive errors partially mediated the relationship between problematic use of short videos and everyday memory failure. Specifically, problematic use of short videos influenced everyday memory failure through three pathways: the independent mediation of attention control deficits, the independent mediation of attention-related cognitive errors, and the chain mediation of attention control deficits and attention-related cognitive errors. The findings suggest that problematic use of short videos can impair everyday memory and provide insights into the underlying mechanisms. This study enriches the research on the cognitive functions of college students in the context of problematic use of short videos and has theoretical and practical implications for guiding college students in the rational use of short videos.

Keywords：problematic use of short videos, attention control deficits, attention-related cognitive errors, everyday memory failure, college students

手机依赖者自我损耗程度对风险决策的影响

黄扬[1]　郑玮琦[1]（通讯作者）
1 北京体育大学心理学院，北京，100084，weiqi71@126.com

摘 要　手机在我们的生活中扮演着重要的角色，虽然它给我们带来了方便和效率，但过度使用也会带来负面影响，目前各界研究者通常通过问卷调查探讨手机依赖对个人人格特质或者社会适应能力的影响，而很少采用实证研究来讨论手机依赖对个体认知功能的影响。本研究首先通过熊婕等人(2012)编制的大学生手机成瘾倾向量表对大学生群体进行施测，并进一步通过实验综合探究手机依赖程度与自我损耗状态如何影响大学生风险决策。采用爱荷华赌博任务(IGT)作为考察风险决策的测量指标，研究为三因素混合设计，自变量为 2(手机依赖程度：高手机依赖、低手机依赖)×2(自我损耗程度：高损耗、低损耗)×6(决策组块数)，并探索决策的性别差异，因变量为被试在爱荷华赌博任务上的净分数，并分析即时收益与惩罚频率对被试决策策略的影响。根据大学生手机依赖量表得分，从 164 名大学生中筛选出高分组(得分前 27%)和低分组(得分后 27%)，两组被试又平均分配进高自我损耗组与低自我损耗组，每组 44 人，各包括 22 名高分组和 22 名低分组。实验中，采用中文版 E-crossing 任务来操控高低损耗组被试的自我损耗水平。问卷结果显示手机依赖检出率高达 56.3%。实验结果表明手机依赖主效应、损耗程度主效应以及两者的交互作用均不显著($p > .05$)；被试在决策中均会产生学习效应，但自我损耗程度高的高手机依赖者能够更快地总结出有利的决策策略($F(5, 35) = 2.24$，$p < .05$，$\eta^2 = .03$)；被试均在高即时收益条件下对惩罚频率更敏感($F(1, 81) = 87.75$，$p < .001$，$\eta^2 = .52$)；男性被试在决策任务中做出了更多的不利选择($t = -2.09$，$p < .05$)，且更多地选择即时收益量更高的牌(即使伴随更大的损失)($F(1, 80) = 3.96$，$p < .05$，$\eta^2 = .26$)。结论：本研究并未发现手机依赖程度与自我损耗对风险决策的显著影响，但手机依赖程度高的被试处于损耗状态时能更快地总结出有利的决策策略；在高奖赏时被试的惩罚敏感度普遍更高；男性在决策中更加冲动、更看重当下收益。这丰富了手机依赖者高级认知功能相关研究，对手机依赖相关研究有一定启示。

关键词　手机依赖, 自我损耗, 风险决策, 爱荷华赌博任务

The influence of self-depletion degree on risk decision of mobile phone dependents

Yang Huang[1], Weiqi Zheng[1]
School of Psychology, Beijing Sport University, Beijing, 100084, weiqi71@126.com

Abstract：Mobile phones play an important role in our lives. Although they bring us convenience and efficiency, overuse will also bring negative effects. At present, researchers from diverse backgrounds usually discuss the impact of mobile phone dependence on individual personality traits or social adaptability through questionnaires, while empirical studies are rarely used to discuss the impact of mobile phone dependence on individual cognitive

function. This study first tested college students through the Mobile Phone Addiction Tendency Scale compiled by Xiong Jie (2012), and further explored how the degree of mobile phone dependence and the state of self-depletion affected college students' risk decision-making through experiments. Using the Iowa Gambling Task (IGT) as a measure of risk decision-making, the study was a three-factor mixed design with independent variables of 2(mobile phone dependence: high mobile phone dependence, low mobile phone dependence)×2(self-depletion: high depletion, low depletion)×6(number of decision group blocks), and explore the gender difference in decision making. The dependent variable is the participants' net score on the Iowa Gambling Task and analyzes the effects of immediate reward and punishment frequency on the participants' decision strategies. According to the score of the Mobile Phone Dependence Scale for college students, subjects were selected from 164 college students in the high group (the top 27% score) and the low group (the bottom 27% score), and the two groups were equally divided into the high self-depletion group and the low self-depletion group, 44 subjects in each group, including 22 high score group and 22 low score group. In the experiment, the Chinese version of E-crossing task was used to control the level of self-depletion of the participants in the high-low depletion group. The results of the questionnaire showed that the detection rate of mobile phone dependence was as high as 56.3%. The experimental results show that the main effect of mobile phone dependence, the degree of depletion, and their interaction did not yield significant results ($p > .05$); All the subjects have learning effect in decision making, but the subject of the high mobile phone dependence with high self-depletion degree can summarize the favorable decision making strategy faster ($F(5, 35) = 2.24$, $p < .05$, $\eta^2 = .03$); All subjects were more sensitive to punishment frequency under the condition of high immediate gain ($F(1, 81) = 87.75$, $p < .001$, $\eta^2 = .52$); Male subjects made more adverse choices in the decision making task ($t = -2.09$, $p < .05$), and more likely to choose cards with higher immediate gains (even with greater losses) ($F(1, 80) = 3.96$, $p < .05$, $\eta^2 = .26$). Conclusion: The findings suggest that mobile phone dependence and self-depletion do not exert a significant influence on risk decision-making, but the subjects with high mobile phone dependence can summarize favorable decision-making strategies faster when they are in high self-depletion. The punishment sensitivity of the subjects is generally higher when the reward is high. Men are more impulsive in their decision-making and value immediate gains. This has enriched the research on the cognitive function of mobile phone dependents and has certain implications for the research on mobile phone dependents.

Keywords：mobile phone dependence, self-depletion, decision-making, Iowa Gambling Task

初次网络实时互动后的人际距离感知：表情符号的作用

周爱华[1] 陈晓冰[1] 张雨婷[1] 郭芷璇[1] 徐雷[1](通讯作者)

1 四川师范大学脑与心理科学研究院，四川省成都市，610068，xulei@sicnu.edu.cn

摘 要 表情符号是网络沟通中不可或缺的一环，它可以传达出更多的情感和情绪，帮助人们更准确地理解对方的意图和感受。以往研究指出，表情符号可以影响第一印象、增强人际信任和亲密感。但这些研究或以问卷调查为主要形式，或采用静态图片作为刺激材料，缺乏网络环境中实时的人际互动，且人际知觉的指标多为主观的亲密感或心理距离评分。因此，本研究将采用计算机版的人际距离任务，考察网络实时互动中表情符号的使用对个体人际距离感知的影响。

本研究招募了 50 名大学生被试（34 名女性，平均年龄为 19.66±1.72 岁），以微信作为实时互动媒介，探索首次网络实时互动中表情符号的使用与否如何影响个体的人际距离感知。被试在微信上分别与 2 个陌

生人进行结构化的自我表露互动过程，其中 1 个陌生人在提问时使用表情符号，另 1 个陌生人则不使用表情符号。每次实时互动后，被试需要对本次互动过程中接收与表露的信息、感知表露回应、以及互动享受程度进行 7 点评分。在实时互动前后，被试均需完成计算机版的人际距离任务。该任务要求被试想象自己在一个圆形的房间内，会有不同身份的小人不断从远处（主动/被动）靠近自己，被试通过按键暂停来选择与对方之间感到舒适的人际距离。

实时互动后的评分结果显示，被试在互动享受程度上存在显著差异：与不使用表情符号的陌生人相比，被试更享受与使用表情符号的陌生人的互动($t_{(50)} = 3.61, p < 0.01$)；在人际距离任务上，实时互动后被试对两个陌生人的人际距离感知均显著小于实时互动前(时间主效应：$F_{(1,49)} = 17.32, p < 0.01$)，且对使用表情符号的陌生人的人际距离感知显著小于不使用表情符号的陌生人(交互效应：$F_{(1,49)} = 12.87, p < 0.01$)。中介模型显示，互动享受程度完全中介表情符号的使用对人际距离感知的影响(β = -1.91, SE = 0.96, 95%CI [-3.94, -0.20])。上述结果表明，表情符号的使用能增强个体在网络初识阶段对实时互动的享受，进而增近对对方的人际距离感知，这为表情符号的使用如何促进或阻碍关系的启动提供了新的见解。

关键词 表情符号，人际距离，网络实时互动，互动享受程度

Perception of interpersonal distance after first real-time online initiation: the role of emoji use

Zhou Aihua[1] Chen Xiaobing[1] Zhang Yuting[1] Guo Zhixuan[1] Xu Lei[1] (Corresponding author)
1 Institute of Brain and Psychological Sciences, Sichuan Normal University, Chengdu, Sichuan, 610068, xulei@sicnu.edu.cn

Abstract： Emojis play a crucial role in online communication by adding emotion and sentiment, thereby facilitating better understanding of intentions and feelings. Previous research has highlighted the impact of emojis on first impressions, as well as their ability to enhance interpersonal trust and intimacy. However, these studies primarily relied on questionnaires or static images as stimuli, which lacked real-time interpersonal interactions in online environments. Additionally, most studies focused on subjective intimacy or psychological distance rating. Thus, the current study aims to investigate the effect of emoji use during first real-time online initiation on perception of interpersonal distance measured by computerized comfortable interpersonal distance task.

In the current study, we recruited 50 college students (34 female; Mage = 19.66 ± 1.72 years) and chose WeChat as the real-time interaction medium to explore whether emojis are being used or not during the initial phases of interaction would influence the perception of interpersonal distance. The participants engaged in a structured self-disclosure interaction procedure on WeChat with two strangers separately. One of the strangers used emojis when asking questions, while the other did not. After each real-time interaction, the participants were asked to rate perceived information received and given, perceived responsiveness of the other, and enjoyment of the interaction on a 7-point scale. To measure changes in interpersonal distance, the participants completed a computerized comfortable the interpersonal distance task both before and after the real-time interactions. In this task,participants were required to imagine themselves in a circular room where little figures of different identities continuously (either actively or passively) approached them from a distance. The participants were then asked to choose the interpersonal distance they felt comfortable with this identity by pressing a key to pause the simulation.

The results of ratings after real-time interaction revealed significant differences in enjoyment of the interaction, participants enjoyed more during the interaction with the stranger who used emojis than with the stranger who did not use emojis ($t_{(50)} = 3.61$, $p < 0.01$). Furthermore, perception of interpersonal distance for both strangers after the real-time interaction was significantly smaller than before (main effect of time: $F_{(1,49)} = 17.32$, $p < 0.01$). And after the real-time interaction, perception of interpersonal distance was significantly smaller for the stranger who used emojis compared to the stranger who did not use emojis (interaction effect: $F_{(1,49)} = 12.87$, $p < 0.01$). The mediation model showed that enjoyment of the interaction fully mediated the effect of emoji usage on percption of interpersonal distance (β = -1.91, SE = 0.96, 95% CI [-3.94, -0.20]). The current finding suggest that the use of emojis enhances individuals' enjoyment of interactions during real-time online interaction at the initial acquaintance stage, which subsequently leads to a closer perception of interpersonal distance towards the other. This provides valuable insights into the role of emoji usage in facilitating or impeding the initiation of relationships.

Keywords： Emojis, Interpersonal distance, Real-time online interaction, Enjoyment of the interaction

状态自悯对大学生网络利他行为的影响：心理距离的中介作用和网络头像可信度的调节作用

蔡若男[1] 郑显亮[1]（通讯作者）谢佳雯[1] 宋子佳[1] 刘志青[1]
1 赣南师范大学教育科学学院，赣州, 341000, zxl2004@sina.com

摘 要 截至 2022 年 12 月，我国网民规模达到 10.67 亿，互联网普及率达 75.6%，随着网络科技的不断发展，网络利他行为也越来越普遍、便捷。网络利他行为是指在网络中发生的，对有需求个体或群体进行主动帮助且不求汇报的助人行为。以往研究主要从施助者的个人特质来研究网络利他行为，但是助人行为通常会收到施助者与受助者的双重影响，仅从施助者层面进行研究过于单一，因此本研究将从施助者与受助者双重视角探究状态自悯和心理距离对网络利他行为的影响与机制作用。在积极心理学中，自悯与积极情绪密切相关，是影响个人身心发展和健康人格的重要因素。状态自悯是指对幸福与痛苦的理解与包容，以及给予自我温暖与关注。心理距离是指与另一对象或事物的主观感受与判断。研究一运用实验法从施助者视角下，探讨状态自悯对网络利他行为的影响。实验招募 132 名高校学生被试，采用单因素被试间实验设计，自变量为状态自悯（启动、控制），因变量为独裁者游戏捐助数额。研究二运用实验法从施助者视角下，探究心理距离在状态自悯与网络利他行为间的中介作用。实验招募 88 名高校学生被试，采用 2（状态自悯：启动、控制）*2（心理距离：远、近）混合实验设计，因变量为独裁者游戏捐助数额。研究三运用实验法从施助者与受助者双重视角下，采用捐助行为独裁者游戏来探究网络头像在状态自悯与网络利他行为关系间的调节作用。实验招募 88 名高校学生被试，采用 2（状态自悯：启动、控制）*2（网络头像可信度：高、低）混合实验设计，因变量为独裁者游戏捐助数额，并运用 SPSS 26.0 进行数据分析。结果显示：（1）施助者的状态自悯正向预测其网络利他行为；（2）心理距离在状态自悯与网络利他行为间起中介作用；（3）受助者的网络头像可信度会调节施助者状态自悯对网络利他行为的影响。本研究有利于培养大学生积极心理特质，正确使用网络头像，从而提升网络利他行为。
关键词：网络利他行为，状态自悯，心理距离，网络头像可信度

The Effect of State Self-Compassion on College Students' Internet Altruistic Behavior: The Mediating Role of Psychological Distance and the Moderating Effect of Network Avatar Credibility

Cai Ruonan[1] Zheng Xianliang[1] Xie Jiawen[1] Song Zijia[1] Liu Zhiqing[1]
1 School of Education Science, Gannan Normal University, Ganzhou, 34100, zxl2004@sina.com

Abstract： As of December 2022, the size of China's Internet users has reached 1.067 billion, and the Internet penetration rate has reached 75.6%, and with the continuous development of network technology, internet altruistic behavior has become more and more common and convenient. Internet altruistic behavior refers to the behavior of helping others that occurs in the network and actively helps individuals or groups in need without reporting. Previous studies have mainly studied internet altruistic behavior from the personal characteristics of donors, but helping behaviors usually receive the dual influence of donors and recipients, and it is too single to study only from the level of donors, so this study will explore the influence and mechanism of state self-compassion and psychological distance on internet altruistic behavior from the dual perspectives of donors and recipients. In positive psychology, self-compassion is closely related to positive emotions and is an important factor affecting an individual's physical and mental development and healthy personality. State self-compassion refers to the understanding and tolerance of happiness and pain, as well as giving self-warmth and attention. Psychological distance refers to subjective feelings and judgments with another object or thing. Study 1: Using experimental

methods, from the perspective of donors, the impact of state self-compassion on internet altruistic behavior is discussed. The experiment recruited 128 college students, and adopted a single-factor inter-participant experimental design, with the independent variable being state self-compassion (priming, control), and the dependent variable being the amount of dictator's game donation. Study 2: Using experimental methods, from the perspective of donors, the mediating role of psychological distance in state self-compassion and internet altruistic behavior is explored. The experiment recruited 88 college students, using a mixed experimental design of 2 (state self-compassion: priming, control) *2 (psychological distance: far, near), and the dependent variable was the amount donated by the dictator's game. Study 3: Using the experimental method from the dual perspectives of donors and recipients, the donor dictator game is used to explore the moderating effect of network avatars in the relationship between state self-compassion and internet altruistic behavior. The experiment recruited 88 college students, using 2 (state self-compassion: priming, control) *2 (network avatar credibility: high, low) mixed experimental design, the dependent variable is the amount of dictator game donation, and SPSS 26.0 was used for data analysis. The results showed that: (1) The state of the helper's self-compassion positively predicted his internet altruistic behavior. (2) Psychological distance plays a mediating role between state self-compassion and internet altruistic behavior. (3) The credibility of the recipient's network avatar will regulate the influence of the recipient's state self-compassion on the internet altruistic behavior. This study is conducive to cultivating college students' positive psychological traits and correct use of network avatars, thereby improving internet altruistic behavior.

Keywords：Internet altruistic behavior, state self-compassion, psychological distance, network avatar credibility

错失恐惧和手机成瘾之间的联系：一项元分析

赵金霞[1] 张亚利[2]

1 河北师范大学教育学院，石家庄，050000

2 河北师范大学教育学院，石家庄，050000，zhangyali531@sina.com

摘 要 背景：错失恐惧和手机成瘾之间的关系一直是最近研究人员关注的焦点。国内外已有许多研究探索了错失恐惧和手机成瘾之间的联系，但结果并不一致。本研究旨在进一步探讨错失恐惧与手机成瘾之间的关系，以及以往研究结果不同的原因。方法：为实现我们的目标，本研究采用随机效应模型对 85 项研究（90 个独立效应量）进行了元分析。通过元分析，本研究来估计相关系数，并分析可能影响关联的潜在调节因素。结果：主效应分析显示，错失恐惧与手机成瘾之间呈较高的正相关关系（r=0.47,95%CI [0.44,0.50]），错失恐惧程度越高，对手机上瘾的程度就越高。手机成瘾的测量调节了错失恐惧和手机成瘾之间的关联强度，使用 MPATS 测量的相关性最高，使用 MPDQ 测量的相关性最低。研究发现个体因素（性别和年龄）、环境因素（文化背景和出版年份）、FoMO 测量对错失恐惧与手机成瘾的相关性无显著影响。此外，研究表明，测量结果缓和了错失恐惧和手机成瘾之间的关系，进一步阐明了为什么与之前关于错失恐惧和手机成瘾之间联系的研究结果如此不一致的原因。结论：错失恐惧与手机成瘾密切相关，符合人-情感-认知-执行模型（I-PACE 模型）。根据研究结果，我们应该集中精力预防和尽量减少错失恐惧，这可能是减少手机成瘾的新策略。未来，需要实验和纵向研究来进一步探索错失恐惧与手机成瘾之间的动态关系。

关键词 错失恐惧，手机成瘾，元分析

The association between fear of missing out and mobile phone addiction: A meta-analysis

Jinxia Zhao
Hebei Normal University，Shijiazhuang

Abstract:Background: The relationship between fear of missing out and mobile phone addiction has been the focus of recent researchers. Many studies both at home and abroad have explored the association between fear of missing out and mobile phone addiction, but the results are inconsistent. This study aimed to further explore the relationship between fear of missing out and mobile phone addiction and the reasons for the different findings in previous studies. Methods: To achieve our goals, a meta-analysis of 85 studies (90 independent effect sizes) was conducted with a random-effects model in this research. Through the meta-analysis, this study was conducted to estimate the correlation coefficient and analyze potential regulatory factors that may influence the association.Results: The main effect analysis showed a high positive correlation between fear of missing out and mobile phone addiction (r=0.47,95%CI [0.44,0.50]), and that the higher the degree of fear of missing out, the higher the degree of addiction to mobile phone. The measure of mobile phone addiction mediated the strength of the association between fear of missing out and mobile phone addiction, with the highest correlations measured using the MPATS and the lowest associations measured using the MPDQ. Individual factors (sex and age), environmental factors (cultural background and year of publication), and FoMO measures had no significant effects on the association of fear of missing out and mobile phone addiction. Furthermore, studies show that the measurement result moderates the relationship between missing fear and mobile phone addiction, further clarifying why it is so inconsistent with previous findings on the link between missing fear and mobile phone addiction.Conclusion: Miss fear is closely related to mobile phone addiction in consistent with the Interaction of Person-Affect-Cognition-Execution model (I-PACE model). Based on the findings, we should focus on preventing and minimizing the fear of missing out, which may be a new strategy to reduce mobile phone addiction. In the future, experimental and longitudinal studies are needed to further explore the dynamic relationship between fear of missing out and mobile phone addiction.

Keywords: Fear of missing out, Mobile phone addiction, Meta-analysis

特质决定平台之旅:联系依恋、负性情绪、动机与特定问题性社交媒体使用的网络分析模型

白栩嘉　高雪梅（通讯作者）
西南大学心理学部，重庆，400715，zhenggao@swu.edu.cn

摘 要　随着互联网技术的不断升级和数字媒体的日益普及，社交媒体也逐渐发展为一场全民参与的狂欢，迎来了飞速发展。当享受着社交媒体带来的便捷时，部分个体却面临着被它们“绑架”的风险，表现出问题性社交媒体使用行为。一些理论将这种成瘾性质的社交媒体使用归因于个体特质差异，在此基础上，大量研究探讨了依恋与问题性社交媒体使用的关系，并显示不安全依恋是问题性社交媒体使用的易感性因素。但细分依恋取向时，其具体的影响效应及机制尚未达成共识。使用与满足理论强调了个体特质、动机和媒体使用之间的关系，提示不同依恋个体在不同动机作用下存在不同的社交媒体使用表现。但以往研究往往未能将个体特质与平台特性相结合，从而限制了不安全依恋与问题性社交媒体使用之间更为清晰准确的关联描述。因此，本研究旨在采用网络分析的方法，探讨依恋、负性情绪、动机之间复杂的相互作用，并找到其与微信、微博和抖音三个社交媒体平台问题性使用的关系。共有 685 名用户完成了在线自我报告问卷的调查，结果显示焦虑依恋个体与问题性微信使用和问题性抖音使用的关系最为密切，而回避依恋个体更容易面临问题性微博使用和问题性抖音使用风险。此外，负性情绪，包括压力、焦虑和抑郁，伴随依恋焦虑和依恋回避发生，并显示出更高水平的状态性依恋焦虑和依恋回避。状态性依恋焦虑在三种动机（应对、增强、顺从）影响下与问题性微信使用相关联。状态性依恋回避则通过应对动机、顺从动机的积极作用和社会动机的消极作用，与问题性微博使用和问题性抖音使用相关联。状态性依恋安全虽然显示出强烈的动机（增强和社会），但并未表现出问题性社交媒体使用风险。上述结果再次验证了不安全依恋个体在满足自身需求方面的困难使其更容易陷入问题性社交媒体使用风险，并揭示了不同依恋取向与不同问题性社交媒体使用之间的特定关联，为理解二者关系补充了网络分析视角的证据。
关键词　不安全依恋，问题性社交媒体使用，负性情绪，动机，网络分析。

A Network Analysis Approach to the Relationship Between Attachment, Negative Emotions, Motivations, and Specific Problematic Social Media Problematic Use

Bai Xujia, Gao Xuemei*
Faculty of Psychology, Southwest University, Chongqing, China

Abstract：The problematic use of social media is on the rise due to its increasing popularity. The addictive nature of social media use has been attributed to dispositional differences, and numerous studies have explored the relationship between attachment and problematic social media use, showing that insecure attachment is a vulnerability factor. Nevertheless, there is currently no consensus on the specific effects and mechanisms of different attachment orientations. The Uses and Gratifications Theory emphasizes the relationship between individual traits, motivations, and media use, suggesting that individuals with different attachment orientations exhibit different patterns of social media use under different motivations. Previous research often failed to integrate individual traits with platform characteristics, limiting the clear and accurate description of the relationship between insecure attachment and problematic social media use. Therefore, this study aims to use a network analysis approach to explore the complex interactions between attachment, negative emotions, motives, and their relationship with the problematic use of three social media platforms: WeChat, Weibo, and Tiktok. A total of 685 social media users completed the online self-report questionnaires. The results indicate that individuals with anxiety attachment have the closest relationship with problematic WeChat and TikTok use, while individuals with avoidance attachment are more likely to face risks of problematic Weibo and TikTok use. It was also found that negative emotions, including stress, anxiety, and depression, occurred alongside both attachment anxiety and attachment avoidance, indicating higher levels of state attachment anxiety and attachment avoidance. State anxiety attachment is associated with problematic WeChat use under the influence of three motives (coping, enhancement, and compliance). State avoidance attachment, on the other hand, is correlated with problematic Weibo and TikTok use through the positive impact of coping and compliance motives, as well as the negative impact of social motives. In contrast, state attachment security showed strong motives (enhancement and social), but did not exhibit any risks of problematic social media use. The above results once again validate that individuals with insecure attachment are more susceptible to engaging in problematic social media use, as they have more difficulties in satisfying their needs. Furthermore, this study uncovers specific correlations between different attachment orientations and particular problematic social media use, thereby enhancing our understanding of their relationship from a network analysis perspective.

Keywords：insecure attachment, problematic social media use, negative emotions, motivations, network analysis

父母手机依赖对幼儿电子媒体过度使用的影响：父母低头行为和亲子依恋的链式中介作用

尹洁滢[1,2] 宋快[1,2,3] 范艳蓉[1,2] 徐巾巾[1,2] 顾璋华[1,2] 周宗奎[1,2]（通讯作者）
1 华中师范大学心理学院，武汉，430079
2 青少年网络心理与行为教育部重点实验室，武汉，430079

3 湖北幼儿师范专科高等学校学前教育学院， 鄂州， 436032
通讯作者 E-mail zhouzk@ccnu.edu.cn

摘 要 随着信息网络技术的不断发展，智能手机与人们的日常生活深度融合。一方面，媒介的使用成为家庭互动中的常见现象，越来越多的个体沉迷于手机使用，加入“低头族”的大军，父母群体也不例外；另一方面，以智能手机为代表的新兴电子媒介使用呈现低龄化趋势，电子媒体日益成为幼儿成长的重要影响因素之一。近年来，亲子互动中的媒体使用行为引起了学者们的关注。本研究基于以往实证研究结果，并以生态系统理论（Ecological Systems Theory）和自我决定理论（Self-Determination Theory）理论为依据，考察父母低头行为和亲子依恋在父母手机依赖与幼儿电子媒介使用关系中作用机制。采用手机依赖问卷、父母低头行为问卷、亲子依恋问卷和幼儿电子媒介使用程度问卷对 758 名幼儿家长进行调查。结果发现：（1）父母低头行为和父母手机依赖、幼儿电子媒介使用呈显著正相关，与亲子依恋呈显著负相关；父母手机依赖和幼儿电子媒介过度使用呈显著正相关，与亲子依恋呈显著负相关；幼儿电子媒介过度使用和亲子依恋呈显著负相关。（2）多重中介效应检验表明，父母手机依赖不仅可以直接影响幼儿电子媒体的过度使用，还可以通过三条路径的间接作用影响幼儿的电子媒体过度使用。具体而言，一是父母低头行为的单独中介作用；二是亲子依恋的单独中介作用；三是父母低头行为-亲子依恋的链式中介作用。本研究揭示了父母手机依赖影响幼儿电子媒体过度使用的内部机制，并启示父母减少手机使用，为幼儿树立良好的榜样作用，从而保证良好的亲子关系，减少幼儿过度使用电子媒介的行为。

关键词 手机依赖，父母低头行为，亲子依恋，电子媒体过度使用，幼儿

The Effect of Parental Mobile Phone Dependence on Electronic Media Overuse in Young Children: The Chain Mediating Effect of Parental Phubbing Behavior and Parent-child Attachment

Jie-ying Yin[a,b], Kuai Song[a,b,c], Yan-rong Fan[a,b], Jin-jin Xu[a,b], Zhang-hua Gu[a,b], Zong-kui Zhou[a,b]
[a] School of Psychology, Central China Normal University, Wuhan, 430079
[b] Key Laboratory of Adolescent Cyberpsychology and Behavior (CCNU), Ministry of Education, Wuhan 430079
[c] School of Preschool education, Hubei Preschool Teachers College, Ezhou, 436032

Abstract: With the continuous development of information network technology, smart phones are deeply integrated into People's Daily life. On the one hand, the use of media has become a common phenomenon in family interaction. More and more individuals are addicted to mobile phone use and join the army of "phubbing", and parents are no exception. On the other hand, the use of emerging electronic media represented by smart phones shows a trend of younger age, and electronic media has increasingly become one of the important factors affecting the growth of children. In recent years, media use behavior in parent-child interaction has attracted scholars' attention. This study is based on previous empirical research results and Ecological Systems Theory and Self-Determination Theory. To investigate the mechanism of parental phub-down behavior and parent-child attachment in the relationship between parents' mobile phone dependence and children's electronic media use. A total of 758 parents of young children were investigated by mobile phone dependence questionnaire, parental phub-down questionnaire, parent-child attachment questionnaire and children's electronic media use questionnaire. The results showed that: (1) Parents' phub-down behavior was positively correlated with parents' mobile phone

dependence and children's electronic media use, and negatively correlated with parent-child attachment; There is a significant positive correlation between parents' mobile phone dependence and children's excessive use of electronic media, and a significant negative correlation with parent-child attachment. There is a significant negative correlation between children's excessive use of electronic media and parent-child attachment. (2) The multiple mediation effect test shows that parents' mobile phone dependence can not only directly affect children's overuse of electronic media, but also indirectly affect children's overuse of electronic media through three pathways. Specifically, one is the single mediating effect of parental phubbing behavior; Second, the single mediating effect of parent-child attachment; The third is the chain mediating effect of parental phubbing behavior - parent-child attachment. This study reveals the internal mechanism of parents' mobile phone dependence affecting children's excessive use of electronic media, and suggests that parents should reduce mobile phone use to set a good example for children, so as to ensure a good parent-child relationship and reduce children's excessive use of electronic media.

Keywords ： parental mobile phone dependence, parental phubbing behavior, parent-child attachment, electronic media overuse, young children

社会善念对大学生网络利他行为的影响：解释偏向的中介作用及其性别差异

李湘琴 王洁琳 陈琳 郑显亮(通讯作者)

赣南师范大学教育科学学院, 赣州, 341000，zxl2004@sina.com

摘 要 随着互联网发展模式的创新、新技术的应用及普及，网络心理和行为的研究越来越成为热点。网络利他行为彰显团结、友善、奉献的交往理念，对网络利他行为进行深入研究符合新时代网络文明建设要求。社会善念强调关注他人的状态，是人际互动情境中表达出的善意，是亲社会动机的一种，与网络利他行为有着密不可分的联系，但当前学界二者的研究还不够系统和深入。因此，本研究以认知图式理论和认知信息加工模型等为理论基础，探讨社会善念对大学生网络利他行为的影响，并进一步探讨解释偏向的中介作用及其性别差异。采用单因素被试间实验设计，通过“物品选择游戏”操纵被试的社会善念水平高低，将 440 名大学生(*M*=20.05 岁，*SD*=2.37)被试分为高低 2 组，并分别通过模糊情景自我报告范式和网络利他行为情景实验测查被试的解释偏向和网络利他行为，运用 SPSS26.0 和 PEOCESS v3.5 对数据进行分析和处理。结果显示：(1)相比于低社会善念者，社会善念高的个体解释偏向更积极，并且表现出更多的网络利他行为；(2)解释偏向在社会善念与网络利他行为间发挥着部分中介作用；(3)此中介效应仅出现在女性中，在男性中不显著。因此,社会善念水平高的大学生会产生更积极的解释偏向,从而做出网络利他行为，并且这一影响会存在性别的差异。本研究聚焦于大学生的社会善念对网络利他行为的影响，对于培育积极健康、向上向善的网络文化有一定的积极作用，同时在一定程度也上丰富了网络心理学的研究内容。

关键词 社会善念，网络利他行为，解释偏向，性别，大学生

How social mindfulness influences internet altruistic behavior: The mediating effect of interpretation bias and its gender differences

Li Xiangqin Wang Jielin Chen Lin Zheng Xianliang (Correspondence author)
(School of Education and Science, Gannan Normal University, Ganzhou, 341000, Email: zxl2004@sina.com)

Abstract: With the innovation of the Internet development model and the application and popularization of new technologies, the research on network psychology and behavior has become a hot spot. Internet altruistic behavior (IAB) shows the communication concept of unity, friendliness and dedication. The in-depth study of IAB is in line with the requirements of the construction of network civilization in the new era. Social mindfulness, which emphasizes the state of concern for others, is the goodwill expressed in the context of interpersonal interaction, which is a kind of prosocial motivation and closely related to the IAB. However, the current academic research on the two is not systematic and in-depth. Therefore, based on the cognitive schema theory and the cognitive information processing theory, this study explored the influence of social mindfulness on college students' IAB, and further explored the mediating role of interpretation bias and its gender differences. This experiment was a single factor experimental design, 440 participants were randomly assigned to one of two conditions (i.e., 220 participants for high social mindfulness condition; 220 participants for low social mindfulness condition). Social Mindfulness Paradigm was used to manipulated individual' s levels of social mindfulness, a self-report material of ambiguous scenarios was used to measure the participants' interpretation bias, and IAB was tested using a scenario of IAB. The results show that: (1) Compared with those with low social kindness, individuals with high social kindness tend to interpret more positively and show more altruistic behaviors on the Internet; (2) Interpretation bias plays a partial mediating role between social mindfulness and IAB; (3) Such mediating role is mainly observed among females and is not significant among males.

Keywords: social mindfulness, internet altruistic behavior, interpretation bias, gender, college student

女性和儿童被虐待的新闻引发的公众反应：性别差异及新闻语境的影响

方静怡　余毕月　王晓田（通讯作者）
香港中文大学（深圳）人文社科学院应用心理学系，广东省深圳市龙岗区，518172，lauren_fang@163.com

摘 要　最近，以三孩政策为例等计划生育政策的变化，引发了公众对有关妇女儿童被虐待的案件的更多的关注。研究调查了公众对妇女儿童虐待新闻会有怎样的态度和情绪反应，尤其是新闻接收者的性别和新闻来源（网络新闻，从朋友处得知的新闻，或无来源信息的新闻）对公众新闻感知与反应的影响。运用三个版本的问卷，涵盖单纯事实，线上来源和朋友处获悉三个信息源和两类（妇女，儿童）问题，每个问题有两组新闻。问卷发布在线上问卷平台 Creadamo 上，以检测公众对两类新闻报道的风险直觉与情绪反应，新闻报道的具体场景分别是妇女工作场合遭遇性霸凌和校园中的儿童受到虐待。除了参与者的性别和新闻的来源，另一个自变量为新闻中提到的预防措施是否有效。样本包含 299 名参与者（121 名女性）。结果显示：1）相比涉及儿童受害者的案件，参与者对涉及女性受害者的案件有着更高的风险知觉。2）涉及儿童受害者与涉及女性受害者的案件，信息的来源对知觉到的类似案件的发生风险与严重性都有影响。与单纯信息相比，信息源为网络和朋友的新闻语境下，被试的风险认知更低。这一发现于实验预期不一致，表明网络或私人信息可能会减低新闻的可信性和权威性，进而削弱风险知觉。其中，私人信息源在风险知觉上

得分最低。 3）受访者的性别对女性虐待案件中的情绪反应有影响。男性被试的恐惧反应(M = 7.011, SD = 0.125)低于女性(M = 7.404, SD = 0.104)，但他们的愤怒反应(M = 0.545, SD = 0.005)高于女性(M = 0.5331, SD = 0.004)。 4）相较于女性被试，男性被试整体对风险预防措施的有效性有着更高的预期。 5）男性被试自身的婚育状态增加对女性和儿童虐待案件的共情，产生更强的情绪反应。总结而言，新闻的来源影响公众对同一新闻事件的反应。新闻受众根据信息的来源调节对新闻事件的反应，减弱对网络来源和私人渠道获取的新闻的反应强度。男女对于女性与儿童虐待案件的风险直觉与不同类别的情绪反应（恐惧或愤怒）有所不同；身为人父增加对女性和儿童受虐的共情。研究结果对相关法规和政策的制定具有借鉴作用。
关键词　新闻舆情，新闻来源，性别差异，风险知觉，新闻报道的情绪性舆情反应

Public Reactions to News Stories on Female and Child Abuse: Sex Differences and Effects of News Context

FANG Jinyi　YU Biyue　Wang Xiaotian

Applied Psychology, School of Humanities and Social Science, The Chinese University of Hong Kong (Shenzhen), Shenzhen City, Guangdong, 518172, lauren_fang@163.com

***Abstract*：** Recent changes in family planning policy, such as the third-child policy, caught the public's attention and brought up cases regarding female and child abuse. The study examines how the public reacted to the news about female and child abuse. Particularly how the sex of the receivers and the news contact (online news, news from a friend, or news without source information) affect the perception and reactions of the public to the news. We designed the questionnaires with three versions, including pure facts, online sources, and news from friends. The questionnaires were launched on the online survey platform Credamo to test the public's risk perception and emotional reactions to two types of news stories: Sexual bullying against a female in the workplace and a child abuse case at school. A third independent variable, besides the sex of the participant and source of news, was whether a prevention policy was in effect. The sample included 299 participants (121 females). The results showed that 1) participants perceived higher risks in the cases involving a female victim than a child victim. 2) The information source affected the perceived probability and severity of the cases involving both female and child victims. The online and personal contexts attenuated risk perception compared to the news without source information. The personal context had the lowest score of risk perception. 3) The effects of the sex of the respondents appeared in the emotional reactions to female abuse cases only. Male respondents perceived had a lower fear reaction (M = 7.011, SD = 0.125) than female respondents (M = 7.404, SD = 0.104) but a higher score of anger reaction (M = 0.545, SD = 0.005) than female respondents (M = 0.5331, SD = 0.004). 4) Male respondents held overall higher and more ideological expectations of risk prevention efficacy and were less sensitive to the lack of security for women. 5) Marriage and parenthood increased the empathetic sensitivity in male respondents to both female and child abuse cases. To conclude, news source matters. People may discount the validity of news from personal connections and online. Men and women perceive female and child abuse cases differently in risk perception and emotional reactions. Policy implications of these findings are discussed.

Keywords: *Public reactions to news stories, News source, Sex differences, Risk perception, Emotional reactions to news*

青少年人工智能使用动机对抑郁情绪的影响：体育活动的调节作用

赵心媚[1] 黄顺森[1] 来枭雄[1,2] 王欢蕾[1] 柯李[1] 黎亚军[3] 代欣然[1] 王耘[1](通讯作者)

1 北京师范大学认知神经科学与学习国家重点实验室，北京，100875，wangyun@bnu.edu.cn

2 中国教育科学研究院未来教育研究所，北京，100088

3 深圳市光明区教育科学研究院，深圳，518107

摘 要 人工智能的高速发展引起了公众的普遍关注，其在青少年群体中的使用也越来越普遍，统计显示55%的美国青少年每天至少一次使用人工智能语音搜索助手。以往研究认为人工智能对青少年的心理健康发展有着重要的影响，如提高幸福感，或是取代现实生活中的关系和情感从而造成心理健康问题。使用动机是数字技术与心理健康关系研究中的重要领域，现有研究认为人工智能使用动机有不同类型，如信息获取，娱乐放松等。青少年作为数字技术的易感人群，研究青少年人工智能使用动机对其心理健康(如抑郁)的影响具有重要意义。另外，大量研究显示体育活动对心理健康(如抑郁)有积极影响，体育活动也可能因影响个体心理需求而对数字技术使用效果存在影响。因此，体育活动可能削弱或增加人工智能对个体心理健康的影响。综上，本研究旨在探讨青少年人工智能使用动机对抑郁情绪的影响以及体育活动在其中的调节作用。本研究采用人工智能使用动机量表、病人健康问卷(Patient Health Questionnaire-9, PHQ-9)和体育活动等级量表(Physical Activity Rating Scale-3, PARS-3)对2043名六所来自云南和四川中小学的学生(M_{age}=15.00±2.33岁，男性共925名)进行了测量。结果表明人工智能使用逃避动机(β=0.371, p<0.001)和归属动机(β=0.301, p<0.001)显著正向预测青少年抑郁情绪，体育活动水平显著负向预测抑郁情绪(β= -0.083, p<0.001)，但人工智能使用成就动机(p=0.094)和娱乐动机(p=0.201)则无显著预测作用。另外，体育活动仅在逃避动机对抑郁情绪的影响中存在调节作用，对于不同体育活动水平组的个体，逃避动机越高，抑郁情绪均越高，但高体育活动水平组(β=0.411, p<0.001)中逃避动机对抑郁的影响比低体育活动水平组(β=0.321, p<0.001)更大。本研究结果表明，不同类型人工智能使用动机对个体抑郁情绪的影响存在差异，且体育活动在低水平逃避动机对抑郁情绪的影响中具有更强的保护作用。这表明指导青少年形成良好的人工智能使用动机对促进其心理健康可能具有重要意义，未来可利用追踪研究进行验证。

关键词 人工智能使用动机，抑郁，体育活动

The effect of artificial intelligence use motivation on depression in adolescents: Moderating role of physical activity

Xinmei Zhao[1] Shunsen Huang[1] Xiaoxiong Lai[1,2] Huanlei Wang[1] Li Ke[1] Yajun Li[3] Xinran Dai[1] Yun Wang[1] (Corresponding author)

1 State Key Laboratory of Cognitive Neuroscience and Learning, Beijing Normal University, Beijing, China

2 Institute of Future Education, China National Academy of Educational Sciences, Beijing, China

3 Guangming Institute of Education Sciences, Shenzhen, China

Abstract: The rapid development of artificial intelligence (AI) has attracted widespread public attention, and its use is becoming more prevalent in the adolescent population, with statistics showing that 55% of American adolescents use an AI voice search assistant at least once a day. Previous studies have suggested that AI may have important impact on the mental health development of adolescents, such as increasing well-being, or replacing real-life relationships and emotions, causing mental health problems. The use motivation is an important area in the study of the relationship between digital technology and mental health. Existing studies believe that there are

different types of use motivation of AI, such as information acquisition, entertainment and relaxation. As a population susceptible to digital technology, it is of great importance to study the influence of AI use motivation on mental health (such as depression) in adolescents. In addition, a large number of studies have shown positive effects of physical activity on mental health (e.g., depression), and physical activity may also have an impact on the effects of digital technology use by influencing individuals' psychological needs. Therefore, physical activity may diminish or increase the effects of AI on individual mental health. In summary, this study is to explore the effects of AI use motivation on depression and the moderating role of physical activity in adolescents. In this study, 2043 students (M_{age}=15.00±2.33 years old, 925 males) from six primary and secondary schools in Yunnan and Sichuan provinces of China were measured with Use Motivation of Artificial Intelligence Scale, Patient Health Questionnaire-9 and Physical Activity Rating Scale-3. The results showed that the avoidance motivation (β=0.371, p<0.001) and belonging motivation (β=0.301, p<0.001) of AI use significantly and positively predicted adolescents' depression levels, and that physical activity level significantly and negatively predicted adolescents' depression levels (β=-0.083, p<0.001), but the achievement motivation (p=0.094) and recreation motivation (p=0.201) of AI use did not significantly predict adolescents' depression levels. In addition, physical activity only has a moderating effect on the influence of avoidance motivation on depression. For individuals with different physical activity levels, the higher the avoidance motivation, the higher the depression level, but the effect of avoidance motivation on depression in the high physical activity level group (β=0.411, p<0.001) is greater than that in the low physical activity level group (β=0.321, p<0.001). The results of this study indicate that different types of AI use motivation have different effects on depression, and physical activity has a stronger protective effect on the effect of low level of avoidance motivation on ddepression. This suggests that guiding adolescents to form different use motivation for AI may be important for influencing their mental health, which can be verified by follow-up studies in the future.

Keywords：Artificial intelligence use motivation, Dep

女性社交媒体成瘾对视觉工作记忆及面孔记忆度的影响

李倩[1]　郭利静[2]　叶超雄[1]（通讯作者）

1 四川师范大学脑与心理科学研究院，四川成都，610066，cxye1988@163.com

2 于韦斯屈莱大学心理系，芬兰于韦斯屈莱，40014

摘 要　随着网络技术的大力发展，各种各样的社交软件大量涌现，人们花费在社交媒体上的时间也逐步增加，一些用户甚至出现了社交媒体成瘾行为。社交媒体成瘾是指个体对微博、微信、抖音等社交软件产生心理依赖的新兴现象。社交媒体成瘾作为一种新兴成瘾现象会给成瘾者带来诸多问题，例如社交媒体成瘾可能导致社交焦虑、抑郁、错失恐惧，并且相关研究表明社交媒体成瘾度越高，实际睡眠时间越少。视觉工作记忆是一个容量有限的工作空间，能够在线保存信息，并可以随时被高级认知功能访问和操作，它是一种核心的认知功能，使人能保持对过去预期的感觉，并可能指导未来的行动。研究表明一些心理因素，如抑郁、焦虑、压力、失眠和有问题的社交媒体使用，能够改变我们的记忆，并可能对记忆功能和检索产生影响。目前，成瘾与工作记忆相关的研究层出不穷，主要集中在网络成瘾、手机成瘾、游戏成瘾、药物成瘾等方面，然而社交媒体成瘾这类新兴成瘾行为与工作记忆的相关研究甚少，且社交媒体成瘾是否会对视觉工作记忆产生影响尚不清楚。所以本研究实验 1 采用了变化觉察范式测量了女性群体中高低社交媒体成瘾组的视觉工作记忆容量，对两组被试进行独立样本 T 检验，发现高低成瘾组的视觉工作记忆容量存在显著差异。结果显示，高成瘾组的视觉工作记忆容量显著高于低成瘾组。这说明高社交媒体成瘾者的视觉工作记忆能力更好，这一结果与前人研究中的网络成瘾者的工作记忆存在缺陷截然相反。

关键词　社交媒体成瘾，视觉工作记忆，面孔记忆度

Effects of social media addiction on visual working memory and facial memorability in female

Qian Li[1], Lijing Guo[2], Chaoxiong Ye[1]
1 Institute of Brain and Psychological Sciences, Sichuan Normal University, Chengdu, China
2 Department of Psychology, University of Jyvaskyla, Jyväskylä, Finland

Abstract：With the vigorous development of network technology, a variety of social software has emerged in large numbers, and the time people spend on social media has gradually increased. Some users even have social media addictive behavior. Social media addiction refers to the emerging phenomenon of individuals' psychological dependence on social software, such as Weibo, WeChat, Tiktok, etc. Social media addiction, as an emerging addiction phenomenon, will bring many problems to addicts. For example, social media addiction may lead to social anxiety, depression, and fear of missing out. Relevant research shows that the higher the social media addiction, the less the actual sleep time. Visual working memory is a workspace with limited capacity, which can store information online, and can be accessed and operated by advanced cognitive functions at any time. It is a core cognitive function that enables people to maintain a sense of past expectations and may guide future actions. Research has shown that some psychological factors, such as depression, anxiety, stress, insomnia, and problematic social media use, can alter our memory and may have an impact on memory function and retrieval. At present, research on addiction and working memory has emerged in an endless stream, mainly focusing on internet addiction, mobile phone addiction, game addiction, drug addiction, etc. However, there is little research on social media addiction and working memory, and it is not clear whether social media addiction will affect visual working memory. Therefore, in experiment 1 of this study, the change detection task was used to measure the visual working memory capacity of the high and low social media addiction groups in female, and independent sample T test was conducted for the two groups of subjects. It was found that the visual working memory capacity of the high and low addiction groups was significantly different. The results showed that the visual working memory capacity of high addiction group was significantly higher than that of low addiction group. This indicates that the visual working memory ability of high social media addicts is better, which is contrary to the defect of working memory of internet addicts in previous studies.

Keywords：Social media addiction, Visual working memory, Facial memorability

儿童期心理虐待对初中生网络欺负的影响：自我控制的中介效应和同伴依恋的调节作用

徐贝贝[1]　裴广倩[2]　桑青松[1]（通讯作者）
[1] 安徽师范大学教育科学学院，芜湖，241000，s7210qs1@ahnu.edu.cn
[2] 扬州市江都区育才中学，扬州，225200，2192995866@qq.com

摘 要　网络欺负是欺负行为在网络空间中的延伸，受到了国内外研究者和一线教育工作者的重点关注。初中生正处于青春期，网络具有匿名性特征，在网络环境中实施欺负行为不用担心受到惩罚。因此，初中生更容易产生网络欺负行为，这对欺负者的学习生活、受欺负者的心理发展与行为适应都造成严重危

害。本研究采用儿童期心理虐待量表、自我控制量表、同伴依恋量表、网络欺负量表修订版，通过整群抽样对 1400 名初中生开展问卷调查，使用 SPSS 27.0、PROCESS 4.0 进行数据分析，探讨儿童期心理虐待对初中生网络欺负的影响中自我控制的中介作用和同伴依恋的调节作用。结果显示：（1）儿童期心理虐待与自我控制呈显著负相关（r=-0.418，p<0.01），与网络欺负呈显著正相关（r=0.286，p<0.01）；自我控制与网络欺负呈显著负相关（r=-0.310，p<0.01）；同伴依恋与儿童期心理虐待、网络欺负均呈显著负相关（r=-0.280，p<0.01；r=-0.144，p<0.01），与自我控制呈显著正相关（r=0.411，p<0.01）。（2）儿童期心理虐待能显著正向预测初中生网络欺负（B=0.187，95%CI[0.111，0.273]），也可以通过自我控制间接影响初中生网络欺负（B=0.098，95%CI[0.068，0.132]）。（3）自我控制在儿童期心理虐待与初中生网络欺负间的中介路径的前半段受到同伴依恋的调节，在低水平同伴依恋的情况下，儿童期心理虐待对自我控制的负向预测效应较小，（$Bsimple$=-0.185，t=-5.966，p<0.001）；在高水平同伴依恋的情况下，儿童期心理虐待对自我控制的负向预测效应增强，（$Bsimple$=-0.509，t=-14.002，p<0.001）。结论：儿童期心理虐待会直接影响初中生网络欺负，也通过自我控制间接影响初中生网络欺负；自我控制在儿童期心理虐待与初中生网络欺负间的中介路径的前半段受到同伴依恋的调节。因此改善儿童期心理虐待情况、增强自我控制能力、提高同伴依恋质量对减少网络欺负有积极影响。

关键词　儿童期心理虐待，网络欺负，自我控制，同伴依恋，初中生

The Influence of Childhood Psychological Maltreatment on Cyberbullying Among Middle School Students: the Mediating Effect of Self-control and the Moderating Effect of Peer Attachment

Xu Beibei[1], Pei Guangqian[2], Sang Qingsong[1]

[1] College of Education Sciences, Anhui Normal University, Wuhu, 241000

[2] Yangzhou Jiangdu District Yucai Middle School, Yangzhou, 225200, 2192995866@qq.com

Abstract: The extension of cyberbullying in cyberspace has attracted the attention of researchers and front-line educators at home and abroad. Junior high school students are in adolescence, the Internet is anonymous, and bullying in the online environment does not have to worry about punishment. Therefore, junior high school students are more likely to have cyberbullying behavior, which causes serious harm to the bullying's learning life, the psychological development and behavior adaptation of the bullied. In this study, the revised versions of the Childhood Psychological Abuse Scale, Self-Control Scale, Peer Attachment Scale, and Cyberbullying Scale were used to conduct a questionnaire survey on 1400 junior high school students through a whole sample of 1400 junior high school students, and SPSS 27.0 and PROCESS 4.0 were used for data analysis to explore the mediating role of self-control and the moderating effect of peer attachment in the impact of childhood psychological abuse on cyberbullying among junior high school students. The results showed that: (1) Childhood psychological abuse was significantly negatively correlated with self-control (r=-0.418, p<0.01) and cyberbullying (r=0.286, p<0.01). Self-control was significantly negatively correlated with cyberbullying (r=-0.310, p<0.01). Peer attachment was significantly negatively correlated with childhood psychological abuse and cyberbullying (r=-0.280, p<0.01; r=-0.144, p<0.01), and self-control (r=0.411, p<0.01). (2) Childhood psychological abuse can significantly positively predict cyberbullying in junior high school students (B=0.187, 95% CI [0.111 to 0.273]), and can also indirectly affect cyberbullying in junior high school students through self-control (B=0.098, 95% CI [0.068 to 0.132]). (3) The first half of the mediating path between childhood psychological abuse and junior high school students' cyberbullying was regulated by peer attachment, and in the case of low level peer attachment, the

negative predictive effect of childhood psychological abuse on self-control was small, (*Bsimple*=-0.185, *t*=-5.966, *p*<0.001); In the case of high levels of peer attachment, the negative predictive effect of childhood psychological abuse on self-control was enhanced, *(Bsimple*=-0.509, *t*=-14.002, *p*<0.001). Conclusion: Childhood psychological abuse can directly affect the cyberbullying of junior high school students, and also indirectly affect the cyberbullying of junior high school students through self-control. The first half of the mediating path between childhood psychological abuse and junior high school students' cyberbullying is moderated by peer attachment. Therefore, improving childhood psychological abuse, enhancing self-control, and improving the quality of peer attachment have a positive impact on reducing cyberbullying.

Keywords: Childhood psychological abuse; Cyberbullying; Self-control; Peer attachment; Junior high school students

错失焦虑对初中生手机成瘾的影响：压力知觉和自我控制的链式中介作用

徐贝贝[1]　吴小曼[1]　金玥[1]　桑青松[1]（通讯作者）

1 安徽师范大学教育科学学院，芜湖，241000，s7210qs1@ahnu.edu.cn

摘 要　错失焦虑是个体因担心错失他人的新奇经历或正性事件而产生的一种焦虑，而使用手机就可以随时关注这些事情避免错过，但当个体过度使用手机时，就容易产生手机成瘾问题。以往研究表明初中生是手机成瘾的易感人群，在学业压力和自我控制力不足的加持下，手机成瘾给初中生带来的负面影响会更大。基于此本研究探究了错失焦虑对初中生手机成瘾的影响，同时构建了一个链式中介模型，考察压力知觉与自我控制在二者之间的中介作用。通过整群抽样的方式，使用错失焦虑量表（FOMOS）、压力知觉量表（CPSS)、自我控制量表（CSC）和手机成瘾指数量表（MPAI）对 1395 名初中生进行问卷调查，使用 SPSS 26.0 和 PROCESS 4.0 进行数据分析。结果显示：（1）初中生的错失焦虑、压力知觉与手机成瘾两两之间显著正相关，自我控制与错失焦虑、压力知觉、手机成瘾均呈显著负相关（*r=-0.04，p＜0.001；r=-0.59，p＜0.001；r=-0.56，p＜0.001*）；（2）错失焦虑可以直接显著正向预测初中生手机成瘾行为（*B=0.33*，95% CI[0.29，0.38]），也可以通过三条路径的间接作用影响初中生手机成瘾：通过压力知觉的中介作用（*B=0.04*，95% CI[0.02，0.06]），通过自我控制的中介作用（*B=0.08*，95% CI[0.06，0.11]），通过“压力知觉→自我控制”的链式中介作用（*B=0.06*，95% CI[0.04，0.07]）。结论：错失焦虑既可以直接正向预测初中生手机成瘾，又可以通过压力知觉和自我控制的链式中介作用间接影响初中生手机成瘾。因此，关注初中生对压力的感受以及提高初中生的自我控制能力对改善错失焦虑对初中生手机成瘾的影响具有重要意义。

关键词　错失焦虑，手机成瘾，压力知觉，自我控制

The Effect of Fear of Missing Out on Junior High School Students' Mobile Phone Addiction: Chain Mediating Effect of Perceived Stress and Self-control

Xu Beibei[1], Wu Xiaoman[1], Jin Yue[1], Sang Qingsong[1]

College of Education Sciences, Anhui Normal University, Wuhu, 241000

Abstract：Fear of missing out is a type of anxiety that arises when individuals are concerned about missing out on novel experiences or positive events from others. By using a mobile phone, they can always pay attention to these things and avoid missing them. However, when individuals overuse their phones, they are prone to developing mobile addiction problems. Previous studies have shown that junior high school students are susceptible to mobile phone addiction. With the support of academic pressure and insufficient self-control, the negative impact of mobile phone addiction on junior high school students will be greater. This study investigated the impact of fear of missing out on junior high school students' mobile phone addiction, and constructed a chain mediated model to examine the mediating role of perceived stress and self-control between the two. A questionnaire survey was conducted on 1395 middle school students using the Fear of Missing Out Scale (FOMOS), Chinese Perceived Stress Scale (CPSS), Self-Control Scale (CSC), and Mobile Phone Addiction Index (MPAI) through cluster sampling. Data analysis was conducted using SPSS 26.0 and PROCESS 4.0. The results showed that: (1) There was a significant positive correlation between junior high school students' fear of missing out, perceived stress, and mobile phone addiction, while self-control was significantly negatively correlated with fear of missing out, perceived stress, and mobile phone addiction (*r=-0.04, p<0.001; r=-0.59, p<0.001; r=-0.56, p<0.001*); (2) Fear of missing out can directly significantly and positively predict junior high school students' mobile phone addictive behavior (*B=0.33*, 95% CI[0.29, 0.38]), and can also affect junior high school students' mobile phone addiction through the indirect effects of three paths: through the mediation of perceived stress (*B=0.04*, 95% CI[0.02, 0.06]), mediation through self-control (*B=0.08*, 95% CI[0.06, 0.11]), through the chain mediating effect of "perceived stress→self-control" (*B=0.06*, 95% CI[0.04, 0.07]). Conclusion: Fear of missing out can directly and positively predict junior high school students' mobile phone addiction, and can indirectly affect junior high school students' mobile phone addiction through the chain mediating effect of perceived stress and self-control. Therefore, paying attention to junior high school students' feelings of stress and improving their ability of self-control is of great significance in improving the impact of fear of missing out on their mobile phone addiction.

Keywords：Fear of missing out, Mobile phone addiction, Perceived stress, Self-control

基于网络游戏的网络交往与人际交往能力的关系——社会自我效能感的中介作用

殷馨宇[1]（通讯作者） 殷国智[2] 于航[3]

1 青岛滨海学院教育学部，青岛，266555，psyyinxinyu@163.com

2 山东财经大学金融学院 ，济南，250014

3 江苏省龙潭监狱，南京，211313

摘 要 网络游戏的技术不断发展和成熟，并伴随着互联网时代到来和普及，其市场规模不断扩大，成为娱乐产业的一大巨头。《2022 年中国游戏产业报告》指出，2022 年中国游戏市场用户达 6.64 亿，我国游戏产业进入承压蓄力阶段。可见网络游戏受众群体数量之多，越来越多的大学生群体投入到网络游戏之中。以往研究者多关注于网络游戏的负面影响，认为网络游戏会导致游戏用户情感漠视、现实攻击行为等。但是随着网络游戏相关法律法规的完善和游戏防沉迷机制的进步，网络游戏中的色情暴露等负面元素逐渐减少，其对玩家的影响仅存在消极影响这一说法值得商榷，网络游戏的积极影响也应受到关注。根据存在

主义理论，人在一切关系中寻求意义，以建立有意义的联结。已有研究证实良好的人际关系，有利于个体社会适应，提升生活满意度，正向影响个体感受生命意义的水平。在网络游戏中，个体可以匿名化进行交流，减少了个体的威胁觉知。并且，网络游戏可以组织一些兴趣爱好相同的人，对大学生人际交往的同质性及社会适应会产生明显影响。基于此，本次研究主要探讨网络游戏中的大学生网络交往、社会自我效能感和现实人际交往能力的关系，采用大学生网络交往问卷、社会自我效能感量表和人际交往能力问卷对462名在校大学生游戏用户进行调查。分析结果显示：（1）在大学生网络交往、社会自我效能感和人际交往能力中，两两变量之间均呈显著正相关；（2）大学生网络交往和社会自我效能感显著正向预测人际交往能力；（3）在大学生网络交往对人际交往能力的预测中，社会自我效能感起部分中介作用。本研究表明，在网络游戏中进行网络交往，可以一定程度上增强大学生的社会自我效能感，进而促进人际交往能力的提升。

关键词　网络游戏，网络交往，社会自我效能感，人际交往能力，现实人际交往

The Association between Internet interactions and interpersonal competence based on online games: the Mediating Role of Perceived Social Self-efficacy

Xinyu Yin [1](Corresponding author), Guozhi Yin [2], Hang Yu[3]

1Qingdao Binhai College Education Department, Qingdao, 266555, psyyinxinyu@163.com

2 Shandong University of Finance and Economics, School of Finance, Jinnan, 250014

3 Longtan Prison of Jiangsu province, Nanjing, 211313

***Abstract*：** The technology of online games continues to develop and mature, and along with the arrival and popularization of the Internet era, its market size continues to expand, becoming a major giant in the entertainment industry. China Game Industry Report 2022 pointed out that China's game market users reached 664 million in 2022, and China's game industry has entered the stage of pressure storage. It can be seen that the number of online game audience groups is large, and more and more college students play online games. Previous researchers have mostly focused on the negative impact of online games, arguing that online games can lead to emotional indifference and the realistic aggressive behavior of game users. However, with the improvement of laws and regulations related to online games and the progress of game anti-addiction mechanisms, the negative elements of online games such as pornographic exposure are gradually reduced, and the argument that its impact on players is only negative is debatable, and the positive impacts of online games should also be paid attention to. According to existentialist theory, human beings seek meaning in all relationships in order to build meaningful connections. It has been established that good interpersonal relationships facilitate individuals' social adaptation, enhance life satisfaction, and positively influence the level at which individuals feel the meaning of life. In online games, individuals can communicate anonymously, which reduces the threat perception of individuals. Moreover, online games can organize some people with the same interests, which will have a significant impact on the homogeneity of college students' interpersonal communication and social adaptation. Based on this, this study mainly explored the relationship between college students' online game interactions, perceived social self-efficacy, and interpersonal competence. 462 college student game users were investigated with the college Student Internet Interaction Questionnaire, Perceived Social Self-Efficacy Scale, and Interpersonal Competence Questionnaire. Structural equation modeling using a bootstrap procedure reveals that (1) college student internet interaction, perceived social self-efficacy, and interpersonal competence were significantly and positively correlated with each

other, (2) a mediating effect analysis showed that the direct effect of college student internet interaction on interpersonal competence was significant, and (3) perceived social self-efficacy played a mediating effect between college student internet interaction and interpersonal competence. The results show that online interactions in online games can enhance college students' perceived social self-efficacy–to a certain extent, which in turn promotes the enhancement of interpersonal competence.

Keywords: online game, internet interactions, perceived social self-efficacy, interpersonal competence, realistic interpersonal interactions

状态无聊、无聊倾向、注意控制与问题性短视频使用之间的关系

—— 一项来自中国成年人的网络分析

周莲 高雪梅（通讯作者）

西南大学心理学部，重庆，400715，zhenggao@swu.edu.cn

摘 要：根据无聊的反馈模型（BFM），当人们注意投入不足时，状态无聊就会产生，此时人们会采用试误法将注意转向外部、内部或回到当下任务上，重新投入注意退出无聊的循环。近来年，短视频应用在全球发展迅速，由于其操作简单、内容丰富，已成为人们快速缓解状态无聊的常用方式。然而，长期使用短视频来缓解状态无聊可能会造成注意控制受损，加剧无聊倾向，甚至形成问题性短视频使用。先前研究发现状态无聊、无聊倾向、注意控制和问题性短视频使用之间存在着复杂的双向关系。然而，很少有研究使用网络分析的方法来确定变量之间的相互作用。因此，本研究采用网络分析方法，在主层级分析中探究中国成年人状态无聊、无聊倾向、注意控制和问题性短视频使用之间的复杂关系，在面层级分析中直观地阐述四者的症状表现和关联。研究采用问卷调查法对 720 名 18-30 岁的中国成年人进行调查，测量工具包括多维状态无聊量表(MSBS)，简式无聊倾向量表(BPS-SR)，中文版注意控制量表(ACS-C)和改编的问题性短视频使用量表(PSVUS)，得到有效问卷 632 份（男性 330 人，女性 302 人）。研究结果显示：（1）状态无聊、无聊倾向、注意控制和问题性短视频使用之间均存在着显著关联；（2）在主层级分析中，无聊倾向是网络中最核心的节点；（3）在面层级分析中，注意力不集中节点具有最高的强度中心度和紧密中心度，中介中心度最高的是冲突这一节点。该结果表明，低水平的注意控制和高水平的无聊倾向可能会诱发状态无聊并影响问题性短视频使用。反过来，问题性短视频使用也会对注意控制造成负面影响，进而加剧状态无聊的产生，形成恶性循环。研究结果为无聊的反馈模型提供了实证支持，从理论的视角扩充了该模型与问题性行为的联系；并提出了干预问题性短视频使用者注意力不集中和冲突的观点，这将有助于未来的研究与实践。

关键词：网络分析，问题性短视频使用，状态无聊，无聊倾向，注意控制

A network analysis perspective on the relationship between state boredom, boredom proneness, attention control and problematic short video use among a sample of Chinese Adults

Lian Zhou, Xuemei Gao*
Faculty of Psychology, Southwest University, Chongqing, 400715, zhenggao@swu.edu.cn

Abstract: The Boredom Feedback Model (BFM) proposes that the core of state boredom is inadequate attention engagement, which is closely related to attention control. When experiencing bored, people engage in trial-and-error learning through three forms of attention shifts (shift outward, inward, or back to the source of boredom) to test which strategies can exit the boredom cycle. Short videos have been spreading rapidly in recent years. Due to the simplicity and richness of short videos, they have become common for people to quickly alleviate state boredom. However, using short videos as a long-term strategy to alleviate boredom may result in impaired attention control, exacerbate boredom proneness, and even lead to PSVU. Previous research has proposed a complex and bidirectional relationship between state boredom, boredom proneness, attention control, and PSVU. However, few studies have used network analysis approach to identify the reciprocal action between the aforementioned variables. Therefore, the present study used network analysis to better explain these interactive relationships in a sample of Chinese adults (in domain-level analysis) and elaborate more visually on the symptom presentation and associations between boredom, attention control, and PSVU (in facet-level analysis). A sample comprising 720 Chinese adults (male = 330, female = 302) aged 18-30 years completed a survey including the Multidimensional State Boredom Scale (MSBS), the Boredom Proneness Scale–Short Form (BPS-SR), the Chinese version of the Attention Control Scale (ACS-C), and the adapted Problematic Short Video Use Scale (PSVUS), and 632 valid questionnaires were obtained (male = 330, female = 302). The findings found that: (1) There were significant associations between state boredom, boredom proneness, attention control, and PSVU. (2) Boredom proneness was the most central node in the domain-level network. (3) The facet-level network analysis showed that inattention had the highest strength and closeness centrality, and conflict had the highest betweenness centrality. The findings indicated that there is a close relationship between state boredom, boredom proneness, attention control, and PSVU. Low attention control and high boredom proneness may induce state boredom and affect PSVU. In turn, PSVU may also further worsen attention control, exacerbating state boredom and resulting in a vicious cycle. The findings provided empirical support for the Boredom Feedback Model, expanding the model's link to problematic behaviors from a theoretical perspective; and suggested a new perspective on the intervention of inattention and conflict in problematic short video users that will contribute to future research and practice.

Keywords: Network analysis, problematic short video use, state boredom, boredom proneness, attention control

个性化算法推荐对问题性短视频使用的影响：来自纵向追踪和行为实验的证据

张利兵[1] 谷传华[2]（通讯作者）
1 河南师范大学教育学部，河南新乡，453007
2 华中师范大学心理学院，湖北武汉，430079，guchuanhua@ccnu.edu.cn

摘 要 作为一种新型社交媒体，短视频以其便捷的形式和个性化的内容受到用户青睐，并跃居成为互联网最“费时”的行业。但人们在拥抱这一新技术的同时，对其可能引发的负面效应及其关键影响因素的关注却较为有限。个性化算法推荐是短视频区别于其他传统社交媒体的核心技术特性，也是吸引用户注意力并引发用户持续或重复使用的主要特点。这一技术特性在满足用户个性化需求的同时也可能带来问题性技

术使用的风险。本研究在生态位理论和使用-满足理论的指导下，通过两个研究来探讨个性化算法推荐对用户问题性短视频使用的影响。

研究 1 通过对 810 名大学生间隔两个月的两次纵向问卷调查，构建了个性化算法推荐与问题性短视频使用之间的交叉滞后模型。研究结果发现：两个时间点的个性化算法推荐与大学生问题性短视频使用之间都呈显著正相关；在控制性别、年龄和平均使用时长后，T_1 的个性化算法推荐可以显著正向预测 T_2 的大学生问题性短视频使用。在证实个性化算法推荐与问题性短视频使用之间准因果关系的基础上，研究 2 以 60 名大学生为实验被试，通过操纵算法推荐的视频的个性化水平来检验实际观看短视频的过程中个性化算法推荐对问题性短视频使用的影响。研究结果显示：个性化算法推荐可以显著正向影响大学生问题性短视频使用倾向，即，相比观看低个性化视频的大学生，观看高个性化视频的大学生问题性短视频使用倾向更高。

个性化算法推荐对问题性短视频使用的正向预测作用和积极影响契合了生态位理论和使用-满足理论，并拓展了其在短视频领域的应用。短视频通过其优势技术与传统社交媒体竞争并在行业中占据生态位置，个性化算法推荐技术令用户毫不费力即可满足各种需求，在海量的个性化视频内容中停不下来。本研究结果提醒我们，个性化算法推荐这一短视频平台的优势技术，确实为人们的生活带来了消极影响。技术的研发和设计者在追求技术进步和发展的同时，也应重视其可能带来的负面影响并加以控制。

关键词　个性化算法推荐，问题性短视频使用，生态位理论，使用-满足理论

The Effect of Personalized Algorithmic Recommendation on Problematic Short-form Video Use: Evidence from Longitudinal tracking and Behavioral Experiment

Libing Zhang[1], Chuanhua Gu[2]

1 Faculty of Education, Henan Normal University, Xinxiang, China

2 School of Psychology, Central China Normal University, Wuhan, China

***Abstract*:** As a new type of social media, short-form video is favored by users for its convenient form and personalized content, and has become the most “time-consuming” industry on the Internet. However, while people have embraced this new technology, there has been more limited attention to the negative effects and its’ key influence. Personalized algorithmic recommendation is the core technical feature that distinguishes short-form video from other traditional social media, and it is also the main feature that attracts users’ attention and triggers their continuous or repeated use. This technological feature may pose a risk of problematic technology use while meeting the individual needs of users. Guided by Niche theory and Uses and Gratifications theory, this study examines the effect of personalized algorithmic recommendation on users’ problematic short-form video use through two studies. In study 1, 810 college students were investigated for two times and the cross-lag model between algorithm recommendation personalization and problematic short-form video use was constructed. The results showed that there were significant positive correlations between algorithm recommendation personalization and problematic short-form video use at two time points. Algorithm recommendation personalization at Time 1 can significantly positively predict problematic short-form video use at Time 2. On the basis of confirming a quasi-causal relationship between personalized algorithmic recommendations and problematic short-form video use. In study 2, 60 college students were selected as experimental subjects to examine the effect of algorithm recommendation personalization on problematic short-form video use during the actual viewing of short-form videos by manipulating the personalization level of videos recommended by the algorithm. The results showed that

algorithm recommendation personalization can significantly positively affected problematic short-form video use, that is, college students who watch videos with high personalization level have a higher tendency on problematic short-form video use than those who watch videos with low personalization level. The positive predictive role and effect of personalized algorithmic recommendations on problematic short-form video use fits Niche theory and Uses and Gratifications theory and expands their application to the short-form video domain. Short-form video competes with traditional social media and takes an ecological position in the industry through its superior technology. Personalized algorithmic recommendation technology makes it effortless for users to satisfy a variety of needs, and it's impossible to stop at the vast amount of personalized video content available. The results of this study remind us that personalized algorithmic recommendation, a dominant technology of short-form video platform, does bring negative impacts on people's lives. While pursuing technological progress and development, researchers and designers of technology should also pay attention to its possible negative impacts and control them.

Keywords：Personalized Algorithmic Recommendation，Problematic Short-form Video Use，Niche theory，Uses and Gratifications theory

人工智能相关知识对青少年职业选择的影响

王欢蕾[1]　来枭雄[1,2]　黄顺森[1]　代欣然[1]　赵心媚[1]　何滢[1]　王耘[1](通讯作者)

1 北京师范大学认知神经科学与学习国家重点实验室，北京，100875，wangyun@bnu.edu.cn

2 中国教育科学研究院未来教育研究所，北京，100088

摘　要　人工智能技术的应用给人类的工作带来了巨大的影响。青少年时期是制定职业规划和做出职业决策的重要阶段。与人工智能相关的互动经历会塑造人机交互不同的态度，从而导致不同的决策和后果。在人工智能背景下，关于人工智能的知识如何影响青少年职业决策的研究较少。本研究使用问卷型实验法探讨两个问题：（1）关于人工智能的先验知识、实验即时知识暴露（如，人工智能工作替代危机的暴露）和积极未来取向是否影响青少年对低或高替代性工作的选择;（2）积极未来取向是否调节实验干预的作用，实验即时知识暴露是否调节人工智能的先验知识对职业选择的影响。本研究纳入了836名青少年被试(M_{age} = 13.98，SD = 1.35；男=52.30%)。

实验分为三个阶段。首先，要求所有被试依次填写积极未来取向问卷、人工智能先验知识的问卷（包括对人工智能的熟悉度、信任、积极态度、消极态度、能力、善良性和真诚性的感知）。完成后，将被试随机分为实验组和控制组，要求实验组阅读一段关于人工智能取代工作岗位的信息，对照组则直接进入下一阶段。最后，要求两组被试做出职业意向决策。结果显示，实验即时知识暴露对青少年选择高替代性工作有显著的负向预测作用(β=-0.090, p=0.009)。此外，对人工智能的熟悉度显著正向预测青少年选择低可替代性工作(β=0.140, p<0.001)，对人工智能的信任显著正向预测青少年选择高可替代性工作(β=0.103, p=0.008)。这说明对人工智能的先验知识和知识暴露会影响青少年的职业决策，但人工智能知识暴露和积极未来取向的调节效应不存在。

本研究首次探索了人工智能的先验和即时知识暴露是否对青少年的职业决策产生影响，其研究结果也启发我们在人工智能时代下，有必要向青少年提供足够的人工智能相关信息，以帮助他们更全面地考虑并做出职业决策。

关键词　人工智能，职业选择，青少年，积极未来取向

The impact of artificial intelligence-related knowledge on adolescents' career choices

Huanlei Wang [1] Xiaoxiong Lai[1,2] Shunsen Huang[1] Xinran Dai[1] Xinmei Zhao [1] He Ying[1] Yun Wang[1] (Corresponding author)

1 State Key Laboratory of Cognitive Neuroscience and Learning, Beijing Normal University, Beijing, China

2 Institute of Future Education, China National Academy of Educational Sciences, Beijing, China

Abstract：The application of artificial intelligence technology has produced a huge impact on human work. Adolescence is an important stage for career planning and making career decisions. Interaction experiences related to AI shape different attitudes towards human-computer interaction, leading to different behavioral decisions and outcomes. However, there is limited research on how knowledge about AI influences career decision-making in the context of AI era. This study aims to use a questionnaire-based experimental approach to explore two issues: (1) whether prior knowledge of AI, experimental instant knowledge exposure (AI job replacement crisis), and positive future orientation affect adolescents' choices of low- or high-alternative jobs, and (2) whether positive future orientation moderates the effect of experimental intervention, and whether experimental instant knowledge exposure moderates the effect of prior knowledge of AI on career choices. The study included 836 adolescent participants (M_{age} = 13.98, *SD* = 1.35 years; male=52.30%).

The study consisted of three stages. First, all participants were asked to complete questionnaires related to positive future orientation and prior knowledge of AI (including familiarity, trust, positive attitudes, negative attitudes, competence, benevolence, and integrity towards AI). After completion, the participants were randomly divided into experimental and control groups, with the experimental group reading information about AI replacing jobs, while the control group proceeded directly to the next stage. Finally, both groups were asked to make career decision intentions. The results showed that experimental instant knowledge exposure had a significant negative predictive effect on adolescents' choices of high replaceable jobs (β=-0.090, *p*=0.009). In addition, familiarity with AI significantly positively predicted adolescents' choices of low replaceable jobs (β=0.140, *p*<0.001), while trust in AI significantly positively predicted adolescents' choices of highly replaceable jobs (β=0.103, *p*=0.008). This suggests that prior knowledge and experimental instant knowledge exposure about AI influence adolescents' career decisions. But AI knowledge exposure and positive future orientation has no moderating effect.

This study is the first to explore whether prior and experimental instant knowledge of AI exposure affects adolescents' career decisions. This study inspires the necessity of providing sufficient AI-related information to adolescents in the AI era, to assist them in making more comprehensive career decisions.

Keywords：Artificial intelligence, career decision, adolescents, positive future orientation

基于情境学习理论的网络适应性互动教学游戏设计与开发

马诗浩 [12] 叶建梅 [12] 周瑾宜 [12] 李佳洋 [12] 王伟军 [12]（通讯作者）

1 青少年网络心理与行为教育部重点实验室，武汉，430000

2 华中师范大学心理学院，武汉，430000，wangwj@mail.ccnu.edu.cn

摘 要 网络适应性反映了个体积极适应网络环境的能力水平，如果个体没有良好的网络适应能力，他们可能会表现出一些如沉迷于网络社交等不良的网络使用行为。因此，习得网络适应知识，提升网络适应

能力对个体正确使用网络，避免网络负面影响至关重要。情境学习理论强调知识具有情境性，学生需要“参与”到具体情境中构建有用的知识。而互动式电影游戏作为叙事与互动的结合体能够很好的体现出情境学习理论所强调的知识的情境性与学生的参与性。因此，本研究以情境学习理论为指导，从情境故事视角出发，借鉴互动式电影游戏框架，将网络适应性量表与青少年当下网络使用过程、使用环境、使用问题等内容相结合，构建了网络适应性互动教学游戏模型。并开发了网络适应性互动教学游戏——《网际行动》。游戏初开发完成后在某中学得到了应用，检验了该游戏的教学效果。结果表明，该游戏对于网络适应性具有促进作用，且在教学过程中也有效的帮助学生提升了学习兴趣。因此，证明了将互动式电影游戏机制运用于网络适应性教学中是合理可行的，可以帮助解决传统教学过程中情境缺失的问题。同时，也证明了“情境故事”的方式是成本低、效果好的教学游戏化方式，为以后教育游戏的设计与开发提供了理论与实践方面的参考价值。

关键词　网络适应性，情境学习理论，互动式电影游戏，教学游戏开发。

Design and Development of a Internet Adaptability Interactive Teaching Game Based on Situated Learning Theory

MA Shihao　YE Jianmei　ZHOU Jinyi　LI Jiayang　WANG Weijun
School of Psychology, Central China Normal University, Wuhan, China

***Abstract*:** Internet adaptability reflects the level of an individual's ability to positively adapt to the network environment, and if individuals do not have good internet adaptability, they may show some undesirable network use behaviors such as indulging in network socialization. Therefore, acquiring knowledge of internet adaptation and improving ability of internet adaptation are crucial for individuals to use the network correctly and avoid the negative effects of the network. situated learning theory emphasizes that knowledge is situated, and students need to "participate" in specific contexts to construct useful knowledge. Interactive movie games, as a combination of narrative and interaction, can well reflect the contextual nature of knowledge and students' participation emphasized by situated learning theory. Therefore, this study takes situated learning theory as a guide, starts from the perspective of situated storytelling, draws on the framework of interactive movie games, combines the Internet Adaptability Scale with the process of adolescents' current Internet use, the use of the environment, the use of the problem, etc., and constructs an interactive teaching game model of Internet adaptability. And we developed the interactive teaching game of internet adaptability - "Interweb Action". After the initial development of the game was completed, it was applied in a middle school to test the teaching effect of the game. The results show that the game has a facilitating effect on internet adaptability, and it is also effective in helping students to enhance their learning interest during the teaching process. Therefore, it proves that it is reasonable and feasible to apply the interactive movie game mechanism to the teaching of internet adaptability. It can help to solve the problem of the lack of context in the traditional teaching process. At the same time, it also proves that the "situated story" approach is a low-cost and effective way of teaching gamification. It provides theoretical and practical reference value for the design and development of educational games in the future.

Keywords: Internet adaptability, Situated learning theory, Interactive Movie Games, Teaching Game Development

社会支持与网络欺凌中旁观者行为的关系：攻击规范信念的中介和感

恩的调节

金玥[1]　孙婷婷[1]　桑青松[1]（通讯作者）

1 安徽师范大学教育科学学院，芜湖，241000，s7210qs1@ahnu.edu.cn

摘 要　在面对网络欺凌时，旁观者的不同反应对事件的发展变化具有重要作用，一般将网络欺凌中的旁观者行为分为促进欺凌行为、保护受欺凌者行为和局外行为三种方式。本文旨在探讨社会支持对网络欺凌中旁观者行为的影响，并厘清该影响背后的作用机制。研究一使用社会支持评定量表、攻击规范信念量表、网络欺凌中旁观者行为意愿问卷和中文版感恩问卷对安徽省 754 名大学生进行调查；研究二采用感恩情绪启动材料对安徽省 392 名大学生进行感恩启动，再采用社会支持评定量表、网络欺凌中旁观者行为意愿问卷对三组大学生（高感恩启动组、低感恩启动组和空白对照组）进行调查。结果发现：(1)社会支持能直接预测网络欺凌中旁观者行为，社会支持水平越高，越多表现出维护受欺凌者行为，越少表现出局外行为和鼓励欺凌者行为。(2)攻击规范信念在社会支持与网络欺凌中旁观者行为间起到中介作用。社会支持水平越高，大学生攻击规范信念越低，表现出的维护受欺凌者行为越多，表现出的鼓励欺凌者行为、局外行为越少。(3)感恩在社会支持与网络欺凌中旁观者行为间起到调节作用。在同一社会支持水平下，特质感恩水平高的大学生，表现出更多的维护受欺凌者行为和更少的鼓励欺凌者行为、局外行为；在同一社会支持水平下，状态感恩水平高的大学生，表现出更多的维护受欺凌者行为。本研究结果不仅从理论上丰富了网络欺凌中旁观者行为的研究内容，同时为避免网络欺凌事件的传播和升级，促进和谐网络环境的建立提供有价值的参考建议。

关键词　网络欺凌，旁观者，社会支持，攻击规范信念，感恩

The Relationship between Social Support and Bystander Behavior in Cyberbullying: The Mediation of Normative Beliefs About Aggression and the Moderation of Gratitude

Jin Yue[1], Liu Tingting[1], Sang Qingsong[1]

College of Education Sciences, Anhui Normal University, Wuhu, 241000

Abstract：In the face of cyberbullying, the different reactions of bystanders play an important role in the development and change of the incident. Bystander behavior in cyberbullying is generally divided into three ways:maintaining the behavior of the bullied, encouraging the behavior of the bully, and outside behavior. This paper aims to explore the effect of social support on bystander behavior in cyberbullying and to clarify the mechanism behind this effect. The first study mainly used the social support assessment scale, normative beliefs about aggression scale, the bystander behavior willingness questionnaire in cyberbullying, and the Chinese version of the gratitude questionnaire to survey 754 college students in Anhui Province; research 2 used gratitude emotion initiation materials to start gratitude for 392 college students in Anhui Province, and then used the social support assessment scale and the bystander behavior willingness questionnaire in cyberbullying to conduct a questionnaire survey on three groups (high gratitude initiation group, low gratitude initiation group and blank control group) of college students. The research conclusions of the study are as follows: (1) Social support could directly predict the bystander behavior in online bullying. The higher the level of social support, the more it showed the behavior of maintaining the bullied, and the less it showed the behavior of outside and encouraging the bullied. (2) Normative beliefs about aggression played a mediating role between social support and bystander behavior in cyberbullying.

The higher the level of social support, the lower the college students' normative beliefs about aggression, the more they showed the behavior of maintaining the bullied, and the less they showed the behavior of encouraging the bullied and the behavior of being outside. (3) Gratitude played a moderating role between social support and bystander behavior in online bullying. Under the same level of social support, college students with high level of trait gratitude showed more support for the bullied behavior and less encouragement for the bullied behavior and external behavior; under the same level of social support, college students with a high level of state gratitude showed more behaviors to protect the bullied. The results of this study not only enrich the research content of bystander behavior in cyberbullying theoretically, but also provide valuable reference suggestions for avoiding the spread and escalation of cyberbullying incidents and promoting the establishment of a harmonious network environment.

Keywords：Cyberbullying, Bystander, Social support, Normative beliefs about aggression, Gratitude

社交媒体中身体积极性内容对女性身体意象的影响

郎敏[1]　叶一舵[2]（通讯作者）

1 成都师范学院教育与心理学院，成都，611130

2 福建师范大学大学心理学院，福州，邮编 350117，通讯作者 yeyiduo@163.com

摘 要　近年来一场全球化的名为“身体积极性”的运动在社交媒体中流行。在这场活动中女性通过展示自己真实的、不同于理想美的身材和相貌来表达女性身体的多样性，同时也鼓励女性不论自己的身材和相貌如何都要接纳和欣赏自己的身体。基于国外社交媒体特别是 Instagram 的研究初步表明，社交媒体中的身体积极性内容有望作为干预女性不良身体意象的新途径。然而，已有研究成果均是基于国外社交媒体，国内社交媒体中的身体积极性内容是否也有利于女性的身体意象尚不清楚。基于此，本研究的目的在于探讨社交媒体中身体积极性图片对女性身体意象（身体满意度、身体欣赏、自我客体化）的直接影响，同时也考查状态外貌比较、状态自我同情在其中的作用。本研究共包含 3 个实验，均采用单因素被试间前后测设计，共 494 名女大学生参与实验。结果发现：（1）观看身体积极性社交媒体内容的被试其状态身体满意度、身体欣赏水平均有显著上升，状态自我客体化显著下降；（2）不论是观看身体积极性社交媒体内容还是理想美图片，被试的状态外貌比较水平均显著高于中性组，但身体积极性组被试的状态外貌比较的负面影响不显著；（3）社交媒体中的身体积极性图片激发女性产生更高水平的自我同情，且实验过程中所激发的状态自我同情，能解释被试身体满意度和身体欣赏的改变。总体上讲，观看国内社交媒体中的身体积极性内容有利于女性的身体意象，利用身体积极性社交媒体内容对女性的身体意象进行干预是可行的。

关键词　社交媒体，身体积极性、身体满意度、身体欣赏、自我客体化

The effect of body positive social media content on female body image

Lang Min[1]　Ye Yiduo[2]（Corresponding author）

1 School of Education and Psychology, Chengdu Normal University, Chengdu, 611130

2 School of Psychology, Fujian Normal University, Fuzhou, 350117, E-mail address: yeyiduo@163.com

Abstract：In recent years, a global momentum called "body positivity" has been trending on social media.

In this movement, women show the diversity of women's bodies by showing their real bodies and looks, and encourage women to accept and appreciate their bodies regardless of how their body size and appearance. Studies based on foreign social media, especially Instagram, preliminary showed that body positive social media is expected to be a new way to intervene women's poor body image. the existing studies are all based on foreign social media, and it is not clear whether “body positivity” content on Chinese social media also benefits women's body image. Based on this, the purpose of this study is to explore the impact of body positive social media images on female body image (body satisfaction, body appreciation, self-objectification), and also examine the role of state appearance comparison and state self-compassion in the relationship. This study consisted of three experiments, all of which adopted a single-factor inter-subject pre and post test design. A total of 494 female college students participated in the experiment. The results showed that: (1) the level of state body satisfaction and body appreciation of the participants who watched the body positive social media images increased significantly, and the level of state self-objectification decreased significantly; (2) no matter watching body positive social media images or beauty ideal images, the state appearance comparison level of the subjects was significantly higher than that of the neutral group, but the negative impact of the state appearance comparison of the body positivity group was not significant; (3) body positive images on social media elicited higher levels of state self-compassion in women, and that state self-compassion elicited over the course of the experiment explained changes in body satisfaction and body appreciation. In general, watching body positive social media content is conducive to women's body image, and it may be feasible to use body positive social media content to intervene women's body image.

Keywords：Social media, Body positivity, Body image, Beauty ideals, Thematic analysis

6.24“情绪与健康心理学专业委员会”分组展贴报告

大学生压力知觉与睡眠质量：问题性社交媒体使用和睡眠拖延的链式中介作用

杨潇[1] 柯慧慧[1] 赵笑笑[1] 朱筠[1] 谢艾心[1] 王钰骁[1] 敖芳[1] 胡毓璐[1]

1 贵州师范大学心理学院，贵阳，550025

摘 要　睡眠质量与个体的生理、心理健康关系密切，受多种因素的影响，其中包括身体健康状况、心理和社会因素等。中国大学生存在睡眠时间短、入睡时间晚等不健康的睡眠习惯和睡眠问题，关注大学生睡眠问题的预防和干预问题具有一定的现实意义。压力知觉是个体将其生活状态评估为有压力的程度。以往研究发现个体感知到的压力水平越高，其睡眠质量越差。另外，社交媒体因其便捷和趣味性，已经成为大学生的生活中不可或缺的一部分，社交媒体的使用与更长的入睡时间、就寝时间和更少的总睡眠时间有关，进而会影响睡眠质量。根据互联网补偿理论和使用满足理论，个体因生活中的负面情绪、社交焦虑和学习压力，诱发了使用互联网的动机和行为，而互联网可以提供个体所需要的满足感、安全感和网络社会支持，从而缓解压力。睡眠拖延指在没有外部原因阻碍的情况下，仍无法在预定时间上床睡觉的现象。由于睡眠拖延行为拖延上床入睡，会直接使得个体睡眠时长减少，因此睡眠拖延行为会使个体的睡眠质量降低。为探讨大学生压力知觉与睡眠质量的关系，以及问题性社交媒体使用与睡眠拖延在其中的作用，采用压力知觉量表、皮茨堡睡眠质量量表、问题性社交媒体使用量表、睡眠拖延量表对 417 名在校大学生进行施测。结果发现：（1）各变量两两之间均存在显著正相关关系；（2）压力知觉可显著正向预测睡眠质量；（3）

问题性社交媒体使用、睡眠拖延在压力知觉和睡眠质量之间起链式中介作用。本研究结果进一步揭示了大学生压力知觉和睡眠质量之间的关系，发现不良的睡眠习惯是导致睡眠问题的重要因素之一， 为改善大学生睡眠质量提供了参考。
关键词　压力知觉，睡眠质量，问题性社交媒体使用，睡眠拖延

College Students' Perceived Stress and Sleep Quality: The Chain Mediating Effect of Problematic Social Media Use and Bedtime Procrastination

Yang Xiao[1], Ke Huihui[1], Zhao Xiaoxiao[1], Zhu Jun[1], Xie Aixin[1], Wang Yuxiao[1], Ao Fang[1], Hu Yulu[1]

1 Department of Psychology, Guizhou Normal University, Guizhou, Guiyang

***Abstract*:** The sleep quality is closely related to an individual's physiological and psychological well-being and is influenced by various factors, including physical health, psychological factors, and social factors. Chinese college students have unhealthy sleep habits and sleep problems such as insufficient sleep time and late bedtimes. Therefore, it is of practical significance to pay attention to the prevention and intervention of sleep problems in university students. Perceived stress refers to an individual's assessment of the level of stress in their life. Previous research has found that the higher the perceived stress level, the poorer the sleep quality. In addition, social media has become an indispensable part of college students' lives due to its convenience and entertainment value. The use of social media is associated with longer sleep latency, later bedtimes, and shorter total sleep duration, which in turn can affect sleep quality. According to the theories of internet compensation and uses and gratifications, individuals are motivated to use the internet and engage in online activities as a response to negative emotions, social anxiety, and academic pressures. The internet can provide individuals with a sense of satisfaction, security, and online social support, thereby helping to alleviate stress. Bedtime procrastination refers to the phenomenon where individuals are unable to go to bed at the scheduled time without any external obstacles. Due to the act of delaying bedtime, bedtime procrastination directly reduces the duration of sleep, thereby decreasing the sleep quality for individuals. To explore the relationship between perceived stress and sleep quality among college students, as well as the role of problematic social media use and bedtime procrastination, a total of 417 college students were assessed using the Perceived Stress Scale, Pittsburgh Sleep Quality Index, Problematic Social Media Use Scale, and Bedtime Procrastination Scale. The results revealed the following findings: (1) There was a significant positive correlation among all variables. (2) Perceived stress significantly predicted sleep quality in a positive direction. (3) Problematic social media use and bedtime procrastination acted as a chain mediating between perceived stress and sleep quality. These findings further elucidate the relationship between perceived stress and sleep quality among college students. It highlights that poor sleep habits, including problematic social media use and bedtime procrastination, play important roles in sleep-related issues. This study provides valuable insights for improving sleep

quality among college students.

Keywords：Perceived stress, Sleep quality, Problematic social media use, Bedtime procrastination

威胁相关特征对视觉工作记忆精度的影响：项目相似性的调节作用

杨潇[1, 2]，何相材[1, 2]，念靖晴[1, 2]，李金津[1, 2]，张禹[1, 2]，罗禹[1, 2]（通讯作者）

1 贵州师范大学心理学院，贵阳，550025

2 贵州师范大学心理学院应激与注意实验室，贵阳，550025，yuluo@gznu.edu.cn

摘 要　工作记忆用来暂时存储和加工信息的资源有限的系统。与人类生存和发展相关的威胁相关刺激通常具有更高的加工优先级，会影响注意和视觉过程进而影响工作记忆。到目前为止，威胁刺激和项目相似性对工作记忆表现的影响的研究都存在不一致。恐惧泛化是条件性恐惧反应转移到与威胁刺激相似的中性刺激上的一种现象。因此，本研究将探究威胁相关特征与相似的中性特征一起进入工作记忆后，两者是如何影响工作记忆精度的。实验共招募了 50 名被试。采用电刺激联结训练，使被试将特定刺激颜色与电刺激联结，为了排除电刺激所产生的负性情绪唤醒对工作记忆的影响，被试随之完成威胁消退训练，然后进行延迟估计任务来判断色条的朝向，并用状态焦虑量表（SAI）、正负性情绪量表（PANAS）测试被试的情绪反应。采用 2（威胁：有，无）×5（相似性：15°，30°，45°，60°，90°）的被试内实验设计。威胁条件下，威胁相关特征作为分心刺激，不同相似性的颜色沿着 CIE Lab 中的色轮顺时针（逆时针）15°，30°，45°，60°，90°选取，无威胁条件下的颜色在色轮上与威胁颜色相隔 180°，其余相似性的颜色选取方式同上。结果发现：（1）状态焦虑量表、正负性情绪量表得分的时间点主效应显著；（2）威胁条件的主效应显著；（3）相似性的主效应显著；（4）威胁和相似性的交互作用显著，简单效应分析发现，在相似性为 30°、45°、60°、90°时，与无威胁条件相比，有威胁相关特征存在时，目标的工作记忆精度更高，在相似性为 15°时，无威胁条件和有威胁条件的工作记忆精度没有显著差异。结果表明，当威胁相关特征作为分心物时，个体会采用策略抑制来提升目标刺激的工作记忆精度，相似性会降低工作记忆精度，当与威胁相关特征越相似时，两者会相互竞争，发生混淆，从而使得威胁相关特征的注意优先受损，与无威胁条件相比，通过策略抑制所体现的记忆优势消失，即相似性调节了威胁相关特征对视觉工作记忆精度的影响。

关键词　威胁相关特征，工作记忆精度，项目相似性，恐惧泛化

The impact of threat-relevant features on visual working memory precision: The moderating effect of item similarity

Yang Xiao[1,2], He Xiangcai[1,2], Nian Jingqing[1,2], Li Jinjin[1,2], Zhang Yu[1,2], Luo Yu[1,2]

1 Department of Psychology, Guizhou Normal University, Guizhou, Guiyang

2 Laboratory of Stress and Attention, Department of Psychology, Guizhou Normal University, Guizhou, Guiyang

Abstract：Working memory is a limited- capacity system used for temporarily storing and processing information. Threat-related stimuli that are relevant to human survival and development typically have a higher processing

priority, affecting attention and visual processes, which in turn can impact working memory. Indeed, research on the influence of threat stimuli and item similarity on working memory performance has yielded inconsistent findings so far. Correct, fear generalization refers to the phenomenon where conditioned fear responses transfer to neutral stimuli that are similar to the threatening stimulus. Therefore, this study aims to investigate how the presence of threat-relevant features alongside similar neutral features in working memory precision. The study recruited a total of 50 participants. An electric stimulation pairing task was used, where participants were trained to associate specific stimulus colors with electric shocks. To control for the potential impact of negative emotions triggered by the electric shocks on working memory, participants subsequently completed threat extinction training. Following this, they engaged in a delayed estimation task to judge the orientation of color bars. Participants' emotional responses were assessed using the State Anxiety Inventory(SAI) and Positive and Negative Affect Schedule(PANAS). The study employed a 2 (Threat: Present, Absent)×5 (Similarity: 15°,30°,45°,60°,90°) within-subject experimental design. Under the threat condition, threat-relevant features served as distractor, and colors with different levels of similarity were selected along the clockwise(or counterclockwise) direction on the CIE Lab color wheel at intervals of 15°,30°,45°,60°and 90°. In the absence of threat condition, colors with no threat-relevant features were selected at the position on the color wheel that was 180°away from the threat color, and the selection process for other levels of similarity remained the same. The results revealed the following findings: (1) There was a significant main effect of time point for the State Anxiety Inventory and Positive and Negative Affect Schedule scores. (2) There was a significant main effect of threat condition. (3) There was a significant main effect of similarity. (4) There was a significant interaction between threat and similarity. Simple effect analysis revealed that at similarity levels of 30°, 45°,60°and 90°, working memory precision was significantly higher when threat-relevant features were present compared to when they were absent. However, at a similarity level of 15°, there was no significant difference in working memory precision between the threat and non-threat conditions. The results suggest that when threat-relevant features serve as distractors, individuals employ an inhibition strategy to enhance the working memory precision of target stimuli. Similarity, on the other hand, decreases working memory precision. As the similarity between the distractors and the threat-relevant features increases, they compete with each other and cause confusion, leading to a diminished attentional priority for the threat-relevant features. Compared to the non-threat condition, the memory advantage mediated by inhibition strategy disappears. In other words, similarity moderates the impact of threat-relevant features on visual working memory precision.

Keywords：Threat-relevant features, Working memory precision, Item similarity, Fear generalization

消极情绪启动下不同情绪调节能力大学生的认知控制差异

焦江丽　赵少兰　刘毅　闻素霞　（通讯作者）
新疆师范大学心理学院，乌鲁木齐，　830017　wsx@xjnu.edu.cn

摘　要　消极情绪状态对认知控制的影响一直存在争议，分析原因发现：首先，以往研究中常常将认知控制作为一个整合的心理过程；Braver 等认为，认知控制包括主动控制模式和反应控制模式，两种模式涉及了不同的认知加工阶段和功能，消极情绪对两种模式的影响可能存在差异。其次，相关研究中并没有区分具体的被试类型，特别是被试人格特质中与情绪相关的情绪调节能力的差异；而这种差异可能影响被试的情

绪反应和认知表现。本研究基于双重认知控制理论，采用 AX-CPT 范式探讨消极情绪启动下，高情绪调节能力和低情绪调节能力大学生在认知控制的两个模式，即：主动控制模式和反应控制模式中的认知控制差异。实验为 2（高情绪调节能力组 vs.低情绪调节能力组）×4（AY、BY、BX vs. AX）的混合实验设计，采用 E-prime 软件记录被试的反应时和错误率。结果发现：（1）高情绪调节能力组的错误率显著低于低情绪调节能力组；（2）被试在 AY 序列上的平均反应时显著长于 BX 序列，错误率显著大于 BX 序列；（3）在反应控制模式下，高情绪调节能力组的平均反应时显著短于低情绪调节能力组；d'-target 值大于低情绪调节能力组；在主动控制模式下，高情绪调节能力组的 d'-context 值显著大于低情绪调节能力组。以上结果说明，消极情绪启动对认知控制中反应控制模式的损害大于主动控制模式；高情绪调节能力大学生在反应控制模式和主动控制模式中均表现出比低情绪调节能力组更好的认知控制能力。
关键词 消极情绪，情绪调节能力，反应控制模式，主动控制模式

Differences in Cognitive Control among College Students with Different Emotional Regulation Abilities under Negative Emotional Priming

Jiao Jiangli　Zhao Shaolan　Liuyi　Wen Suxia
School of Psychology, Xinjiang Normal University, Urumqi, 830017

***Abstract*:** The impact of negative emotional states on cognitive control has always been controversial. Analysis of the reasons reveals that: firstly, in previous studies, cognitive control had often been regarded as an integrated psychological process; Braver et al. argued that cognitive control included active control mode and reactive control mode, which involve different cognitive processing stages and functions. The impact of negative emotions on the two modes may differ. Secondly, relevant studies have not distinguished specific types of participants, especially the differences in emotional regulation abilities related to emotions in participants' personality traits; And this difference may affect the emotional response and cognitive performance of the participants. This study is based on the dual cognitive control theory and uses the AX-CPT paradigm to explore the cognitive control differences between high and low emotion regulation ability college students in two modes of cognitive control under negative emotion priming, namely active control mode and reactive control mode. Experiment 2 (high emotion regulation ability group vs. low emotion regulation ability group) × A mixed experimental design of 4 (AY, BY, BX vs. AX) was used to record the reaction time and error rate of the subjects using E-prime software. The results showed that: (1) the error rate of the high emotion regulation ability group was significantly lower than that of the low emotion regulation ability group; (2) The average reaction time of the subjects on the AY sequence was significantly longer than that on the BX sequence, and the error rate was significantly higher than that on the BX sequence; (3) In response control mode, the average reaction time of the high emotion regulation ability group was significantly shorter than that of the low emotion regulation ability group; The d '- target value is greater than that of the low emotion regulation ability group; In the active control mode, the d '- context value of the high emotion regulation ability group was significantly higher than that of the low emotion regulation ability group. The above results indicate that the damage of negative emotion priming to the reactive control mode in cognitive control is greater than that of the active control mode; College students with high emotional regulation ability showed better cognitive control abilities in both reactive control mode and active control mode compared to the group with low emotional regulation ability.

***Keywords*:** Negative emotions, emotional regulation ability, reactive control mode, active control mode

大学生错失恐惧与心理健康的变化轨迹：基于潜变量增长模型的分析

杨佳奇[1] 刘拓[234] 王烨晖[1]（通讯作者）

1 北京师范大学中国基础教育质量监测协同创新中心，北京，100875，yehuiwang@bnu.edu.cn

2 天津师范大学心理学部，天津，300387

3 教育部人文社会科学重点研究基地天津师范大学心理与行为研究院，300387

4 学生心理发展与学习天津市高校社会科学实验室，300387

摘 要 错失恐惧是个体害怕错过奖励和快乐经历的一种担忧，与心理健康具有紧密的关联。但目前关于错失恐惧与心理健康的相关研究多聚焦于横断数据的分析，并不能揭示随时间的发展它们纵向变化的关系。因此，错失恐惧和心理健康之间的纵向变化关系尚不明确。本研究使用错失恐惧量表（FoMOs）和抑郁-焦虑-压力简版量表（DASS-21）对 541 名大学生的错失恐惧和心理健康进行三次追踪测量，间隔时间为两周。使用 SPSS26.0 进行描述性统计分析和相关分析，使用 Mplus8.3 建立潜变量增长模型对大学生的错失恐惧和心理健康的纵向关系进行探究。结果发现：（1）在三个时间点上，错失恐惧和抑郁、焦虑、压力、心理健康之间均具有显著的正相关（r = 0.24~0.42，p<0.001）；（2）多指标潜变量模型结果显示，错失恐惧和心理健康的变化速率呈显著正相关关系（β = 0.70，p<0.001），且错失恐惧的初始水平负向预测心理健康的变化速率（β = -0.28，p<0.01）；（3）建立三个并行潜变量模型进一步对心理健康的不同维度（抑郁、焦虑和压力）与错失恐惧之间的纵向变化进行探究，结果显示，错失恐惧的变化速率与压力的变化速率呈显著正相关关系（r = 0.56，p<0.01），且错失恐惧的初始水平负向预测压力的变化速率（β = -0.20，p<0.05）；但错失恐惧的变化速率与抑郁和焦虑的变化速率的相关不显著，且错失恐惧的初始水平对于抑郁和焦虑的变化速率的预测作用也不显著（p>0.05）。本研究通过潜变量增长模型探究大学生错失恐惧和心理健康之间的纵向变化关系，发现错失恐惧较高的个体心理健康状况不易改变，进一步对心理健康的不同维度（抑郁、焦虑和压力）与错失恐惧之间的关系进行探究，发现纵向变化的显著关联仅存在于压力维度，显示了抑郁和焦虑特质的相对稳定性。本研究揭示了错失恐惧初始水平对压力变化的影响以及二者随时间同向变化的规律，为降低错失恐惧、减轻压力、提升心理健康提供了一定的启示。

关键词 错失恐惧，心理健康，压力，抑郁，焦虑

Trajectories of Fear of Missing Out and Mental Health among College Students: A Latent Growth Curve Model

Jiaqi Yang[1], Tuo Liu[234], Yehui Wang[1]

1 Collaborative Innovation Center of Assessment toward Basic Education Quality, Beijing Normal University, Beijing, 100875

2 Faculty of Psychology, Tianjin Normal University, Tianjin, 300387

3 Key Research Base of Humanities and Social Sciences of the Ministry of Education, Academy of Psychology and Behavior, Tianjin Normal University, Tianjin, 300387

4 Tianjin Social Science Laboratory of Students' Mental Development and Learning, Tianjin Normal University, Tianjin, 300387

Abstract： Fear of missing out (FoMO) is an individual's apprehension about missing out on rewarding and pleasurable experiences, and it has been strongly linked to mental health. However, existing researches on FoMO and mental health have primarily focused on analyzing cross-sectional data, which limits the understanding of the interrelationships of their trajectories. Therefore, the longitudinal relationship between changes in FoMO and mental health remains unclear. To address this gap, this study investigated the relationship between the trajectories of FoMO and mental health among 541 college students through three follow-up surveys conducted at two-week intervals. FoMO and mental health were measured by Fear of missing out scales (FoMOs) and the Depression-Anxiety-Stress Short Version Scale (DASS-21) respectively. Descriptive statistics and correlation analyses were conducted using SPSS 26.0. Additionally, latent variable growth models were conducted in Mplus 8.3 to explore the relationship between the trajectories of FoMO and mental health among college students. The results revealed that: (1) There were significant positive correlations between FoMO and depression, anxiety, stress, and mental health across the three time points (r = 0.24~0.42, p<0.001). (2) The multiple indicator latent growth model demonstrated a significant positive correlation between the slopes of change in FoMO and mental health (β = 0.70, p<0.001), and the initial level of FoMO negatively predicted the slope of change in mental health (β = -0.28, p<0.01). (3) The parallel process latent variable models were developed to further explore the longitudinal changes between different dimensions of mental health (i.e., depression, anxiety, and stress) and FoMO. The results showed a significant positive correlation between the slopes of change in FoMO and stress (r = 0.56, p<0.01), and the initial level of FoMO negatively predicted the slope of change in stress (β = -0.20, p<0.05). However, there was no significant correlation between the slopes of change in FoMO and depression, as well as anxiety, and the initial level of FoMO did not significantly predict the slopes of change in depression and anxiety (p>0.05). In summary, this study employed latent variable growth models to investigate the relationship between trajectories of FoMO and mental health among college students. The findings indicated that individuals with higher FoMO were less likely to change their mental health. Furthermore, the relationship between trajectories of FoMO and dimensions of mental health (i.e., depression, anxiety, and stress) demonstrated significant associations only in stress, suggesting the relative stability of depression and anxiety traits. The study revealed the influence of the initial level of FoMO on changes in stress, and their changes were in the same direction, providing valuable insights for interventions aimed at reducing fear of missing out, alleviating stress, and promoting mental health.

Keywords： fear of missing out, mental health, stress, depression, anxiety

高中生的正念水平对心理健康的影响：述情障碍和孤独感的中介作用

吴嘉骏[1]　吉琳[1]　叶圣炉[2]（通讯作者）

1 广州医科大学应用心理学系，广州，511436

2 广州医科大学应用心理学系，广州，511436，yesl@gzhmu.edu.cn

摘 要　近年来，心理健康问题逐步成为我国普遍面临的社会性难题，且该问题已逐渐扩展延伸至大中小学生群体，呈现“低龄化”发展趋势，提升青少年心理健康水平已成为当前全社会的共识。研究者发现基于

正念为干预方式可以有效地改善心理健康，但其具体机制仍有待探究。而有研究表明正念可以降低个体的述情障碍和孤独感水平，因此我们假设正念可以从降低述情障碍和孤独感的途径来提高个体的心理健康水平。本研究聚焦述情障碍与孤独感在正念和心理健康关系中的作用。研究采用正念注意与觉知量表（MAAS），一般健康问卷（GHQ-12），多伦多述情障碍量表（TAS-20）以及孤独感问卷（ULS-8）对佛山某高中 516 名高一学生进行问卷调查。结果显示：（1）正念水平与述情障碍、孤独感、心理健康皆呈显著负相关；（2）述情障碍、孤独感和心理健康两两呈正相关；（3）述情障碍和孤独感在正念对心理健康的影响中起部分中介作用；（4）孤独感在述情障碍对心理健康的影响中起部分中介作用。本研究阐明了正念水平影响个体心理健康的可能机制，为以正念改善心理健康的干预方式补充了证据。在校园中，可以开展简单的正念干预来帮助改善高中生的心理健康水平，同时，改善述情障碍的程度和降低孤独感对提升个体的心理健康水平也有重要意义。
关键词　正念，心理健康，述情障碍，孤独感

The Effects of Mindfulness on mental health of high Students: Mediating role of Alexithymia and Loneliness

Jiajun Wu[1], Lin Ji[1], Shenglu Ye[2]

1 Department of Psychology, Guangzhou Medical University, Guangzhou,511436，

2 Department of Psychology, Guangzhou Medical University, Guangzhou, 511436, yesl@gzhmu.edu.cn

Abstract： In recent years, mental health issues have gradually become a widespread social problem in our country. This issue has extended to the student population in primary, secondary, and high schools, showing a trend of "youthification." Elevating the mental health levels of adolescents has become a consensus in our society. Researchers have found that mindfulness-based interventions can effectively improve mental health, but the specific mechanisms behind this remain to be explored. Some studies indicate that mindfulness can reduce alexithymia and feelings of loneliness in individuals. Therefore, we hypothesize that mindfulness can enhance individual mental health by reducing alexithymia and feelings of loneliness. This study focuses on the role of alexithymia and feelings of loneliness in the relationship between mindfulness and mental health. A questionnaire survey was conducted among 516 first-year high school students in a high school in Foshan. The instruments used in the study included the Mindful Attention Awareness Scale (MAAS), the General Health Questionnaire (GHQ-12), the Toronto Alexithymia Scale (TAS-20), and the UCLA Loneliness Scale (ULS-8). The results showed that: (1) Mindfulness levels were significantly negatively correlated with alexithymia, feelings of loneliness, and mental health. (2) Alexithymia, feelings of loneliness, and mental health were positively correlated with each other. (3) Alexithymia and feelings of loneliness partially mediated the impact of mindfulness on mental health. (4) Feelings of loneliness partially mediated the impact of alexithymia on mental health. This study elucidates the potential mechanisms through which mindfulness levels influence individual mental health, providing additional evidence for using mindfulness to improve mental health. In the school context, implementing simple mindfulness interventions can help improve the mental health of high school students. Additionally, addressing alexithymia and reducing feelings of loneliness are essential steps in enhancing individual mental health.

Keywords： Mindfulness, Mental health, Alexithymia, Loneliness

基于童年创伤和波谱指标的抑郁症机器学习分类模型

苗浩飞[1] 钟舒明[2] 陈盼[2] 贾艳滨[2]（通讯作者）
1 北京体育大学心理学院，北京，100091
2 暨南大学附属第一医院（广州华侨医院），广州，510630，yanbinjia2006@163.com

摘 要 **目的：**抑郁症的发病率、复发率较高。根据抑郁障碍防治指南，患者从起病到接受系统治疗的平均时间为3年。抑郁症的误诊和迁延病情给患者和社会造成了巨大经济负担。氢质子磁共振波谱是抑郁症等疾病的重要诊断手段之一。然而既往多数研究仅采用波谱等影像指标来预测疾病诊断。抑郁症的发病机制是基于生理-心理-社会的综合模型。仅采集单维度的神经影像信息，易忽略患者重要的临床风险因子。童年创伤是抑郁症的重要风险因子之一。为了提升诊断的准确率，现将童年创伤等指标结合波谱特征，建立预测抑郁症诊断的综合模型。

方法：根据DSM-5诊断标准，共入组72例未经治疗的18-50岁抑郁症患者，招募30名不伴童年创伤的健康对照。现检测被试双侧前额叶白质、前扣带回皮质、壳核和小脑的胆碱和N-乙酰天门冬酸与肌酸的比值，联合情感虐待、情感忽视、躯体虐待、躯体忽视、性虐待以及性别、年龄、教育年限共28个特征指标，预测标签为抑郁患者或健康对照。采用可优化的最近邻(K-Nearest Neighbor,KNN)模型，对比预测变量为28个全特征和仅20个波谱特征的模型，采用十折交叉验证评估结果。

结果：全特征的预测模型查准率(Precision)为98.1，召回率(recall)为87.9%，F1值为92.7%。仅采用波谱预测诊断时，查准率为81.6%，召回率为96.6%，F1值为88.2%。综合来看，全特征的F1值高出波谱特征模型约5%，这说明采用基于童年创伤、波谱特征的模型分类效果优于仅采用波谱特征的模型。

结论：结合了患者童年创伤和波谱特征的模型分类准确性更好。未来临床诊断过程中，应综合患者的生理心理等多模态指标，建立抑郁症等的诊断分类模型。

关键词 抑郁症,童年创伤,氢质子磁共振波谱，机器学习

Based on childhood trauma and spectral indices, a machine learning classification model for depression

Miao Haofei[1] Zhong Shuming[2] Chen Pan[2] Jia Yanbin[2]
[1]Beijing Sport University, Beijing, 100091
[2]The First Affiliated Hospital of Jinan University, Guangzhou, 510630, yanbinjia2006@163.com

Abstract：Objective: Depression has a high incidence and recurrence rate, and the time from the first onset of depression to receiving systematic treatment in China is currently about three years. Misdiagnosis and delayed treatment of depression impose a significant economic burden on patients and society. Proton magnetic resonance spectroscopy (MRS) is one of the important diagnostic methods for depression and other diseases. However, previous studies often only used imaging indices such as spectroscopy to predict disease diagnosis. The pathogenesis of depression is based on a comprehensive model of physiology, psychology, and society. Gathering only single-dimensional neural imaging information may overlook important clinical risk factors in patients. Childhood trauma is one of the important risk factors for depression. To improve the accuracy of diagnosis, we have combined childhood trauma and spectroscopy features to establish a comprehensive model for predicting depression diagnosis.

Methods: According to the DSM-5 diagnostic criteria, a total of 72 untreated depression patients aged 18-50 were enrolled, and 30 healthy controls without childhood trauma were recruited. Choline, N-acetylaspartate, and creatine in the bilateral frontal white matter, anterior cingulate cortex, caudate nucleus, and cerebellum were measured in the subjects, along with emotional abuse, emotional neglect, physical abuse, physical neglect, sexual abuse, as well as gender, age, and education level, which were used as 28 feature indicators to predict the labels of depression patients or healthy controls. The K-Nearest Neighbor (KNN) model was used with 10-fold cross-validation to compare the prediction models with 28 full-feature variables and only 20 spectroscopy feature variables.

Results: The precision of the full-feature prediction model was 98.1%, the recall was 87.9%, and the F1 value was 92.7%. When predicting the diagnosis using only the spectroscopy features, the precision was 81.6%, the recall was 96.6%, and the F1 value was 88.2%. Overall, the F1 value of the full-feature model was about 5% higher than that of the spectroscopy feature model, indicating that the model based on childhood trauma and spectroscopy features had better classification performance than the model based solely on spectroscopy features.

Conclusion: The model combining childhood trauma and spectroscopy features had better classification accuracy. In the future clinical diagnosis process, multiple modal indicators such as patients' physiology and psychology should be comprehensively considered to establish diagnostic classification models for depression and other diseases.

Keywords **：** Depression, Childhood trauma, Hydrogen Proton Magnetic Resonance Spectroscopy, Machine learning

The role of inferior frontal gyrus in emotion regulation using reappraisal strategy

Wenjuan Li, Ling Li*

University of Electronic Science and Technology of China, Chengdu 61005, China

Abstract**：** Previous neuroimaging studies indicate that the inferior frontal gyrus (IFG) may be associated with the emotion regulation using reappraisal strategy. To explore the causal role of IFG in emotion regulation, we recruited 3 studies (one fMRI experiment and two tDCS experiments). In the fMRI experiment (study 1, n = 32), participants completed an emotion regulation task and we observed the brain activation related to reappraisal strategy. We then separately applied online anodal tDCS over the right IFG (study 2, n = 20), and the left IFG (study 3, n = 22), to observe the stimulation effect on emotional state ratings. Study 1 showed that the bilateral IFG engages in the reappraisal strategy. In addition, study 2 and 3 showed that the anodal stimulation over the right IFG, not the left IFG, reduces participants' negative feelings using reappraisal strategy. In conclusion, our findings provide evidence that the right IFG plays a causal role in down-regulation of emotions when using the reappraisal strategy. This may have a potential implication for clinical intervention especially in psychiatric conditions associated with deficits in emotion regulation.

Keywords：anodal tDCS, causal role, emotion regulation, IFG, reappraisal

以往的神经影像学研究表明，额下回可能与认知重评策略下的情绪调节有关。为了探索额下回在情绪调节中的因果作用，本研究做了 3 项实验(1 项 fMRI 实验和 2 项 tDCS 实验)。在 fMRI 实验(实验 1，n = 32)中，被试完成了一项情绪调节任务，我们观察到了与认知重评策略相关的大脑激活。然后，我们分别对右侧额下回(实验 2，n = 20)和左侧额下回(实验 3，n = 22)进行在线阳极 tDCS 刺激，观察刺激对情绪状态评分的影响。实验 1 表明，双侧额下回参与了认知重评策略。实验 2 和 3 表明，使用认知重评策略时，右侧额下回经过阳极刺激后，被试的负面情绪感受降低，但刺激左侧额下回未出现负面情绪感受的下降。本研究结果表明在使用认知重评策略时，右侧额下回在下调情绪中起因果作用。这可能对临床干预（特别是在与情绪调节缺陷相关的精神疾病中）有潜在提示作用。

基于网络分析的奖赏敏感性与抑郁、非自杀性自伤行为的关系研究

朱琳[1]，蔡新璐[1]（通讯作者）

1 杭州师范大学脑科学研究所，杭州，311121

Email: caixinlu@hznu.edu.cn

摘 要　抑郁和非自杀性自伤行为（non-suicidal self-injury, NSSI）是危害公众心理健康的问题。前人研究发现高抑郁水平个体的奖赏敏感性异常降低，而有 NSSI 的个体存在异常的奖赏敏感性升高。此外，抑郁与 NSSI 共同发生率较高。但是，抑郁、NSSI、奖赏敏感性之间的关系尚不明确。因此，本研究旨在采用网络分析的方法探索奖赏敏感性、抑郁、NSSI 及其相关风险因素（童年期创伤、情绪调控）之间的关系，并探讨有无 NSSI 的抑郁个体与健康对照个体在奖赏加工、童年期创伤、情绪调控的网络上是否存在显著差异。本研究线上招募 3598 名大学生，完成包含人口学信息、巴金斯敏感性/活跃性量表（Behavioral Inhibition System/Behavioral Activation System Scale, BIS/BAS）、抑郁自评量表（Patient Health Questionnaire, PHQ）、青少年非自杀性自伤行为评定问卷（Adolescent Non-suicidal Self-injury Assessment Questionnaire, NSSI）、童年创伤问卷（Childhood Trauma Questionnaire, CTQ）、情绪调节问卷（Emotion Regulation Questionnaire, ERQ）的问卷调查。基于网络分析的方法，运用高斯模型（Gaussian graphical model, GGM）计算共 5 组症状群、21 个节点之间的网络结构。同时，将被试分为抑郁伴 NSSI、抑郁不伴 NSSI 和健康对照组进行网络比较，探索三组被试在奖赏敏感性、童年期创伤和情绪调控的网络差异。结果显示，情感虐待和快感追求在网络中的预期影响力最高。认知重评的情绪调控方式与 NSSI 在 5 组症状群间有最高的桥梁中心性，在症状群之间起到关键的桥梁作用。网络比较结果显示存在组间边中心性的显著差异。本研究为识别存在 NSSI 风险的抑郁个体提供了来自网络分析的证据，为 NSSI 行为的干预具有启示意义。

关键词　奖赏加工，抑郁，非自杀性自伤，网络分析

An exploration of the relationship between reward sensitivity, depression, and non-suicidal self-injury: A network analysis

Lin Zhu[1], Xinlu Cai[1]
1 Institute of Brain Science, Hangzhou Normal University, Hangzhou, 311121

Abstract： Depression and non-suicidal self-injury (NSSI) are serious health problems. Current studies have found that people with high depressive symptoms have decreased sensitivity to rewards, while people with NSSI have increased sensitivity to rewards. The comorbidity between depression and NSSI has gained much attention due to its notable prevalence. Yet, the relationship between reward sensitivity, depression, and NSSI remains unknown. Therefore, our study aimed at exploring the relationship between reward sensitivity and depression, NSSI as well as its risk factors. A total of 3598 college students were recruited to fill out questionnaires including demographics, Behavioral Inhibition System/Behavioral Activation System Scale (BIS/BAS), Patient Health Questionnaire (PHQ), Adolescent Non-suicidal Self-injury Assessment Questionnaire (NSSI), Childhood Trauma Questionnaire (CTQ), and Emotion Regulation Questionnaire (ERQ). A network analysis was utilized to visualize the relationship between a total of 21 nodes, grouped in 5 clusters. A network comparison test was conducted between the group of depression with NSSI, depression without NSSI, and healthy controls. Emotional abuse and fun seeking had highest expected influence centrality. Cognitive reappraisal and NSSI had highest bridge centrality, indicating their significance in connecting different clusters of nodes. Results of network comparison test showed significant differences between networks for the groups of participants. Our exploration of network analysis provided evidence for identification of depressive individuals with potential NSSI. Additionally, the comparative results of the networks inspired potential treatment targets of depression with and without NSSI.

Keywords： reward processing, depression, non-suicidal self-injury, network analysis

不同动机类型负性情绪和认知负荷对工作记忆的影响

邢蓉[1] 孙美荣[1]（通讯作者）
北京体育大学心理学院，北京，100091，leer@bsu.edu.cn

摘 要 情绪的动机维度理论认为动机有方向(趋近和回避)和强度(由低到高)之分，不同的情绪属于不同的动机类型，如愤怒、悲伤虽为负性情绪但属于趋近动机。有研究发现个体在诱发回避动机类型的负性情绪时比诱发趋近动机更快，并且负性情绪与工作记忆产生的注意资源竞争与认知负荷密切相关，即不同的认知负荷会对负性情绪和工作记忆的相互作用产生不同的影响。但目前并未有研究探讨当工作记忆任务难度增加时是否产生同样的影响。本研究将讨论在不同的认知负荷下，诱发不同动机类型的负性情绪会对个体的工作记忆产生什么影响，其中，愤怒与悲伤属于趋近动机，恐惧和厌恶属于回避动机。实验一采用低认知负荷的延迟匹配任务，结果表明被试在愤怒情绪下的反应时显著高于恐惧和厌恶情绪，说明个体在回避动机类型的负性情绪条件下反应更快。实验二采用高认知负荷的延迟匹配任务，结果表明在高认知负荷下，两种动机类型负性情绪对个体工作记忆成绩的影响无显著差异，说明回避动机类型负性情绪对个体反应变快的影响会随着个体认知负荷的增加而消失。本研究证实了情绪动机类型和认知负荷会影响工作记忆任务表现，揭示了情绪体验与认知负荷在工作记忆过程中的交互作用,有利于推进工作

记忆前因变量的深入研究，为情绪的动机维度理论在工作记忆这一领域的应用提供了实证依据。

关键词　负性情绪，趋近动机，回避动机，认知负荷，工作记忆

The effects of negative emotion of different motivation types and cognitive load on working memory

XingRong[1]　Sun Meirong[1]（corresponding author）

School of Psychology，Beijing Sport University，Beijing，100091，China

Abstract：The motivation dimension theory of emotion believes that motivation can be divided into direction (approach and avoidance) and intensity (from low to high), and different emotions belong to different motivation types. For example, anger and sadness are negative emotions but belong to approach motivation.Some studies have found that individuals can induce negative emotions of avoidance motivation faster than that of approach motivation, and the competition for attention resources generated by negative emotions and working memory is closely related to cognitive load, that is, different cognitive load will have different effects on the interaction between negative emotions and working memory.But no research has examined whether the same effect occurs when working memory tasks become more difficult. This study will discuss the effects of negative emotions induced by different motivation types on individuals' working memory under different cognitive loads. Among them, anger and sadness belong to the approach motivation, and fear and disgust belong to the avoidance motivation. Experiment 1 with low cognitive load delay matching task, the results show that the reaction of the participants under the anger in significantly higher than that of fear and disgust, indicating that the individuals react faster under the negative emotion condition of avoidance motivation. Experiment 2 with high cognitive load delay matching task, the results show that there is no significant difference between the two types of motivation negative emotions on individual working memory performance under high cognitive load, indicating that the influence of avoidance motivation negative emotions on individual response speed would disappear with the increase of individual cognitive load. This study confirms that the types of emotional motivation and cognitive load affect the performance of working memory tasks, revealing the interaction between emotional experience and cognitive load in the process of working memory, which is conducive to promoting the in-depth study of the antecedents of working memory, and provides an empirical basis for the application of the theory of emotional motivation dimension in the field of working memory.

Keywords: Negative emotion，Approach motive，Avoidance motivation，Cognitive load，Working memory

无法忍受不确定性与焦虑：人际疏离感的中介与生命意义感的调节作用

王昊[1]（通讯作者）　张悦[1]　刘皖沙[1]　秦彦梅[1]

1 邯郸幼儿师范高等专科学校健康服务系，邯郸，056000，通讯作者 E-mail：wanghpsy@qq.com

摘 要　对未知的恐惧与担忧通常会引起心理健康问题，无法忍受不确定性（IU）是一种常见的认知偏差，指个体无法忍受由不确定性感知而引发的厌恶反应，以及对未来更消极的预期。以往研究表明，IU 是焦虑的认知脆弱性因素，对焦虑的产生和持续有显著影响，同时也会导致社交苦恼与回避行为，而良好的人际

关系与生命意义感可以作为一种稳定的资源减少焦虑的产生。尽管以往研究揭示了无法忍受不确定性对焦虑的影响及其机制，但人际关系状况与生命意义感如何影响 IU 与焦虑之间的关系还需要进一步探索。本研究探讨人际疏离感在 IU 与焦虑之间的中介作用，以及生命意义感的调节作用，采用简版无法忍受不确定性量表（IUS-12），人际疏离感量表，生命意义感量表（MLQ），焦虑自评量表（SAS）对 605 名大学生进行了问卷测量。研究结果发现：（1）无法忍受不确定性，焦虑，人际疏离感存在显著两两正相关，生命意义感与人际疏离感，焦虑存在显著负相关；（2）无法忍受不确定性既可以直接影响焦虑,也可以通过人际疏离感的中介作用间接影响焦虑。（3）生命意义感调节了无法忍受不确定性对焦虑的直接影响，当生活缺乏意义时，无法忍受不确定性更容易导致焦虑。本研究进一步解释了无法忍受不确定性与焦虑的关系，丰富了焦虑的理论模型，并为减少由不确定导致的焦虑提供了实证依据。
关键词　无法忍受不确定性，焦虑，人际疏离感，生命意义感

Intolerance of Uncertainty and Anxiety: Mediating Effect of Interpersonal Alienation and Moderating Effect of Meaning in Life

WANG Hao[1]　ZHANG Yue[1]　LIU Wansha[1]　QIN yanmei[1]
1Handan Preschool Teachers College, Handan Hebei

***Abstract*:** Fear and worry about the unknown usually cause mental health problems,intolerance of uncertainty(IU) is a common cognitive bias that refers to an individual's aversive response due to the perception of uncertainty,as well as more negative expectations about the future.Previous studies have shown that IU is a cognitive vulnerability factor for anxiety, which has a significant impact on the occurrence and persistence of anxiety, and can also lead to social distress and avoidance behaviors.Healthy relationships with others and meaning in life can be a stable resource to reduce anxiety.Although previous studies have revealed the influence of intolerance of uncertainty on anxiety,how the interpersonal relationship and meaning in life affect the relationship between IU and anxiety needs to be further explored.This study explores the mediating effect of interpersonal alienation between IU and anxiety, and the moderating effect of meaning in life,605 college students were investigated with the Intolerance of Uncertainty Scale- Short Form(IUS-12),Adolescent Alienation Scale,Meaning in Life Questionnaire(MLQ),and Self-Rating Anxiety Scale(SAS).The results show that:(1)There is a significant pairwise positive correlation between intolerance of uncertainty, anxiety and interpersonal alienation,and a significant negative correlation between meaning in life and interpersonal alienation and anxiety.(2)intolerance of uncertainty can not only directly affect anxiety, but also indirectly affect anxiety through the mediation of interpersonal alienation.(3)The meaning in life moderates the direct impact of intolerance of uncertainty on anxiety, Intolerable of uncertainty more likely to lead to anxiety when life lacks meaning.This study further explained the relationship between intolerance of uncertainty and anxiety, enriched the theoretical model of anxiety, and provided an empirical basis for reducing anxiety caused by uncertainty.

***Keywords*:** intolerance of uncertainty，anxiety，interpersonal alienation，meaning in life

CALMME-青少年情绪健康线上产品的用户体验设计：基于情绪释放技术

吴汶颖[1,2]，杨蕾[2]，范家琳[1*]（通讯作者）
[1]深圳大学心理学院，深圳，518060
[2]西南科技大学制造科学与工程学院，绵阳，621010
[*]fanjl@szu.edu.cn

摘 要　背景：随着在线心理产品种类和功能愈发增多，人们对于针对个体需求的个性化和专业化线上心理服务的需求也逐渐提升。调查显示，目前我国尚未有专门针对青少年情绪调节的线上产品。然而，情绪健康对于青少年的身心健康、社会适应和学业等方面具有重要影响，我国高中生的心理健康水平呈下降趋势，其中焦虑和抑郁问题尤为突出。因此，本研究旨在设计一款适用于青少年的情绪健康线上产品。

方法：本研究通过竞品分析对国内外现有情绪类应用进行了比较研究，总结出了目前产品存在的痛点和机会点。之后，通过在线问卷调查收集了 200 份有效答卷（回收率 79%），并对 15-19 岁的初中生、高中生和准大学生进行了半结构化访谈（N=27，男 14 人，女 13 人）。根据数据分析结果，采用了用户体验设计的方法和原则进行了原型开发，并通过可用性测试确保其功能和可用性。

结果：竞品分析结果显示超过 50%的产品缺乏课程功能，核心功能主要围绕专业咨询和心理测试展开，并缺乏针对青少年情绪的分区或专栏。访谈中，77%的学生在情绪冲动后表示后悔，65.4%希望能够自行解决情绪问题。通过相关分析发现，情绪效能感和情绪控制之间存在一定相关性。此外，大多数受访者表达了对于创造轻松舒适的心理环境的需求。因此，我们将 APP 风格定义为舒适、清新和安全，核心功能以情绪课程板块和情绪缓解板块为主，并引入情绪释放技术（EFT）供用户自主学习。此外，我们还增加了冥想和睡眠元素以丰富应用的功能。最终，我们实现了 Web 端和移动端的高保真可交互原型（31 个界面），并制作了概念展示视频。

结论：本研究关注青少年的情绪健康问题，从市场需求和产品设计的角度对情绪类产品进行了探讨。情绪类产品作为线上心理服务的一个细分领域，具备更强的针对性和专业性。该设计验证了针对青少年情绪问题的设计思路和可行性，并为未来情绪类产品的用户体验设计提供了参考和启发。

关键词 青少年，情绪健康，情绪调节，用户体验设计，数字化移动应用

CALEMME-user experience design for teenagers' emotional problems : Based on Emotional Freedom Technology

WU Wenying[1,2]　YANG Lei[1]　Fan Jialin[2]
[1]Institute of Psychology, Shenzhen University, Shenzhen, 518060
[2]Institute of Manufacturing Science and Engineering, Southwest University of Science and Technology, Mianyang, 621010
[*]fanjl@szu.edu.cn

Abstract：BACKGROUND: With the increasing variety and functions of online psychological products, people's demand for personalized and professional online psychological services aimed at individual needs has gradually increased. According to the survey, there is no online product specifically for teenagers' emotional regulation in

China. However, emotional health has an important influence on teenagers' physical and mental health, social adaptation, and studies. The mental health level of senior high school students in China is on the decline, especially anxiety and depression. Therefore, the purpose of this study is to design an online emotional health product suitable for teenagers.

Methods: Through the analysis of competing products, this study made a comparative study of the existing emotional applications at home and abroad, and summarized the pain points and opportunities of the current products. After that, 200 valid answers were collected through an online questionnaire survey (the recovery rate was 79%), and semi-structured interviews were conducted with junior high school students, senior high school students, and prospective college students aged 15-19 (N=27, 14 males and 13 females). According to the results of the data analysis, the prototype is developed by using the methods and principles of user experience design, and its function and usability are ensured by usability testing.

Results: The analysis of competing products showed that more than 50% of the products lacked curriculum functions, the core functions were mainly focused on professional consultation and psychological testing, and there was no division or column for teenagers' emotions. In the interview, 77% of the students expressed regret after emotional impulse, and 65.4% hoped to solve their emotional problems by themselves. Through correlation analysis, it is found that there is a certain correlation between emotional self-efficacy and emotional control. In addition, most interviewees expressed the need to create a relaxed and comfortable psychological environment. Therefore, we define the style of the APP as comfortable, fresh, and safe, and the core functions are mainly emotional courses and emotional relief, and we introduce emotional Freedom technology (EFT) for users to learn independently. In addition, we have added meditation and sleep elements to enrich the functions of the application. Finally, we have realized a high-fidelity interactive prototype (31 interfaces) of the Web and mobile terminals and made a concept demonstration video.

Conclusion: This study focuses on the emotional health of teenagers and discusses emotional products from the perspective of market demand and product design. As a subdivision of online psychological services, emotional products are more targeted and professional. The design verifies the design idea and feasibility of emotional problems for teenagers and provides reference and inspiration for the user experience design of emotional products in the future.

Keywords：teenagers, emotional health, emotional adjustment, user experience design, digital mobile application

基于虚拟现实技术的替代性疗法对原发性痛经的镇痛效果及其机制

张娟娟[1,2,3]　周丽丽[1,2,3]（通讯作者）

1 上海体育大学心理学院，上海，200438

2 上海体育大学运动与脑科学研究中心，上海，200438

3 上海体育大学“运动认知评定与调控”重点实验室，上海，200438，zhoullbjmu@yeah.net

摘 要 目的：原发性痛经（primary dysmenorrhea, PDM）是一种在月经来潮前或行经期间的下腹部疼痛，常见于年轻女性，严重影响其工作和生活。研究表明，虚拟现实（virtual reality, VR）技术是一种有效的非药物替代性镇痛疗法。目前尚未有研究应用 VR 技术干预 PDM。本研究旨在评估 VR 技术对 PDM 的干预

效果，并探索其潜在的镇痛机制。方法：采用随机对照试验，招募 12 名 PDM 患者在其月经期第 1-2 天参与实验。实验组（n=7）进行 Nature Treks VR 游戏，对照组(n=5)则观看相同内容的 2D 视频。采用 0-10 级的数字评定量表评估患者在干预各阶段由电刺激诱发的疼痛相关反应及其痛经强度。结果：两组患者在干预前的痛经强度无显著差异（实验:4.73±1.30,对照:4.45±0.65;Z=-0.652,p=0.514）。与干预前比较，实验组患者在干预中的痛经强度变化比率显著高于干预后的变化比率（中:-0.26±0.13,后:-0.03±0.15;Z=-2.239,p=0.025）；而对照组患者在干预中的痛经强度变化比率与干预后的变化比率无显著差异（中:-0.17±0.20,后:-0.12±0.21;Z=-0.722，p=0.470）。两组患者由低强度电刺激（实验:0.06±0.14,对照:0.09±0.25,Z<0.001,p>0.999）或高强度电刺激（实验:-0.01±0.16,对照:0.11±0.19;Z=-1.000,p=0.317）诱发的干预前后疼痛强度变化比率均无显著差异；由低强度电刺激（实验:0.02±0.13,对照:0.17±0.39;Z=-1.286,p=0.199）或高强度电刺激（实验:0.01±0.20,对照：0.14±0.34;Z=-1.286，p=0.199）诱发的干预前后疼痛不愉悦度变化比率无显著差异；由低强度电刺激（实验:0.02±0.12,对照:0.07±0.32;Z=-0.143,p=0.886）或高强度电刺激（实验:-0.03±0.18,对照:0.11±0.26;Z=-1.286,p=0.199）诱发的干预前后疼痛新异性变化比率无显著差异。两组患者在干预前后的疼痛焦虑（实验:-0.13±0.13,对照:-0.07±0.22;Z=-0.568,p=0.570）、疼痛灾难化（实验:-0.05±0.30,对照:0.52±1.05;Z=-0.893,p=0.372）、疼痛警觉/意识（实验:-0.06±0.14,对照:0.06±0.22;Z=-0.893,p=0.372）、情绪调节（实验:-0.05±0.09,对照:0.02±0.08;Z=-1.548,p=0.122）以及注意控制（实验:0.01±0.17,对照:0.07±0.10;Z=-1.554,p=0.120）的变化比率均无显著差异。此外，实验组患者在干预中的痛经强度变化比率与注意控制变化比率呈显著正相关性（r=0.760,p=0.047）；而对照组患者在干预中的痛经强度变化比率与注意控制变化比率无显著相关性（r=-0.024,p=0.970）。结论：虚拟现实技术对原发性痛经具有即时的镇痛效应，但无持久的镇痛效应；这种即时镇痛效应的产生可能与注意控制能力的改善有关。
关键词 原发性痛经，虚拟现实，镇痛效应，随机对照试验

The analgesic effects of alternative therapy based on virtual reality on primary dysmenorrhea and its underlying mechanisms

Juanjuan Zhang[1,2,3] Lili Zhou[1,2,3]

1 School of Psychology, Shanghai University of Sport, Shanghai, 200438

2 Center for Exercise and Brain Science, Shanghai University of Sport, Shanghai, 200438

3 Key Laboratory of Motor Cognitive Assessment and Regulation, Shanghai University of Sport, Shanghai, 200438, zhoullbjmu@yeah.net

Abstract: Objective: Primary dysmenorrhea (PDM) refers to a kind of lower abdominal pain experienced before or during menstruation. PDM is common among young women and has profound impacts on their work and daily life. Previous studies have indicated that virtual reality (VR) is an effective non-pharmacological alternative therapy on pain. To date, there are no studies focusing on the effects of VR technology on the intervention of PDM. Therefore, the present study aimed to investigate the analgesic effects of VR technology on PDM and its potential mechanisms.

Methods: Twelve PDM patients were recruited to participate the experiment during their first or second day of menstrual cycle with a randomized controlled trial. They were randomly assigned into two different groups (experimental v.s. control). Specifically, participants in the experimental group (n=7) engaged in Nature Treks VR game, while others in the control group (n=5) watched a 2D video with the same contents. For all participants, their pain-related responses induced by electrical stimulation and menstrual pain intensity at different phases of the

intervention were assessed using a 11-point numeric rating scale (0 represents no pain at all and 10 represents unbearable pain).

Results: There were no significant differences in menstrual pain intensity between the two groups in the pre-intervention phase (experimental: 4.73±1.30, control: 4.45±0.65; *Z*=-0.652, *p*=0.514). For the menstrual pain intensity, participants in the experimental group showed significantly higher pre- to during-intervention change ratios than pre- to post-intervention change ratios (pre-during: -0.26±0.13, pre-post: -0.03±0.15; *Z*=-2.239, *p*=0.025), while no significant differences were observed between the pre- to during-intervention change ratios and pre- to post-intervention change ratios in the control group (pre-during: -0.17±0.20, pre-post: -0.12±0.21; *Z*=-0.722, *p*=0.470). There was no significant group difference in pre- to post-intervention change ratios in the pain intensity induced by low-intensity electrical stimulation (experimental: 0.06±0.14, control: 0.09±0.25; Z<0.001, p>0.999) or high-intensity electrical stimulation (experimental: -0.01±0.16, control: 0.11±0.19; *Z*=-1.000, *p*=0.317). Similar results were found in the pre- to post-intervention change ratios in the pain unpleasantness induced by low-intensity electrical stimulation (experimental: 0.02±0.13, control: 0.17±0.39; *Z*=-1.286, *p*=0.199) or high-intensity electrical stimulation (experimental: 0.01±0.20, control: 0.14±0.34; *Z*=-1.286, *p*=0.199). For the stimulus salience of pain, no significant group difference was observed in the pre- to post-intervention change ratios induced by low-intensity electrical stimulation (experimental: 0.02±0.12, control: 0.07±0.32; *Z*=-0.143, *p*=0.886) or high-intensity electrical stimulation (experimental: -0.03±0.18, control: 0.11±0.26; *Z*=-1.286, *p*=0.199). Similarly, there were no significant group differences in the pre- to post-intervention change ratios in the pain anxiety (experimental: -0.13±0.13, control: -0.07±0.22; Z=-0.568, p=0.570), the pain catastrophizing (experimental: -0.05±0.30, control: 0.52±1.05; *Z*=-0.893, *p*=0.372), the pain vigilance/consciousness (experimental: -0.06±0.14, control: 0.06±0.22; *Z*=-0.893, *p*=0.372), the emotion regulation (experimental: -0.05±0.09, control: 0.02±0.08; *Z*=-1.548, *p*=0.122), and the attentional control (experimental: 0.01±0.17, control: 0.07±0.10; *Z*=-1.554, *p*=0.120). Additionally, a significant positive correlation was found between the pre- to post-intervention change ratios in the menstrual pain intensity and the pre- to post-intervention change ratios in the attention control among the experimental group (r=0.760, *p*=0.047), whereas no significant correlation was observed between these two variables in the control group (r=-0.024, *p*=0.970).

Conclusion: The alternative therapy based on virtual reality has immediate analgesic effects on primary dysmenorrhea rather than lasting analgesic effects. The generation of this immediate analgesic effect may be related to the improvement of attentional control.

Keywords：Primary Dysmenorrhea, Virtual Reality, Analgesic Effects, Randomized Controlled Trial

突发公共卫生事件下护士家庭功能和焦虑状态的关系：心理弹性和体育锻炼的调节中介模型

侯田雅　毛晓飞　董薇（通讯作者）

海军军医大学（第二军医大学）心理系，上海，200433，通讯作者 E-mail：sophiedongwei@163.com

摘 要　在突发性公共卫生事件中，护士作为主力军面临着较大的生理心理负荷，容易产生紧张焦虑等负性情绪，严重时会影响其工作效率和生活质量，探讨突发公共卫生事件下护士的焦虑水平及其影响因素十

分重要。以往研究发现了家庭功能对心理健康的保护作用，但探究突发公共卫生事件下护士的家庭功能和焦虑状态的关系及其背后影响机制的研究尚未见报道。本研究旨在通过构建有调节的中介效应模型探讨突发公共卫生事件下护士的家庭功能对焦虑状态的影响及其作用机制。本研究采用家庭关怀度指数量表、心理弹性量表、体育活动等级量表和广泛性焦虑障碍量表对突发公共卫生事件期间的 779 名护士进行测量，通过 Mackinnon(2008)的四步程序对中介效应进行分析，并使用 Hayes PROCESS 宏程序对调节中介模型进行检验。结果表明：（1）护士的家庭功能和焦虑水平呈显著负相关，家庭功能和心理弹性呈显著正相关，心理弹性和焦虑水平呈显著负相关；（2）家庭功能不但直接影响护士焦虑水平，还通过心理弹性的部分中介作用间接影响焦虑水平；（3）护理人员家庭功能对焦虑的直接作用和心理弹性的中介作用受到体育锻炼的调节。随着体育锻炼的增加，护理人员家庭功能的直接效应减小，心理弹性的中介效应增大。采用 Johnson-Neyman 法进行简单斜率分析显示：对于体育锻炼水平较高的护士，家庭功能对焦虑的直接预测作用减弱，心理弹性对焦虑的预测作用增强。本研究为深入理解家庭功能与焦虑之间的关系及其潜在机制提供了理论基础，有助于降低突发公共卫生事件下护士的焦虑水平。
关键词　突发公共卫生事件，家庭功能，焦虑，心理弹性，体育锻炼

Family function and anxiety among nurses during a public health emergency: A moderated mediation model of resilience and physical activity

HOU Tianya，MAO Xiaofei, DONG Wei（Corresponding author）

Department of Psychology, Naval Medical University (Second Military Medical University),

Shanghai, 200433, Corresponding Email: sophiedongwei@163.com

***Abstract*：** During a public health emergency, nurses, as the main force, are facing high physiological and psychological loads, which might result in negative emotions (e.g. anxiety) and further lead to reduces work efficiency and quality of life. Thus, it is important to explore the anxiety and its influential factors among nurses during a public health emergency. Previous studies have found the protective effect of family function on mental well-being, but there have been no reports on exploring the association of family function with anxiety and its underlying mechanisms among nurses during a public health emergency. The present study aimed to explore the impact of family function on anxiety among nurses and its potential mechanisms through a moderated mediation model. Family Care Index Questionnaire, Connor-Davidson Resilience Scale, Physical Activity Rating Scale and 7-item Generalized Anxiety Disorder Scale were employed to measure family function, resilience, physical activity and anxiety among 779 Chinese nurses during a public health emergency. Mackinnon's four-step procedure was applied to examine the mediating effect, while Hayes PROCESS macro for SPSS was employed to investigate the moderated mediation model. The results showed: (1) There were a significant negative correlation between family function and anxiety, a significant positive correlation between family function and resilience, and a significant negative correlation between resilience and anxiety. (2) Family function not only had a direct influence on anxiety, but also exerted an indirect effect on anxiety through resilience. (3) The direct effect of family function on anxiety and the indirect effect of resilience were moderated by physical activity. With the increase of physical activity, the direct effect of family function on anxiety decreased and the mediating effect of resilience increased. Further simple slope analysis through Johnson-Neyman technique presented that for the

nurses with higher levels of physical activity, family function had a weaker direct effect on anxiety, while resilience had a stronger predictive effect on anxiety. The present study provided a theoretically grounded foundation for an in-depth understanding of the association between family function and anxiety and its underlying mechanisms, which could be helpful for the reduction of anxiety among nurses during a public health emergency.
Keywords：public health emergency, family function, anxiety, resilience, physical activity

神经质对失眠的影响：心智游移和症状反刍的链式中介效应

张正 [1,2] 汤华佳 [1] 黄颖 [1] 李栩亭 [1] 陈姝睿 [1] 舒展 [1] 周建松 [1*]

1 中南大学湘雅二医院，国家精神心理疾病临床研究中心，国家精神障碍中心，精神病学科

2 安徽师范大学心理学系

通讯作者 E-mail：周建松 zhoujs2003@csu.edu.cn

摘 要 背景：失眠是全球重要的公共卫生问题。神经质与失眠之间的关联已得到广泛确认，但其心理机制尚不清楚。心智游移是指个体在思维和情感上的不稳定性，症状反刍是指个体对失眠症状的反复思考和担忧。二者都可能导致个体在夜间难以停止思考和放松，从而增加失眠的发生。方法：共有 1,790 名在线参与者完成了大五人格问卷、AIS 失眠量表、心智游移问卷以及反刍思维量表的中文版本。通过相关分析和中介分析来探索神经质与失眠之间的关系，并研究心智游移和反刍症状的中介效应。结果：研究结果显示，神经质、心智游移、症状反刍和失眠之间存在显著正相关关系（r>0.464，p<0.001）。此外，中介分析显示，神经质对失眠具有显著的直接影响，同时通过心智游移和症状反刍产生间接影响(estimate=0.372, SE=0.031, p<0.001)。此外，心智游移（estimate=0.361，SE=0.038，p<0.001）和症状反刍（estimate=0.759，SE=0.046，p<0.001）都独立中介了神经质与失眠之间的关系。结论：上述发现对于预防和治疗失眠具有重要的启示。首先，个体的心智游移和症状反刍水平应被认为是评估失眠风险的重要指标之一。其次，针对心智游移和症状反刍的干预措施可能有助于改善失眠症状。例如，通过认知行为疗法和心理教育，帮助个体学会放松和控制思维，减少夜间的思维游移和反刍症状，从而改善睡眠质量。总之，本研究揭示了神经质、心智游移和症状反刍在失眠发生中的重要作用，并为预防和治疗失眠提供了一定的指导。进一步的研究可以进一步拓展我们对失眠心理机制的认识，为制定更有效的干预措施提供依据。

关键词 失眠、神经质、心智游移、症状反刍、链式中介

The Influence of Neuroticism on Insomnia: The Chain Mediating Effect of Mind Wandering and Symptom Rumination

Zhang Zheng [1,2] Tang Huajia [1] Huang Ying [1] Li Xuting [1] Chen Shurui [1] Shu Zhan [1] Zhou Jiansong [1*]

[1] Department of Psychiatry, National Clinical Research Center for Mental Disorders, and National Center for Mental Disorders, The Second Xiangya Hospital of Central South University, Changsha, Hunan, China.

[2] College of Educational Sciences, Anhui Normal University, Wuhu, Anhui, China

Abstract： Background: Insomnia is a significant public health issue worldwide. The association between neuroticism and insomnia has been widely acknowledged, but the psychological mechanisms underlying this connection remain unclear. Cognitive instability refers to an individual's instability in thinking and emotions, while rumination symptomatology refers to an individual's repetitive thinking and worrying about insomnia symptoms. Both factors can contribute to difficulties in ceasing thoughts and relaxing at night, thereby increasing the occurrence of insomnia.

Methods: A total of 1,790 online participants completed the Big Five Personality Inventory, the Athens Insomnia Scale, the Cognitive Instability Questionnaire, and the Rumination Thinking Scale in Chinese. Correlation and mediation analyses were conducted to explore the relationship between neuroticism and insomnia and the mediating effects of cognitive instability and rumination symptoms.

Results: The findings revealed significant positive correlations between neuroticism, cognitive instability, rumination symptoms, and insomnia ($r > 0.464$, $p < 0.001$). Furthermore, mediation analysis demonstrated that neuroticism had a significant direct impact on insomnia, while also exerting indirect effects through cognitive instability and rumination (estimate = 0.372, SE = 0.031, $p < 0.001$). Additionally, both cognitive instability (estimate = 0.361, SE = 0.038, $p < 0.001$) and rumination symptoms (estimate = 0.759, SE = 0.046, $p < 0.001$) independently mediated the relationship between neuroticism and insomnia.

Conclusion: The above findings have important implications for preventing and treating insomnia. Firstly, the individual's level of rumination and symptom rumination should be considered as crucial indicators for assessing insomnia risk. Secondly, interventions targeting rumination and symptom rumination can potentially improve insomnia symptoms. For instance, cognitive-behavioral therapy and psychological education can help individuals relax, control thoughts, and reduce nocturnal rumination, thereby enhancing sleep quality. This study highlights the significant roles of neuroticism, rumination, and symptom rumination in insomnia occurrence and provides guidance for prevention and treatment. Further research can expand our understanding of insomnia's psychological mechanisms and inform more effective interventions.

Keywords：Insomnia, Neuroticism, Mind Wandering, Rumination Symptoms

特质情绪智力的神经生物学：系统性综述

孙华千[1] 王淞[2]（通讯作者）

1 大理大学，大理，671000

2 四川大学华西医院，成都，610000，wangs_psych@163.com

特质情绪智力（TEI）是指一系列能使个体有效地适应环境和保持幸福感的与情绪相关的感知技能，这些技能可使个体可以有效地适应环境并且保持幸福感。TEI 和很多心理疾病有关，特别是跟和焦虑抑郁的发病率有关，我们需要更深入地了解 TEI 的神经生物学机制，来确定潜在地干预目标，我们没有发现关于 TEI 的系统综述。使用 Web of Science 和 PubMed 在线数据库，我们搜索了同行评议的研究特质情绪智力和神经生物学的出版物。我们确定了 29 项研究(n=16，771 名参与者)，这些研究采用了各种方法，包括结构磁共振成像(MRI)、功能磁共振成像(FMRI)、任务磁共振成像（task-fMRI）、弥散张量成像（DTI）。我们对已发表的研究结果的进行综合分析，结果显示，前额叶皮层（特别是内侧和背外侧）、颞后上皮层、脑岛（特别是前侧）、杏仁核、海马的异常结构（灰质体积或白质完整性）和/或活动（对愉快和压力图像/声音

的反应）异常。功能磁共振成像研究报告了 TEI 与注意网络、视觉网络和缺省模式网络的差异激活之间的联系。尽管已发表的研究有局限性，但这篇综述表明特质情绪智力与特定脑区和网络的结构和功能的改变之间的关系。 我们发现情绪智力和抑郁这两种人格特质在以前的研究中是负相关的，这两种人格特质在区域上有明显的重叠。我们为未来特质情绪智力的神经生物学研究提供了建议。
关键词：特质情绪智力，系统回顾，神经生物学

Neurobiology of Trait Emotional Intelligence: a systematic review

Huaqian Sun[1] Song Wang[2]
1Dali University Dali China
2 Huaxi MR Research Center (HMRRC), Departmentof Radiology, West China Hospital of Sichuan University,Chengdu, China

Abstract： Trait Emotional Intelligence (TEI) refers to a set of emotionally relevant perceptual skills that enable individuals to adapt effectively to their environments and maintain a sense of well-being.TEI has been linked to a number of psychological disorders, particularly to the prevalence of anxiety and depression, and we need to gain a deeper understanding of the neurobiological mechanisms of TEI in order to identify potential targets for intervention. found no systematic reviews on TEI. Using the Web OF SCIENCE and PubMed online databases, we searched for peer-reviewed publications examining trait emotional intelligence and neurobiology. We identified 29 studies (n=16, 771 participants) that used a variety of methods, including structural magnetic resonance imaging (MRI), functional magnetic resonance imaging (FMRI), task magnetic resonance imaging (task-fMRI), and diffusion tensor imaging (DTI). Our comprehensive analysis of the results of published studies showed abnormalities in the prefrontal cortex (especially medial and dorsolateral), posterior superior temporal cortex, insulae (especially anterior), amygdala, and hippocampus in terms of abnormal structure (gray matter volume or white matter integrity) and/or activity (response to pleasant and stressful images/sounds). Functional magnetic resonance imaging studies have reported links between TEI and differential activation of attentional, visual, and default mode networks. Despite the limitations of published studies, this review suggests a relationship between trait emotional intelligence and alterations in the structure and function of specific brain regions and networks. We found that two personality traits, emotional intelligence and depression, which have been negatively correlated in previous studies, overlap significantly regionally. We provide suggestions for future neurobiological studies of trait emotional intelligence.

Keywords: Trait Emotional, Intelligence Systematic, Review ,Neurobiology

共同反刍与抑郁症状的关系：一项系统综述和元分析

董凯喜[1, 2]　齐惠紫[1, 2]　赵国朕[1, 2]（通讯作者）
1 中国科学院心理研究所行为科学重点实验室，北京，100101

2 中国科学院大学心理系，北京，100049，通讯作者 zhaogz@psych.ac.cn

摘 要 背景：共同反刍指的是以一种过度的、思辨的、消极的方式与他人谈论问题。研究人员试图探究共同反刍和抑郁症状之间的复杂联系，但研究结果却存在较大差异，并且两者之间的心理机制尚不清晰。

方法：本研究旨在通过系统综述和元分析来探讨共同反刍和抑郁症状的关系。在 Web of science，PsycINFO，PsycArticles，ElsevierSD，Springer Online Journals，EBSCO-ERIC，SAGE Online Journals，ProQuest，中国知网，万方，维普数据库检索 2002 年以来发表的论文。纳入的研究评估了儿童、青少年（占 60%）和成年人的抑郁症状，并计算了抑郁症状和共同反刍的相关关系。所有文章均由两名研究人员独立审阅并编码数据，使用随机效应模型对样本进行估计。

结果：68 项研究（共 31163 名被试）被纳入分析。共同反刍与抑郁症状之间存在显著的正相关关系（n = 130；R = 0.108；95% CI 为 [0.091，0.125]）。两者的关系受到被试类型、抑郁症状和共同反刍的测量工具的调节作用，但不受共同反刍的伙伴类型、被试年龄、女性比例、样本量、文献质量和发表年份的调节。

结论：通过综述以往的文献，基于抑郁传染理论提出了解释共同反刍和抑郁症状关系的双路径模型，并通过元分析的方法检验了被试类型、共同反刍对象、测量工具、年龄等对两者关系的调节作用。结果表明共同反刍水平高的人往往也会伴随着较高程度的抑郁症状。防止共同反刍的频繁发生，尤其是引导个体在遇到困难时不过度关注负面信息和情绪，而是采取有效措施帮助其积极应对困难有助于抑郁症状的缓解。

关键词 共同反刍，抑郁症状，抑郁传染，元分析

The relationship between co-rumination and depressive symptoms: A systematic review and meta-analysis

Kaixi Dong[1, 2], Huizi Qi[1, 2], Guozhen Zhao[1, 2, *]

1 Key Laboratory of Behavioral Science, Institute of Psychology, Chinese Academy of Sciences, Beijing, China.

2 Department of Psychology, University of Chinese Academy of Sciences, Beijing, China.

Abstract: Background: Co-rumination refers to talking about problems to others in an excessive, speculative, and negatively focused way. Researchers have sought to figure out the intricate link between co-rumination and depressive symptoms. However, little is known about which processes explain the well-established link between co-rumination and depressive symptoms. Results across studies have not reached an agreement yet, and the mechanism remains unclear.

Method: The present research aimed to investigate the relationship between co-rumination and depressive symptoms through a systematic review and a meta-analysis. An electronic search was conducted in Web of Science, PsycINFO, PsycArticles, ElsevierSD, Springer Online Journals, EBSCO-ERIC, SAGE Online Journals, ProQuest, CNKI, WANFANG, and VIP database for studies published since 2002. The included studies measured depressive symptoms and examined their association with co-rumination in children, adolescents (60%), and adults. All relevant articles were reviewed and data extracted by two independent coders. Estimates were examined by using random-effects meta-analysis.

Results: Sixty-eight studies (31,163 participants) were included in the analysis (n = 130; r = 0.108; 95% confidence interval [CI] = 0.091 to 0.125). The relationship was moderated by participant type, the measurement tool for depressive symptoms and co-rumination, but not by co-partner, participant age, female ratio, sample size,

literature quality, and year of publication.

Conclusion: Based on the previous literature review, this study proposes a dual-path model to explain the relationship between co-rumination and depressive symptoms based on the theory of contagion of depression. And through the method of meta-analysis, we tested the moderating effect of the participant type, co-partner, measurement tools, and age on the relationship between the two. The results showed that people with high levels of co-rumination also tended to have more severer depressive symptoms. To prevent the frequent occurrence of co-rumination, especially to guide individuals not to pay excessive attention to negative information and emotions when encountering difficulties but to take adequate measures to help them actively cope with problems, is conducive to relieving depressive symptoms.

Keywords：Co-rumination, depressive symptoms, contagious depression, meta-analysis

时间预测错误对喜爱度评价的影响：来自 ERP 的证据

卢蕾安[1]　王春生[2]　任俊[2]（通讯作者）

1 中共东阳市委党校，东阳，322100

2 浙江师范大学心理学院心理系，金华，321004，drinren@163.com

摘 要　准确预测未来是应对不确定世界的重要能力，人们经常尝试预测未来，但很容易出错。预测错误(prediction error)是重要的心理学研究课题。其中时间预测错误(timing prediction error)是指事件发生在意料之外的时间。以往研究只是聚焦于时间预测错误本身，考察发现了 FRN 对时间预测错误敏感，但尚不清楚时间预测错误如何影响人们对其后续相关事件的态度看法。为此，本研究探究时间预测错误如何影响个体对刺激图片的喜爱程度以及脑电变化，采用 2（图片效价：积极、消极）×3（时间预测错误：时间提前、时间不变、时间推迟）两因素被试内设计。要求被试对时间提前、时间不变、时间推迟（时间提前与时间推迟是时间预测错误的两类情况）三类情况下出现的积极图片和消极图片进行喜爱度评价，同时记录神经反应。结果发现，被试对刺激图片的喜爱度受到了效价和时间预测错误影响。时间预测错误比时间预测正确诱发更大的 FRN，进一步检验发现，实际上是时间推迟诱发了更大的 FRN。积极图片比消极图片诱发更大的 P2 和 P3。积极条件下，个体对时间推迟图片的喜爱度评价和 P2 波幅显著高于时间不变图片；而消极条件下，个体对时间提前图片的喜爱度评价和 P2 波幅显著高于时间不变图片。时间推迟图片诱发的 P3 显著小于时间不变图片。这些结果表明：（1）FRN 对时间预测错误敏感，尤其是时间推迟。（2）时间预测错误现象存在“积极-消极不对称”，相较于控制组，人们偏好时间推迟的积极图片和时间提前的消极图片。（3）人们厌恶时间推迟的图片，将其视作较低情感价值结果，进而减少投入注意力资源。

关键词　时间预测错误，FRN，P2，P3

Influence of timing prediction error on degree of preference: Evidence from ERP

LU Leian, WANG Chunsheng, REN Jun
[1]Party School of Dongyang City Committee of C. P. C; [2]Department of Psychology, College of Psychology, Zhejiang Normal University, Jinhua 321004, China

Abstract：Accurate prediction of the future is an important ability to coping the uncertain world. People often try to predict the future, but it is easy to make mistakes.Prediction error is an important research topic in psychology. Timing prediction error refers to an event that occurs at an unexpected time. Previous studies found that FRN is sensitive to timing prediction error, but it is not clear how timing prediction errors affect people's attitudes to subsequent events. Thus, this study explores how timing prediction errors affect an individual's preference for pictures and changes in brain electrical activity. 2(valence: positive, negative)×3(timing prediction error: time advance, time invariance, time delay) two-factor internal design was used. The participants were asked to rate how much they liked the positive and negative pictures in three types of situations, the neural responses were recorded at the same time. The results showed that subjects' preference of pictures was influenced by the valence and timing prediction error.Timing prediction error induced larger FRN than time prediction correct. Further examination showed that time delay actually induced larger FRN. Positive pictures induced greater P2 and P3 than negative pictures.Under the positive condition, compared with the time-invariant pictures, individual's degree of preference and P2 amplitude of time-delayed pictures were significantly higher; while under the negative condition, compared with the time-invariant pictures, the individual's degree of preference and P2 amplitude of time-ahead pictures were significantly higher.P3 induced by time-delayed pictures was significantly smaller than that induced by time-invariant pictures.These results indicate that: (1) FRN is sensitive to timing prediction errors, especially time delay. (2) There was a“Positive-Negative Asymmetry” in the timing prediction error. Compared with the control group, people prefer the positive pictures of time delay and the negative pictures of time advance. (3) People disliked delayed pictures, consider it as a result of lower emotional value, which in turn reduced their attentional resources.

Keywords：timing prediction error, FRN, P2, P3

高中生认知灵活性与情绪弹性的关系：基于潜在剖面分析

王叶影[1]　贾宁[1]（通讯作者）

1 河北师范大学教育学院，石家庄市，050010

1 河北师范大学教育学院，石家庄市，050010，Jianing@hebtu.edu.cn

摘 要 在当今社会环境下，学生网络成瘾、厌学、逃学和打架等问题频发，这些问题应当引起社会的关注与思考，以促进学生的心理健康和社会适应。以往研究发现，认知灵活性与情绪调节均作为个体适应现实的方式，但对二者之间的关系的研究较少，本研究主要探索高中生认知灵活性的潜在类别，并讨论各类别与情绪弹性的关系。采用整群随机抽样的方法选取河北省某中学 1708 名高中生为研究对象，使用高中生认知灵活性问卷、青少年情绪弹性问卷对其进行调查，对认知灵活性进行潜在剖面分析，同时运用方差分析探讨认知灵活性潜在类别与情绪弹性的关系。结果分析发现高中生认知灵活性得分与情绪弹性得分正相关(r=0.60,P<0.01)。潜在类别分析将高中生认知灵活性分为灵活型（22.1%）、中等型（68.1%）和僵化型（9.8%）三类，其中中等型占比较多，灵活型个体占比少，有较大的提升空间，且各组在认知灵活性的不同维度上得分均具有显著性差异。经方差分析和 Logistic 回归分析结果表明，高中生认知灵活性潜在类别在性别、不同班级类型上差异有统计学意义。经方差分析发现认知灵活性灵活型组高中生在情绪弹性的积极情绪能力和情绪恢复能力维度得分显著高于其他 2 组（$F(2,1702)=266.765$, $p<0.001$,$\eta^2=0.239$；$F(2,1702)=145.011$,$p<0.001$,$\eta^2=0.146$)。经以上研究结果，教育者可通过改善高中生的认知灵活性类型提高其积极情绪和情绪恢复能力，培养心理素质优良的高中生。

关键词 认知灵活性,情绪弹性,潜在剖面分析,高中生

Cognitive Flexibility and Emotional Elasticity of High School Students: A Potential Profile Analysis

Wang Yeying[1] Jia Ning[1]

[1]School of education，Hebei Normal University，Shijiazhuang 050000，China

Abstract：In today's social environment, students' internet addiction, weariness of learning, truancy and fighting are frequent, which should arouse social concern and thinking to promote students' mental health and social adaptation. Previous studies have found that cognitive flexibility and emotional adjustment are both ways for individuals to adapt to reality, but there is little research on the relationship between them. This study mainly explores the potential categories of cognitive flexibility of senior high school students and discusses the relationship between each category and emotional flexibility. 1708 senior high school students from a middle school in Hebei Province were selected by cluster random sampling. They were investigated by using the Cognitive Flexibility Questionnaire for Senior High School Students and the Emotional Flexibility Questionnaire for Adolescents, and the potential profile of cognitive flexibility was analyzed. At the same time, the relationship between the potential categories of cognitive flexibility and emotional resilience was discussed by using the analysis of variance. Results It was found that the scores of cognitive flexibility and emotional flexibility of senior high school students were positively correlated (r=0.60,P<0.01). The latent category analysis divides senior high school students' cognitive flexibility into three categories: flexible (22.1%), medium (68.1%) and rigid (9.8%), in which the medium type accounts for more, while the flexible individual accounts for less, which has great room for improvement, and the scores of each group in different dimensions of cognitive flexibility are significantly different. The results of variance analysis and Logistic regression analysis show that there are significant differences in gender and different class types in the potential categories of cognitive flexibility of senior high school students. The analysis of variance shows that the scores of high school students in cognitive flexibility group are significantly higher than those in other two groups (f (2,1702) = 266.765, P < 0.001, η 2 = 0.239; F(2,1702)=145.011,p<0.001,η2=0.146)。 Through the above research results, educators can improve their positive emotions and emotional recovery ability by improving their cognitive flexibility types, and cultivate high school students with excellent psychological quality.

Keywords：Cognitive flexibility, emotional resilience, latent profile analysis, senior high school students

基于执行意图的自我同情语料库的编制及初步试用：以抑郁倾向大学生为例

孙萌 付晓彤 杨洁敏 袁加锦（通讯作者）

四川师范大学脑与心理科学研究院，成都，610066，yuanjiajin168@sicnu.edu.cn

摘 要 自我同情是个体进行积极自我调节的一种方式，在调节消极情绪、改善不良认知时具有重要意义。现有研究多关注指导下的自我同情实施过程，然而，传统指导下的自我同情存在认知资源消耗大、生态效度低等特点，致使特殊群体（如抑郁症）难以自发应用。因此，为降低自我同情使用时的认知损耗并提升

其在日常情境中个体自发使用的可能性，我们通过执行意图这一结构建立起预期消极情境与自我同情之间的自动化联结，构建了基于执行意图的自我同情语料库，并以抑郁倾向的大学生为例检验其在调节抑郁情感时的效用。首先，研究一以大学生常见的消极生活事件为预期情境，自我同情的三个维度（自我关怀、共同人性、正念）为目标导向行为，对预期情境和基于执行意图的自我同情语句分别进行编制，招募 106 名大学生被试根据语句与自我同情的三个维度的相关度进行筛选，并进行语句的属性评定。 其次，研究二筛选 74 名有抑郁倾向的大学生作为研究对象并随机分为三组，即基于执行意图的自我同情组、传统自我同情组和控制组（基于执行意图的中性语句）。在实验室条件下诱发被试的抑郁情感，记录并比较三组被试在诱发前后的情绪主观评分，以检验基于执行意图的自我同情语料库中的语句对抑郁情感的调节作用。结果显示：（1）根据评定结果筛选出基于执行意图的自我同情语句和基于执行意图的中性语句各 117 个；与中性情境句相比，消极情境句效价、熟悉度更低，唤醒度更高。被试对两组执行意图语句均表现出较高的接受度，且在效价与唤醒度评分上，能够和中性组进行区分；语料库具有较高的信度与内部一致性。（2）基于执行意图的自我同情与传统自我同情均能有效诱发个体的自我同情并降低抑郁情感；控制组在情绪调节过程中耗费的认知努力最少，其次是基于执行意图的自我同情语句组，而传统自我同情语句组耗费认知努力最多；三组被试在自我同情的使用难度上并无差异。这说明通过本语料库触发基于自我同情策略的情绪调节具有较高的有效性与可靠性，同时相比传统自我同情具有低认知努力的特征。
关键词 抑郁情感，自我同情，执行意图，情绪调节

Development of a Self-Compassion Sentence Database based on implementation intention: testing its validity in moderate depression

Meng Sun, Xiaotong Fu, Jiemin Yang, Jiajin Yuan
Institute of Brain and Psychological Science, Sichuan Normal University, Chengdu, 610066,
yuanjiajin168@sicnu.edu.cn

Abstract: Self-compassion is a positive attitude when faced with painful events, which plays an important role in the regulation of depressed mood and maladaptive cognition. Existing research has mostly focused on guided self-compassion implementation. However, traditional self-compassion (TSC) interventions are characterized by high cognitive resource consumption and low ecological validity, making it difficult for specific populations (e.g., depression) to spontaneously apply. Therefore, to reduce cognitive consumption and enhance the possibility of spontaneous application in daily situations, we established an automatic association between anticipated negative situations and self-compassion based on the implementation intention (II-SC) statements. We constructed a self-compassion sentence database based on the implementation intentions and examined its effectiveness in regulating depressed mood in college students with moderate depression. II-SC statements were constructed in Study 1. For the construction of this database negative life events of college students were included in the anticipation situation while the three dimensions of self-compassion (self-kindness, common humanity, and mindfulness) were included as the response strategy. 106 college students were recruited to participate in the study to evaluate the relevant attributes of the statements and the correlation with the three dimensions of self-compassion. In Study 2, we recruited 74 depressed college subjects in the experiment, they were randomly divided into three groups: II-SC, TSC, and control (no-regulation) groups. We induced depressed mood and compared the differences in subjective scores in regulating depressed mood among three groups to verify the effectiveness of the database. The results indicated that: (1) 117 self-compassionate statements based on implementation intention and 117 neutral statements were determined according to the relevance scores; Compared to the neutral sentences, the negative context sentences showed lower scores in valence and familiarity, but higher in arousal. Participants displayed a higher acceptance level for both sets of implementation intention statements,

and they were able to distinguish them from the neutral group in terms of valence and arousal ratings; The database demonstrated high reliability and internal consistency. (2) Both II-SC and traditional self-compassion were effective in inducing self-compassion and reducing depressed mood; The control group exhibited the least cognitive effort during depressive mood induction, followed by the II-SC group, while the traditional self-compassion group required the most cognitive effort; There was no significant difference among the three groups in terms of the difficulty of using self-compassion. This indicates that emotion regulation based on the current database has higher effectiveness and reliability, as well as being characterized by lower cognitive effort compared to traditional self-compassion.

Keywords：depressed mood, self-compassion, implementation intention, emotion regulation

浙江大学动态面部表情数据库的建立和验证

潘之禾，陈惠敏，刘思琦，方霞 (通讯作者：x.fang@zju.edu.cn)
浙江大学心理与行为科学系，杭州，310058

摘 要 面部表情的动态特性传递了丰富而复杂的运动模式，使面孔成为人们情绪交流的重要媒介。然而，以往研究主要集中在对静态、基本情绪种类的考察，并且聚焦于西方文化。近年来，越来越多的研究表明情绪表达具有文化特异性。本研究旨在探究在中国文化背景下，可由动/静态面部表情传递的情绪类别以及是否存在动态识别优势效应，包括两个实验。实验 1 建立了常见情绪词汇库。通过回顾整理以往东西方情绪研究中的情绪词汇，并依据专家和参与者(N = 61)的评价，筛选常见性高且相似性低的情绪词汇纳入情绪词汇库。招募另一批参与者(N = 105)对筛选后的情绪词汇进行情绪表达方式评价(包括面部表情、声音、肢体动作等)。最终，选取面部表情表情选择比例大于 85%的情绪，连同基本情绪，共 28 种情绪(包括害羞，悲伤，开心，胜利等)。实验 2 采集并验证了面部表情。在第一阶段中，招募 64 名参与者表演 28 种情绪的面部表情并进行录制。全部表演完毕后，参与者回看自己的录像并指出最能代表每种情绪的画面，依此得到每种情绪相应的动/静态面部表情。在第二阶段中，招募另一批参与者对所有动态(N = 386)和静态面部表情(N = 415)进行情绪识别和维度评价。结果显示，参与者可以从静态表情中识别 13 种情绪，但能从动态表情中识别 23 种情绪。此外，18 种情绪显示了动态识别优势，其余 10 种情绪则未显示动静态表情识别的显著差异。本动态情绪面孔数据库丰富了国内现有的情绪面孔研究材料，并为面部表情情绪识别、动态面孔识别优势提供了证据。

关键词 动态，面部表情，情绪识别，数据库

Establishment and Validation of the Zhejiang University Dynamic Facial Expression Database

Zhihe Pan, Huimin Chen, Siqi Liu, Xia Fang (x.fang@zju.edu.cn)
Department of Psychology and Behavioral Sciences, Zhejiang University, Hangzhou, 310058

Abstract: The dynamic characteristics of facial expressions convey rich and complex patterns of movements, making the face a vital medium for emotion communication among individuals. However, previous research has mainly focused on static, basic emotions and has primarily been centered on Western cultures. In recent years,

research has highlighted the cultural specificity of emotion expression. The present research aims to explore the emotions that can be conveyed through dynamic/static facial expressions as well as whether there exists dynamic advantage effect in emotion recognition in the Chinese culture. The study consists of two experiments. Experiment 1 established the emotion word set. By reviewing emotion words involved in Eastern and Western emotion researches, and based on evaluations from experts and participants (N = 61), emotion words with high commonality and low similarity were selected and included in the emotion word set. Another group of participants (N = 105) self-reported their expression modes for selected emotion words (including facial expressions, vocalizations, and body movements, etc.). Twenty-eight emotions (including shyness, sadness, happiness, triumph, etc.) with facial expression selection rate of over 85% along with basic emotions were ultimately chosen. In Experiment 2, facial expressions were collected and validated. In phase 1, 64 participants posed and recorded facial expressions of 28 emotions. After posing all the expressions, they reviewed their recordings and indicated the images that best represented each emotion, resulting in the corresponding dynamic and static facial expressions. In phase 2, another group of participants performed emotion recognition and dimensional evaluation on all dynamic facial expressions (N = 386) and static facial expressions (N = 415). The results showed that participants could recognize 13 emotions from static expressions, but 23 emotions from dynamic ones. Additionally, 18 emotions exhibited dynamic advantage, while the remaining 10 emotions did not show significant differences in recognition between dynamic and static expressions. The current dynamic facial expression database enriches the existing materials for facial expression research in Chinese culture as well as provides evidence for the facial expression recognition and its dynamic advantage.
Keywords**:** dynamic, facial expression, emotion recognition, database

摄影干预对孤独感的影响：一项随机对照实验

史璐 焦姣 阿美娜 赵思楠 高优恒 牡丹（通讯作者）
内蒙古师范大学心理学院，呼和浩特，010022，bmudan@126.com

摘 要 孤独感是当个体的人际关系需求无法得到满足时，主观上产生的一种负性情绪体验，长期的处于孤独状态会影响个体的身心健康，进而可能引发一些情绪障碍和出现问题行为。积极心理干预是通过干预增加个体的积极情绪、积极认知和积极行为，从而促使个体达到一种丰盈的状态，而摄影干预作为积极心理干预的方法之一，通过注意转移聚焦积极事物，培养积极情绪体验，进而增强社会联系和对社会支持的感知，对缓解孤独感这一典型的负面情绪发挥着独特的作用。本研究旨在从积极心理学的角度出发，关注降低孤独感的积极因素，探索摄影干预对降低个体孤独感的作用，为缓解大学生孤独感提供一条新路径和新形式。本研究选取大学生被试，采用随机对照实验设计，将被试随机分为干预组与对照组，其中干预组连续进行 7 天的摄影干预，对照组不做任何实验处理，并在干预前、干预后、以及干预后一个月分别进行一次 UCLA 孤独量表(第三版)的问卷施测，以探讨摄影干预效果以及干预在时间上的稳定性。结果发现，与对照组相比，摄影干预显著增加了干预组被试的积极情绪，并显著降低了干预组的孤独感水平，且摄影干预后一个月干预组、对照组的孤独感水平依然存在显著差异。本研究初步探讨了摄影干预在缓解大学生的孤独感中的作用，表明摄影干预可以作为一种降低大学生孤独感的干预措施进行应用。

关键词 孤独感，大学生，摄影干预

Effect of a Photography-Based Intervention on Loneliness:

A Randomized Controlled Trial

Shi Lu, Jiao Jiao, A Meina, Zhao Sinan, Gao Youheng, Mu Dan
School of Psychology，Inner Mongolia Normal University，Hohhot

Abstract: Loneliness is a subjective negative emotional experience when an individual's interpersonal needs can not be met. Long-term loneliness will affect an individual's physical and mental health, which may lead to some emotional disorders and problematic behaviors. Positive psychological intervention is to increase the individual's positive emotions, positive cognition and positive behavior through intervention, so as to promote the individual to achieve a state of abundance. As one of the methods of positive psychological intervention, photography-based intervention can focus on positive things by shifting attention, cultivate positive emotional experience, and further enhance social connection and perception of social support. It plays a unique role in relieving loneliness, a typical negative emotion. This study aims to focus on the positive factors that reduce loneliness from the perspective of positive psychology, explore the effect of photography-based intervention on reducing individual loneliness, and provide a new path and form for alleviating loneliness among college students. In this study, college students were selected and randomly divided into the intervention group and the control group by a randomized controlled experimental design. The intervention group was subjected to photographic intervention for 7 consecutive days, while the control group was not subjected to any experimental treatment. The UCLA Loneliness Scale (3rd edition) questionnaire was tested before, after and one month after the intervention respectively. To explore the effect of photography-based intervention and the stability of intervention in time. The results showed that, compared with the control group, the photographic intervention significantly increased the positive emotions of the subjects in the intervention group, and significantly reduced the level of loneliness in the intervention group, and there was still a significant difference in the level of loneliness between the intervention group and the control group one month after the photographic intervention. This study preliminarily discusses the role of photography-based intervention in alleviating loneliness of college students, indicating that photography intervention can be applied as an intervention measure to reduce loneliness of college students.

Keywords: loneliness, college student, photography-based intervention

认知损耗对情绪调节的影响及特质自控的调节作用：行为与事件相关电位证据

黄瑞文[1]　乐嵋[1]　袁加锦[1]　颜心雨[1]　杨洁敏[1]

1 四川师范大学脑与心理科学研究院，成都，610066，yangjiemin85@126.com

摘 要　情绪调节需要消耗大量认知资源来克服对情感刺激的非适应性反应，而忙碌的工作和生活可能会极大地消耗个体的认知资源从而导致情绪失调。然而，目前认知损耗影响情绪调节背后的认知机制尚不清楚，因此本研究采用经典字词/颜色 Stroop 任务和情绪调节策略选择任务考察了认知损耗对情绪调节选择阶段的影响，并探究了特质自我控制能否有效抑制认知损耗对情绪调节产生的影响。实验 *1* 采用 Stroop 任务操纵损耗程度以探究个体在不同损耗状态下，面对不同强度的负性情绪图片刺激时对“分心”、“重评”调节策略的选择偏好，以不进行情绪调节的“观察”选择作为基线条件；同时，采用特质自我控制量表（Trait

self-control Scale）将被试分为高、低特质自控组，考察特质自控在其中的调节作用。实验 *2* 采用 *ERP* 技术，观测在高损耗状态下高、低特质自我控制个体情绪调节的神经生理特征。结果发现：（1）在低损耗状态下，个体选择分心和重评策略的比例显著高于观察；而在高损耗状态下，三种策略选择比例均无显著差异（损耗导致策略使用减少）。另一方面，与低损耗状态相比，高损耗状态下个体对分心和观察策略的选择比例显著上升而重评策略的选择显著减少。（2）个体在高强度刺激下更多选择分心而更少选择重评，且分心和重评的选择比例都显著高于观察；在低强度刺激下，个体对分心、重评和观察的选择均无显著差异（更愿意调节高强度情绪）。（3）高自控个体的晚期正成分波幅(late positive potential, LPP)在策略选择前显著低于低自控个体；高自控个体的 P3 波幅在策略执行阶段显著大于低自控个体（损耗状态下高自控个体的情绪调节能力更强）。研究结果基本重复了前人关于情绪刺激强度影响情绪调节策略选择的发现，更进一步揭示了随着损耗的增加，个体更倾向于选择低卷入度的情绪调节策略，且特质自我控制在这一影响过程中起调节作用。

关键词 损耗，情绪调节策略，特质自我控制，资源，ERP

The Moderator Role of Trait Self-Control in the Effects of Depletion on the Process of Emotion regulation：Evidence from Behavioral and Event-Related Potential

Ruiwen Huang, Mei Le, Jiajin Yuan, Xinyu Yan, and Jiemin Yang
Institute of Brain and Psychological Sciences, Sichuan Normal University, Chengdu

Abstract：Emotion regulation requires amounts of cognitive resources to to overcome non adaptive responses to emotional stimuli, and excessive depletion of an individual's cognitive resources may lead to emotional dissonances. However, the cognitive mechanisms of the impact of depletion on emotion regulation is currently unknown. Therefore, this study used the classic word/color Stroop task and emotion regulation strategy selection task to explore the effects of cognitive depletion on emotion regulation and the role of trait self-control in the effects of depletion on the process of emotion regulation. In Experiment 1, we manipulated the level of depletion using to Stroop task to investigate individuals' preference for “distraction”, “reappraisal” strategies when facing negative emotional stimuli of different intensities under different depletion states, with “observation” (no emotion regulation) as the baseline condition. Additionally, the participants were divided into high and low trait self-control groups using the Trait Self Control Scale to investigate the moderating effect of trait self-control. In Experiment 2, we used ERP technology to observe the neurophysiological characteristics of emotion regulation in individuals with high and low trait self-control under high depletion conditions. The results indicated the following: (1) Under conditions of low depletion, individuals exhibited a significantly higher preference for the distract and reappraise strategies compared to observe. However, under conditions of high depletion, there were no significant differences in the proportions of the three strategy choice(depletion led to a reduction in strategy use). Moreover, compared to low depletion, high depletion resulted in a significant decrease in the proportion of reappeaisal choices. (2) In the case of high-intensity stimuli, individuals were more likely to choose the distract strategy and less likely to choose reappraise, with both distract and reappraise strategies being significantly higher than observe. Under low-intensity stimuli, there were no significant differences in the proportions of distraction, reappraisal, and observation choices (individuals were more willing to regulate high-intensity emotions). (3) The late positive potential (LPP) amplitudes of high self-control individuals were significantly lower than those of low self-control individuals prior

to strategy selection, and the P3 amplitudes of high self-control individuals during the strategy implementation stage were significantly higher than those of low self-control individuals (high self-control individuals showed stronger emotion regulation abilities under conditions of depletion). The results of this study essentially replicate previous findings regarding the influence of emotion stimulus intensity on emotion regulation strategy selection. Furthermore, it provide further insight into the tendency of individuals to choose low-engagement emotion regulation strategies as depletion increases, and the moderator role of trait self-control in this process.
Keywords：Depletion, Emotion Regulation Strategy, Trait Self-control, Resource, ERP

经颅交流电刺激基于前额叶网络的情绪调节作用

彭芝琳 [1] 张丹丹 [1]

[1] 四川师范大学脑与心理科学研究院，成都，610066，zhangdd05@gmail.com

摘 要　本文介绍了经颅交流电刺激在前额叶网络上的情绪调节作用的研究进展。经颅交流电刺激是一种非侵入性的神经调节技术，可以通过向头皮上的特定脑区传送正弦交流电，影响神经元的振荡活动和同步性，从而改善认知功能。近年来，经颅交流电刺激因其简单、便捷、廉价、可重复、可个体化等特点，受到了越来越多的关注和应用。尤其是在情绪障碍方面，经颅交流电刺激有可能成为一种有效和安全的治疗手段。经颅交流电刺激可以夹带和调节内源性的脑节律，如θ、α、β和γ波，这些节律与情绪调节相关的前额叶网络有密切的联系。前额叶网络包括内侧前额叶皮质（mPFC）、前扣带皮质（ACC）、外侧前额叶皮质（lPFC）等区域，它们在情绪加工、情绪认知控制、情绪记忆和情绪调节等过程中发挥重要作用。许多精神神经疾病，如抑郁症、焦虑症、精神分裂症等，都表现出前额叶网络的功能异常和脑节律的同步障碍。因此，经颅交流电刺激有可能通过改善前额叶网络的节律同步性，来缓解这些疾病的情绪障碍。目前，关于经颅交流电刺激在前额叶网络上的情绪调节作用的研究还比较少，但已有一些初步的证据支持其有效性和安全性。未来需要更多高质量、大样本、多中心、随机对照、双盲等设计的研究来验证和优化经颅交流电刺激在前额叶网络上的情绪调节作用，并为其在精神神经疾病中的临床应用提供更有力的证据和指导。
关键词　经颅交流电刺激，前额叶，情绪调节

Effect of transcranial alternating current stimulation on emotion regulation based on prefrontal network

Peng Zhilin [1] Zhang Dandan[1]

Institute of Brain and Psychological Sciences, Sichuan Normal University, Chengdu, 610066, China

Abstract: This article introduces the research progress of transcranial alternating current stimulation on emotion regulation in the prefrontal network. Transcranial alternating current stimulation (TDCS) is a non-invasive neuromodulation technique that can improve cognitive function by delivering sinusoidal alternating current to specific brain regions on the scalp, affecting the oscillatory activity and synchrony of neurons. In recent years, transcranial alternating current stimulation has received more and more attention and applications because of its simple, convenient, inexpensive, repeatable, and individualized characteristics. Transcranial alternating current stimulation has the potential to be an effective and safe treatment for mood disorders in particular. Transcranial

alternating current stimulation can entrain and modulate endogenous brain rhythms, such as theta, α, β, and γ waves, which are closely linked to prefrontal networks related to emotion regulation. The prefrontal network includes the medial prefrontal cortex (mPFC), anterior cingulate cortex (ACC), lateral prefrontal cortex (lPFC) and other regions, which play an important role in emotional processing, emotional cognitive control, emotional memory, and emotional regulation. Many neuropsychiatric disorders, such as depression, anxiety, schizophrenia, etc., show dysfunction of prefrontal networks and desynchrony of brain rhythms. Thus, transcranial alternating current stimulation has the potential to alleviate mood disorders in these disorders by improving the rhythmic synchrony of prefrontal networks. At present, there are few studies on the effect of transcranial alternating current stimulation on emotion regulation in the prefrontal network, but there are some preliminary evidence to support its efficacy and safety. In the future, more high-quality, large-sample, multi-center, randomized controlled, double-blind and other designed studies are needed to verify and optimize the emotional regulation effect of transcranial alternating current stimulation on prefrontal network, and to provide stronger evidence and guidance for its clinical application in psychiatric diseases.
Keywords: transcranial alternating current stimulation, prefrontal lobe, emotion regulation

基于 theta 的脑电神经反馈训练改善个体情绪调节能力

黄宇 [1] 张丹丹 [1]

[1]四川师范大学脑与心理科学研究院，成都，610066, zhangdd05@gmail.com

摘 要　情绪调节在适应性行为中起着至关重要的作用。已有大量研究表明，神经反馈训练能够有效改善个体的情绪调节能力。在情绪调节领域，脑电神经反馈（EEG-NF）通常通过两种方式来实现： (1) 增加双侧额叶的 alpha 不对称 (ALAY)和 (2) 下调高 beta。这两种方案在以往大部分研究中都已得到证明可以有效改善精神障碍患者的情绪调节能力。然而却有部分研究发现，尽管个体可以通过神经反馈训练来增加或减少 alpha 不对称，但是这种改变对于情绪改善没有任何帮助。以往研究表明，theta 振荡与情绪有关。然而目前还没有研究考察过基于 theta 振荡的神经反馈训练对于情绪调节的影响。基于此，在本研究中，我们采用基于 theta 震荡的脑电神经反馈训练来改善健康大学生的情绪调节能力。基于前人的研究，我们提出研究假设：相比于假反馈组，真反馈组在神经反馈训练之后，被试的情绪调节能力得到改善。本研究所选择的情绪调节策略为认知重评。实验以“反馈类型”（真反馈组、假反馈组）为被试间变量，“时间”（前测、后测）为被试内因素。结果发现，与假反馈组相比，真反馈组的情绪调节能力得到了改善。但是两组的负性情绪差异并不显著。本研究是首次考察基于 theta 振荡的神经反馈训练对于情绪调节的影响。研究结果表明，基于 theta 振荡的神经反馈训练可以改善个体的情绪调节能力，但是仍然需要更多的进一步研究。

关键词　神经反馈，EEG，情绪调节，theta

EEG neural feedback training based on theta improves individual's emotional regulation ability

Huang Yu[1] Zhang [1]

Institute of Brain and Psychological Sciences, Sichuan Normal University, Chengdu, 610066, China

Abstract： Emotional regulation plays a vital role in adaptive behavior. A large number of studies have shown that neural feedback training can effectively improve the individual's emotional regulation ability. In the field of emotion regulation, EEG-NF is usually realized in two ways: (1) increasing the alpha asymmetry of bilateral frontal lobes (ALAY) and (2) down-regulating the beta. These two schemes have been proved to be effective in improving the emotional adjustment ability of patients with mental disorders in most previous studies. However, some studies have found that although individuals can increase or decrease alpha asymmetry through neural feedback training, this change is not helpful for emotional improvement. Previous studies have shown that theta oscillation is related to emotions. However, the influence of neural feedback training based on theta oscillation on emotional regulation has not been studied yet. Based on this, in this study, we use EEG neural feedback training based on theta oscillation to improve the emotional regulation ability of healthy college students. Based on previous studies, we put forward a research hypothesis: compared with the false feedback group, the true feedback group improved the emotional adjustment ability of the subjects after neural feedback training. The emotional adjustment strategy chosen in this study is cognitive reappraisal. In the experiment, "feedback type" (true feedback group and false feedback group) is the inter-subject variable, and "time" (pre-test and post-test) is the intra-subject factor. The results showed that compared with the false feedback group, the emotional adjustment ability of the true feedback group was improved. However, there is no significant difference in negative emotions between the two groups. This study is the first time to investigate the influence of neural feedback training based on theta oscillation on emotional regulation. The results show that neural feedback training based on theta oscillation can improve the individual's emotional regulation ability, but more further research is still needed.

Keywords： Neurofeedback, EEG, emotion regulation, theta

自动化情绪调节策略对抑郁倾向大学生负性注意偏向的影响

董佳宜[1] 梁碧珊[1]（通讯作者）

1 广东技术师范大学，广州，510665

通讯作者 E-mail(bishanliang1030@163.com）

摘 要 近年来，随着社会竞争不断加大，抑郁倾向成为当今大学生最普遍的心理健康问题之一，同时也一直是社会关注的热点。研究表明情绪调节策略可以有效调节抑郁倾向个体的负性注意偏向，其中有意识情绪调节策略需要消耗大量认知资源，而认知资源是影响注意偏向的重要因素之一。自动化（无意识）情绪调节能够在消耗极少甚至不消耗认知资源的情况下保持调节的高效性，能够克服有意识情绪调节消耗大量认知资源的缺陷，从而提升个体的负性注意偏向及负性情绪的调节效果。值得注意的是，在有意识层面上具体的情绪调节策略：认知重评和表达抑制，这两者对负性注意偏向存在不同程度的影响，然而在无意识层面上这两者是否存在差异需要进一步探讨。同时，也有研究发现个体的元情绪与抑郁情绪之间存在联系。因此，本研究以抑郁倾向大学生作为被试，选用了点探测范式以及句子整理任务范式作为实验材料，探索自动化情绪调节策略对抑郁倾向个体负性注意偏向有何作用，以及个体的元情绪水平是否能够影响该策略调节负性注意偏向的有效性。

结果显示：（1）抑郁倾向大学生存在负性注意偏向。（2）自动化情绪调节策略（句子整理任务）能够有效减少抑郁倾向大学生的负性注意偏向。（3）元情绪得分和抑郁得分呈显著负相关，且抑郁倾向个体的元情绪水平会影响自动化情绪调节策略对负性注意偏向的调节效果，表现为：低元情绪水平个体运用认知重评策略比运用表达抑制策略的调节效果更好；在运用表达抑制策略的抑郁倾向个体中，高元情绪水平个体比低元情绪水平的调节效果更好。

关键词　自动化情绪调节策略；抑郁倾向；注意偏向；元情绪

The effect of automatic emotion regulation strategies on negative attention bias in depressed college students

Jiayi Dong[1]　Bishan Liang[1]
Guangdong Polytechnic Normal University, Guangzhou, 510665
Email: bishanliang1030@163.com

Abstract：In recent years, with the increasing social competition, depression tendency has become one of the most common mental health problems of college students, and has been the focus of social attention. Studies have shown that college students are one of the groups susceptible to depression, and the detection rate of depression among college students is generally higher than that of their peers, and negative attention bias is one of the important factors for the generation, persistence and development of depression. By referring to domestic and foreign literatures on meta-emotion, automatic emotion regulation strategies, depression-prone individuals and negative attention bias, we can see that there are many studies on the relationship between depression-prone individuals and negative attention bias and the conclusions are clear. However, few studies have included automatic emotion regulation strategies. In addition, there are few researches on the relationship between meta-emotion and negative attention bias, so there is a certain space for research. This study theoretically summarizes previous studies, takes depression-prone college students as subjects, selects the point detection paradigm and the sentence organizing task paradigm as experimental materials, and explores the effect of automatic emotion regulation strategy on the negative attention bias of depression-prone individuals, and whether the meta-emotional level of individuals can affect the effectiveness of this strategy in regulating negative attention bias.

The results showed that: (1) depressed college students had negative attention bias. (2) Automatic emotion regulation strategy (sentence sorting task) can effectively reduce the negative attention bias of depression-prone college students. (3) Meta-emotion score and depression score were significantly negatively correlated, and meta-emotion level of depression-prone individuals would affect the effect of automatic emotion regulation strategy on negative attention bias. The results showed that cognitive reappraisal strategy was better than expression inhibition strategy in individuals with low meta-emotion level. In the depressed individuals who used expression inhibition strategies, the adjustment effect of high mood level was better than that of low mood level.

Keywords：Automated emotion regulation strategies; Depression tendency; Attention bias; meta-emotion

社会排斥与大学生心理危机脆弱性的关系：自我不确定、主观社会阶层的链式中介作用

黎俊良[1]（通讯作者） 李纯瑜[2] 孙路遥[3] 耿晓伟[4]
1 滇西科技师范学院，临沧，677000, li_junliang@foxmail.com
2 曲靖师范学院，曲靖，655011
3 昆明医科大学，昆明，650500
4 杭州师范大学经亨颐教育学院，杭州，311121

摘 要 采用大学生社会排斥问卷、心理危机脆弱性量表、自我不确定性量表、主观社会地位量表对 758 名在校大学生进行调查，探讨了大学生社会排斥与心理危机脆弱性的关系，以及自我不确定和主观社会阶层在大学生社会排斥与心理危机脆弱性间的链式中介作用。结果显示：(1)社会排斥、自我不确定和心理危机脆弱性之间均呈现显著正相关，主观社会阶层和社会排斥、自我不确定、心理危机脆弱性之间均呈现显著负相关；(2)自我不确定、主观社会阶层在社会排斥与心理危机脆弱性的关系间均起着部分中介作用；(3)自我不确定与主观社会阶层在社会排斥与心理危机脆弱性的关系间起着链式中介作用。因此，社会排斥、自我不确定、主观社会阶层是大学生心理危机脆弱性的重要影响因素，社会排斥除了能直接影响大学生的心理危机脆弱性外，还可以通过自我不确定、主观社会阶层的链式中介作用间接影响其心理危机脆弱性水平。

关键词 社会排斥 心理危机脆弱性 自我不确定 主观社会阶层 链式中介

Relationships between Ostracism and psychological vulnerability: The Chain Mediating Roles of self-uncertainty and social class

Li Junliang[1] Li Chunyu[2] Sun Luyao[3] Geng Xiaowei[4]
1 West Yunnan University, Lincang 677000, China.
2 Qujing Normal University, Qujing 655011, China.
3 Kunming Medical University, Kunming 650500, China.
4 Jing Hengyi School of Education, Hangzhou Normal University, Hangzhou 31121 China.

Abstract：The survey was conducted on 758 college students by using the College Student Social Exclusion Questionnaire, Psychological Vulnerability Scale, Self-Uncertainty Scale, and Social class Scale to explore the relationship between Ostracism and Psychological vulnerability of college students, as well as the chain mediating role of Self-uncertainty and social class. The results show that: (1) there is a significant positive correlation between ostracism, self-uncertainty, and psychological vulnerability, while there is a significant negative correlation between social class and ostracism, self-uncertainty, and psychological vulnerability; (2) Self-uncertainty and

social class both play a partial mediating role in the relationship between ostracism and psychological vulnerability; (3) self-uncertainty and social class play a chain mediating role in the relationship between social exclusion and psychological vulnerability. Therefore, ostracism, self-uncertainty, and social class are important factors influencing the psychological vulnerability of college students. In addition to directly affecting students' psychological vulnerability, ostracism can also indirectly affect the level of psychological vulnerability through the chain mediating effect of self-uncertainty and social class.

Keywords：Ostracism, Psychological vulnerability, Self-uncertainty, Social class, Multiple mediating effects

感知父母评价准确性与中小学生完美主义、幸福感及学业行为的关系：基于多项式回归与响应面分析的探索

邢慧琳[1]　姚梅林[1] 吴心玥[1] 胡悠悠[1] 刘红瑞[1]（通讯作者）

1 北京师范大学，北京，100101，hrliu@bnu.edu.cn

摘　要　童年后期至青春期，个体已经具备从他人的角度评估自己以及内化他人对其看法的认知能力，来自重要他人的反馈和评价塑造着他们的心理和行为发展。父母表扬和批评是家庭系统中最为常见的两种反馈形式，对儿童适应性发展有着持续影响。然而，以往研究仅聚焦于表扬和批评中的其一，缺乏对二者影响的整合探讨；多关注表扬或批评的频率、内容等，忽略了准确性在其中的关键作用。本研究基于自我价值理论和符号互动论的视角，探究感知父母表扬和批评准确性与我国中小学生心理（积极和消极情感、社会规范型和自我导向型完美主义）和学业发展（学习投入、学业自我设障）的关系。采用多项式回归和响应面分析技术，对 2169 名初中生和 1230 名小学生两个样本进行分析，得出主要结果如下：（1）我国中小学生认为，父母存在夸大批评、夸大表扬的倾向；（2）与批评不足或夸大相比，父母的准确批评与子女最佳的适应性结果相关联，夸大批评虽会在一定程度上促使子女增加学业投入、形成自我增强型完美主义，但也与子女更高水平的消极情感体验、非适应性社会规范型完美主义和学业自我设障相关联；（3）准确表扬对于促进适应性的自我导向型完美主义重要；夸大表扬与中小学生的高学习投入相关；而对于减少学业自我设障，夸大表扬对儿童更有效，而表扬不足则对青少年更有效；（4）感知父母表扬与批评准确性是否一致与各结果变量水平的差异无关。研究提示了反馈准确性（尤其是批评准确性）的重要价值，试图揭示父母如何给予评价反馈以促进孩子心理健康和学业发展的最佳条件。

关键词　表扬准确性，批评准确性，多项式回归与响应面分析

Understanding the Optimal Parental Feedback: the Effects of Perceived Parental Praise and Criticism Accuracy on Youths' Adjustment Outcomes

Huilin Xing[1], Meilin Yao[1], Xinyue Wu[1], Youyou Hu[1], Hongrui Liu[1]
Beijing Normal University, No.19, Xinjiekouwai St, Haidian District, Beijing, 100875, P.R.China

Abstract：During late childhood and adolescence, individuals have gained the ability of evaluating themselves from the responses of important others and internalizing these perceptions to shape their psychological development and behaviors. Parental praise and criticism are two of the most common feedback in the family system, which may have a lasting impact on children's adaptive development. However, previous studies only focus on one side of praise or criticism, and lack of exploration on the integrated influence of both. Most of them emphasized the frequency and content of praise or criticism while ignored the critical role of accuracy in giving feedback. Based on the Self-worth Theory and Symbolic Interactionism, the current research investigated the relationship between perceived accuracy of parents' praise and criticism and the psychology and academic adjustment among Chinese primary and secondary school students. Applying polynomial regression and response surface analysis techniques, data from 1230 primary school students and 2169 middle school students were analyzed. The main results are as follows: (1) students perceived that their parents tended to praise and criticize them exaggeratedly; (2) Compared with insufficient or exaggerated criticism, accurate criticism from parents was associated with children's most adaptive outcomes. Although exaggerated criticism may promote children's academic involvement and self-enhancing perfectionism to a some degree, it is also associated with children's higher levels of negative affects, non-adaptive social norm perfectionism and academic self-handicapping; (3) Accurate praise is important for promoting adaptive self-oriented perfectionism, while exaggerated praise is related to higher level of learning involvement. However, as for reducing academic self-handicapping, exaggerated praise is more effective for children, whereas insufficient praise is more effective for adolescents. (4) The consistency of perceived parental praise and criticism accuracy were not found to be associated with the levels of outcomes. Our study shed lights on the important value of parental feedback accuracy, especially the accuracy of giving criticism. At the first attempt, we uncovered the optimal conditions for parents to give evaluative feedback to promote their children's mental health and academic adjustment.

Keywords：Praise accuracy, criticism accuracy, polynomial regression, response surface analysis

情绪调节的神经反馈

黄宇[1] 李华[1] 李宜伟[2] 张丹丹*
（四川师范大学脑与心理科学研究院，成都，610066，zhangdd05@gmail.com ）

摘 要 情绪调节的神经反馈是一种测量与情绪调节相关脑区的活动并将其呈现给被试，以帮助改善情绪调节能力的方法。良好的情绪调节能力对于维持身心健康、减少情绪失调导致的神经生理疾病具有重要作用。本文回顾总结了在健康人群和精神障碍人群中，当前情绪调节的神经反馈领域的发现，同时也指出了该领域尚未解决的一些问题。首先，未来的研究应探索不同人群情绪调节神经反馈的脑机制，以深入了解情绪

调节的神经基础。其次，训练策略及训练时长对训练效果的影响需要进行更丰富的考察，以制定有效的神经反馈训练方案。同时，在精神障碍人群中，对内隐情绪调节机制的研究也是一个重要方向，了解其特异性将有助于开发更为精准的干预手段，以改善精神障碍患者的情绪调节能力。此外，多模态及解码神经反馈等新技术手段的引入，也有望为情绪调节训练提供更为全面准确的信息。这些创新技术的运用，将有助于加快情绪调节神经反馈研究的进展，并为相关精神障碍的治疗提供新的可能性。情绪调节的神经反馈作为一种前沿研究领域，在健康人群和精神障碍人群中都展示出巨大潜力。但是仍有许多问题需要进一步探索和解决。未来研究应致力于揭示不同人群情绪调节神经反馈的脑机制、深入考察训练策略及时长对训练效果的影响、探索内隐情绪调节在精神障碍人群中的特异性，并充分利用多模态及解码神经反馈等技术手段来辅助情绪调节。
关键词 情绪调节，神经反馈，焦虑，抑郁，精神障碍患者

Neurofeedback for emotion regulation

Yu Huang[1] , Hua Li[1] , Yiwei Li[2] , Dandan Zhang[*]

Institute of Brain and Psychological Sciences, Sichuan Normal University, Chengdu , China

Abstract：Neurofeedback for emotion regulation is a method of measuring activity in brain regions associated with emotion regulation and presenting it to participants to help improve emotion regulation. Good emotional regulation plays an important role in maintaining physical and mental health and reducing neurophysiological diseases caused by emotional disorders. This article reviews and summarizes the findings in the current field of neurofeedback in emotion regulation in healthy and mentally disordered people, and also points out some unresolved problems in this field. First, future research should explore the brain mechanisms of emotion regulation neural feedback in different populations to gain insight into the neural basis of emotion regulation. Secondly, the influence of training strategy and training duration on training effect needs to be more abundantly investigated to formulate effective neurofeedback training schemes. At the same time, in people with mental disorders, the study of the mechanism of implicit emotion regulation is also an important direction, and understanding its specificity will help to develop more precise interventions to improve the emotional regulation ability of patients with mental disorders. In addition, the introduction of new technologies such as multimodal and decoded neurofeedback is also expected to provide more comprehensive and accurate information for emotion regulation training. The use of these innovative technologies will help accelerate the progress of emotion regulation neurofeedback research and provide new possibilities for the treatment of related mental disorders. As a frontier research field, neurofeedback for emotion regulation has shown great potential in both healthy and mentally disordered people. However, there are still many issues that need to be further explored and resolved. Future research should focus on revealing the brain mechanism of neurofeedback of emotion regulation in different populations, deeply investigating the influence of training strategy and length on training effect, exploring the specificity of implicit emotion regulation in people with mental disorders, and making full use of multimodal and decoded neurofeedback and other technical means to assist emotion regulation.

Keywords：motion regulation,neurofeedback, anxiety,depression,mental disorders

后悔情绪对幸福感的影响：情绪调节自我效能感的中介作用

王子坤　叶娜(通讯作者)

武汉体育学院心理学系，武汉, 430079, 通讯作者 E-mail:345570920@qq.com

摘 要 后悔是生活中一种常见的消极情绪。已有研究表明后悔情绪与幸福感有着密切的关系。一方面，频繁体验到后悔的人往往具有更低的生活满意度。另一方面，情绪(如后悔)被认为是自我调节的工具，可以通过反思来改善，从而提高幸福感。情绪调节自我效能感是指个体对自身调节能力的认识与评价而持有的自信程度。富于情绪调节自我效能者，善于调整对消极事件的感知进而调节消极情绪；而情绪调节自我效能感较低者，情绪的反思功能可能导致消极体验频繁产生，降低幸福感水平。本研究旨在探讨后悔情绪与幸福感的关系以及其内在的作用机制。实验一采用网络问卷方法测量后悔频率和幸福感水平，结果发现，高后悔频率个体的幸福感水平显著低于低后悔频率个体。实验二使用故事情境法，选取贴近现实生活的场景材料诱发后悔情绪和中性情绪并测量幸福感水平，结果发现，与中性情绪组相比，后悔情绪组的个体其幸福感水平更低。实验三采用后悔情境量表测量后悔情绪，主观幸福感量表(GWB)测量幸福感水平，情绪调节自我效能感量表(RES)测量情绪调节自我效能感，结果发现，后悔情绪与幸福感水平之间呈负相关，情绪调节自我效能感在其中起到中介作用。本研究的结果表明后悔情绪是影响个体幸福感水平的一个重要因素，而情绪调节自我效能感在两者之间关系中有着重要的作用。本研究的发现为进一步研究影响幸福感的因素以及内在机制提供了新的方向。
关键词 后悔情绪；幸福感；情绪调节自我效能感；生活满意度；反思

The Effect of Regret on Well-being: The Mediating Role of Regulatory Emotional Self-efficacy

Wang Zikun;Ye na
Psychology department of Wuhan Sport University

Abstract：Regret is a common negative emotion in life.Previous studies have shown that regret is closely related to happiness. On the one hand, people who frequently experience regret tend to have lower life satisfaction.On the other hand, emotions (such as regret) are considered self-regulating tools that can be improved through reflection and thus increase happiness.Self-efficacy of emotion regulation refers to the degree of confidence in the cognition and evaluation of self-regulation ability. Those with rich emotional regulation self-efficacy are good at adjusting the perception of negative events and then regulating negative emotions; while those with low emotional regulation self-efficacy, emotional reflective function may lead to frequent negative experiences and lower happiness level.This study aimed to explore the relationship between regret emotion and well-being and the internal mechanism of action.Experiment 1 measured the frequency of regret and well-being level, and found that individuals with high regret frequency were significantly lower than those with low regret frequency.Experiment 2 used the story situation method to select scene materials close to real life to induce regret and neutral emotions and measure the happiness level of happiness. The results found that individuals in the regret group had a lower level of happiness compared with the neutral mood group.Experiment 3 using regret situation scale to measure regret, subjective well-being scale (GWB) measure happiness level, emotional regulation self-efficacy scale (RES) to measure emotional regulation self-efficacy, the results found that the negative correlation between regret and happiness level, emotional regulation self-efficacy plays a mediating role.The results of this study indicate that regret emotion is an important factor affecting the level of individual well-being, and that emotion regulation self-efficacy has an important role in the relationship between the two. The findings of this study provide new directions for further investigation of the factors as well as the intrinsic mechanisms influencing well-being.

Keywords：Regret; Well-being; Regulatory Emotional Self-efficacy; Life satisfaction; Reflection

甲基苯丙胺成瘾者渴求的脑电微状态特征识别

谢倩倩[1,2] 沈新科[3,4] 乔斯玥[1,5] 宋森[3,4] 李勇辉[1,2]（通讯作者）

1．中国科学院心理研究所，北京 100101

2．中国科学院大学心理系，北京 100049

3. 清华大学医学院生物医学工程系，北京 100084

4. 清华大学脑与智能实验室，北京 100084

5．中国科学院大学中丹学院，北京 100049

摘 要 **背景：**渴求是药物成瘾的一个核心特征，对于预测药物使用和复吸行为具有重要意义，了解渴求产生的神经机制对降低复吸率非常关键。药物线索可以强烈诱发渴求，伴随着身体和心理的不适感，和对药物线索的过度关注。渴求的产生与大脑网络调节异常密切相关。脑电图（EEG）微状态可以反映大脑神经元网络的快速变化，目前已经识别出四种与语音处理、视觉处理、默认网络和背侧注意相关的微状态，这些状态的持续时间、发生频次、覆盖比例和转移概率等特征，可以反映特定的情绪与动机状态。本研究旨在探讨甲基苯丙胺成瘾者在渴求情绪和一般情绪时的微状态表征，识别渴求产生的脑区机制，为渴求的评估建立客观指标。

方法：本研究招募了 124 名甲基苯丙胺成瘾者和健康人参与实验，其中成瘾组 92 人（52 名女性），健康对照组 32 人（16 名女性）。通过虚拟现实技术模拟真实的吸毒环境诱发渴求，记录在静息、一般情绪和渴求情绪时的 EEG 数据，并在线索条件下要求被试报告渴求分数。比较两组人群在三种状态下的微状态特征差异以及和主观渴求的关系。

结果：静息状态下，两组的微状态没有显著差异。一般情绪时，成瘾组相比对照组微状态 D 的覆盖比例和持续时长显著升高，微状态 A、B 和 C 向 D 的转换概率增加。和静息时相比，成瘾组在渴求情绪时微状态 D 的覆盖比例显著升高，微状态 A、B 和 C 向 D 的转移概率升高，微状态 C 的覆盖比例显著降低，其他三种状态向 C 的转移概率降低。主观渴求评分与微状态 D 的覆盖比例和持续时间显著正相关。和一般情绪相比，成瘾组在渴求情绪时微状态 C 的三个特征显著降低，微状态 D 的覆盖比例和持续时长显著升高。

结论：渴求时，表征着注意网络的微状态 D 的时间参数升高，其他三个状态向 D 的转移概率升高，同时微状态 C 的变化方向和 D 相反，表明渴求时成瘾者更加专注，注意网络激活增加，内部信息处理降低，那些对药物线索专注且注意增加的成瘾者，体验到的渴求强度更高。这可能是渴求产生的脑网络活动模式，未来研究可通过降低渴求观察微状态特征变化以确定其特征的敏感性。

关键词 渴求，微状态，甲基苯丙胺成瘾

Identification of EEG Microstate Characteristics in craving of people with Methamphetamine use disorder

Qianqian Xie[1,2] Xinke Shen[3,4] Siyue Qiao[1,5] Sen Song[3,4] Yonghui Li[1,2]

1 Key Laboratory of Mental Health, Institute of Psychology, Chinese Academy of Sciences, Beijing, China

2 Department of Psychology, University of the Chinese Academy of Sciences, Beijing, China

3 Department of Biomedical Engineering, School of Medicine, Tsinghua University, Beijing 100084, China

4 Tsinghua Laboratory of Brain and Intelligence, Beijing 100084, China

5 Sino-Danish College, Chinese Academy of Science, Beijing 100049, China

***Abstract*:**

Background: Craving is a core feature of drug addiction and holds significant importance in predicting drug use and relapse behavior. Understanding the neural mechanisms underlying craving is crucial for reducing relapse rates. Drug-related cues can strongly induce craving, accompanied by physical and psychological discomfort, and excessive attention to drug-related cues. The generation of craving is closely related to the dysregulation of brain networks. Electroencephalogram (EEG) microstates can reflect rapid changes in large-scale neural networks in the brain. Currently, four microstates related to speech processing, visual processing, default mode network, and dorsal attention have been identified. The features of these microstates, such as mean duration (Duration), time coverage (Coverage), frequency of occurrence (Occurrence), and transition probability (TP)., can reflect specific emotional and motivational states. This study aims to explore the microstate characteristics of methamphetamine addicts during craving and general emotional states, aiming to identify the neural mechanisms underlying craving and establish objective indicators for craving assessment..

Methods: This study recruited 124 participants, including methamphetamine addicts and healthy controls. The addiction group consisted of 92 individuals (52 females), while the healthy control group included 32 individuals (16 females). Using virtual reality technology, the experiment simulated real drug-related environments to induce craving. EEG data were recorded during rest, general emotional state, and craving emotional state. Participants were asked to report their craving scores under the cue conditions. Compare the differences in microstate characteristics between the two groups in three states and their relationship with subjective craving.

Results: During the rest state, there were no significant differences in the time parameters of the four microstates between the two groups. However, in the general emotional state, the addiction group showed significantly higher coverage and duration for microstate D compared to the control group. Additionally, the transition probabilities from microstates A, B, and C to microstate D were increased in the addiction group. In the craving emotional state, compared to the rest state, microstate D exhibited a striking increase in coverage ratio, and the transition probabilities from microstates A, B, and C to microstate D were also elevated. On the other hand, the coverage ratio of microstate C significantly decreased, and the transition probabilities from the other three microstates to microstate C were reduced. Furthermore, the subjective craving ratings were significantly positively correlated with the coverage and duration of microstate D. When comparing craving emotional state with general emotional state, microstate C showed a significant decrease in all three features, while microstate D demonstrated a significant increase in coverage ratio and duration.

Conclusion: During craving, the time parameters of microstate D, which represents the attention network,

increased, and the transition probabilities from the other three microstates to microstate D also increased. Meanwhile, the changes in microstate C were in the opposite direction to microstate D, indicating that during craving, addicted individuals become more focused, with increased activation in the attention network and decreased internal information processing. Those addicts who exhibit higher focus on drug-related cues and increased attention experience stronger cravings. This may reflect the brain network activity patterns underlying the generation of craving. Future research can investigate the sensitivity of these microstate features by observing changes in craving through the modulation of craving.

Keywords：craving，EEG microstate, Methamphetamine use disorder

左侧 dlPFC 偏侧化激活对应激下创造力损伤的预防作用：一项 tDCS 和 fNIRS 研究

王一凡[1] 段海军[1]（通讯作者）

1 陕西师范大学现代教学技术教育部重点实验室，西安 710062

摘 要 压力是威胁创造性活动的主要外部因素。本研究探讨了通过经颅直流电刺激（tDCS）诱导的背外侧前额叶皮层（dlPFC）左侧偏侧化激活是否可以缓解应激诱导的创造力损伤。功能性近红外光谱技术（fNIRS）用于探索 tDCS 影响的潜在神经机制。90 名女性被试被随机分为三组，分别接受假刺激应激诱发、真刺激应激诱发（tDCS 阳极位于左侧 dlPFC/阴极位于右侧 dlPFC）和假刺激对照条件。被试在 tDCS 刺激后接受应激诱发或控制任务，然后完成多物品用途任务（AUT）来测量创造力。行为学结果显示，tDCS 降低了心率和焦虑上的应激反应水平。fNIRS 结果显示，tDCS 缓解了应激下前额叶皮层（PFC）的功能障碍，表现为 dlPFC 和额顶叶皮层的更高激活，以及 PFC 内更强的半球间和半球内功能连接。进一步的分析表明，tDCS 对皮层的调节作用有效防止了压力引起的创造力损伤。研究结果验证了关于压力的半球不对称假说，并证明了大脑刺激在干预压力相关精神障碍和增强创造力方面的潜力。

关键词 应激，创造力，脑刺激，前额皮层，功能性近红外光谱

Preventative effect of left-lateralized dlPFC activation on stress-induced creativity impairment: a tDCS and fNIRS study

Yifan Wang[1], Haijun Duan[1] (Corresponding Author)
1MOE, Key Laboratory of Modern Teaching Technology, Shaanxi Normal University, Xi'an, 710062

Abstract: Stress is a major external factor threatening creative activity. The study explored whether left-lateralized activation in the dorsolateral prefrontal cortex (dlPFC) manipulated through transcranial direct current stimulation (tDCS) could alleviate stress-induced impairment in creativity. Functional near-infrared spectroscopy (fNIRS) was used to explore the underlying neural mechanisms. Ninety female participants were randomly assigned to three groups that received stress induction with sham stimulation, stress induction with true stimulation (anode over the left dlPFC and cathode over the right dlPFC), and control manipulation with sham stimulation, respectively. Participants underwent the stress or control task after the tDCS manipulation, and then completed the alternative uses task (AUT) to measure creativity. Behavioral results showed that tDCS reduced stress responses in heart rate and anxiety. The fNIRS results revealed that tDCS alleviated dysfunction of the prefrontal cortex (PFC) under stress, as evidenced by higher activation of dlPFC and frontopolar cortex, as well as the stronger inter-hemispheric and intra-hemispheric functional connectivity within PFC. Further analysis demonstrated that the cortical regulatory effect prevented creativity deficiencies induced by stress. The findings validated the hemispheric asymmetry hypothesis regarding stress and highlighted the potential of brain stimulation for intervention in stress-related mental disorders and enhancement of creativity.

Keywords: Stress; Creativity; Brain stimulation; Prefrontal cortex; Functional near-infrared spectroscopy

青春期分裂型人格特质的核心症状及性别差异：基于网络分析方法

马旭 朱湘茹（通讯作者）
河南大学教育学部，开封，475000，zhuxiangru@gmail.com

摘 要 分裂型人格特质是一种潜在的人格结构，反映了精神分裂症谱系障碍的易感性。针对分裂型人格特质的研究可以避免精神分裂症谱系障碍带来的无关混杂因素，有助于鉴别高风险人群，促进对精神分裂症谱系障碍发生、发展的理解。基于青春期是精神分裂症谱系障碍发生的高危阶段，本研究的目的是采用网络分析方法识别这一时期的核心症状。通过分裂型人格特质问卷-儿童版(Schizotypal Personality Questionnaire-Child)对 1170 名青少年的分裂型人格特质进行评估。使用网络分析方法构建青少年时期的分

裂型人格特质网络，根据稳定性和准确性检验评估网络模型的稳健性，并通过中心性指标对症状的重要程度进行量化。此外，本研究还对不同性别的网络模型进行了差异检验。结果发现，青少年时期的分裂型人格特质网络具有良好的稳健性，症状之间具有紧密的相互连接。其中“倾向于将自己的感受隐藏起来”是该阶段的核心症状，并且“倾向于将自己的感受隐藏起来”、“跟不熟悉的人讲话我会觉得很不自在”和“在有陌生人的社交场合感到非常不自在”三者间的相互作用最强。针对不同性别的差异性检验发现，男性在网络整体连接强度上显著高于女性，而在网络结构上没有显著差异。已知精神分裂症患者经常使用表达抑制的情绪调节策略，即“倾向于将自己的感受隐藏起来”。这可能意味着“倾向于将自己的感受隐藏起来”早在青少年时期就已存在，并在各项症状中发挥着核心作用。此外，不同性别在网络整体连接强度上的差异也与精神分裂症的性别差异一致，即男性精神分裂症谱系障碍的发病高峰期早于女性。
关键词　分裂型人格特质，网络分析，青春期

The network structure of schizotypal personality in adolescence

Xu Ma, Xiangru Zhu (Corresponding author)
Faculty of education, Henan University, Kaifeng, 475000，zhuxiangru@gmail.com

***Abstract*：** Schizotypal personality represents the latent personality organization reflecting vulnerability to schizophrenia spectrum disorders. Substantial evidences suggest that schizotypal personality shows symptoms qualitatively similar to schizophrenia, including abnormalities in cognitive systems, social cognitive systems, and behavioral systems, but the degree of abnormality does not meet the full criteria for schizophrenia spectrum disorders. Accordingly, focusing on schizotypal personality can elucidate the onset and development of schizophrenia spectrum disorders without certain confounding factors (e.g., medication and comorbidity). Given that adolescence is a high-risk period for the onset of schizophrenia spectrum disorders, we used network analysis to identify which symptoms and associations between symptoms are most central to adolescent schizotypal personality. The schizotypal personality of 1,170 adolescents was assessed using the Schizotypal Personality Questionnaire-Child (SPQ-C). The structural relationship between schizotypal symptoms was modeled using a network analysis. Stability and accuracy tests evaluated the robustness of the network model, and centrality indicators quantified symptoms importance. In addition, we compared the schizotypal network model of adolescent boys and girls. The results showed that the adolescent schizotypal network had good robustness, with close interactions between symptoms. The most central symptom during this period was "I tend to keep my feelings to myself", and the associations between "I tend to keep my feelings to myself", "I feel very uneasy talking to people I do not know well", and "I feel very uncomfortable in social situations involving people I don‘t know" were the strongest. For the differences between genders, boys had significantly higher overall connectivity than girls, while there were no significant differences in network structures. Consistent with our findings, previous studies had shown that patients with schizophrenia often used expressive suppression as an emotional regulation strategy, i.e., "I tend to keep my feelings to myself", which means that "I tend to keep my feelings to myself" already existed in adolescence and played a core role among symptoms. In addition, gender differences in overall connectivity were also in line with gender differences in schizophrenia, i.e., the peak onset of schizophrenia spectrum disorders in males is earlier than in females. Our findings indicate that expressive suppression, i.e., "I tend to keep my feelings to myself", may be a promising target in the treatment and prevention of schizophrenia, especially in adolescent boys.

***Keywords*：** Schizotypal personality, Network analysis, SPQ-C, Adolescence

6.25“心理学脑成像专业委员会”分组展贴报告

奖赏网络的异常功能连接与孤独症谱系障碍中的社交缺陷有关：一项大规模多中心静息态功能磁共振成像研究

杨晨[1,2,3] 王兴科[1,2,3] 马圣植[1,2,3] 张秋荣[1,2,3] 董文强[1,2,3] 袁丽霞[1,4]（通讯作者）

1 杭州师范大学附属医院认知与脑疾病研究中心，浙江杭州

2 杭州师范大学心理科学研究所，浙江杭州

3 浙江省认知功能障碍评估研究重点实验室，浙江杭州

4 浙江大学物理系，杭州，310000，yuanlixia2022@zju.edu.cn

摘 要　背景：孤独症谱系障碍(ASD)是一类以社交障碍为核心症状的复杂神经发育障碍。社会动机假说认为 ASD 的社交障碍与奖赏系统功能异常有关。越来越多的证据表明，ASD 涉及大脑功能连接(FC)的异常，然而，还没有研究对 ASD 奖赏系统 FC 的异常进行探讨。

方法：将奖赏网络定义为左右大脑半球各 8 个感兴趣区域(ROI)，包括伏隔核、尾状核、壳核、前扣带皮层(ACC)、腹内侧前额叶皮层(vmPFC)、眶额皮质(OFC)、杏仁核和脑岛。我们从孤独症脑成像交换数据集(ABIDE) I 中筛选了 298 名 ASD 被试和 348 名正常对照(TD)，分别计算了基于 ROI 的静息态 FC 和每个 ROI 和全脑体素的 FC。通过双样本 *t* 检验获得异常 FC，并采用 Pearson 相关法来探索异常 FC 与临床症状的关系。此外，我们利用 Neurosynth 图像解码器生成词云图，以验证奖赏网络中异常通路的认知含义，并进一步采用三因素多变量方差分析(MANOVA)来探索性别、亚型和年龄对异常 FC 的影响。

结果：在网络内分析中，与 TD 组相比，ASD 患者左侧 ACC 与右侧杏仁核之间、左侧 ACC 与左侧伏隔核之间的 FC 较弱，且与社会反应量表(SRS)总分呈负相关。在全脑分析中，相对于 TD 组，ASD 组表现出较弱的 FC (即左侧 vmPFC 与左侧钙化沟之间；右侧 vmPFC 与左侧楔前叶之间)和较强的 FC(即左侧尾状核与右侧脑岛之间)，这些异常 FC 均与 SRS 动机评分呈正相关。Neurosynth 对异常 FC 的自动解码进一步验证了其认知含义(即左侧 ACC 与右侧杏仁核通路参与情绪；左侧 ACC 和左侧 NAc 通路参与奖赏；左侧尾状核和右侧脑岛通路参与感觉和运动；左侧 vmPFC 和左侧钙化沟通路以及右侧 vmPFC 和左侧楔前叶通路参与记忆和心智化)。三因素方差分析结果显示，左侧 vmPFC 与左侧钙化沟之间异常 FC 的年龄主效应显著，右侧 vmPFC 与左侧楔前叶之间异常 FC 的亚型主效应显著，左侧尾状核与右侧岛叶之间异常 FC 的年龄主效应以及性别和年龄的交互作用显著。

结论：我们的研究结果强调了奖赏网络异常 FC 模式在 ASD 核心社会缺陷中的关键作用，这有可能揭示新的 ASD 生物标志物。此外，对奖赏回路中与性别、亚型和年龄相关的 FC 变化的深入了解可能促进开发更有效的干预措施。

关键词　孤独症谱系障碍(ASD)，奖赏网络，功能连接(FC)，孤独症脑成像数据交换(ABIDE)，静息态功能磁共振成像(RS-fMRI)

Abnormal functional connectivity of the reward network is associated with social communication impairments in autism spectrum disorder: a large-scale multi-center resting-state fMRI study

Chen Yang[1,2,3], Xing-Ke Wang[1,2,3], Sheng-Zhi Ma[1,2,3], Qiu-Rong Zhang[1,2,3], Wen-Qiang Dong[1,2,3], Li-Xia Yuan[1,4*]

[1]Center for Cognition and Brain Disorders, The Affiliated Hospital of Hangzhou Normal University, Hangzhou, Zhejiang, China

[2]Institute of Psychological Sciences, Hangzhou Normal University, Hangzhou, Zhejiang, China

[3]Zhejiang Key Laboratory for Research in Assessment of Cognitive Impairments, Hangzhou, Zhejiang, China

[4]School of Physics, Zhejiang University, Hangzhou, China

*: corresponding author; email address: yuanlixia2022@zju.edu.cn

***Abstract*:**

Background: Autism spectrum disorder (ASD) is a complex neurodevelopmental disorder with social communication impairments as a core symptom. The social motivation hypothesis proposes that the social deficits of ASD are related to reward system dysfunction. Converging evidence indicates that brain abnormalities in ASD involve atypical functional connectivity (FC), however, the abnormalities of FC patterns of the reward network in individuals with ASD have not been explored yet.

Methods: The reward network was defined as eight regions of interest (ROIs) per hemisphere, including nucleus accumbens (NAc), caudate, putamen, anterior cingulate cortex (ACC), ventromedial prefrontal cortex (vmPFC), orbitofrontal cortex (OFC), amygdala, and insula. We computed both the ROI-wise resting-state FC within the reward network and the seed-based whole-brain voxel-wise FC of each ROI in 298 participants with ASD and 348 typically developing (TD) controls available through the Autism Brain Imaging Data Exchange I dataset. Two-sample t-test was applied to obtain the aberrant FCs and their relationship with clinical symptoms was explored using Pearson's correlation. In addition, the Neurosynth Image Decoder was used to generate word clouds verifying the cognitive implications of the aberrant pathways. Furthermore, a three-way multivariate analysis of variance (MANOVA) was conducted to examine the effects of gender, subtype, and age on the atypical FC.

Results: For the within network analysis, ASD patients showed weaker FC between the left ACC and the right amygdala and between the left ACC and the left NAc compared with the TD group, which were negatively correlated with the Social Responsiveness Scale (SRS) total scores. For the whole-brain analysis, weaker FC (i.e., between the left vmPFC and the left calcarine sulcus, and between the right vmPFC and the left precuneus) accompanied by stronger FC (i.e., between the left caudate and the right insula) were exhibited in ASD relative to TD, which were positively associated with the SRS motivation scores. Automated decoding of these aberrant FCs by the Neurosynth further verified their cognitive implications (i.e., the left ACC-right amydala pathway involved in emotion; the left ACC-left NAc pathway involved in reward; the left caudate-right insula pathway involved in sensation and motor; the vmPFC-precuneus/calcarine pathways involved in memory and mentalizing). The three-way MANOVA analysis revealed main effect of age on the abnormal FC between the left vmPFC and the left calcarine sulcus, main effect of subtype on the abnormal FC between the right vmPFC and the left precuneus, main effect of age and age-by-gender interaction on FC between the left caudate and the right insula.

Conclusions: Our findings highlight the crucial role of abnormal FC patterns of the reward network in the core social deficits of ASD, which have the potential to reveal new biomarkers for ASD. Furthermore, increasing insight on gender, subtype, and age-related FC changes in reward circuit may advance the development of more effective interventions.

Keywords： autism spectrum disorder (ASD), reward network, functional connectivity, Autism Brain Imaging Data Exchange (ABIDE), resting-state functional magnetic resonance imaging (RS-fMRI)

基于动态低频振幅的冠状动脉粥样硬化性心脏病患者的自发脑活动研究

张胜辉[1] 胡思琪[1] 游瑶[1] 汤嘉柯[1] 陈晨[1] 王明伟[12]（通讯作者）

1 杭州师范大学，杭州，311121

2 杭州师范大学附属医院心内科，杭州市心血管病研究所，浙江省认知障碍评估研究重点实验室，杭州，310015，wmw990556@hznu.edu.cn

摘 要

目的：冠状动脉粥样硬化性心脏病（Coronary Heart Disease, CHD）是最常见的心血管疾病之一，是导致心血管疾病死亡和慢性残疾的主要原因。既往研究发现 CHD 与认知障碍（Cognitive Impairment, CI）的风险增加相关。以往的研究主要关注脑活动的静态特征，而对其动态变化的特征关注较少。在本研究中，我们旨在利用功能磁共振成像(functional magnetic resonance imaging, fMRI)探讨 CHD 患者的动态脑活动特征。

方法：本研究共纳入 22 例 CHD 患者及 13 例对照者。所有受试者均于杭州师范大学附属医院接受 fMRI 扫描和认知评估。认知评估采用简易精神状态检查（Mini-Mental State Examination, MMSE）和汉密尔顿抑郁量表（Hamilton Depression Scale, HAMD）进行。采用滑动窗口法计算所有受试者的动态低频振幅(dynamic amplitude of low-frequency fluctuation, dALFF)，采用两样本 T 检验比较 CHD 与对照组之间 dALFF 时间变异性的差异，并采用 Pearson 分析受试者 dALFF 值与 HAMD、MMSE 量表等指标的相关性。

结果：两样本 T 检验发现，与对照组相比，CHD 患者颞下回的时间变异性降低（t=-3.95，GRF 校正，P<0.05）.相关性分析显示，颞下回 dALFF 的时间变异性与所有受试者的 MMSE 量表（r=0.57. P<0.05）及 HAMD(r=-0.40,P<0.05)量表得分相关显著，与对照组的 MMSE 量表（r=0.67, P<0.05）相关显著，但与 CHD 患者的量表得分无显著相关。

结论：本研究发现 CHD 患者存在动态脑活动特征的异常，通过分析大脑内在活动的动态变化，为 CHD 相关的 CI 研究提供了新的思路。然而 dALFF 与量表的相关不显著可能是由于样本量较少所致，需要纳入更多受试者以进一步探究 CHD 患者的认知情况与脑活动之间的联系。

关键词 功能磁共振成像，冠状动脉粥样硬化性心脏病，动态低频振幅

Altered dynamic amplitude of low-frequency fluctuations in patients with coronary heart disease

Shenghui Zhang[1] Siqi Hu[1] Yao You[1] Jiake Tang[1] Chen Chen[1] Mingwei Wang[12]

1 Hangzhou Normal University, Hangzhou 311121, China

2 Department of Cardiology, Affiliated Hospital of Hangzhou Normal University, Hangzhou Institute of Cardiovascular Diseases, Zhejiang Key Laboratory for Research in Assessment of Cognitive Impairments, Hangzhou Normal University ,Hangzhou, 310015，

wmw990556@hznu.edu.cn;

***Abstract*：**

Objectives: Coronary Heart Disease (CHD) is a prevalent cardiovascular condition, representing the leading cause of death and chronic disability in cardiovascular diseases. Research has established a link between CHD and increased risk of Cognitive Impairment (CI). However, prior studies have mainly focused on the static characteristics of brain activity, leaving a gap in our understanding of its dynamic features over time, particularly in CHD patients. This study aims to investigate dynamic brain activity patterns in patients with CHD using functional magnetic resonance imaging (fMRI).

Methods: This study enrolled a total of 22 CHD patients and 13 healthy controls at the Affiliated Hospital of Hangzhou Normal University. All subjects underwent fMRI scans and cognitive assessments, which included the Mini-Mental State Examination (MMSE) and Hamilton Depression Scale (HAMD). The dynamic amplitude of low-frequency fluctuation (dALFF) was calculated using the sliding window method for all participants. A two-sample T-test was employed to compare dALFF time variability between the CHD and control groups. Additionally, Pearson correlation analysis was used to examine the relationship between dALFF values and HAMD, MMSE scores, and other relevant indicators.

Results: Compared to the control group, patients with CHD exhibited decreased dALFF variability in the temporal gyrus ($P<0.05$, Gaussian Random Field corrected). The altered dALFF in the temporal gyrus was significantly associated with MMSE scores ($r=0.57$, $P<0.05$) and HAMD scores ($r=-0.40$, $P<0.05$) across all subjects. Furthermore, in the control group, dALFF showed a positive correlation with MMSE scores ($r=0.67$, $P<0.05$). However, there was no significant correlation between the patients' altered dALFF and their MMSE scores or HAMD scores.

Conclusion: This study revealed abnormal characteristics of dynamic brain activity in patients with CHD, providing valuable insights into CHD-induced alterations in the dynamic features of local brain activity. These findings contribute to a better understanding of the relationship between brain function and diseases. Nonetheless, the limited sample size prevented the establishment of significant correlations between dALFF and patients' MMSE and HAMD scores. Future investigations with larger subject cohorts are warranted to further explore the association between cognition and brain activity in patients with CHD.

***Keywords*：** Coronary Heart Disease, dynamic amplitude of low-frequency fluctuation, functional magnetic resonance imaging

投桃报李：互惠情境下奖赏加工的神经机制

许扬[1]　李嘉[1]　朱彤彤[1]　魏萍[1]（通讯作者）

1 首都师范大学心理学院，北京，100048

通讯作者 E-mail：weiping@cnu.edu.cn

摘 要　人际互动中的互惠行为无处不在，互惠动机是促使人类社会发展的重要因素。从奖赏加工的视角看，互惠行为包含自己为他人获得奖赏和他人为自己获得奖赏。以往研究已经揭示了为自己和为他人获得奖赏时认知神经机制的异同。而涉及观察他人获得奖赏时，以往研究主要关注他人为他自己获得奖赏。然而，观察他人为自己获得奖赏可能是促进互惠行为的一个重要因素，但其认知神经机制尚不清楚。为解决这个问题，本研究采用金钱激励延迟任务和功能磁共振技术（fMRI），考察互惠情境下被试为自己、为朋友获得奖赏和观察朋友为自身和为被试获得奖赏的神经机制。

本研究包括主动反应和被动观察两个阶段,被试和同性朋友成对完成实验。在主动反应阶段，首先呈现线索，线索类型是为自己获得奖赏、为朋友获得奖赏或无奖赏。被试需要对线索后的目标进行按键反应，根据按键反应时快慢获得正、负反馈。在被动观察阶段，被试需要观察朋友完成上述任务。两个阶段所积累的正反馈均会在实验结束兑换成额外奖赏支付给被试及其朋友。

行为结果显示，主动为自己和为朋友获得奖赏的条件下获得正反馈的概率相当，且都高于无奖赏条件。fMRI 的多变量模式分析显示，在奖赏结果阶段，颞顶联合区（TPJ）可以区分被试为自己和朋友为被试获得奖赏，而腹侧纹状体（VS）可以区分被试为朋友和朋友为他自己获得奖赏。此外，当为朋友获得奖赏时，TPJ 的活动模式可以预测被试与朋友的亲密度，且表征相似性分析的结果表明，被试与朋友的亲密度在被试间越相似，TPJ 的活动也越相似。而观察朋友为被试获得奖赏时 TPJ 的活动模式则可以预测被试的感恩特质。

本研究设置了一个互惠情境，发现奖赏加工和社会认知的两个核心脑区 VS 和 TPJ 参与互惠情境下的奖赏加工，并且 TPJ 的活动可以预测与朋友的亲密度和被试自身的感恩特质。本研究揭示了加工互惠结果的神经活动模式，为理解互惠行为的神经基础提供了新的证据。

关键词　互惠奖赏，奖赏加工，多变量模式分析，腹侧纹状体，颞顶联合

Neural mechanisms of winning rewards reciprocally

Yang Xu [1] Jia Li [1] Tongtong Zhu [1] Ping Wei [1*]
1 School of Psychology, Capital Normal University, Beijing, 100048
*Corresponding to: weiping@cnu.edu.cn

***Abstract*:** Reciprocity behavior is ubiquitous in human society. From the perspective of reward processing, reciprocal behavior includes winning rewards for others and receiving rewards from others. Previous research indicated the existence of common and specific cognitive neural mechanisms when winning rewards for oneself and others. While observing others receiving rewards, past studies have primarily focused on vicarious reward processing, wherein others win rewards for themselves. However, witnessing others successfully winning rewards for the participant oneself is a crucial factor promoting reciprocal behavior, yet its cognitive neural mechanisms remain unclear. To address this issue, the present study employs a Monetary Incentive Delay task and functional magnetic resonance imaging (fMRI) technique to investigate the neural mechanisms underlying winning rewards for oneself and a friend, as well as observing this friend winning rewards in a reciprocal context.

The current study included an active phase and a passive phase and participant came with his or her same-gender friend to complete the experiment. In the active phase, the participants need to respond as quickly as possible after the presentation of the target stimulus to gain a possible reward following a pre-target cue. The cue included three types, win for the participant himself/herself, win for the friend, and no reward condition. After the response, a positive or negative feedback is provided based on their reaction time. In the passive observation phase, participants are required to observe their friend completing the same task. The friend can win for him/herself, for the participant, in compared with a no reward condition. The accumulated positive feedback from both phases will be converted into bonus and paid to the participants and their friends after the experiment.

The behavioral results indicate that the positive feedback rate is comparable when actively winning rewards for oneself and for a friend, and both are higher than that in the no reward condition. Using multivariate pattern analysis, the neuroimaging results revealed that the temporo-parietal junction (TPJ) can distinguish between successfully winning rewards for oneself and receiving rewards from a friend, and the ventral stritum (VS) can classify wining rewards for a friend and observing friends winning him/herself rewards. When successfully gaining rewards for a friend, the activities of TPJ can predict the level of intimacy between the participants and their friends. Moreover, representational similarity analysis showed that the more similar the participants were in terms of intimacy with their friends, the more similar their TPJ activity patterns were. When observing a friend successfully obtaining rewards for the participant oneself, the TPJ activities can predict the participants' gratitude traits.

In this study, we motivated participants to win rewards for themselves and for their friends, as well as to observe their friends winning rewards reciprocally. We found that two core brain regions involved in reward processing and social cognition, the VS and the TPJ, activated in the reward processing during the reciprocal context. The current study revealed the neural mechanisms underlying the processing of reciprocal rewards, providing new insights into how reciprocal behavior emerges. These results contribute to a better understanding of the neural mechanisms underlying reciprocity in social interactions.

Keywords: reciprocal reward, reward processing, multivariate pattern analysis, ventral striatum, temporo-parietal

junction

小脑为甲基苯丙胺使用障碍者冲动性异常增高的核心脑网络特征

张艺[1,#] 程心语[1,#] 赵迪[1] 袁逖飞[1,*]

1 上海交通大学医学院附属精神卫生中心，上海，200030

[#] 张艺与程心语为共同第一作者

[*] 通讯作者：袁逖飞，上海交通大学医学院附属精神卫生中心，上海，200030，ytf0707@126.com

摘 要 药物成瘾是一种慢性、复发性疾病，复吸率居高不下，给个体健康、家庭经济和社会安定带来巨大挑战。冲动性是药物成瘾的核心特征之一，药物成瘾者的冲动性异常增高导致药物戒断困难，促使复吸率升高。因此，解析药物成瘾人群的冲动性特征及其神经机制可促进精准干预模式的构建，降低复吸率。本研究纳入203名甲基苯丙胺使用障碍患者（methamphetamine use disorder，MUD）及114名健康对照（Health control，HC），采用巴瑞特冲动量表（BIS-11）测量特质冲动水平，并使用128导高密度脑电图记录患者静息态下的大脑活动。通过溯源分析、频谱分析和功能连接分析得到跨频段不同脑区的功率谱和脑区间功能连接指数（WPLI）。采用LASSO回归及支持向量机（SVM）提取MUD和HC的核心脑网络差异，进一步采用支持向量回归（SVR）阐明MUD患者冲动性的核心神经机制，基于潜在生物标记物，探索MUD患者潜在亚组。研究结果表明MUD与HC的脑网络特征差异主要表现为小脑（Cerebellum）、基底节（Basal Ganglia）、默认模式网络（DMN）区域连接的下降。其中小脑、额顶网络（Fronto-parietal Network）和运动区(Motor Area)是预测MUD冲动性异常增高的核心脑网络。整合可MUD患者异常脑网络特征（与HC相对比）和冲动性的核心预测特征后，发现以小脑为重要节点，以内侧颞叶（Medial Frontal Gyrus）和运动区为次重要节点的脑网络为MUD冲动性增高的核心神经机制。进一步基于以小脑为核心的特征进行亚组划分，可有效区分冲动性、焦虑抑郁状态。综上所述，本研究首次发现小脑为甲基苯丙胺使用障碍冲动性脑网络的重要节点，提示小脑可以成为降低甲基苯丙胺使用障碍冲动性的潜在干预靶点。

关键词 小脑，甲基苯丙胺使用障碍，冲动性，脑网络特征

Core Brain Network Features Underlying Heightened Impulsivity in Individuals with Methamphetamine Use Disorder: The Role of the Cerebellum

Yi Zhang[1, #], Xinyu Cheng[1, #], Di Zhao[1], Ti-Fei Yuan[1,*]

1 Shanghai Key Laboratory of Psychotic Disorders, Shanghai Mental Health Center, Shanghai Jiao Tong University School of Medicine, Shanghai, 200030

[#] The authors contributed equally.

[*] Corresponding author: Dr. Ti-Fei Yuan, Shanghai Mental Health Center, Shanghai Jiao Tong University School of Medicine, Shanghai, China, email: ytf0707@126.com

Abstract: Drug addiction is a chronic and relapsing disorder, presenting immense challenges to individual health, family finances, and social stability. High rates of relapse continue to persist, partially attributed to heightened impulsivity among individuals with drug addiction. Understanding the impulsivity characteristics and underlying neural mechanisms in this population is crucial for the development of targeted intervention strategies aimed at reducing relapse rates. This study aims to analyze the impulsivity phenotypes and investigate the neural mechanisms associated with drug addiction. By dissecting the impulsivity characteristics and underlying neural mechanisms in individuals with drug addiction can facilitate the establishment of precision-based intervention models, ultimately leading to improved outcomes and a decrease in relapse rates. This study included 203 patients with methamphetamine use disorder (MUD) and 114 healthy controls (HC). Trait impulsivity levels were measured using the Barrett Impulsiveness Scale (BIS-11), and high-density electroencephalography (EEG) with 128 channels was employed to record resting-state brain activity in patients. Source localization analysis, spectral analysis, and functional connectivity analysis were conducted to obtain power spectra and interregional functional connectivity indices (WPLI) across different frequency bands. LASSO regression and support vector machine (SVM) were applied to extract the core brain network differences between MUD and HC, and support vector regression (SVR) was further employed to elucidate the core neural mechanisms underlying impulsivity in MUD patients. Additionally, potential subgroups of MUD patients were explored based on latent biomarkers. The results of the study revealed that the differences in brain network characteristics between MUD and HC primarily manifested as decreased connectivity in the cerebellum, basal ganglia, and default mode network (DMN). Additionally, the cerebellum, fronto-parietal network, and motor area were identified as core brain networks associated with the heightened impulsivity observed in MUD. Integrating the abnormal brain network features (relative to HC) and core predictive features of impulsivity in MUD, it was found that the core neural mechanisms underlying heightened impulsivity in MUD primarily involved the cerebellum as a crucial node and medial frontal gyrus and motor area as secondary nodes. Furthermore, utilizing the cerebellum-centered features for subgroup classification effectively differentiated impulsivity and anxiety-depressive states. In conclusion, this study for the first time identified the cerebellum as a crucial node in the impulsivity-related brain network in individuals with methamphetamine use disorder, suggesting that the cerebellum may serve as a potential intervention target for reducing impulsivity in methamphetamine use disorder.

Keywords: cerebellum, methamphetamine use disorder, impulsivity, brain network

6.26“音乐心理学专业委员会”分组展贴报告

背景音乐诱发下情绪对高三学生执行功能的影响研究

——来自 ERPs 的证据

马晴[1]　颜志雄[2]

1 云南大学滇池学院，昆明，650228

2 南宁师范大学教育科学学院，南宁，530001，yanzx@nnnu.edu.cn

摘 要 近年来，认知心理学与音乐心理学的结合使得越来越多的学者开展了音乐对认知影响的研究，针对不同的音乐诱发不同情绪对于认知是何种影响，并没有一致的结论。本研究试图从行为和脑电生理两方面共同探求背景音乐诱发下情绪对于个体执行功能的影响，验证音乐诱发情绪对高三学生认知产生的影响，为今后校园学生心理健康工作提供一些可行性的意见与建议，帮助高三学生通过简单易于接受的音乐形式，提高学业成绩，促进心理健康发展。本研究运用实验法，设计了三个实验进行探索。实验一：选取 32 名高三学生分别接受三种背景的刺激（正性音乐、负性音乐、无音乐），完成执行功能抑制控制成分的数字 Stroop 测试任务，并使用事件相关电位技术记录脑电信号；实验二：选取 32 名高三学生分别接受三种背景的刺激，完成执行功能信息刷新成分的 2-Back 测试任务，并使用事件相关电位技术记录脑电信号；实验三：选取 32 名高三学生分别接受三种背景的刺激，完成执行功能认知灵活性成分的数字转化测试任务，并使用事件相关电位技术记录脑电信号。通过对三种不同音乐背景下高三学生执行功能测试行为数据和脑电数据的统计分析，结果发现：（1）不同背景音乐诱发情绪对抑制控制成分的影响表现为正负性情绪对高中生抑制控制能力都产生影响，但存在性别差异，在负性情绪下，女学生的抑制能力比男性更差。（2）不同背景音乐诱发情绪对刷新成分的影响表现为正性情绪促进了信息刷新能力的提升，负性情绪有碍该能力，并且存在民族差异，少数民族学生在正性情绪下比负性情绪下信息刷新能力得到更好发挥。（3）不同背景音乐诱发情绪对认知灵活性成分的影响表现在正性音乐加快了高三学生认知灵活性能力的发挥，在少数民族学生上更为明显。有喜爱音乐类型偏好的汉族学生在其喜欢音乐类型下，认知灵活能力的运用需要投入更多的认知资源。（4）能够诱发正性情绪的音乐对高三学生执行功能产生促进作用，并且存在性别、民族和喜爱音乐类型偏好的差异。

关键词 音乐，情绪，执行功能，事件相关电位

The effect of emotions induced by background music on executive function of senior high school students: evidence from event-related potentials

Ma Qing[1] Yan Zhixiong[2]
1 Dianchi College of Yunnan University,Kunming
2 School of Education Science, Nanning Normal University,Nanning

***Abstract*:** In recent years, the combination of cognitive psychology and music psychology has led more and more scholars to carry out research on the impact of music on cognition.But each has its own theory and viewpoint.There is no consistent conclusion about the effect of different emotions induced by different music on cognition.This study attempts to explore the effects of mood induced by background music on individual executive function from both behavioral and electrophysiological. Verify whether the effect of music-induced emotions on the cognition of high school students promotes or hinders.Provide some feasible opinions and suggestions for the future psychological health work of students.To help high school students improve their academic performance and promote the development of mental health in an easy-to-accept way.In this study, we used experimental methods to design a total of three experiments to explore.Experiment 1: Select 32 senior high school students to receive stimulation from three backgrounds (positive music, negative music, no music),complete the digital Stroop test task of the suppression control component in the executive function, and record the EEG signals using event-related potential technology;Experiment 2: Select 32 senior high school students to receive the stimulation of three backgrounds respectively, complete the 2-Back test task of the information refresh component of the executive function, and record the EEG signals using event-related potential technology;Experiment 3:Thirty two senior three students were selected to receive three kinds of background stimuli, complete the digital transformation test task of executive functional cognitive flexibility component, and use Evoked potential technology to record EEG signals.Through statistical analysis of the behavioral data and EEG data of high school students performing functional tests on three different music backgrounds, the results found that:(I)The effects of different background music-induced emotions on inhibitory control components are shown as positive and negative emotions have an effect on the inhibition and control ability of high school students, but there are gender differences. Negative emotions, female students' ability to inhibit and control is worse than men's. (II)The influence of different background music-induced emotions on refresh components is expressed as positive emotions promote the improvement of

information refresh ability, negative emotions hinder this ability, and there are ethnic differences.Minority students have better information refreshing ability in positive emotions than in negative emotions.(III)The influence of different background music-induced emotions on the components of cognitive flexibility is manifested in positive music, which accelerates the play of cognitive flexibility of senior high school students, and is more obvious among minority students.For Han students who have a preference for music genres, the use of cognitive flexibility requires more cognitive resources. (IV)Music capable of inducing positive emotions promotes executive function of high school students, and there are differences in preference for gender, ethnicity, and favorite music types.

Keywords：music,emotion,executive function,ERPs

音乐快感缺失与一般快感缺失关系：一项探索性分析

张思雨[1] 蔡新璐[2]（通讯作者）

1 杭州师范大学经亨颐教育学院，杭州，311100

2 杭州师范大学基础医学院脑科学研究所，杭州，311100，caixinlu@hznu.edu.cn

摘 要 音乐，作为一种特殊的奖赏物，能够给人们带来愉悦体验。前人研究表明个体音乐奖赏敏感性的高低决定了其在音乐中体验到的愉悦程度。在一般人群体中，约有 5%的个体无法如常人一样从音乐中获得愉悦，这种现象被称为音乐快感缺失。目前，关于音乐快感缺失是特定类型的快感缺失还是属于一般快感缺失的一部分这一问题尚存在争议。本研究旨在探索音乐快感缺失和一般快感缺失之间的关系，并试图提出新的关于音乐快感缺失和其他快感缺失关系的理论模型。我们招募了 3372 名大学生被试，线上填写巴塞罗那音乐奖赏问卷、Snaith 快感缺失量表、时间体验愉悦量表及人口学信息，通过相关分析和回归分析发现音乐奖赏敏感性较低的人群对其他奖赏物（初级强化物和次级强化物）的敏感性也较低（$p < 0.001$），且性别差异显著（$\chi^2 = 16.23$，$p < 0.001$），其中 BMRQ 的 Mood Regulation 维度得分和 TEPS 的四个维度得分呈现出强相关性（r 在 0.72～0.87 之间），且 BMRQ 各维度及其总分可预测 TEPS 总分（调整后 $R^2 = 0.83$）。由此，可以得出结论：音乐快感缺失和一般快感缺失相关，尤其是与以时间维度划分的期待性愉悦体验和消费性愉悦体验密切相关，这可能与音乐的时间序列性和可预测性有关。我们希望后续研究可以进一步地明确音乐奖赏敏感性和其他奖赏敏感性之间的关系，以便更好地发挥音乐在提升个体和群体社会功能方面的作用，如临床音乐治疗等。

关键词 音乐，快感缺失，奖赏敏感性，情绪

The Relationship between Musical Anhedonia and General Anhedonia: An Exploratory Investigation

Siyu Zhang[1], Xin-lu Cai[2]

1 Department of Psychology, School of Education, Hangzhou Normal University, Hangzhou, China
2 Institute of Brain Science and Department of Physiology, School of Basic Medical Sciences, Hangzhou Normal University, Hangzhou, China

Abstract： Music, as a kind of special reward, can bring people pleasure. Previous studies have shown that an individual's musical reward sensitivity determines the degree of pleasure they experience in music. In the general population, about 5% of individuals are unable to get pleasure from music as usual, a phenomenon called musical anhedonia. At present, it is still controversial whether musical anhedonia is a specific type of anhedonia or a part of general anhedonia. The purpose of this study was to explore the relationship between musical anhedonia and general anhedonia, and to attempt to propose a new theoretical model of the relationship between musical anhedonia and other kinds of anhedonia. We recruited 3372 college students to fill out the Barcelona Music Reward Questionnaire (BMRQ), the Snaith Anhedonia Scale (SHAPS), the Temporal Experience Pleasure Scale (TEPS) and demographic information online. Through correlation analysis and regression analysis, it was found that people with low sensitivity to musical reward were also less sensitive to other kinds of rewards (including the primary reinforcers and the secondary reinforcers, $p < 0.001$), and the gender difference was significant ($\chi^2 = 16.23$, $p < 0.001$). Among them, the scores of Mood Regulation dimension of BMRQ showed a strong correlation with the scores of four dimensions of TEPS ($r = .72$ to $.82$), and the scores of each dimension and its total score of BMRQ could predict the total score of TEPS (adjusted $R^2 = 0.83$). Hence, it can be concluded that musical anhedonia is related to general anhedonia, especially closely related to the anticipatory and consummatory pleasure experience divided temporally, which may be related to the chronology and predictability of music. We hope that future studies will further clarify the relationship between musical reward sensitivity and other kinds of reward sensitivity, to better play the role of music in improving individuals and groups' social function, such as in clinical music therapy.

Keywords： music, anhedonia, reward sensitivity, emotion

6.27“眼动心理学专业委员会”分组展贴报告

阅读理解中的预测加工：一项来自眼动和中文量词的研究

赵赛男[1]，张俐娟[2]，张涵[1]，胡青[1]，王敬欣[2]
1 临沂大学教育学院，临沂，276000
2 天津师范大学心理学部，天津，300387，wjxpsy@126.com

摘 要 传统语言观认为阅读理解是一个自下而上的整合加工过程，即个体不断地将出现的词汇信息或概念整合到自己对前文语境所建立的内在心理表征之中。近年来，随着预测编码理论框架的提出，句子理解的观点也从单纯的信息表征向语言的“预处理”方向转变，即阅读是基于不断预测达成的读者与文本的交互对话的过程。引文激增分析也表明近几年阅读领域预测性研究的激增性最强，是未来研究的热点。虽然已有研究表明阅读中存在稳定的预测性效应，但绝大多数研究对阅读中预测性效应的测量是在词汇视觉信息出现之后，词汇视觉信息的出现对阅读中的提前预测加工造成了混淆和提出了挑战。因此，为了排除词汇视觉信息对预测加工测量造成的混淆，当前研究利用汉语中量词和名词之间特定的搭配关系，在词汇视觉信息出现之前就对预测性效应进行了测量。某高校 64 名在校大学生（*M*=20.3，*SD*=1.14）参与了正式实验。

实验为单因素两水平（名词类型：可预测名词、不可预测名词）被试内设计，共有 60 组实验句（可预测名词：“李阿姨脖子上戴的**那条**漂亮的**项链**是她昨天逛街时买的。”/不可预测名词：“李阿姨没告诉丈夫**那条**漂亮的**项链**是她昨天逛街时买的。”）。最后，利用线性混合模型对量词和名词上的跳读和注视时间类指标进行数据分析。结果发现，（1）对于量词：相较于不可预测名词前的量词，读者对可预测名词前量词的跳读更加频繁（$z=3.61$，$p<0.001$），注视时间更短（首次注视时间：$t=1.77$，$p=0.08$；凝视时间：$t=4.63$，$p<0.001$；总注视时间：$t=4.69$，$p<0.001$）；（2）对于名词：可预测名词和不可预测名词之间的跳读和注视时间没有显著差异（$t/z>0.09, p>0.93$）。上述实验结果表明，读者在没有出现词汇视觉信息之前就能够根据前文输入的语境对接下来的内容进行提前预测加工，并且会根据出现的新内容（量词）不断的动态调整预测内容。
关键词　阅读理解，预测加工，量词，眼动

Prediction during reading comprehension: Evidence from Eye-movement and Chinese classifier

Zhao Sainan[1], Zhang Lijuan[2], Zhang Han[1], Hu Qing[1], Wang Jingxin[2]
1 The school of education, Linyi University, Linyi, 276000
2 Faculty of Psychology, Tianjin Normal University, Tianjin, 300387, wjxpsy@126.com

***Abstract*：** According to the traditional view of language, reading comprehension is a bottom-up integrated process, in which individuals continuously integrate the emerging lexical information or concepts into their internal mental representation of the previous context. In recent years, with the proposed framework of prediction coding theory, the view of sentence understanding has also changed from the single information representation to language "preprocessing", in which reading is the interactive dialogue process between the reader and the text. The citation surge analysis also shows that in recent years, predictability research has had the biggest surge in the field of reading and has become a hot spot for future research. Previous studies have shown a stable predictability effect in reading. However, most studies measure the predictability effect in reading after the appearance of lexical visual information, which confuses and challenges the prediction processing in reading. Therefore, to eliminate the confusion caused by lexical visual information in the measurement of prediction processing, the current study uses the specific collocation relationship between quantifiers and nouns in Chinese to measure the predictability effect before the appearance of lexical visual information. 64 college students (M=20.3, SD=1.14) participated in the formal experiment. The experiment was single-factor two-level (noun type: predictable noun, unpredictable noun), and there were 60 sets of experimental sentences (predictable noun: "Aunt Li is wearing **that** beautiful **necklace** she bought when she went shopping yesterday." / Unpredictable noun: "Aunt Li didn't tell her husband that she bought **that** beautiful **necklace** when she went shopping yesterday."). Finally, the linear mixed model was used to analyze the data of skipping and fixation times on classifiers and nouns. The results showed that (1) for classifiers: compared with the classifiers before unpredictable nouns, readers skipped the classifiers before predictable nouns

more frequently ($z = 3.61$, $p < 0.001$), and the fixation times were shorter (first fixation duration: $t = 1.77$, $p = 0.08$; gaze duration: $t = 4.63$, $p < 0.001$; total fixation duration: $t = 4.69$, $p < 0.001$); (2) for nouns: there was no significant difference in skipping and fixation times between predictable and unpredictable nouns ($t/z > 0.09$, $p > 0.93$). Those results suggested readers exactly predict the following content according to the previous context in advance of the appearance of visual information and dynamically adjust the content according to the new content (classifiers).

Keywords：Reading comprehension, Prediction, Chinese classifier, Eye-movement

场景认知中知觉对象对事件理解的影响

唐庭豪　康廷虎　刘维　瞿萌 刘子馨

西北师范大学心理学院，兰州，730070，octadecamoon@163com

摘 要　事件是传达外界状态变化的动态过程，它由多种元素构成。事件理解建立在场景识别的基础上，涉及客体状态的认知，并可以直接影响个体的适应功能。场景知觉与事件理解理论(Scene Perception and Event Comprehension Theory, SPECT)协调了感知和理解的部分，认为对特定实体和实体细节进行的狭义信息提取在后端加工中可以帮助事件编码与理解。工具线索和动作关系线索作为狭义信息提取的对象在事件理解中可能起到不同的引导作用。本研究基于 SPECT 模型，从社会场景的角度进行了两个眼动实验，旨在探讨不同知觉对象对事件理解的影响。实验一为单因素被试内实验设计，自变量为工具线索（有、无），使用 EyeLink Portable Duo 便携式眼动仪记录 40 名大学生被试观察事件场景的眼动数据，分析正确率、反应时等行为指标与平均注视时长、眼跳幅度、瞳孔大小、眼跳次数等眼动指标。实验二采用 2（施动者状态：清晰，模糊）×2（受动者状态：清晰，模糊）的两因素被试内实验设计，记录了 38 名大学生的眼动数据，与实验 1 使用相同的实验仪器和因变量。结果发现：（1）有工具线索的水平下，被试对场景事件判断的正确率、反应时显著优于无工具线索时，同时眼跳次数显著减少，说明工具线索可以明确对信息的搜索以引导被试对场景进行识别；（2）施动者状态清晰水平下的反应时、眼跳幅度和正确率较模糊水平下小，而眼跳次数多；受动者状态在模糊水平下，眼跳幅度和眼跳次数较少。说明施动者的清晰状态能够引导信息搜索，显著减少事件理解所需的时间，但是也可能导致正确率下降；受动者的模糊状态可能被视为干扰刺激，导致被试降低信息搜索效。

关键词　场景认知，事件理解，工具线索，动作关系线索，眼动研究

The Influence of Perceived Objects on Event Comprehension in Scene Cognition

Tang Tinghao, Kang Tinghu, Liu Wei, Qu Meng, Liu Zixin

School of Psychology, Northwest Normal University, LanZhou, 730070,

octadecamoon@163.com

Abstract： An event is a dynamic process that conveys changes in the external world, consisting of various

elements. Event comprehension builds upon scene recognition and involves the cognition of object states, directly influencing individual adaptive functioning. The Scene Perception and Event Comprehension Theory (SPECT) integrates perceptual and cognitive aspects, proposing that narrow information extraction concerning specific entities and their details aids in event encoding and comprehension. Tool-related and action-related cues, as objects of narrow information extraction, may play distinct guiding roles in event understanding. This study, based on the SPECT model, conducted two eye-tracking experiments from a social scene perspective, aiming to explore the impact of different perceived objects on event comprehension. Experiment 1 employed a single-factor within-subject design with the independent variable being the presence or absence of tool-related cues. Eye movement data of 40 college students observing event scenes were recorded using the EyeLink Portable Duo eye-tracking system. Behavioral measures, including accuracy and response time, were analyzed alongside eye movement metrics such as fixation duration, saccadic amplitude, pupil size, and saccade count. Experiment 2 adopted a 2 (agent's state: clear, blurry) × 2 (patient 's state: clear, blurry) two-factor within-subject design, recording eye movement data of 38 college students using the same experimental apparatus and dependent variables as Experiment 1. The results revealed that (1) with the presence of tool-related cues, participants demonstrated significantly higher accuracy and faster response times in event recognition compared to conditions without such cues, while the saccade count decreased significantly, indicating that tool-related cues facilitated targeted information search and guided participants in scene recognition; (2) in the clear state of the agent, response times, saccadic amplitude, and accuracy were lower than in the blurry state, whereas the number of eye movements was higher. For the patient, in the blurry state, saccadic amplitude and the number of eye movements were lower. These findings suggest that a clear agent's state can guide information search and significantly reduce the time required for event comprehension, but it may also lead to a decrease in overall accuracy; the blurry state of the patient may be considered an interfering stimulus, resulting in reduced efficiency of information search.

Keywords **：** Scene Cognition, Event Comprehension, Tool-related Cues, Action-related Cues, Eye-tracking Research

斜体字的认知加工效率与美感：基于眼动技术的研究

唐圣林 仝文(通讯作者)

山西师范大学教育科学学院心理系，太原，030000

E-mail: twaaa@126.com

摘要 斜体汉字常应用于书籍、论文、政治文章和其他许多其他形式的书面文本中，在各种广告、标牌、艺术字等尤为常见。已有的拼音文字研究发现斜体字一定程度上降低了阅读效率，但汉字与拼音文字的研究结论是不能完全照搬的。本研究基于眼动技术，考察不同倾斜角度的中文句子、英文句子以及随机数字串对读者阅读效率的影响。包括三项实验：实验一通过问卷调查探索读者是否会对不同倾斜角度的汉字产生不同的审美，实验二主要考察不同字（汉字、拼音文字、随机数字串）与不同倾斜角度对眼动模式的影响，实验三通过设置相容关系任务（倾斜字与美观图片）与不相容关系任务（正字与非美观图片），考察被试对不同倾斜方向是否存在内隐态度。结果发现：（1）同倾斜角度的汉语句子的外显评价上大部分存在差异，其中正字的评价是最高的；（2）汉字的正字句子注视时间最短，英语左倾斜 15 度最短，并且随机数字串的注视时间差异不显著；（3）被试对倾斜角度存在内隐态度，表现出右倾斜汉字与美观图片相联系，左倾斜汉字与非美观图相联系。综上，这可能说明外显的评价没有反应出内隐的审美，在内隐态度上，读者对倾斜一定角度的汉字持积极态度，而不同字（汉字、拼音文字、随机数字串）在眼动模式上的差异可能是由于倾斜导致的眼动模式受到语言的影响，即有意义文字的阅读模式受到倾斜角度的影响。

关键词 倾斜角度，阅读效率，审美，内隐态度

Cognitive processing efficiency and aesthetics of italics：A Study Based on Eye-Tracking Technology

Shenglin Tang　Wen Tong
Department of Psychology, Shanxi Normal University, Taiyuan, 030000
E-mail: twaaa@126.com

Abstract：Italicized Chinese characters are often used in books, papers, political articles and many other forms of written text, especially in various advertisements, signs, artistic characters and so on. It has been proved that italics reduce the reading efficiency to a certain extent. But the research conclusion of Chinese characters is not necessarily the same as that of alphabetic writing. Based on eye-tracking technology, this study investigated the effects of Chinese sentences, English sentences and random number strings with different inclined angles on readers ' reading efficiency. In experiment 1, a questionnaire survey was conducted to explore whether readers will have different aesthetic perceptions of Chinese characters with different tilt angles. Experiments 2 focused on the effects of different characters (Chinese characters, alphabetic characters, random number strings) and different tilt angles on eye movement patterns. Experiment 3 examined whether the participants had implicit attitudes towards different tilt directions by setting compatible relationship tasks (tilted words and beautiful pictures) and incompatible relationship tasks (upright words and non-beautiful pictures). The results show that : (1) Most of the explicit evaluations of Chinese sentences with the same tilt angle are different, among which the evaluation of orthography is the highest ; (2) The fixation time of Chinese character sentences is the shortest, and that of English left tilt 15 degrees is the shortest, and there is no significant difference in the fixation time of random number strings. (3) The subjects had an implicit attitude towards the inclined angles, showing that the right-leaning Chinese characters were associated with beautiful pictures, and the left-leaning Chinese characters were associated with non-beautiful pictures. In summary, this may indicate that explicit evaluation does not reflect implicit aesthetics, In terms of implicit attitude, readers have a positive attitude towards Chinese characters tilted at a certain angle. And the difference in eye movement patterns of different characters (Chinese characters, alphabetic characters, random number strings) may be due to the influence of language on the eye movement pattern caused by tilt, that is, the reading pattern of meaningful words is affected by the tilt angle.

Keywords：Inclined Angles，Reading Efficiency, Appreciation of Beauty, implicit attitudes

6.28“心理学质性研究专业委员会”分组展贴报告

生成与遏制：未成年人的犯罪影响

——基于 QCA 的组态路径分析

胡青　张涵（通讯作者）
临沂大学教育学院心理系，临沂，276005
E-mail：zhanghanwf@163.com

摘 要　青少年犯罪是世界性的社会问题，严重威胁着整个社会的和谐与稳定。少年守法，则国之兴盛；少年违法，则国之大殇。学术界已从多个角度对青少年犯罪进行溯源分析，探索了各因素间的线性关系，但尚未从组态视角研究因素间的共同作用和交互影响。本文基于犯罪遏制理论，构建了“个体-家庭-学校”三个层面分析框架，运用 fsQCA3.0 软件对 19 名犯罪未成年和 8 名普通未成年作为研究对象进行定性比较分析（QCA），探讨导致未成年人犯罪的组态路径。研究发现：(1) 自我控制、心理韧性、家庭监管、不良交往和学业受挫是关键要素构成，但单个要素并不是未成年人犯罪的必要条件；（2）生成未成年人犯罪有 5 种充分条件组态，遏制未成年人犯罪有 3 种充分条件组态，未成年人犯罪的生成与遏制条件组态存在不对称性。（3）未成年人犯罪的五条生成路径，可进一步概括为外在推力型、外在拉力型、推拉联动型，其中不良交往和以家庭监管缺失共同存在是促发未成年人犯罪的核心条件（原始覆盖度为 31.58%），学业受挫是次要条件。（4）未成年人犯罪的三条遏制路径可以区分为外在遏制与内在遏制两种类型，其中自我控制与心理韧性的共同作用是核心条件（原始覆盖度为 37.5%），无不良交往是次要条件。多种条件组合路径分析揭示了未成年人犯罪的复杂因果本质，可对未成年人品格培育、家庭家教家风建设以及教育政策制定提供参考建议，具有积极的理论价值和实践借鉴。

关键词　未成年人犯罪，家庭监管，不良交往，自我控制，定性比较分析（QCA）

Generation and Deterrence: Influencing Factors of Juvenile Delinquency-Analysis of Configuration Path Based on QCA

Qing Hu Han Zhang [1]
1 Department of Psychology, School of Education, Linyi University, Linyi, 276005, zhanghanwf@163.com

***Abstract*：** Juvenile delinquency is a worldwide social problem, which seriously threatens the harmony and stability of the whole society. If teenagers obey the law, the country will prosper. If a teenager breaks the law, the country will be devastated. Academic circles have traced back to juvenile delinquency from many angles and explored the linear relationship between various factors, but they have not yet studied the reciprocal influence and interaction between factors from the perspective of configuration. Based on the theory of crime deterrence, this study creates a three-level analysis framework of "individual-family-school" and uses fsQCA3.0 software to conduct a qualitative comparative analysis (QCA) on 19 delinquent minors and 8 ordinary minors as the study's subjects to examine the grouping paths that result in delinquency among minors.

It was found that (1) self-control, mental resilience, family supervision, bad peer interactions, and academic frustration were the key element components, but a single element is not necessary for juvenile delinquency; (2) there were five sufficient condition groupings for generating juvenile delinquency and three sufficient condition groupings for curbing juvenile delinquency, and there was an asymmetry in the condition groupings for generating and curbing juvenile delinquency. (3) The five driving paths of juvenile delinquency can be further summarized as extrinsic push type, extrinsic pull type, and push-pull linkage-type, in which bad peer interactions and the co-existence of the lack of family supervision are the core conditions that promote juvenile delinquency (the

original coverage is 31.58%), and academic frustration is the secondary condition; the three juvenile delinquency containment paths can be differentiated into two types of external and internal containment, in which the joint effect of self-control and mental resilience is the core condition (original coverage of 37.5%), and the absence of bad peer interactions is the secondary condition. The analysis of multiple conditions combined paths reveals the complex causal nature of juvenile delinquency, which can provide reference suggestions for the cultivation of minors' character, the construction of family tutelage and family culture, as well as the formulation of educational policies, with positive theoretical value and practical reference.

Keywords： juvenile delinquency, family supervision, bad peer interactions, self-control, QCA

6.29“脑电相关技术专业委员会”分组展贴报告

急性睡眠剥夺对任务转换表现的影响：一项 ERP 研究

廉洁[1]　邵永聪[1]（通讯作者）

1 北京体育大学心理学院，北京，100084，budeshao@aliyun.com

摘 要　目的：许多行业的工作者都经历着睡眠剥夺，而急性睡眠剥夺会对个体的执行功能造成负面影响，包括注意力、工作记忆、情绪和决策等方面，但是较少研究探讨急性睡眠剥夺对任务转换能力产生的影响。本研究通过事件相关电位技术(event-related potentials, ERP)，探讨了 36 小时急性睡眠剥夺对任务转换表现的影响，并进一步探讨急性睡眠剥夺对不同时间的脑电成分产生的影响。方法：本研究共选取了 11 名参与者，完成 36 小时的急性睡眠剥夺实验，在 36 小时的睡眠剥夺前后每名参与者分别完成大小奇偶转换任务，并同时记录脑电数据。大小奇偶转换任务包括重复试次和转换试次两种类型，重复试次分为大小任务（判断数字大于 5 还是小于 5）和奇偶任务（判断数字是奇数还是偶数），转换试次为序列为 AABBAA 的大小奇偶转换任务。结果：ERP 结果表明，在 Cz，CPz 和 Pz 三个电极点上，36 小时急性睡眠剥夺后转换条件下的 N2 波幅显著增加，而重复试次的 N2 波幅显著降低。与之相反，睡眠剥夺后转换条件下的 P3 波幅显著降低，而重复试次的 P3 波幅显著增加。结论：36 小时急性睡眠剥夺后转换条件下消耗的认知资源更多，而重复试次并没有消耗过多的认知资源。与重复试次相比，在急性睡眠剥夺后转换试次对执行控制能力的要求更高，可能是大脑出现了代偿作用。

关键词　急性睡眠剥夺，任务转换，事件相关电位

The effect of acute sleep deprivation on task switching performance: An ERP study

Jie Lian，Yongcong Shao

Beijing Sports University, Beijing

Abstract：Objective: Workers in many industries are experiencing sleep deprivation, and acute sleep deprivation can have a negative impact on the executive function of individuals, including attention, working memory,

emotion and decision-making, but few studies have explored the impact of acute sleep deprivation on task switching ability. In this study, the effect of 36 hours of acute sleep deprivation on task switching performance was investigated by event-related potentials (ERP), and the effect of acute sleep deprivation on EEG components at different times was further explored. Methods: In this study, a total of 11 participants were selected to complete the 36-hour acute sleep deprivation experiment. Before and after 36 hours of sleep deprivation, each participant completed the size parity conversion task, and recorded the EEG data at the same time. The size parity conversion task includes two types: repeated trials and conversion trials. The repeated trials are divided into size tasks (judging whether the number is greater than 5 or less than 5) and parity tasks (judging whether the number is odd or even). The conversion trial is a size parity conversion task with a sequence of AABBAA. Results: ERP results showed that the amplitude of N2 increased significantly under the conversion condition after 36 hours of acute sleep deprivation at the three electrode points of Cz, CPz and Pz, while the amplitude of N2 decreased significantly after repeated trials. On the contrary, the P3 amplitude under switching conditions after sleep deprivation was significantly reduced, while the P3 amplitude of repeated trials was significantly increased. Conclusion: 36 hours of acute sleep deprivation after conversion conditions consume more cognitive resources, and repeated trials did not consume too much cognitive resources. Compared with the repeated trials, the switching trials after acute sleep deprivation have higher requirements for executive control ability, which may be due to the compensatory effect of the brain.

Keywords：acute sleep deprivation, task switching, event-related potentials

多维静息态脑电特征预测记忆控制：基于机器学习

程雪林　张云飞　丁锦红（通讯作者）

首都师范大学心理学院，北京，100048，E-mail:dingjh@cnu.edu.cn

摘 要　记忆控制（Memory control）是对某些信息的主动遗忘（Anderson & Hanslmayr, 2014; Liu et al., 2020）。它对个体心理健康至关重要，记忆控制能力受损是很多精神疾病的重要诱因（Nørby, 2018; Waldhauser et al., 2018）。准确识别记忆控制能力损伤程度并进行及时干预将有助于降低个体发展出精神疾病的风险。静息态是人脑活动的基线状态，反映了大脑固有的功能维持和基本信息加工能力（Deco et al., 2011）。已有研究表明，静息态神经活动能够预测个体的多种认知功能，如抑制控制和记忆等（Dong et al., 2021; Zhou et al., 2021）。因此，静息态神经活动可能也是个体记忆控制的有效预测指标。然而，如何从大量静息态脑电信号中筛选出更为有效的预测特征以及这些特征在记忆控制中如何发挥作用等问题尚不清楚。本研究结合EEG 技术和机器学习技术，深入分析多维静息态脑电特征在准确预测个体记忆控制能力中的作用。

实验共有被试 46 名（女性 32 名，年龄范围 21~28 岁）。实验中，先采集被试闭眼静息态 EEG 信号 5 分钟；再通过项目法测量被试定向遗忘任务成绩作为记忆控制分数。在数据分析过程中，首先，分别计算时域、频域及微状态等特征共 2604 个；通过最大相关最小冗余法选择最优特征子集，即为机器学习的预测变量。然后，以中位数为临界值将记忆控制得分转化为二分变量，作为机器学习的标签。最后，通过训练贝叶斯优化的支持向量机模型预测被试的记忆控制能力，采用十折交叉验证法训练模型并评估模型性能。实验结果显示，（1）最优特征子集包含 15 个静息态脑电特征，其中频域特征 12 个、微状态特征 2 个、时域特征 1 个；（2）训练的支持向量机模型对被试记忆控制能力分类的准确率为 95.65%、查准率为 95.65%、召回率为 95.65%、F1 得分为 95.65%，操作特性曲线面积为 0.97。结果表明，多维静息态脑电特征能够有效预测个体的记忆控制能力，其中频域特征在预测中发挥主要作用；支持向量机模型能够基于静息态脑电特征准确识别不同水平的记忆控制能力。

关键词　记忆控制，静息态 EEG，多维特征提取，频域，机器学习

Predicting memory control from multidimensional resting-state EEG features: Based on machine learning

CHENG Xuelin ZHANG Yunfei DING Jinhong (Corresponding author)
College of Psychology, Capital Normal University, Beijing, 100048, E-mail: dingjh@cnu.edu.cn

Abstract: Memory control refers to the active forgetting of certain information (Anderson & Hanslmayr, 2014; Liu et al., 2020). It is crucial for individual mental health, and its impairment is an important risk factor for a number of mental disorders (Nørby, 2018; Waldhauser et al., 2018). Accurately identifying the extent of memory control impairment and providing timely intervention can help reduce the risk of mental disorders. The resting state is the baseline state of brain activity, reflecting the intrinsic ability of the brain to maintain function and to process information (Deco et al., 2011). Previous studies have shown that resting-state neural activity can predict various cognitive functions, such as inhibitory control and memory (Dong et al., 2021; Zhou et al., 2021). Therefore, resting-state neural activity may also serve as an effective predictor of memory control. However, it remains unclear how to select more effective features from a large amount of resting-state EEG signals to predict memory control and how these features predict memory control. In this study, we combined EEG technology and machine learning approach to analyze the role of multidimensional resting-state EEG features in accurately predicting individual memory control abilities.

There were 46 participants in the experiment (32 females, aged 21-28 years). During the experiment, the eye-closed EEG data in the resting state were collected for 5 minutes. Participants' performance in the directed forgetting task was measured using the item method, and the scores obtained were used as memory control scores. In the data analysis process, firstly, a total of 2604 features including time-domain, frequency-domain, and microstate features were calculated separately. The maximum relevance and minimum redundancy technique was employed to select the optimal feature subset as the predictors in machine learning. Then, the memory control scores were transformed into binary variables by using the median as the threshold to serve as the labels for machine learning. Finally, a Bayesian-optimized support vector machine model was trained to predict participants' memory control abilities. The model was trained and evaluated using 10-fold cross-validation. The results showed that (1) the optimal feature subset comprised 15 resting-state EEG features, including 12 frequency-domain features, 2 microstate features, and 1 time-domain feature; (2) the trained support vector machine model achieved an accuracy of 95.65%, precision of 95.65%, recall of 95.65%, F1 score of 95.65%, and the area under the operating characteristic curve of 0.97 in classifying participants' memory control abilities. These results indicate that multidimensional resting-state EEG features can effectively predict memory control abilities, with frequency-domain features playing a major role in the prediction. The support vector machine model can accurately identify different levels of memory control based on resting-state EEG features.

Keywords: memory control, resting-state EEG, multidimensional feature extraction, frequency domain, machine learning

频繁进行媒体多任务对静息态脑电微状态的影响

张杰 李溪言 宋涵 张志杰（通讯作者）
河北师范大学心理系，石家庄，050024，zhzhj@mail.hebtu.edu.cn

摘 要 科技的高速发展使我们的工作和休闲时间都充斥着各种媒体信息，这也使得同时加工两种或两种以上媒体信息的行为越来越普遍。例如，一边听音乐一边读电子书，或者一边看视频一边聊天。近年来，研究者们将这种行为命名为媒体多任务，并开发了媒体多任务问卷来评估个体媒体多任务行为的程度，以期探讨长时间进行媒体多任务对各项认知功能的影响。研究发现，重度媒体多任务者比轻度媒体多任务者更容易受到任务无关信息的干扰，使得注意力难以集中在正在进行的任务中。然而，目前尚不清楚这一现象是由于重度媒体多任务者的注意控制能力受损造成的(缺陷假说)，还是他们仅仅采用了一种不忽视这些干扰物的策略(策略假说)。以往研究往往基于任务数据对重度和轻度媒体多任务者进行比较，而这些任务数据受到注意控制能力和策略使用的共同影响，难以区分。因此，仅仅基于传统的任务数据难以对这两个假说进行验证。本研究通过分析静息态脑电数据的方法，能够有效分离策略使用的影响，进而探讨重度和轻度媒体多任务者在注意控制能力上是否存在差异，以期对缺陷假说进行验证。通过对重度和轻度媒体多任务者的静息态脑电数据进行微观状态分析，结果发现重度媒体度者的凸显网络（微状态 C）激活程度要弱于轻度媒体多任务者。这一发现表明，与轻度媒体多任务者相比，重度媒体多任务者检测和过滤任务相关刺激的能力降低，从而支持了缺陷假说。此外，研究结果还发现与轻度媒体多任务者相比，重度媒体多任务者的视觉网络（微状态 B）激活增强，表明重度媒体多任务者对视觉信息的寻求更为强烈。综上所述，本研究结果表明重度媒体多任务者倾向于采用自下而上的注意分配方式，而轻度媒体多任务者则采用自上而下的方法。

关键词 媒体多任务，静息态，微状态，注意控制能力

Frequent media multitasking modulates the temporal dynamics of resting-state electroencephalography networks

Jie Zhang, Xiyan Li, Han Song, Zhijie Zhang*

Department of Psychology, Hebei Normal University, Shijiazhuang, China.

Abstract：Media and technology are saturating our work and entertainment time. Meanwhile, multitasking with two or more media and devices is increasingly pervasive. For example, one may read an electronic book while listening to music, or watch videos while chatting on instant messaging. To empirically investigate whether frequent media multitasking affects our cognitive abilities, a media use questionnaire has been developed to evaluate individuals' degree of media multitasking behavior. Converging studies have shown that heavy media multitaskers (HMM) are more easily distracted by task-irrelevant information than light media multitaskers (LMM). However, it remains unclear whether this phenomenon is due to deficits in HMM's attention control ability (deficit-producing hypothesis) or if they simply employ a strategy not to ignore such distractors (strategic hypothesis). Verifying the two hypotheses poses methodological difficulties because attention control ability and strategy usage are indistinguishable in traditional task-based data. The present study analyzed the electroencephalogram data recorded during resting-state periods to separate the influence of strategy usage.

Microstate analysis revealed that the activation of the salience network is weakened in HMM compared to LMM. This finding suggests HMM have a reduced ability to detect and filter pertinent stimuli compared to LMM, thereby supporting the deficit-producing hypothesis. Additionally, our results showed enhanced activation of the visual network in HMM compared to LMM, which is consistent with the findings that HMM have a greater demand for sensation seeking. Taken together, these results support the view that HMM allocate attention in a bottom-up manner, while LMM deploy a top-down approach.

Keywords：media multitasking, resting-state, EEG microstate, attention control ability

间隔治疗范式优化高频 rTMS 对神经病理性疼痛的作用

刘颖[1]，严敏[1]，车先伟[2]（通讯作者）

1 浙江大学医学院附属第二医院，杭州，310009

2 杭州师范大学认知与脑疾病研究中心，杭州，311100，通讯作者 E-mail（xwcheswu@gmail.com）

摘 要

背景：重复经颅磁刺激（rTMS）是一种安全、无创的神经调控技术。大量研究证明 rTMS 能够有效缓解慢性疼痛。我们前期研究结果显示，10-Hz rTMS 和 pcTBS 连续干预 5 次可对神经病理性疼痛患者产生镇痛作用，但短期高频 rTMS 的镇痛效应通常只能维持几天，亟待优化刺激模式，延长镇痛作用。

目的: 本研究为随机双盲假刺激对照试验的系列研究，旨在探索连续 5 次的 rTMS 或 pcTBS 干预后的响应者再进行一周两次，为期四周的间隔治疗模式能否维持 rTMS 的镇痛疗效。

方法：一周连续 5 次干预后，10-Hz rTMS 组（n=10）和 pcTBS 组（n=11）获得镇痛效应的患者（$\frac{T1-T0}{T0}\times 100\% \geq 30\%$，或者 NRS 评分降低≧2 分）接受为期四周、每周两次的间隔治疗范式。并在干预后一个月进行随访。主要结局指标为疼痛的强度，采用 NRS 量表评估。次要结局指标包括简化的 McGill 问卷调查（SF-MPQ）、BPI、PGIC、BDI-II、MEP、CSP。

结果：pcTBS 和 10-Hz rTMS 的间隔治疗能进一步降低疼痛强度、SF-MPQ 总分、情感项和感觉项总分。BPI 结果显示，仅 10-Hz 组的间隔治疗能进一步降低 BPI 总分。一个月后随访两组各项指标仍可保持在五次干预后水平。TMS-EMG 结果显示，pcTBS 和 10-Hz rTMS 的间隔治疗均可显著增加 MEP 但对 CSP 无显著影响。相关性分析显示，四周连续治疗后 MEP 变化值能够有效预测随访期疼痛强度。

结论：间隔治疗范式可以进一步减轻神经病理性疼痛患者的疼痛感觉和疼痛相关负向情绪，并产生中短期累积效应。镇痛机制涉及皮质脊髓环路的兴奋性增加，且 10-Hz rTMS 与 pcTBS 的持续性镇痛效应可能在皮质脊髓环路存在部分重叠的机制。这些结果为未来优化 rTMS 的临床效果提供了实证基础和研究方向。

关键词 经颅磁刺激，10-Hz rTMS，pcTBS，间隔治疗，神经可塑性

作者联系方式：

车先伟：18072852895，xwcheswu@gmail.com

刘颖：15595512306，350373328@qq.com

Extending the effects of transcranial magnetic stimulation on neuropathic pain by applying continuous treatment sessions

Ying Liu[1] , Min Yan[1], Xianwei Che[2]

1 Department of Anesthesiology, The Second Affiliated Hospital of Zhejiang University School of Medicine

2 Centre for Cognition and Brain Disorders, The Affiliated Hospital of Hangzhou Normal University

***Abstract*:**

Background: Repetitive transcranial magnetic stimulation (TMS) is a safe and noninvasive form of brain stimulation technique. A large number of studies have demonstrated a consistent analgesic effect of rTMS. Our previous research results showed that 5 consecutive interventions of 10-Hz rTMS and pcTBS can produce analgesic effect on patients with neuropathic pain. The analgesic effect of high-frequency rTMS usually lasts for a few days and needs to be maintained. However, a maintenance program with long-term efficacy has not been developed yet.

Aims: This study is a follow-up study of a randomized double-blind sham-stimulation controlled trial. The purpose was to explore whether continuous trial involving twice weekly sessions for 4 weeks could extend the analgesic effects of rTMS.

Method: Responders of patients in 10-Hz rTMS (n=10) and pcTBS group (n=11) (NRS score reduction ≧ 2 points or ≧ 30%) received continuous sessions of twice weekly for 4 weeks. Follow-up assessment was performed at one month after the intervention. The primary outcome was pain intensity and assessed using a numerical scale. Secondary outcomes included the simplified McGill questionnaire (SF-MPQ), BPI, PGIC, BDI-II, MEP, and CSP.

Result: Continuous TMS trials could further reduce pain intensity, SF-MPQ total score, and the affective and sensory dimension of pain. The BPI data showed that only the 10-Hz rTMS stimulation reduced the BPI score. During one-month follow-up, all the outcome measures could still be

maintained at the post1 treatment level. TMS-EMG data indicated that both pcTBS and 10-Hz rTMS increased MEP amplitude but had no effect on CSP. Moreover, MEP changes relative to post1 were associated with less pain changes in the follow-up period.

Conclusion: Continuous sessions of both 10-Hz rTMS and pcTBS are necessary to produce accumulative analgesic effect, which may share a common mechanism of corticospinal excitability in the sustained analgesic effect. These novel findings provide insight into the optimization of rTMS analgesia.

Keywords：10-Hz rTMS; pcTBS; Neuropathic pain; Neural plasticity;

视觉工作记忆中相似性效应的时间进程

程钰欣[1]　郭利静[2]　叶超雄[1]（通讯作者）

1 四川师范大学脑与心理科学研究院，四川成都，610066，cxye1988@163.com

2 于韦斯屈莱大学心理系，芬兰于韦斯屈莱，40014

摘 要　视觉工作记忆是人类对输入的视觉信息进行短暂存储与加工的空间，其在高级认知系统中担任重要作用，但是视觉工作记忆容量是非常有限的。那么，为了适应同时输入的大量视觉信息，这就要求资源有限的视觉工作记忆高效存储的。因此，大量的研究围绕着视觉工作记忆如何高效处理信息。部分研究将视知觉领域的格式塔原则引入视觉工作记忆，并发现按照不同的格式塔原则排列的记忆刺激能够提高视觉工作记的表现，即格式塔效应。其中，由于在日常生活中人们需要处理大量类似的视觉刺激，因此本次研究着眼于相似性效应对视觉工作记忆的影响。前人研究发现相似性能够促进视觉工作记忆的表现，但尚未研究相似性效应产生的阶段。本次研究通过采用行为与脑电指标---对侧延迟活动（Contralateral Delay Activity, CDA）(对视觉工作记忆维持的信息数量敏感的脑电成分）来探究该效应及其时间进程。所有实验在项目数量一致的情况下设置了三种不同的分组条件，分别为一组相似项目分组，两组相似项目分组以及未分组（以下分别简称为“分组 1”、“分组 2”、“未分组”），以便观察相似性效应。实验一为行为实验，通过比较相似性分组与未分组的条件，重复前人在一组相似性分组条件下的相似性优势效应，同时证实分组 2 条件下也能够提升记忆表现。实验二为脑电实验，将维持阶段时间窗分为维持早期和维持晚期，并比较不同分组条件下在维持早期和维持晚期的 CDA 振幅，利用脑电技术在时间分辨率方面的优点，揭示相似性效应产生的阶段。实验二的结果显示，在维持早期时，分组 1 的 CDA 振幅显著小于分组 2 与未分组的 CDA 振幅，分组 2 和未分组之间的 CDA 振幅差异不显著；但在维持晚期分组 2 的 CDA 振幅低于未分组的 CDA 振幅。因此本次研究的证实了多个相似性分组条件下存在相似性效应，说明了当相似性分组的数量较少时，其相似性效应来源于视觉工作记忆的编码阶段；但当相似性分组的数量较多时，其相似性效应来源于视觉工作记忆的维持阶段。

关键词　视觉工作记忆，格式塔分组原则，相似性分组，对侧延迟活动

Time course of similarity effects in visual working memory

Yuxin Cheng[1], Lijing Guo[2], Chaoxiong Ye[1]

1 Institute of Brain and Psychological Sciences, Sichuan Normal University, Chengdu, China

2 Department of Psychology, University of Jyvaskyla, Jyväskylä, Finland

Abstract： Visual working memory is the space where humans transiently store and process incoming visual information, and it serves an important role in the higher cognitive system, but the capacity of visual working memory is very limited. Then, in order to adapt to the large amount of visual information input at the same time, it requires efficient storage of visual working memory with limited resources. Therefore, a great deal of research has centered on how visual working memory processes information efficiently. Some studies have introduced the Gestalt principles in the field of visual perception into visual working memory and found that memory stimuli arranged according to different Gestalt principles can improve the performance of visual working memory, i.e., the Gestalt effect. Among them, since people need to process a large number of similar visual stimuli in daily life, the current study looks at the effect of similarity effect on visual working memory. Previous studies have found that similarity promotes visual working memory performance, but the stage at which the similarity effect occurs has not been investigated. The current study explored the effect and its time course by using a behavioral and electroencephalographic indicator, Contralateral Delay Activity (CDA) (an electroencephalographic component sensitive to the amount of information maintained in visual working memory). Three different grouping conditions were set up for all experiments with the same number of items: one group of similar items grouped together, two groups of similar items grouped together, and no grouping (hereafter referred to as "Grouped 1", "Grouped 2", and "No Grouping", respectively), "ungrouped") in order to observe the similarity effect. Experiment 1 was a behavioral experiment, in which we compared the similarity grouped and ungrouped conditions to replicate the similarity effect of the previous experiment in a set of similarity grouped conditions, and to confirm that the grouped 2 condition was also able to enhance memory performance. Experiment 2 was an ERP experiment in which the maintenance phase time window was divided into early and late maintenance, and the CDA amplitudes in the early and late maintenance phases were compared between the different grouping conditions, to utilize the advantages of EEG technology in terms of temporal resolution and to reveal the phases in which the similarity effect occurs. The results of Experiment 2 showed that at the early maintenance stage, the CDA amplitude of grouped 1 was significantly smaller than that of grouped 2 and the ungrouped, and the difference in CDA amplitude between grouped 2 and the ungroup was not significant; however, at the late maintenance stage, the CDA amplitude of grouped 2 was lower than the CDA amplitude of the ungrouped. Therefore, the present study confirmed the existence of similarity effects under multiple similarity grouping conditions, indicating that when the number of similarity groupings is small, the similarity effect originates from the encoding stage of visual working memory; however, when the number of similarity groupings is large, the similarity effect originates from the maintenance stage of visual working memory.

Keywords： visual working memory, gestalt grouping principle, similarity grouping, contralateral delay activity

基于特征的干扰物在视觉早期加工阶段的主动抑制

朱小章[1] 李宜伟[2] 王小桃[1]（通讯作者）

1 江西师范大学心理学院，南昌，330022，wangxt@jxnu.edu.cn

2 四川师范大学脑与心理科学研究院，成都，610066

摘 要　关于记住的干扰物特征（拒绝模板或干扰物模板）是否能被预先主动地抑制现在还存在争论。一种观点认为在刺激呈现之前干扰物就已经被预先抑制了，即主动抑制；另一种观点则认为干扰物最初会捕获注意力，随后快速地将注意力从干扰物上转移，即反应性抑制。为了检验这两种观点，本研究采用随机运动点阵范式(random dot kinematograms, RDKs)。在该范式中，两种颜色（分别为目标颜色和干扰物颜色）的 RDKs 重叠呈现，并可能会进行上下左右四个方向的移动。当目标颜色 RDKs 移动时，被试需要进行按键反应。两种颜色的 RDKs 以不同的频率闪烁，以在大脑视觉区域诱发相对应的神经震荡，即稳态视觉诱发电位（SSVEPs）。SSVEPs 振幅受注意的影响，被注意的刺激诱发的 SSVEP 振幅要大于不被注意的刺激。每位被试需要在连续两天的时间里面完成目标模板和干扰物模板两种条件。目标模板条件下，目标颜色只有一种并在实验前告知被试，而干扰物颜色在距离目标颜色 60 度之外的色轮上随机选取。反之，在干扰物模板条件下干扰物颜色只有一种，而目标颜色不固定。为更好的观察不同条件下注意的变化进程，本研究设定目标模板条件下干扰物颜色诱发的 SSVEP 为基线。结果显示，在目标模板条件下，目标颜色诱发的 SSVEP 振幅从刺激呈现 730ms 之后显著大于基线，并一直持续到刺激消失。在干扰物模板条件下，目标颜色诱发的 SSVEP 振幅在刺激呈现开始 200-342ms 之间显著高于基线，之后振幅降低至与基线没有显著差异；干扰物颜色诱发的 SSVEP 振幅在整个时间段都与基线不存在显著差异。这结果说明，当采用目标模板进行搜索时，对目标的注意增强作用发生在刺激呈现后的 730ms 之后，并且这种注意增强一直持续到刺激消失。而当采用干扰物模板进行搜索时，被试首先快速地注意目标颜色然后减少对目标的注意，而干扰物从一开始就没有被注意，说明对目标的注意增强是短暂的，并且记住的干扰物被预先主动地抑制了。本研究结果支持记住的干扰物特征能被预先主动地抑制这一观点，并且发现目标模板和干扰物模板条件下具有不同的注意模式。
关键词　注意，干扰物抑制，　稳态视觉诱发电位（SSVEPs），EEG

Proactive suppression of feature-based distractor in the early stage of visual process

Zhu Xiaozhang[1]　Li Yiwei[2]　Wang Xiaotao[1]

1 School of Psychology, Jiangxi Normal University, Nanchang 330022, China

2 Institute of Brain and Psychological Sciences, Sichuan Normal University, Chengdu 610066, China

***Abstract*:** There has been a debate about whether the distractor features (a template for rejection or a distractor template) in memory can be suppressed in advance. One view is that the suppression happened before the onset of the stimulus, that is the proactive suppression. Another view is that the distractor capture attention in the first place, while it can shift away from it rapidly, that is the reactive suppression. Here, we investigated the two different views by using random dot kinematograms (RDKs), in which two completely overlapping RDKs of two different colors (target color and distractor color) are presented and may move in four directions, up, down, left or right. When the target color RDKs move, the participants need to respond by keystrokes. The two colors of RDKs flicker at different frequencies to evoke the steady-state visual evoked potentials (SSVEPs), an ongoing oscillatory that corresponding to the visual area of the brain. The amplitude

of SSVEPs is affected by attention, with attended stimulus evoking greater SSVEPs amplitudes than unattended stimulus. Participants were asked to complete both the target template and distractor template conditions over two consecutive days. In the target template condition, participants were informed in advance that there was only one target color and the distractor colors were randomly selected on a color wheel 60° away from the target color. Conversely, in the distractor template condition there was only one distractor color and the target color was random. To better observe the process of change in attention under different conditions, the present study set the SSVEPs evoked by the distractor color in the target template condition as the baseline. The results showed that in the target template condition, the target color RDKs evoked SSVEPs amplitude was significantly larger than the baseline from 730 ms after stimulus presentation and persisted until stimulus disappearance. In the distractor template condition, target color RDKS evoked SSVEPs amplitudes were significantly higher than baseline between 200-342ms from the onset of stimulus presentation, after which the amplitudes decreased to not significantly different from baseline; distractor color RDKs evoked SSVEPs amplitudes were not significantly different from baseline throughout the entire time period. These results suggests that when a target template was employed for search, the attentional enhancement to the target occurred after 730 ms after stimulus presentation, and that this attentional enhancement continued until the stimulus disappeared. In contrast, when a distractor template was used for search, subjects first rapidly attended to the target color and then reduced their attention to the target, and the distractor was not attended to from the beginning, suggesting that the attentional enhancement to the target was transient and that the distractor was suppressed in advance. Thus, we support that remembered distractor features can be proactively suppressed, and the attentional patterns of the target template and distractor template are different.
Keywords：attention, distractor suppression, steady-state visual evoked potentials (SSVEPs), EEG

6.30“心理学与社会治理专业委员会”分组展贴报告

道德提升感对回收意愿的影响：自然联结的中介作用

杨倩[1] 黄瑶[1] 曾练平[1]（通讯作者 Email:zenglianping@163.com）
1 贵州师范大学心理学院，贵阳，550001

摘 要 近年来，由于产品快速更新换代以及人们消费模式转变，导致大量废弃物产生。废弃物的有效回收处理对保护环境、节约资源等有重要意义。已有研究探讨了道德提升感对亲环境行为的影响，但并未具体到某一领域（如回收），且其内在机制也较少探讨。本研究的目的是探讨诱发道德提升感是否会促进人们的回收意愿，及验证自然联结在两者之间的中介作用。首先随机呈现视频（道德提升感诱发视频和中性视频）或不呈现视频，对道德提升感水平进行操纵，然后使用道德提升感量表(C-MES)、自然联结量表(CNS)以及回收意愿量表，对 162 名成人进行线上问卷调查，其中男生 92 人占 56.79%，女生 70 人占 43.21%。采用 SPSS27.0 对数据进行分析处理。结果表明：（1）高道德提升感水平的个体，回收意愿越强，道德提升感对回收意愿有正向预测作用(β=0.08, $p < 0.05$)；（2）自然联结在道德提升感和回收意愿之间起完全中介作用；（3）加入回收态度和回收经验后，自然联结在道德提升感和回收意愿之间起部分中介作用。结论：

本研究表明道德提升感不仅可以直接预测回收意愿，也可以通过自然联结的中介作用间接预测其回收意愿。因此，提高人们的道德提升感或自然联结水平，能够促进人们的回收意愿，进而有助于改善环境、维护生态系统平衡，有效减缓资源浪费。
关键词　道德提升感，自然联结，回收意愿

The effect of perceived moral elevation on recycling intention: the mediating role of natural connectedness

YangQian [1], HuangYao[1], Zeng Lianping[1]
1School of Psychology, Guizhou Normal University, Guiyang 550001, China

Abstract：In recent years, a large amount of waste has been generated due to the rapid renewal of products and changes in people's consumption patterns. Effective recycling and disposal of waste is important for protecting the environment and saving resources. Studies have been conducted to explore the effects of a sense of moral elevation on pro-environmental behavior, but they have not been specific to a particular area (e.g., recycling) and their underlying mechanisms have been less explored. The purpose of this study was to investigate whether inducing a sense of moral elevation promotes people's recycling intention, and to verify the mediating role of natural associations between them. The level of moral elevation was first manipulated by randomly presenting videos (moral uplift-evoking and neutral videos) or not presenting videos, and then an online questionnaire was administered by using the Moral Elevation Scale (C-MES), the Connectedness of Nature Scale (CNS), and the Recycling Intention Scale to 162 adults, of whom 92 (56.79%) were male and 70 (43.21%) were female. SPSS27.0 was used to analyze and process the data. The results showed that (1) individuals with high levels of moral elevation had stronger willingness to recycle, and moral elevation had a positive predictive effect on recycling intention (β = 0.08, p < 0.05); (2) the natural connectedness fully mediated the relationship between moral elevation and recycling intention; and (3) the natural linkage partially mediated the relationship between moral elevation and recycling intention after adding the attitude toward recycling and the experience of recycling. **Conclusion**: The present study shows that moral upliftment not only directly predicts the recycling intention, but also indirectly predicts the willingness to recycle through the mediating role of natural connectedness. Therefore, improving people's sense of moral elevation or natural connectedness can promote people's recycling intention, which in turn can help to improve the environmental protection, maintain the balance of the ecosystem, and effectively reduce the waste of resources.
Keywords：moral elevation, natural connectedness, recycling intention

6.31“文化心理学专业委员会”分组展贴报告

中国优秀传统文化下主动全域健康和全人成长至兴盛的路径探索

王歆睿 [1]　韩布新 [2]（通讯作者）
1 成都工业学院，成都，611730

2 中国科学院心理健康重点实验室（心理研究所），北京，100101，hanbx@psych.ac.cn

摘 要 本文立足于中国优秀传统文化思想探索实现兴盛（flourish）的路径方法，提出基于文化本位的心理健康维护与促进模型。中国式兴盛观不同于西方兴盛观，西方文化背景（个体主义、理性）导致积极心理学研究带有明显西方文化印记。而中国文化注重精神生活的践行方式、人与自然、天人合一、中庸，中国兴盛观更重视人的动机、自我实现以及自我实现的动机、自我潜能的发挥。“精神性”是中国式兴盛观的重要内容，基于中国传统文化的中国式兴盛观包括“全人成长”和“主动全域健康”，涉及人观、健康观、疾病观、治疗观的认识，以精神健康为核心，是实现兴盛的理论基础和重要途径。本文致力于探索实现兴盛的主动健康行为，基于文化的主动全域健康行为是从心流获得兴盛的最佳途径，尤其是在中国优秀传统艺术实践活动中获得最佳心流体验。主动健康的心流文化实践需具备天赋、兴趣和才能三个要素。个人主动健康结合个人独特的天赋、兴趣和才能寻找适合自己的心流文化实践活动（如喜爱的工作和学习活动，习练诗书画印、广场舞、太极拳、八段锦、五禽戏、正念等），实现人的个性化发展，发现天赋、培养兴趣、发展能力，体悟人生三感（意义感、控制感和归属感），获得自我觉醒与发展成长，长久有效调动自身积极资源，在个人（表情达意）、社会（服务社会）、自然（天人合一或人类命运共同体）和宇宙（浩然正气）的各自层面及整合水平实现主动全域健康，以达到兴盛。

关键词 中国优秀传统文化；兴盛；全人成长；主动全域健康；心流文化实践

Path exploration of Active health and whole-person growth to flourishing path exploration under the excellent traditional Chinese culture

Wang Xinrui [1] Han Buxin[2*]

1.Student Affairs Department of Chengdu Technological University, Chengdu, 611730

2. CAS Key Laboratory of Mental Health, Chinese Academy of Sciences (Institute of Psychology), Beijing, 100101

***Abstract*:** Based on the way of Chinese excellent traditional cultural thoughts to explore the way to flourish, this paper puts forward a model of maintaining and promoting mental health based on cultural model. The Chinese view of flourishing is different from the western view of flourishing. The Western cultural background (individualism, rationality) leads to the positive psychology research with obvious Western cultural imprint. Chinese culture focuses on the practice of spiritual life, man and nature, the unity of nature and man, the Golden Mean, the view of flourishing in China pays more attention to people's motivation, self-realization, motivation of self-realization and the exertion of self-potential. "Spirituality" is an important content of Chinese flourishing, which based on Chinese traditional culture includes "Whole-person growth" and "Active health", it is the theoretical basis and important way to realize the flourishing with the core of mental health, which involves the cognition of human view, health view, disease view and treatment view. This paper aims to explore the active health behaviors to achieve flourishing, and culture-based active health behaviors are the best way to achieve flourishing from flow, especially in Chinese outstanding traditional art practice to get the best flow experience. Active and healthy flow culture practice requires three elements: talent, interest and ability. Individuals active healthy need combine their unique talents, interests and ability to find suitable flow cultural activities (such as favourite work and study activities, practising poetry, calligraphy and painting, square dance, tai chi, Baduanjin exercise, Five-Animal Exercises, mindfulness, etc.) , to realize individual development, to discover talent, to

cultivate interest, to develop ability, to realize the three senses of life (sense of meaning, sense of control and sense of belonging) , to achieve self-awakening and development and growth, long-term and effective mobilization of their own positive resources, in the individual (expression of ideas) , society (service to society) , Nature (the unity of man and nature or the community of human destiny) and the universe (Noble and righteous) at their respective levels and integration level to achieve active health, to achieve flourishing.

Keywords**:** Excellent traditional Chinese culture; Flourishing; Whole-person growth; Active health; Practice of flow culture

当代成年人忧患意识的结构与测量

宿飞扬　胡永祺　桑明磊　姜温君　陈英敏（通讯作者）

山东师范大学心理学院，济南，250358，通讯作者 E-mail: cc8030306@163.com

摘 要　当今人类社会处于变局之中，各种危机频发，大如自然生态危机、国际战争危机等，小如家庭危机、个人发展性危机等，如何应对这些危机？中华民族在几千年的发展中积累和塑造了一定的经验和智慧，其中，作为积极应对危机与灾难方式之一的忧患意识千古流传，它能够提醒个体居安思危，防患未然，帮助个体更好地适应与发展，也可以帮助国家防范重大风险，在危机中育先机，于变局中开新局。

目的：目前对于忧患意识的研究基本集中在哲学领域，且多为理论研究，从心理学角度进行探讨几乎空白。因此，本研究拟对忧患意识这一传统文化基因进行心理学探究。

方法：首先通过对古籍整理建立忧患意识的语料库，梳理出有关忧患意识的内涵、外延、功能等基本内容；在此基础上以成年人为对象进行调查，编制当代中国人的忧患意识量表；最后以自编的忧患意识量表为测量工具，一方面考察忧患意识的当代特点与时代变迁；另一方面，选取心理健康作为个体适应性的指标，初步考察忧患意识的适应功能，以便为忧患意识的科学继承与发展提供客观的依据与参考。

结果：（1）通过数据库检索的方法，收集儒家经典中关于忧患意识的语段，经过简化整理后形成了正式的语料库，并按照忧患意识的主体、产生的情境属性、成分、内容以及功能等进行了整理；（2）对被试进行忧患意识的开放式调查，调查 150 名被试，分析了解当今国人对忧患意识的含义、情境、反应、内容与功能的认识与理解，以及忧患意识的古今对比；（3）在前面研究基础上，调查 390 名被试，编制了当代中国人忧患意识初测问卷，并对问卷的信效度加以检验，最终得到 22 个题项的忧患意识问卷，分为个人忧患意识、家庭忧患意识、国家忧患意识和自然忧患意识四个维度，且符合心理测量学要求，具有良好的信效度；（4）以自编忧患意识问卷为测量工具，调查 1478 名被试，初探中国成年人忧患意识特点及其个体的适应性，发现忧患意识显著正向预测个体的心理健康，且应对方式在其中起部分中介效应。

关键词　中国文化，忧患意识，问卷编制，适应性，成年人

The structure and measurement of contemporary adult sense of hardship

Feiyang Su　Yongqi Hu　Minglei Sang　Wenjun Jiang　Yingmin Chen（Corresponding Author）

School of Psychology in ShanDong Normal University, Jinan, 250358

Abstract**：** Nowadays, human society is in a state of change, with various crises occurring frequently, such as

natural ecological crisis, international war crisis, etc., and small crises such as family crisis and personal development crisis, etc. How to deal with these crises? The Chinese nation has accumulated and shaped a certain amount of experience and wisdom during thousands of years of development, among which, the sense of distress, as one of the ways to actively respond to crises and disasters, has been passed down through the ages. It can remind individuals to be prepared for danger in times of safety, prevent disasters before they arise, help individuals better adapt to and develop, and help the country to prevent major risks, foster opportunities in crises, and open new situations in times of change.

Purpose: At present, the research on the awareness of distress is mainly concentrated in the field of philosophy, and most of it is theoretical, and there is almost no discussion from the perspective of psychology. Therefore, this study intends to conduct psychological research on the traditional cultural gene of distress awareness.

Methods: Firstly, by collating ancient books and establishing a corpus of the sense of distress, the basic contents of the sense of distress, such as connotation, extension and function, were sorted out. On this basis, adults are investigated and a scale of contemporary Chinese people's sense of distress is compiled. At last, we use the self-designed anxiety consciousness scale as a measuring tool. On the one hand, we examine the contemporary characteristics and times changes of anxiety consciousness. On the other hand, mental health is selected as the index of individual adaptability, and the adaptive function of the sense of distress is preliminarily investigated in order to provide objective basis and reference for the scientific inheritance and development of the sense of distress.

Results: (1) Through the method of database retrieval, we collected the passages about the sense of distress in the Confucian classics, and formed a formal corpus after simplification, and sorted them according to the subject of the sense of distress, the situational attributes, components, content and functions; (2) Conduct an open survey on the awareness of anxiety among 150 subjects to analyze and understand the current Chinese people's awareness and understanding of the meaning, context, reaction, content and function of the awareness of anxiety, as well as the comparison between ancient and modern awareness of anxiety; (3) On the basis of the previous research, 390 subjects were investigated, and a preliminary questionnaire for the awareness of anxiety of contemporary Chinese people was prepared. The reliability and validity of the questionnaire were tested, and a 22-item questionnaire was finally obtained, which was divided into four dimensions: personal awareness of anxiety, family awareness of anxiety, national awareness of anxiety and natural awareness of anxiety, and it met the requirements of psychometrics. It has good reliability and validity; (4) Using self-designed anxiety awareness questionnaire as a measuring tool, 1,478 subjects were investigated to explore the characteristics of Chinese adults' anxiety awareness and their individual adaptability, and it was found that anxiety awareness significantly positively predicted individual mental health, and coping style played a part in mediating effect.

Keywords：Chinese culture, sense of hardship, questionnaire development, adaptability, adults

6.32“积极心理学专业委员会”分组展贴报告

人际敏感性与大学生生活满意度的关系：

智能手机成瘾的中介作用和自然联结的调节效应

代文武[1] 魏秀超[2] 李秋怡[1] 杨智辉[1]（通讯作者）

1 北京林业大学人文社会科学学院心理系，北京，100083，zhihuiyang2008@126.com
2 河北师范大学教育学院，石家庄，050024

摘 要　生活满意度是积极心理学研究热点之一，属于主观幸福感的认知因子。相比于主观幸福感的情感因子，生活满意度是更能反映中国人的幸福感状况。对大学生而言，生活满意度在个体适应性发展上发挥着关键作用。因此，探究大学生生活满意度的影响机制一直受到研究者的广泛关注。在众多影响因素中，人际敏感性作为一种典型的人际关系问题因素，对大学生生活满意度具有深远影响。然而，探究人际敏感性究竟是如何影响大学生生活满意度的研究尚少，仍有待于进一步探究。其中，手机成瘾作为极易受到人际关系问题影响且对大学生生活满意度同样具有重要影响作用的变量，极可能在人际敏感性和生活满意度之间扮演着重要角色；为了有效降低人际敏感性和手机成瘾对大学生生活满意度的风险，本研究还从人与自然关系的视角探索自然联结这一保护性因素在其关系中发挥的调节作用。本研究探究了大学生人际敏感性和生活满意度的关系，以及智能手机成瘾的中介作用和自然联结的调节效应。采用人际敏感性量表，智能手机成瘾量表，自然联结量表和生活满意度量表对 702 名大学生进行了问卷调查。结果发现：（1）大学生人际敏感性与生活满意度之间存在显著地负相关；（2）智能手机成瘾在大学生人际敏感性与生活满意度的关系中起到部分中介作用；（3）自然联结在人际敏感性对大学生生活满意度的影响路径中没有起到调节作用，但自然联结在智能手机成瘾对大学生生活满意度的影响路径中起到了调节作用，且调节模式符合“杯水车薪”模式。本研究发现了影响大学生生活满意度的风险因素和保护因素，为提高大学生生活满意度和生活质量提供了实证研究依据。

关键词　人际敏感性，智能手机成瘾，自然联结，生活满意度

The Mediating Role of Smartphone Addiction between Interpersonal Sensitivity and Life Satisfaction among College Students: The Moderating Effect of Connectedness to Nature

Wenwu Dai[1], Xiuchao Wei[2], Qiuyi Li[1], Zhihui Yang[1] (Corresponding author)
1 Department of Psychology，School of Humanities and Social Sciences，Beijing Forestry University，Beijing 100083，China
2 College of Education，Hebei Normal University，Shijiazhuang，050024

Abstract：Life satisfaction is one of the hot topics in positive psychology, and it is as a cognitive factor of subjective well-being. Compared with an emotional factor, life satisfaction is a better reflection of Chinese subjective well-being. For college students, life satisfaction plays a key role in individual adaptive development. Therefore, exploring the influencing factors of college students' life satisfaction has been widely concerned by researchers. Among many influencing factors, interpersonal sensitivity, as a typical interpersonal problem factor, has a profound impact on college students' life satisfaction. However, there are still few studies on how interpersonal sensitivity affects college students' life satisfaction, and further research is still needed. Smartphone addiction is a variable that is easily affected by interpersonal problems and also has an important role on college students' life satisfaction, which is likely to play an important role between interpersonal sensitivity and life satisfaction. In order to effectively reduce the risk of interpersonal sensitivity and smartphone addiction on life satisfaction, this study also explores the moderating effect of connectedness to nature in the relationship from the perspective of the relationship between human and nature.Our study investigated the relationship between interpersonal sensitivity and life satisfaction among college students, the mediating effect of smartphone addiction,

and the moderating effect of connectedness to nature. A total of 702 college students were tested by Interpersonal Sensitivity Scale, Smartphone Addiction Scale, Connectedness to Nature Scale, and Satisfaction with Life Scale. This study indicated that: (1) Interpersonal sensitivity showed a significant negative correlation with life satisfaction among college students; (2) Smartphone addiction played a partial mediatingrole in the relationship between interpersonal sensitivity and life satisfaction among college students; (3) Connectedness to nature did not play a moderating effect in the relationship between interpersonal sensitivity and life satisfaction among college students, but it played a moderating effect in the relationship between smartphone addiction and life satisfaction among college students, following a “drop-in-the-bucket”(杯水车薪) pattern. These findings identified both risk factors and protective factors that influence life satisfaction among college students, providing valuable guidance for enhancing their life satisfaction.

Keywords：Interpersonal sensitivity, Smartphone addiction , Connectedness to nature, Life satisfaction

亲子关系与中学生生活满意度的关系：心理韧性的中介作用

姚琼[1,2]（通讯作者） 陈文琴[1]

1 合肥师范学院，合肥，230061，E-mail：120400298@qq.com

2 安徽省学生心理健康教育指导中心，合肥，230061，

摘 要 家庭是影响中学生发展的重要微观系统之一，对中学生的生活满意度会产生影响，但对其中影响机制的探讨还较为缺乏，特别是个体的内在主观能动性在环境对人产生作用的过程中所起的作用应该引起关注。因此，本研究基于积极心理学的视角，对中学生的亲子关系、心理韧性和生活满意度进行调查，探究亲子关系对生活满意度的影响机制，进一步丰富生活满意度的相关研究。采用《亲子亲密度量表》、《心理韧性量表》和《生活满意度表》对安徽省普通初中、普通高中的学生进行调查，获得 1420 份有效数据，三个量表在本研究中的内部一致性系数分别为 0.93,0.92,0.95。结果发现，亲子关系、心理韧性和生活满意度之间两两相关（相关系数范围 0.525-0.878），进一步中介效应检验发现，心理韧性在亲子关系和生活满意度中起部分中介作用，中介效应占比 53.85%。研究提示，亲子关系不仅可以直接对生活满意度产生影响，也可以通过心理韧性的中介作用产生影响。为增进中学生的心理健康水平，一方面需要通过家庭支持构建良好的亲子关系，父母注重与孩子的沟通，提高陪伴质量，为中学生提供良好的情感支持和帮助，以提升中学生的生活满意度；另一方面，关注心理韧性这一比较稳定的个体内部因素，家校合作共育培养中学生的心理韧性，通过团体心理辅导等帮助中学生在面对生活与学习中的挫折时保持积极情绪和弹性应对，以提升其生活满意度。

关键词 中学生；生活满意度；心理韧性；亲子关系

The research between parent-child relationship and life satisfaction of middle school students：The mediating role of Resilience

Yao Qiong[1, 2] Wen-qin Chen[1]

1 Hefei Normal University, Anhui Hefei, 230601, E-mail：120400298@qq.com

2 Anhui Mental Health Education and Guidance Center for Student,Anhui Hefei, 230601

Abstract：Family is one of the important microsystems that affect the development of middle school students, and it can have an impact on their life satisfaction. However, there is still a lack of exploration of the mechanism of its impact, especially the role of individuals' internal subjective initiative in the process of environmental impact on people, which should be paid attention to. Therefore, this study is based on the perspective of positive psychology

to investigate the parent-child relationship, resilience, and life satisfaction of middle school students, explore the impact mechanism of parent-child relationship on life satisfaction, and further enrich relevant research on life satisfaction. A survey was conducted on students in ordinary middle and high schools in Anhui Province using the Parent-child Intimacy Scale, Resilience Scale, and Life Satisfaction Scale. 1420 valid data were obtained, and the internal consistency coefficients of the three scales in this study were 0.93, 0.92, and 0.95, respectively. The results showed that there was a pairwise correlation between parent-child relationship, resilience and life satisfaction (the correlation coefficient ranged from 0.525-0.878). Further Mesomeric effect test found that resilience played a part of mediation role in parent-child relationship and life satisfaction, with the Mesomeric effect accounting for 53.85%. Research suggests that parent-child relationships can not only directly affect life satisfaction, but also have an impact through the mediating role of resilience. To improve the mental health level of middle school students, on the one hand, it is necessary to build a good parent-child relationship through family support. Parents should pay attention to communication with their children, improve the quality of companionship, provide good emotional support and assistance for middle school students, and improve their life satisfaction; On the other hand, attention should be paid to resilience, a relatively stable internal factor of the individual. Family school cooperative education should cultivate the resilience of middle school students, and group psychological counseling should be used to help them maintain positive emotions and resilience when facing setbacks in life and learning, in order to improve their life satisfaction.

Keywords：Middle school students，Life satisfaction，Resilience，Parent-child relationship

职前教师社会支持与心理幸福感：一个有调节的中介模型

惠琪[1] 朱荣娟[1] 李苑[2] 李瑛[2] 车翔[2] 游旭群[2]（通讯作者）

1 西安科技大学管理学院，西安，710054

2 陕西师范大学心理学院，陕西省行为与认知重点实验室，西安，710062, youxuqun@snnu.edu.cn

摘 要 职前教师群体是基础教育工作的骨干力量，该群体在工作中是否能体验到幸福感，对于提高未来教育工作质量和教师自身生活质量都有着重要意义。社会支持是影响教师心理幸福感中极为重要的宏观社会类因素之一，它是指个体从其所拥有的社会关系网络中获得的主观支持、客观支持以及个体自身对所获得支持的利用度。已有研究发现，社会支持在心理幸福感中扮演着重要角色，然而对于社会支持对心理幸福感影响的潜在机制还有待深入探讨。本研究拟构建一个有调节的中介模型，旨在考察职前教师职业认同在社会支持与幸福感之间的中介作用以及情绪智力的调节作用。社会支持缓冲器模型认为，社会支持是通过消除个体的压力进而缓冲压力事件对个体身心状况的消极影响，保持与提高个体的身心健康水平。情绪智力理论认为，情绪智力作为个体认识、利用、理解和控制情感信息的能力，会促进积极情绪对其职业认同的正向预测作用。综上，我们假设社会支持对心理幸福感有正向预测作用，情绪智力可以调节社会支持对和职业认同的影响。本研究采用社会支持量表、免费师范生教师职业认同量表、心盛量表和情绪智力量表对 450 名职前教师进行了调查。研究分析了社会支持、职业认同、心理幸福感和情绪智力之间的相互作用。结果表明，在控制性别、年龄后，职前教师社会支持、心理幸福感、职业认同和情绪智力两两之间存在显著相关。职业认同在社会支持与心理幸福感的关系间起部分中介作用。情绪智力调节了“社会支持-职业认同-心理幸福感”的前半段路径，即当职前教师情绪智力水平低时，社会支持对职业认同的正向预测作用减弱；当情绪智力水平高时，社会支持对职业认同的正向预测作用增强。基于上述发现，本研究认为职前教师的社会支持对于其职业认同感和心理幸福感有着重要作用，此外，该调节模式也从实践角度启示我们，有必要加强职前教师的情绪智力水平，这将有助于促进职前教师的心理幸福感。

关键词　职前教师，社会支持，职业认同，心理幸福感，情绪智力

Social Support and Psychological Well-being of Pre-service Teachers: A Moderated Mediation Model

Qi Hui[1] Rongjuan Zhu[1] Yuan Li[2] Ying Li[2] Xiang Che[2] Xuqun You[2*]
1 School of Management, Xi'an University of Science and Technology, Xi'an, 710054, China
2 School of Psychology, Shaanxi Normal University, Key Laboratory for Behavior and Cognitive Neuroscience of Shaanxi Province,710062, China

Abstract：The group of pre-service teachers is the backbone of basic education work, and whether this group can experience well-being in their work is of great significance for improving the quality of future education work and the quality of teachers' own lives. Social support is one of the extremely important macro social factors that affect teachers' psychological well-being. It refers to the subjective and objective support individuals receive from their social relationship network, as well as their own utilization of the support they receive. Previous studies have found that social support plays an important role in psychological well-being, but the potential mechanisms underlying the impact of social support on psychological well-being still need to be further explored. This study aims to construct a moderated mediation model to examine the mediating role of pre-service teacher professional identity between social support and psychological well-being, as well as the moderating effect of emotional intelligence. The social support buffer model believes that social support is to eliminate individual pressure and then buffer the negative impact of stress events on individual physical and mental conditions, so as to maintain and improve individual physical and mental health. The theory of emotional intelligence suggests that emotional intelligence, as an individual's ability to recognize, utilize, understand, and control emotional information, promotes a positive predictive effect of positive emotions on their professional identity. In summary, we assume that social support has a positive predictive effect on psychological well-being, and emotional intelligence can regulate the impact of social support on professional identity. This study conducted a survey on 450 pre-service teachers using the Social Support Scale, Student Teacher Professional Identity Scale, Prosperity Flourishing Scale, and Emotional Intelligence Scale. The study analyzed the interaction between social support, professional identity, psychological well-being, and emotional intelligence. The results indicate that after controlling for gender and age, there is a significant correlation between pre-service teachers' social support, psychological well-being, professional identity, and emotional intelligence. Professional identity plays a partial mediating role in the relationship between social support and psychological well-being. Emotional intelligence regulates the first half of the path of "social support-professional identity-psychological well-being", that is, when the emotional intelligence level of pre-service teachers is low, the positive predictive effect of social support on professional identity weakens; When the level of emotional intelligence is high, the positive predictive effect of social support on professional identity increases. Based on the above findings, this study suggests that social support for pre-service teachers plays an important role in their professional identity and psychological well-being. In addition, this regulatory model also enlightens us from a practical perspective that it is necessary to strengthen the emotional intelligence level of pre-service teachers, which will help promote their psychological well-being.

Keywords： pre-service teachers, social support, professional identity, psychological well-being, emotional intelligence

年轻人的儿童期积极经历与快乐论幸福感和实现论幸福感的关系

王日新[1] 李程程[1] 郭甜甜[1] 钟凯馨[1] 朱宁哲[1] 孔凤[1]（通讯作者）
1 陕西师范大学心理学院，西安，710062，kongfeng87@126.com

摘 要 儿童期的经历与个体的人格形成和各种能力的发展有关，会对个体一生的成长和健康产生重要影响，其中积极经历近几年来受到了越来越多的关注。根据幸福感的引擎模型和积极经历的健康结果框架理论，儿童期积极经历能够通过影响个体的情绪、认识等内部过程带来一些有益的结果，从而有助于幸福感的提升。以往研究显示，儿童期积极经历与成年期的快乐论幸福感和实现论幸福感呈正相关关系，但主要采用横断设计，并且目前仍缺乏关于儿童期积极经历对两种幸福感的影响是否存在差异的研究。因此有必要在一个研究中同时探讨儿童期积极经历与快乐论幸福感和实现论幸福感的关系，并进一步从纵向发展的角度研究儿童期的积极经历对成年早期两种幸福感的影响。为此，研究一选取了西安市 1265 名大学生作为被试，采用横断研究检验儿童期积极经历和两种幸福感的关系。结果显示，儿童期积极经历和成年早期的快乐论幸福感和实现论幸福感均呈显著的正相关。为了进一步考察儿童期积极经历对于两种幸福感的预测效应，研究二选取了 232 名大学生被试，通过两拨次纵向设计检验了儿童期积极经历对六个月后两种幸福感的影响。结果显示，儿童期积极经历可以正向预测成年早期快乐论幸福感和实现论幸福感。此外，两个研究的结果都表明，儿童期的积极经历对两种幸福感有着同等程度的影响。在控制了年龄、性别和另一种幸福感之后，研究结果保持不变。综上所述，本研究揭示了儿童期积极经历对成年早期的快乐论幸福感和实现论幸福感的同等正向影响。因此，学术界、政府、社会和家庭应该更加重视儿童期经历的作用，努力为儿童营造更好的成长环境以促进儿童身心健康发展。

关键词 儿童期积极经历，快乐论幸福感，实现论幸福感，成年早期

Associations of positive childhood experiences with hedonic and eudaimonic well-being in young adults

Rixin Wang[1], Chengcheng Li[1], Tiantian Guo[1], Kaixin Zhong[1], Ningzhe Zhu[1], Feng Kong[1] (Corresponding Author)
1 School of Psychology, Shaanxi Normal University, Xi'an, 710062，kongfeng87@126.com

Abstract： Experiences during childhood are related to the formation of an individual's personality and the development of various abilities, and they have significant impacts on a person's lifelong growth and well-being. Among these experiences, positive experiences have received increasing attention in recent years. According to the Engine Model of Well-being and the Health Outcomes of Positive Experiences framework, positive childhood experiences (PCEs) can bring about beneficial outcomes by influencing internal processes such as emotions and cognition in individuals, thus contributing to the enhancement of well-being. Previous studies have demonstrated a positive correlation between PCEs and both hedonic well-being and eudaimonic well-being in adulthood. However, these studies primarily utilized cross-sectional designs, and currently, there is still a lack of research examining whether there are differences in the impact of PCEs on these two kinds of well-being. Therefore, it is necessary to examine the relationship between PCEs and both hedonic well-being and eudaimonic well-being in a single study, and further investigate the impact of PCEs on these two kinds of well-being in young adults from a longitudinal perspective. In Study1, we selected a sample of 1265 college students from Xi'an City as participants to examine the relationship between PCEs and two kinds of well-being using a cross-sectional research design. The results showed a significant positive correlation between PCEs and young adults' hedonic well-being as well as eudaimonic well-being. To further examine the predictive effects of PCEs on the two kinds of well-being, Study 2

selected 232 college student participants and utilized a two-wave longitudinal design to investigate the impact of PCEs on the two kinds of well-being six months later. The results revealed that PCEs positively predict both hedonic well-being and eudaimonic well-being in early adulthood. Furthermore, the results from both studies indicate that PCEs have an equal level of influence on both kinds of well-being. After controlling for age, gender, and the other kind of well-being, the findings remained consistent. In summary, this study demonstrated an equal positive influence of PCEs on both hedonic well-being and eudaimonic well-being in young adults. In the future, the academic community, government, society, and families should place greater emphasis on the role of childhood experiences and strive to create better developmental environments for children to foster their physical and mental well-being.

***Keywords*:** Positive childhood experiences, Hedonic well-being, Eudaimonic well-being, Early adulthood

不执着的机制研究：认知灵活性的中介作用

朱筠[1]　张禹[1]　罗禹[1]

1 贵州师范大学心理学院，贵阳，550025，cathy_zhu214@163.com

摘 要　不执着是与正念相关但不同的概念，它是个体积极融入当下环境，接纳生命的短暂和变化无常，并且自主地做出选择的心理特性，具体表现为不固着于想法、情绪或外在事物，对成就、得失等一切经验保持开放与灵活。不执着有益于个体的心理健康、高级心理发展和人际功能，如个体的不执着水平与生活满意度、自我实现、共情等正相关，与抑郁、焦虑、压力、排斥敏感性、焦虑型依恋等负相关。研究表明，不执着是正念最突出的机制之一，且研究者认为冥想研究和干预的重点应放在类似不执着这样的概念上。然而，不执着起作用的机制还未曾探索。有研究者提出，执行功能中的认知灵活性可能是不执着的机制。本研究构建以认知灵活性为中介变量的中介模型以考察不执着的机制。采用在网络平台随机发放问卷的方式，共有 725 人（男生 257 人，年龄 18~60 岁）完成了不执着简版量表(Brief Version of Nonattachment Scale, NAS-7)、认知灵活性问卷中文版(Cognitive Flexibility Inventory, CFI)、生活满意度量表(Satisfaction With Life Scale, SWLS)、抑郁-焦虑-压力自评量表简版(Depression Anxiety and Stress Scale，DASS-21)、普遍信任量表(Inclusive General Trust Scale, IGTS)，采用 bootstrap 方法进行中介检验，以年龄、性别、婚姻状况、是否有正念经验作为协变量。结果显示：（1）不执着与生活满意度、认知灵活性正相关，与抑郁、焦虑、压力负相关，且认知灵活性在不执着与生活满意度以及不执着与抑郁、焦虑、压力的关系中起部分中介作用。（2）不执着与信任正相关，认知灵活性与信任正相关，但认知灵活性在不执着与信任的关系中中介效应不显著。原因可能为个体的态度和行为存在差异，且认知灵活性问卷的题目偏向于问题解决方面，未来可使用实验范式测量认知灵活性和信任，进一步探究认知灵活性为不执着的生物学基础。

关键词　不执着，认知灵活性，机制，中介效应

Mechanisms of Nonattachment : The Mediating Role of Cognitive Flexibility

Jun Zhu[1]　Yu Zhang[1]　Yu Luo[1]

1 School of Psychology, Guizhou Normal University, Guiyang, 550025, cathy_zhu214@163.com

***Abstract*：** Nonattachment is a construct distinct from mindfulness. It refers to an individual's psychological characteristic of actively engaging with the present moment, accepting the impermanence and unpredictability of life, and autonomously making choices. It entails not clinging to thoughts, emotions, or external circumstances,

and maintaining openness and flexibility in the face of achievements, gains, and losses. Nonattachment promotes psychological well-being, advanced psychological development, and interpersonal functioning. Higher levels of nonattachment are positively correlated with life satisfaction, self-actualization, empathy, etc., while negatively correlated with depression, anxiety, stress, rejection sensitivity, and anxious attachment. Research suggests that nonattachment is one of the prominent mechanisms underlying mindfulness, and researchers propose that meditation research and interventions should focus on concepts similar to nonattachment. However, the mechanisms through which nonattachment operates have not been explored. Some researchers propose that cognitive flexibility, a facet of executive functioning, may be a mechanism of nonattachment. This study aims to examine the mechanism of nonattachment by constructing a mediation model with cognitive flexibility as a mediating variable. A total of 725 participants (257 males, aged 18~60 years) completed the Brief Version of Nonattachment Scale (NAS-7), the Chinese version of the Cognitive Flexibility Inventory (CFI), the Satisfaction With Life Scale (SWLS), the Depression Anxiety and Stress Scale (DASS-21), and the Inclusive General Trust Scale (IGTS) through online questionnaires distributed randomly. Bootstrap method was used for mediation analysis, with age, gender, marital status, and mindfulness experience as covariates. The results showed that: (1) Nonattachment was positively correlated with life satisfaction and cognitive flexibility, and negatively correlated with depression, anxiety, and stress. Cognitive flexibility partially mediated the relationship between nonattachment and life satisfaction, as well as between nonattachment and depression, anxiety, and stress. (2) Nonattachment was positively correlated with trust, and cognitive flexibility was positively correlated with trust. However, cognitive flexibility did not significantly mediate the relationship between nonattachment and trust. This may be due to individual differences in attitudes and behaviors, as well as the problem-solving focus of the cognitive flexibility questionnaire. Future research could employ experimental paradigms to measure cognitive flexibility and trust, further exploring the biological basis of cognitive flexibility for nonattachment.
Keywords：Nonattachment, Cognitive Flexibility, Mechanism, Mediation Effect

来自自然的力量：敬畏对个体自我扩展的影响

布雅静　张晓瑜　张潮（通讯作者）
山西师范大学教育科学学院，太原，030031，zhangchao951217@163.com

摘 要 自我扩展通常被理论化为一种重要的个人动机，旨在通过增加一个人的新资源、观点和身份，并将这种新颖性纳入一个人的自我定义，来增加自我概念的多样性和复杂性。相关研究指出：更大的自我扩展偏好与更大的个人成长、自我认同强度、生活满意度、心理健康等有关。自我扩展通常被研究于恋爱关系之中，而研究发现在自然环境中的人们随着社会观念的减弱，个体的自我会融入自然环境之中，得到很大的成长。而敬畏是由神秘、浩大且超出当前认知的事物所引发的复杂情绪体验，是个体在面对自然时产生的最主要的一个情绪。敬畏情绪会使个体产生深刻的“小我”体验，个体的感知从以自我为中心转变为一个更广阔的框架，使个体对生命意义产生深刻思考，个体自我概念由此会得到很大的明晰。个体自我概念清晰性也会影响个体自我扩展的动机，对自己是谁没有清晰认识的人，自我扩张的欲望较低。以此，本研究基于敬畏的小我理论和积极情绪扩展理论，探究自然敬畏是否会通过影响个体的自我概念清晰性而影响个体的自我扩展动机。方法:将 326 名被试分为两组，实验组通过视频材料激活敬畏情绪，对照组不激活敬畏情绪，并采用敬畏体验量表(Awe Experience Scale, AWE-S)、修改后的将他人纳入自我量表(IOS)和自我概念清晰性量表进行问卷调查。预期结果：（1）敬畏、自我概念清晰性与自我扩展动机两两呈显著正相关。（2）自我概念清晰性在敬畏对自我扩展动机的影响中起中介作用。
关键词 敬畏，自我扩展，自我概念清晰性

Power from Nature: The Impact of Awe on Individual Self-expansion

BU Yajing Zhang Xiaoyu Zhang Chao(Corresponding Author)
College of Education Science, Shanxi Normal University, Taiyuan

Abstract: Self-expansion is often theorized as an important personal motivation aimed at increasing the variety and complexity of one's self-concept by adding one's new resources, perspectives, and identities and incorporating this novelty into one's self-definition sex. Related research indicates that a greater preference for self-expansion is associated with greater personal growth, strength of self-identity, life satisfaction, mental health, and more. Self-expansion is usually studied in romantic relationships, and studies have found that people in natural environments have weakened social concepts, and individual ego will integrate into the natural environment and grow greatly. Awe is a complex emotional experience triggered by mysterious, vast, and beyond current cognition, and it is the most important emotion that an individual generates when facing nature. The emotion of awe will cause the individual to have a profound "ego" experience, and the individual's perception will change from self-centered to a broader framework, making the individual think deeply about the meaning of life and the individual self-concept will be greatly clarified. Individual self-concept clarity also affects individual motivation for self-expansion. People who do not clearly understand who they are have a lower desire for self-expansion. Therefore, based on the ego theory of awe and the expansion theory of positive emotions, this study explores whether natural awe can affect individuals' self-expansion motivation by affecting the clarity of individuals' self-concept. Method: Divide 326 subjects into two groups. The experimental group activates the awe emotion through video materials, and the control group does not trigger the awe emotion. The Awe Experience Scale (AWE-S) and the modified Awe Experience Scale (AWE-S) are used to include others. Self-inventory (IOS) and Self-Concept Clarity Scale for questionnaire survey. Expected results: (1) There is a significant positive correlation between awe, self-concept clarity, and self-expansion motivation. (2) Self-concept clarity plays a mediating role in the effect of awe on self-expansion motivation.

Keywords：awe, self-expansion, self-concept clarity

社会排斥对大学生学业倦怠的影响：基本心理需要和主动性人格的作用

郝祥森[1]（通讯作者） 杨静怡[1] 赵华夏[1]
1 郑州市第八人民医院，郑州，450000，haoxiangs@foxmail.com

摘 要 在我国平均受教育水平不断提高的背景下，大学生的学业压力越来越大，学业倦怠问题凸显。学业倦怠会降低大学生的学习动机和学习质量，影响心理健康。以往研究表明，外部变量诸如人际关系会通过个体心理状态影响学习行为，而关于负面人际体验对学业倦怠的影响机制研究尚不充分。社会排斥指个体被他人或团体忽视和拒绝，作为一种典型的负面人际体验，可能致使大学生出现学业倦怠。根据自我决定理论，和他人建立关系、有自主性和胜任感是每个人的基本心理需要，需要得到满足会提高内在动机、积极发展自我，反之则可能出现焦虑、抑郁、倦怠等问题。而基本心理需要的满足主要受环境影响，因此遭受社会排斥的个体可能有损基本心理需要的满足，继而导致学业倦怠。不同的人对外部负面环境可能有不同的应对，若个体主动采取行动改善负面环境，就更能维护心理健康与积极状态。为探讨社会排斥与学业倦怠的关系以及基本心理需要、主动性人格在其中的影响机制，本研究采用社会排斥量表、大学生学习倦怠量表、基本心理需要量表和主动性人格量表对 473 名大学生进行调查，结果表明：（1）学业倦怠与社

会排斥显著正相关，与三个基本心理需要的和主动性人格均显著负相关；（2）社会排斥正向预测学业倦怠，关系需要、自主需要、胜任需要在其中均起部分中介作用；（3）主动性人格调节了社会排斥对学业倦怠的直接作用，以及分别调节了关系需要和自主需要的中介作用的前半段路径。因此，遭受社会排斥会阻碍三个基本心理需要的满足，增加学业倦怠，拥有主动性人格的个体会更加积极地干预负面人际环境，促进关系需要和自主需要的满足，缓解学业倦怠。本研究表明良好的人际关系和主动的人格特质对大学生学业发展十分重要。
关键词　学业倦怠，社会排斥，基本心理需要，主动性人格

The influence of Social Exclusion on College Students' Academic Burnout: the role of Basic Psychological Needs and Proactive Personality

Hao Xiangsen(corresponding author), Yang Jingyi, Zhao Huaxia
The Eighth People’s Hospital of Zhengzhou, Zhengzhou, 450001

***Abstract*:** With the improvement of the average level of education in China, college students are facing increasing academic pressure, and the problem of academic burnout is significant. Academic burnout can reduce the learning motivation and quality of college students, and affect their mental health.. Previous studies have shown that external variables such as interpersonal relationship can affect learning behavior through individual psychological state, while the research on the impact mechanism of negative interpersonal experience on academic burnout is still insufficient. Social exclusion refers to the phenomenon that individuals are ignored and rejected by others or groups. As a typical negative interpersonal experience, it may lead to academic burnout of college students. According to the theory of self-determination, establishing relationships with others, autonomy and competence are everyone's basic psychological needs. Satisfaction of needs will improve internal motivation and actively develop themselves. On the contrary, anxiety, depression, burnout and other problems may occur. The satisfaction of basic psychological needs is mainly affected by the environment, so individuals who suffer from social exclusion may damage the satisfaction of basic psychological needs, and then lead to academic burnout. In addition, different people may have different responses to the external negative environment. If individuals take proactive actions to improve the negative environment, they are better able to maintain mental health and a positive state. To explore the relationship between social exclusion and academic burnout, as well as the impact mechanisms of basic psychological needs and proactive personality, 473 college students were investigated by social exclusion scale, college students' learning burnout scale, basic psychological needs scale and proactive personality scale. The results showed that: (1) academic burnout is significantly positively correlated with social exclusion, and negatively correlated with basic psychological needs and proactive personality; (2) Social exclusion positively predicts academic burnout, with relatedness, competence, autonomy all playing a partial mediating role; (3) Proactive personality moderates the direct effect of social exclusion on academic burnout, as well as the mediating role of relational needs and autonomous needs in the first half of the pathway. Therefore, suffering from social exclusion will hinder the satisfaction of the three basic psychological needs and increase academic burnout. Individuals with proactive personality will more actively intervene in negative interpersonal environment, promote the satisfaction of relatedness and autonomy, and alleviate academic burnout. This study indicates that good interpersonal relationships and proactive personality traits are crucial for the academic development of college students.

Keywords：Academic burnout, Social exclusion, Basic psychological needs, Proactive personality

大学生日常生活的独处：基于生活经验取样法（ESM）

陈晓[1,2]（通讯作者） 宋欢庆[3]

1 广东白云学院 应用心理学系，广州，510450

2 北京师范大学 未来教育学院，珠海，519087 psychenxiao@126.com

3 北京师范大学珠海分校 教育学院，珠海，519087

摘要 本研究采用生活经验取样法考察大学生在日常生活中的独处情况。对 345 名大学生施测《独处问卷》和《UCL 孤独感量表》，选取独处总分高于一个标准差，孤独感总分低于平均分的被试作为高独处组（n=19），独处总分低于一个标准差且孤独感总分低于平均分的的被试作为低独处组(n=19)。采用生活经验取样法，在两周的研究期间研究者每周随机抽取三天并从周末随机抽取一天，总共八天，在当天下午 6 点给被试发送手机信号，被试接收到信息完成问卷，报告当天的独处体验次数、独处持续时间及独处时的愉悦、孤独感和情绪平静程度。结果显示：1）在自然条件下，高独处个体与低独处个体在独处频率上不存在显著差异，但高独处个体与低独处个体每天独处总时间长度上存在显著差异，高独处个体单次独处平均时间也显著高于低独处个体；2）高低独处的大学生在独处时的愉悦感、孤独感和情绪平静程度无显著差异；3）高、低独处的大学生在独处时的平静情绪和愉悦情绪得分均高于孤独情绪的分。高独处个体每天每次独处花费的时间多于低独处个体，且独处时体验到更多的积极情绪。

关键词 独处，经验取样法，大学生

Solitude in the Daily Life of College Students: Based on the Experience Sampling Method (ESM)

Chen Xiao[1,2] Song huanqing[3]

7. Department of Applied Psychology, Guangdong Baiyun University, Guangzhou, 510450
8. College of Education for the Future, Beijing Normal University, Zhuhai, 519087, Email: psychenxiao@126.com
9. School of Education, Beijing Normal University, Zhuhai campus, Zhuhai, 519087

Abstract：This study investigated the solitude experiences of college students in their daily lives with Experience Sampling Method (ESM). A total of 345 college students were administered with the Solitude Questionnaire and the UCL Loneliness Scale. Participants who scored above one standard deviation on the total score of solitude and below the mean score on loneliness were recorded as the high solitude group (n=19), while participants who scored below one standard deviation on solitude questionnaire and below the mean score on loneliness were recorded as the low solitude group (n=19). During the two-week study period, researcher selected three days in weekday randomly and one day in weekend, for a total of eight days. At 6 PM on the selected days, the participants received a mobile signal and completed the questionnaire, reporting their frequency of solitude experiences, the duration of each solitude experience, and their levels of pleasure, loneliness, and emotional calmness during solitude. The results showed that: 1) There was no significant difference in the frequency of solitude between high solitude group and low solitude group. However, there was a significant difference in the

total duration of solitude per day. Compared to low solitude group, high solitude group spent more time alone. They also reported longer time of solitude time on solitary solitude periods. 2) There was no significant difference in feelings of pleasure, loneliness, and emotional calmness during solitude between high and low solitude group. 3) Both group reported higher level of pleasure and emotional calmness during solitude. Individuals experiencing high levels of solitude spent more time alone per day and experienced more positive emotions during solitude.
Keywords：Solitude, Experience Sampling Method, College Student,

职业资本与幸福感的关系：职业成功观及清晰度的调节作用

徐前[1] 李浩[2] 崔一帆[3] 扈欣宇[4] 张潮[1](通讯作者)

1 山西师范大学教育科学学院，太原，030000，zhangchao951217@163.com

2 南通市北城小学，南通，226000

3 南京信息工程大学教师教育学院，南京，210000

4 淮阴师范学院教育科学学院，淮安，223000

摘 要 职业资本体现个体职业发展竞争力，包括人力资本、社会资本、心理资本。大量研究表明，三种职业资本能够有效提升幸福感水平。但是，职业动机因素(例如职业价值观及清晰度)如何调节职业资本对幸福感的增值作用还有待研究。职业成功观是主观职业成功标准，反映了人们的职业目标，包括外在报酬、内在满足及和谐平衡三个维度。职业成功观清晰度指人们对自身职业成功观认知的清晰、坚定和自信的程度。目标可以影响个体的行动方向、努力程度以及坚持时间；目标的清晰度越高，越容易产生高标准和高成就，进而对行为结果更加满意。即使拥有同样的职业资本，但是目标内容和清晰度不同，会导致个体对行为结果满意度不同，进而影响其幸福感体验。因此，本研究试图考察职业成功观及清晰度如何如何调节三种职业资本对幸福感的作用。通过对 312 名大学生进行问卷调查，结果发现：(1) 外在报酬对主观幸福感存在显著的负向预测作用，内在满足、工作生活平衡与职业成功观清晰度均对主观幸福感和心理幸福感有显著的正向预测作用；(2) 内在满足负向调节人力资本对主观幸福感的正向作用，并负向调节心理资本对主观幸福感和心理幸福感的正向作用，职业成功观清晰度正向调节社会资本对心理幸福感的正向作用。
关键词 职业资本，幸福感，职业成功观，职业成功观清晰度

Career capital and well-being:

The moderating role of career success criteria and its clarity

Qian Xu[1] Hao Li[2] Yifan Cui[3] Xinyu Hu[4] Chao Zhang[1]

1 School of Education Science, Shanxi Normal University, Taiyuan

2 Nantong Beicheng Primary School, Nantong

3 School of Teacher Education, Nanjing University of Information Science and Technology, Nanjing

4 School of Educational Science, Huai Normal University, Huai'an

Abstract: Career capital reflects the competitiveness of individual career development, including human capital, social capital, and psychological capital. Numerous studies have shown that three career capitals can effectively enhance the level of well-being. However, it remains to be studied how career motivation factors (such as career success criteria and its clarity) moderate the value-added effect of career capital on well-being. The concept of career success criteria reflects people's career goals, including three dimensions: external reward, internal satisfaction, and harmonious balance. The clarity of career success criteria refers to the degree to which people

have a clear, firm, and confident understanding of their own career success criteria. Goals can affect an individual's direction of action, level of effort, and duration of persistence; The higher the clarity of the goal, the more likely it is to generate high standards and achievements, and thus be more satisfied with the behavioral results. Even with the same career capital, differences in career success criteria and its clarity can lead to varying levels of individual satisfaction with behavioral outcomes, thereby affecting their well-being. Therefore, this study attempts to examine how the career success criteria and its clarity moderate the relationship between career capital and well-being. The results of a questionnaire survey of 312 college students show that: (1) External compensation has a significant negative predictive effect on subjective well-being. Intrinsic fulfillment, work-life balance and career success criteria clarity have a significant positive effect on subjective and psychological well-being. (2) Intrinsic fulfillment negatively moderates the positive effect of human capital on subjective well-being, and it negatively moderates the positive effect of psychological capital on subjective and psychological well-being. Career success criteria clarity positively moderates the positive effect of social capital on psychological well-being.
Keywords: Human Capital; Social Capital; Psychological Capital; Career Success Value; Career Success Value Clarity

敬畏对制造业产业工人安全意识和操作规范意识的影响及干预

蔺哲子[1]　张潮[2]（通讯作者）

1 山西师范大学教育科学学院，太原，030031

2 山西师范大学教育科学学院，太原，030031，zhangchao951217@163.com

摘 要　为贯彻落实党的二十大精神和国家关于安全生产特别是安全红线的要求，推动高水平安全与高质量发展。在生产过程中，如何能够提高工人的安全系数，提高产品质量，降低生产过程中的事故率，减少悲剧的发生，成了目前社会的一个热点话题。安全意识是一种安全的生产观念，是因外部环境的作用而形成的自我安全防备和警戒理智，并由此控制个体的行为表现。操作规范意识是指工人在操作过程中形成并控制工人操作行为的观念。敬畏作为一种积极情绪对内能影响个体的精神世界，实现自我超越，同时对外能够更多的关注外界他人和集体，但是目前关于敬畏如何影响工人的安全意识和操作规范意识的研究仍是空白。本研究试图探讨敬畏对工人安全意识和操作规范意识的影响。研究一，要求山西省 436 名制造业产业工人进行特质积极情绪中的敬畏分量表(DPES)、安全意识问卷、操作规范意识问卷的填写。预期结果：特质敬畏正向预测安全意识和操作规范意识。研究二，将 80 名产业工人随机分为实验组和对照组，每组 40 名。实验组使用敬畏情绪视频材料诱发被试的敬畏情绪，对照组观看中性情绪视频材料。分别在实验处理后比较两组被试的状态敬畏、安全意识、操作规范意识的结果。预期结果：实验组的被试的安全意识显著高于对照组的被试，实验组的操作规范意识显著高于对照组的被试。

关键词　敬畏，产业工人，安全意识，操作规范意识

The influence and intervention of awe on safety consciousness and operation standard consciousness of industrial workers

Lin Zhezi, Zhang Chao(Corresponding author)

School of Education Science , Shanxi Normal University , Taiyuan , 030031

***Abstract*:** In order to implement the spirit of the Party's 20 National Congress and the requirements of the state on production safety, especially the red line of safety, we will promote a high level of safety and high-quality development. In the production process, how to improve the safety factor of workers, improve product quality,

reduce the accident rate in the production process, reduce the occurrence of tragedy, has become a hot topic in the society. Safety consciousness is a kind of safety production concept, which is formed by the role of external environment and self-safety precaution and vigilance, and thus control individual behavior. Operation standard consciousness refers to the idea that workers form and control their operation behavior in the process of operation. As a positive emotion, awe can influence the spiritual world of the individual internally to achieve self-transcendence, and at the same time, it can pay more attention to the external others and the collective. However, there is still no research on how awe affects the safety consciousness and operation standard consciousness of workers. This study attempts to explore the effects of awe on workers' awareness of safety and operational norms. In study 1, 436 industrial workers in Shanxi Province were asked to fill in the awe subscale of Dispositional Positive Emotion Scale(DPES), the Safety Awareness Questionnaire, and the Operation Standard Consciousness Questionnaire. Expected results: Trait awe positive predictive safety awareness and operation standard consciousness. In study 2, 80 industrial workers were randomly divided into experimental group and control group, with 40 workers in each group. The experimental group used awe emotion video material to induce awe emotion, while the control group watched neutral emotion video material. After experimental treatment, the results of state awe, safety consciousness and operation standard consciousness were compared between the two groups. Expected results: The safety consciousness of the experimental group was significantly higher than that of the control group, and the operation standard consciousness of the experimental group was significantly higher than that of the control group.

Keywords：Awe, Industrial workers, Safety consciousness, Operation standard consciousness

6.33“康复心理学专业委员会”分组展贴报告

老年慢性病的心理康复体系研究进展

曾蔚佳[1]　林贤浩[1]（通讯作者）

1 福建医科大学应用心理学系，福州，350108，1073551616@qq.com

摘 要　随着我国老龄化进程的加速，老年慢性病的管理已成为当今时代的主题。心理康复作为临床护理工作中极为重要的环节，能够有效改善老年患者的心理健康水平、增强其心理弹性，坚定治疗信心以提升预后效果。然而，考虑到康复护理最终的目的旨在使患者的身体、心理、职业和社会活动等各功能方面恢复正常或接近正常，鼓励患者走出医院，尽早重返社会，需要我们时刻抱持全病程服务的工作态度和工作体系。为确保患者出院后仍存在的心理问题得到充分解决并维持，保证其在医院-家庭的过渡时期能获得并满足持续性、适应性的心理护理服务和需求，过渡期心理康复模式应运而生。同时，结合我国慢性病群体面临的医疗成本高、患病时间长、服务需求大等巨大挑战，全国的康复护理工作都开始致力于提高医院床位周转率、缩短患者住院时间，这意味着老年慢性病患者在医院度过急性期返回家庭或社区后还需要辅以一定的康复治疗和护理服务以维持预后。需强调，全病程护理意味着这不是一方的坚守，更是多方资源共同助力下搭建的桥梁。临床护理工作者在患者患病急性期可提供相关的心理评估、健康宣教、专业的心理治疗并辅以放松训练和认知干预等技术以结合基础药物及生活护理达到康复护理的最大效果。在医院-家庭过渡期，护理人员以患者为中心的工作基调，挖掘并巩固患者的良好社会支持系统、建立患者积极的自我调适和自我管理模式是提高护理质量的工作方向。出院后，护理工作则强调对患者疾病的监测和管控，为出院老年慢性病患者提供基于多学科协作的社区护理及居家护理服务，在医养结合的理念之上接受家庭医生签约服务对患者疾病的监测和管控具有稳定明显的护理效果。本文探索并整合老年慢性病的心理康复工作

内容和思路，通过重构以患者为中心的全病程医疗服务闭环，建立多方关系的良好康复护理链，致力构建全病程心理康复体系以更好推进心理康复护理在老年慢性病中的应用，强化慢性病防控效果，降低疾病负担，提高老年患者的生存质量。
关键词　老年，慢性病，心理康复，医院-家庭过渡期，医养结合

Research progress on psychological rehabilitation system of chronic diseases in the elderly

Weijia Zeng[1]　Xianhao Lin[1]
Department of Applied Psychology, Fujian Medical University

Abstract：With the acceleration of the aging process in our country, the management of senile chronic diseases has become the theme of today's times. As a very important link in clinical nursing work, psychological rehabilitation can effectively improve the mental health level of elderly patients, enhance their mental resilience, and strengthen treatment confidence to improve the prognosis. However, considering that the ultimate goal of rehabilitation care is to restore patients to normal or near-normal functioning in terms of physical, psychological, occupational and social activities, and to encourage patients to leave the hospital and reintegrate into the community as soon as possible, it is necessary for us to always adopt a work attitude and a work system that serves the whole course of the patient's illness. In order to ensure that the psychological problems that still exist after patients are discharged from the hospital are adequately resolved and maintained, and to ensure that they can obtain and satisfy continuous and adaptive psychological care services and needs during the hospital-home transition period, the Transitional Psychological Rehabilitation Model has emerged. At the same time, in conjunction with the enormous challenges faced by China's chronic disease population, such as high healthcare costs, long duration of illness, and high demand for services, rehabilitation care across the country has begun to work on improving hospital bed turnover and shortening patients' length of stay, which means that elderly patients with chronic illnesses who have spent the acute phase in the hospital and returned to their families or communities also need to be supplemented with certain rehabilitation treatment and nursing services to maintain their prognosis. It is important to emphasize that whole-course care implies that it is not a one-party commitment, but a bridge built with the help of multiple resources. Clinical nursing workers can provide relevant psychological assessment, health education, professional psychotherapy and relaxation training and cognitive intervention techniques in the acute phase of the patient's illness in order to maximize the effect of rehabilitation care in conjunction with basic medication and life care. In the transition period between hospital and home, the patient-centered work of nursing staff, the exploration and consolidation of the patient's good social support system, and the establishment of the patient's positive self-adjustment and self-management mode are the directions to improve the quality of nursing care. After discharge, nursing care emphasizes the monitoring and control of patients' diseases, providing community care and home care services based on multidisciplinary collaboration for discharged elderly patients with chronic diseases, and accepting the contracted services of family doctors on the basis of the concept of integration of health care on the basis of the monitoring and control of patients' diseases has a stable and obvious effect of nursing care. This paper explores and integrates the contents and ideas of psychological rehabilitation of chronic diseases in the elderly, through reconstructing the closed loop of patient-centered whole-course medical service, establishing a good rehabilitation care chain of multi-party relationship, and endeavoring to construct a whole-course psychological rehabilitation system in order to better promote the application of psychological rehabilitation care in chronic diseases in the elderly, strengthen the effect of prevention and control of chronic diseases, reduce the burden of disease, and improve the quality of survival of elderly patients.

Keywords ： Elderly, Chronic disease, Psychological rehabilitation, Hospital-family transition, Combine healthcare and nutrition

6.34“校园欺凌与暴力防治专业委员会”分组展贴报告

压力知觉与青少年关系攻击：自我控制的中介作用以及正念的调节作用

利振华 陈雪飞 陈佳榕 何嘉杰 吴煜琪 聂衍刚（通讯作者）
广州大学教育学院青少年心理与行为研究中心，广州，510006，
nie-yangang@gzhu.edu.cn

摘 要 压力知觉(Perceived Stress)是个体对压力的心理感知，是指个体将当下情景评价为威胁，但没有足够资源应对时所产生的心理反应。研究发现，压力知觉高的个体更容易出现网络成瘾、吸烟、攻击行为、抑郁焦虑等内外化问题行为。以往研究较多关注身体攻击、言语攻击等容易发现的直接攻击行为，但以破坏同学关系以伤害他人的隐性攻击缺乏一定探讨。因此，本研究以3638名初高中学生为研究对象，采用压力知觉量表、特质自我控制量表、关系攻击量表以及正念量表进行测查，旨在考察压力知觉对青少年关系攻击的影响，并且探究自我控制的中介作用以及正念的调节作用。研究结果发现：（1）压力知觉与自我控制、正念呈显著负相关，与关系攻击呈显著正相关；自我控制与正念呈显著正相关、与关系攻击呈显著负相关；正念与关系攻击呈显著负相关。（2）中介效应分析显示，在控制性别、年龄后，压力知觉能够显著正向预测青少年关系攻击，自我控制在压力知觉和关系攻击的关系中起到显著的中介作用 (effect = 0.15, 95% CI = [0.13, 0.17])。有调节的中介效应显示，正念显著调节了压力与自我控制之间的关系以及压力与关系攻击之间的关系。简单效应分析发现，在高水平的正念下，压力对自我控制的作用以及压力对关系攻击的作用更强。研究表明，压力知觉对青少年关系攻击的影响通过降低自我控制而发挥作用，正念能够增强压力知觉对青少年自我控制以及压力知觉对青少年关系攻击的影响。本研究有助于加深理解压力知觉如何加剧青少年的关系攻击，对于预防和减少青少年的关系攻击具有一定启示。
关键词 压力知觉，关系攻击，自我控制，正念，青少年

Perceived Stress and Adolescent Relational Aggression: the Mediating Role of Self-control and the Moderating Role of Mindfulness

Li Zhenhua Chen Xuefei Chen jiarong He jiajie Wu Yuqi Nie Yangang*
Research Center of Adolescent Psychology and Behavior, School of Education, Guangzhou University, Guangzhou, 510006

Abstract：Perceived stress is the psychological perception of stress, which refers to the psychological response when individual perceives the current situation as a threat but does not have enough resources to cope with it. It is

found that high perceived stress is more likely to have internet addiction, smoking, aggressive behavior, depression and anxiety and other internal and external problem behaviors. Previous studies have paid more attention to the direct aggression which is easy to find such as physical aggression and verbal aggression, but there is a lack of discussion on the hidden aggression which damages the relationship between classmates and harms others. Therefore, this study took 3638 middle and high school students as the research objects, and used the perceived stress scale, trait self-control scale, relational aggression scale and mindfulness scale to investigate the impact of stress perception on adolescent relational aggression, and explore the mediating role of self-control and the moderating role of mindfulness. The results showed that: (1) perceived stress was negatively correlated with self-control and mindfulness, and positively correlated with relational aggression; Self-control was positively correlated with mindfulness and negatively correlated with relational aggression. There was a significant negative correlation between mindfulness and relational aggression. (2) Mediation effect analysis showed that, after controlling for gender and age, perceived stress could significantly positively predict adolescent relational aggression, and self-control played a significant mediating role in the relationship between perceived stress and relational aggression (effect = 0.15, 95%CI = [0.13, 0.17]). Moderated mediating effects showed that mindfulness significantly moderated the relationship between perceived stress and self-control, and the relationship between perceived stress and relational aggression. Simple effects analysis found that the effect of perceived stress on self-control and the effect of perceived stress on relational aggression were stronger at high levels of mindfulness. Studies have shown that the influence of perceived stress on adolescents' relational aggression plays a role by reducing self-control, and mindfulness can enhance the influence of perceived stress on adolescents' self-control and perceived stress on adolescents' relational aggression. This study helps to deepen the understanding of how the perceived stress intensifies the relational aggression of adolescents, and has some implications for preventing and reducing the relational aggression of adolescents.

Keywords: perceived stress, relational aggression, self-control, mindfulness, adolescent

受欺凌中学生观点采择和创伤后成长的关系：一项交叉滞后研究

陈博[1] 郁嘉铭[1] 高美慧[1] 甄瑞[1,2]（通讯作者）

1 杭州师范大学经亨颐教育学院，杭州，311121，E-mail: zhenrui1206@126.com

2 浙江省哲学社会科学培育实验室“杭州师范大学婴幼儿发展与托育实验室”

摘 要 个体在与主要的生活危机（如校园欺凌事件）进行抗争后，会出现创伤后成长这样积极的心理变化，它包括自我觉知积极变化、人际关系积极变化、生命价值观积极变化三个方面。观点采择是共情的认知成分，它是指个体从他人或他人所处情境出发，想象或推测他人观点与态度的心理过程。以往研究显示，经历创伤事件的个体从他人的视角考虑问题，可以促进其积极的情绪表达，这有助于个体发现创伤事件的积极部分，实现心理发展和成长。另一方面，实现创伤后成长的个体更可能获得良好的社会关系，体验到更多的社会支持。这使得其更专注于与他人的交往，理解他人的感情和想法，促进个体观点采择能力的发展。可以说，观点采择能力和创伤后成长可能存在双向关系。基于此，为探究受欺凌中学生观点采择能力和创伤后成长的关系，本研究采用追踪研究设计，分别在 2019 年 11 月(T1)，2020 年 11 月(T2)，2021 年 11 月(T3)三个时间点，采用中文版特拉华受欺负量表（学生版）、人际反应指数量表、创伤后成长问卷对 2173 名中学生进行调查，并根据问卷答结果筛选出 725 名有受欺凌经历的中学生进行分析。结果发现，在控制了性别后，T1、T2 受欺凌中学生的观点采择能力分别可以正向预测 T2、T3 创伤后成长；T1、T2 创伤后成长则对 T2、T3 观点采择能力没有显著的预测作用。这些结果说明，对于有受欺凌经历的中学生

而言，观点采择能力可以促进其实现创伤后成长，但创伤后成长并不能促进或抑制个体观点采择能力的发展。
关键词　受欺凌，中学生，观点采择，创伤后成长，交叉滞后

The Relationship between Perspective-taking and Posttraumatic Growth among Middle School Students Who Were Bullied: A Cross-lagged Study

Bo Chen[1], Jiaming Yu, Meihui Gao, Rui Zhen[1 2*] (Corresponding Author)
1 Jing Hengyi School of Education, Hangzhou Normal University, Hangzhou, 311121, China
2 Zhejiang Philosophy and Social Science Laboratory for Research in Early Development and Childcare, Hangzhou Normal University

Abstract: Individuals who struggled with traumatic events (e.g. bullying victimization) often reported positive psychological changes in self-perception, interpersonal relationships, and world values, which have been defined as posttraumatic growth (PTG). Perspective-taking is the cognitive part of empathy. It refers to the mental process in which an individual image or speculate the views and attitudes of others from the perspective of others or their situation. On the one hand, previous studies have shown that individuals who experienced traumatic events consider problems from the perspective of others, which can promote their positive emotional expression, help them to find the positive part of traumatic events, and have positive psychological changes. On the other hand, traumatized individuals who had higher PTG were more likely to have better interpersonal relationships, which enable them to perceive more social support. It made them to focus more on the relationship with others, empathize with others in interpersonal interactions, perceive or imagine the emotions and feelings from others. Based on the previous studies, there may be a bidirectional relationship between perspective-taking and PTG. The present study adopted a longitudinal design in November 2019 (Time 1, T1), November 2020 (Time 2, T2), and November 2021 (Time 3, T3) to investigate the relationship between perspective-taking and PTG among middle school students who were bullied. A total of 2173 middle school students were administered three scales: the Delaware Bullying Victimization Scale, Interpersonal Response Index Scale and Post-Traumatic Growth Inventory. Then 725 middle school students who had been bullied were screen out through the questionnaire results to analysis. The results showed that after controlling for gender, perspective-taking at T1 and T2 can respectively positively predict PTG at T2 and T3; however, PTG at T1 and T2 had no significant effect on perspective-taking at T2 and T3. In summary, for middle school students who were bullied, perspective-taking can promote PTG, but PTG can not promote or restrain the development of perspective-taking.

Keywords: bullying victimization, middle school students, perspective-taking, PTG, cross-lagged study

旁观者归因与保护行为的关系：同情和保护动机的链式中介作用

杨凌青[1] 于明申[1] 徐梓唯[1] 鲍振宙[1]（通讯作者）
[1]赣南师范大学教育科学学院 赣州 341000 通讯作者 E-mail：baozhenzhou0819@163.com
* 基金项目：教育部人文社会科学研究青年基金项目（编号：21YJC190001）；
江西省社会科学“十四五”（2021 年）基金项目（编号：21JY48）

摘 要 旁观者保护行为是指在校园欺凌发生时个体通过劝阻欺凌者来阻止或减少欺凌，或给予受害者支持和安慰的行为。旁观者保护行为可以有效降低校园欺凌的发生率，是反欺凌干预的重要组成部分。但在欺凌事件中保护行为所占的比例远远低于消极旁观行为（亲欺凌行为和局外者行为），所以了解旁观者保护行为的发生机制对制止校园欺凌事件的发生具有现实意义。已有研究表明，旁观者对欺凌事件的不同归因方式将会影响其对欺凌事件的反应及后续的旁观行为。在欺凌事件中，当旁观者将欺凌行为的发生归于欺凌者的原因时，就更容易做出保护行为。基于此，本研究认为旁观者倾向将欺凌发生归因于欺凌者原因时是其做出保护行为的预测因子。韦纳的情绪—动机归因理论强调，对事件归因后产生的情绪和动机会影响个体后续的行为。故本研究认为，同情和保护动机都可能是影响旁观者归因与保护行为关系的中介变量。

本研究采用旁观者归因量表、道德情绪量表、保护动机量表、校园欺凌的保护者行为问卷对江西省 1168 名青少年（M_{age} = 13.35，SD = 1.72）进行问卷调查。结果显示：（1）在控制了性别和年龄后，旁观者对欺凌者归因显著正向预测保护行为。（2）同情、保护动机在旁观者归因和保护行为之间起中介作用。具体而言，旁观者归因通过三条路径对保护者行为产生作用，即同情的单独中介作用（β = 0.02，95%CI = [0.01, 0.03]），保护动机的单独中介作用（β = 0.03，95%CI = [0.004, 0.06]）以及二者的链式中介作用（β = 0.03，95%CI = [0.01, 0.05]）。综上，本研究揭示了旁观者归因与保护者行为之间的关系及其中介机制，对促进旁观者保护行为具有一定的启示意义。

关键词 归因，保护者行为，同情，保护动机，链式中介

The Effect of Bystanders' Attributions to Bully on Defending Behavior: The Chain Mediating Role of Empathy and The Motivation to Defend

Yang Lingqing[1] Yu Mingshen[1] Xu Ziwei[1] Bao Zhenzhou[1] (Corresponding author)
School of Educational Science, Gannan Normal University, Ganzhou, 341000

Abstract ：Bystanders' defending behavior refers to " individuals whose behavior acts as active bystanders to stop bullying, or provide support and comfort for victims ". Bystanders' defending behavior could effectively reduce the frequency of school bullying and it was an important component of anti-bullying interventions. However, many studies have found that the proportion of defending behavior in school bullying was much lower than negative bystander behaviors (i.e., outsider behavior and pro-bullying behavior). Therefore, understanding the mechanism of bystanders' defending behavior plays an important role in stopping the occurrence of school bullying. Previous research indicated that bystanders' different attribution of bullying incidents would influence their reaction and subsequent different bystander behaviors. In a bullying incident, individuals who blamed to the bully were more likely to exhibit defending behavior. Thus, this study hypothesized that attributions to bully could predict bystanders' defending behavior. According to Weiner's emotional-motivational attribution theory, the emotions and motivations that results from attributions to events would have impacts on subsequent behaviors. Based on the emotional-motivational attribution theory, we tested whether empathy and the motivation to defend served as mediators in the relationship between attributions to bully and bystanders' defending behavior.

In this study, the bystanders' attribution scale, moral emotions scale, the motivation to defend scale, and defending behavior questionnaire of school bullying were used to conduct a questionnaire survey on 1,168 adolescents (M_{age} = 13.35, SD = 1.72) in Jiangxi Province. A bias-corrected bootstrapping method was used to calculate the mediating effects of empathy and the motivation to defend in the relationship between attributions to bully and adolescents' defending behaviors. The results showed that: (1) After controlling for gender and age, attributions to bully was significantly positively predicted adolescents' defending behavior. (2) Empathy and the motivation to defend mediated this association, which contained three significant mediating pathways: the separate

mediating effects of (a) empathy (β = 0.02, 95%CI = [0.01, 0.03]) and (b) the motivation to defend (β = 0.03, 95%CI = [0.004, 0.06]), and the chain mediating effect of (c) empathy and the motivation to defend (β = 0.03, 95%CI = [0.01, 0.05]). The present study uncovered the mechanisms underlying the relationship between attributions to bully and adolescents' defending behaviors. Our findings contributed to the understanding of the internal psychological mechanisms of adolescents' defending behaviors and how to improve defending behavior to prevent and intervene school bullying.
Keywords: attribution, defending behavior, empathy, the motivation to defend, chain mediation

父母卷入与青少年校园受欺凌的关系：一个有调节的中介效应分析

孙悦阳[1]　王蔚晨[1]　王海英[2]（通讯作者）
1 东北师范大学心理学院，长春，130024
2 东北师范大学心理学院，长春，130024，wanghy178@nenu.edu.cn

摘　要　基于社会环境的变化与青少年身心发展的特点，校园欺凌问题在中学阶段日益凸显。校园受欺凌对青少年的心理健康发展具有消极影响，引起了学校和社会的广泛关注。家庭作为影响青少年心理健康发展最直接、最微观的环境之一，对青少年校园受欺凌具有重要影响。已有研究表明，父母卷入是保护青少年免受同伴伤害的重要因素，但鲜有研究探讨其对青少年校园受欺凌影响的内在机制。因此，本研究基于家庭生态系统理论，考察了父母卷入与青少年校园受欺凌的关系，并分析了作为个体水平因素的社会情绪能力与作为家庭水平因素的家庭社会经济地位在其中所起的作用。本研究采用《中学生父母卷入量表》、《特拉华社会情绪能力量表》以及《Olweus 儿童欺负/受欺负问卷（中学版）》对东北地区 1613 名青少年进行了横断研究。研究结果显示，在控制性别和年龄后：（1）父母卷入与青少年校园受欺凌之间存在显著负相关，即父母卷入对青少年校园受欺凌有负向预测作用；（2）社会情绪能力在父母卷入与青少年校园受欺凌之间起部分中介作用，即父母卷入通过影响青少年的社会情绪能力，减少其校园受欺凌问题的发生；（3）家庭社会经济地位显著调节了中介路径的后半段和直接路径。具体而言，家庭社会经济地位较高的青少年在社会情绪能力与校园受欺凌之间的负相关性更强，且父母卷入与校园受欺凌之间的负相关性也更强。本研究结果表明，青少年校园受欺凌受到家庭环境因素和个体内部因素的共同影响，家庭环境在预防和降低青少年校园欺凌风险方面起关键作用。这些发现为青少年提供安全、支持和积极的生活环境，以及促进他们心理健康发展提供了理论依据和干预方向。
关键词　青少年，校园欺凌，父母卷入，社会情绪能力，家庭社会经济地位

Parental Involvement and School Victimization among Adolescents: A Moderated Mediation Analysis

Yueyang Sun, Weichen Wang, Haiying Wang
Department of Psychology, Northeast Normal University, Changchun, Jilin

***Abstract*:** Due to the changing social environment and the characteristics of adolescents' physical and mental development, the issue of school bullying is becoming increasingly prominent at the middle school level. The persistent negative impact of school victimization on the physical and mental health of adolescents has attracted widespread attention from schools and society. As one of the most micro and fundamental environments influencing adolescent psychological development, the family plays a crucial role in addressing school

victimization. Existing studies have shown that parental involvement is a significant protective factor for adolescents against peer victimization, but the intrinsic mechanisms influencing the impact of parental involvement on school victimization remain understudied. Therefore, drawing upon the family ecosystems theory, this study examined the relationship between parental involvement and school victimization among adolescents, while also analyzing the mediating role of social-emotional competency at the individual level and the moderating effect of family socioeconomic status at the family level. A cross-sectional study was conducted on 1,613 adolescents from the Northeast region of the country, employing the Parental Involvement Scale, Delaware Social and Emotional Competency Scale, and Olweus Bully/Victim Questionnaire (Middle School Version). The research findings reveal the following after controlling for gender and age: (1) there was a significant negative correlation between parental involvement and school victimization, with parental involvement negatively predicting school victimization among adolescents; (2) social-emotional competency partially mediated the relationship between parental involvement and school victimization, suggesting that parental involvement reduces the occurrence of school victimization by influencing adolescents' social-emotional competency; (3) family socioeconomic status significantly moderated the second half of the mediation path and the direct path. Specifically, higher family socioeconomic status strengthened the negative correlation between social-emotional competency and school victimization, as well as the negative correlation between parental involvement and school victimization. These results indicate that adolescents' experiences of victimization are jointly influenced by both family environmental factors and individual internal factors, with the family environment playing a pivotal role in preventing and reducing the risk of school victimization among adolescents. These findings provide a theoretical foundation and intervention direction for establishing safe, supportive, and positive learning environments for adolescents and promoting their psychological well-being.

***Keywords*:** adolescents, school victimization, parental involvement, social-emotional competency, family socioeconomic status

安全依恋启动对有受欺负经历青少年的攻击行为的影响

陆增颜[1]　吴小曼[1]　王丽君[1]　桑青松[1]（通讯作者）

1 安徽师范大学教育科学学院，芜湖，241000，s7210qs1@ahnu.edu.cn

摘 要　在校园欺凌中，青少年可能会因为自身性别、特质等，而沦为受欺负者。根据挫折-攻击理论，受欺负者可能会增加攻击行为，甚至转变成欺负者。而安全依恋是一种缓解威胁的积极状态，能在实验室情境下通过阈上/阈下技术激活，并对个体的认知、情感和行为产生一系列积极效应。安全依恋的拓延-建构环理论指出，安全依恋启动也能显著促进个体积极的自我-他人认知及同情、利他等积极品质，对有受欺负经历的青少年起到保护作用。基于此本研究探讨安全依恋启动对有受欺负经历青少年的攻击行为水平的影响。本研究通过整群抽样的方式，向合肥市 600 名中学生发放 Olweus 儿童欺负问卷分量表和 Buss-Perry 攻击量表，筛选出受欺负总分最高 27%的被试为受欺负水平高组，受欺负总分最低 27%的被试为受欺负水平低组，共计 240 人。采用 2（受欺负程度：受欺负水平高、受欺负水平低）×3（启动分组：安全依恋启动、积极情绪启动、中性控制启动）混合实验设计，采用回忆书写任务完成安全依恋启动和积极情绪启动，并采用“辣椒酱”实验范式，测查被试攻击行为水平。结果表明：（1）受欺负与攻击行为水平呈显著正相关，安全依恋与受欺负、攻击行为水平呈显著负相关。（2）不同的启动分组会导致青少年攻击行为水平的不同，安全依恋启动可以显著降低有受欺负经历青少年的攻击行为水平。结论：安全依恋启动对减少有受欺负经历青少年的攻击行为产生了积极的影响。本研究的发现有助于完善青少年攻击行为的相关研究，对保护受欺负青少年，减少校园欺凌有一定的启示意义。

关键词　安全依恋启动，受欺负经历，攻击行为，青少年

The Impact of Attachment Security Priming on Aggressive Behavior among Adolescents with Bullying Experiences

Lu Zengyan[1], Wu Xiaoman[1], Wang Lijun[1], Sang Qingsong[1]
1 College of Education Sciences, Anhui Normal University, Wuhu, 241000

Abstract ： In school bullying, teenagers may become the victims of bullying because of their gender, characteristics, etc. According to the frustration-aggression theory, a bullied person may increase aggressive behavior or even transform into a bully. Secure attachment is a positive state of threat mitigation, which can be activated by above/below threshold techniques in laboratory Settings and has a series of positive effects on individual cognition, emotion and behavior. The extension-construct ring theory of secure attachment suggests that secure attachment priming can also significantly promote positive self-others cognition and positive qualities such as empathy and altruism, and play a protective role for adolescents with bullying experience. Based on this, this study explored the effect of secure attachment priming on the level of aggressive behavior in adolescents with bullying experience. In this study, the Olweus child bullying Questionnaire subscale and Buss-Perry Aggression Scale were distributed to 600 middle school students in Hefei City through cluster sampling. The subjects with the highest 27% total score of bullying were selected as the group with high level of bullying, and the subjects with the lowest 27% total score of bullying were selected as the group with low level of bullying, a total of 240 people. A mixed experimental design of 2 (bullying degree: high level of bullying, low level of bullying) ×3 (priming subgroups: secure attachment priming, positive emotion priming, neutral control priming) was adopted. Secure attachment priming and positive emotion priming were completed by memory writing task, and the aggressive behavior level of the subjects was measured by using the "hot sauce" experimental paradigm. The results showed that: (1) There was a significant positive correlation between bullying and aggressive behavior, and a significant negative correlation between secure attachment and bullying and aggressive behavior. (2) Different priming groups will lead to different levels of aggressive behavior in adolescents, and secure attachment priming can significantly reduce the level of aggressive behavior in adolescents with bullying experience. Conclusion: Secure attachment priming has a positive effect on reducing aggressive behavior in adolescents with bullying experience. The findings of this study are helpful to improve the relevant research of adolescent aggressive behavior, and have certain implications for the protection of bullied teenagers and the reduction of campus bullying.

Keywords：Attachment security priming, Bullying experience, Aggressive behavior, Adolescents

童年中晚期受欺负、自尊和母亲拒绝教养的关系：一个发展级联模型

刘阳阳[1]　金国敏[2]　周同[2]　刘俊升[2]　成丹丹[1]（通讯作者）
1 山东中医药大学健康学院，济南，250355，512671170@qq.com
2 华东师范大学心理与认知科学学院，上海，200234

摘　要　受欺负是个体在学校的不良生活事件之一，严重危害学生身心健康发展。已有研究表明，个体的受欺负经历与其自身特点、所处环境密切相关，如人格特点、家庭环境、同伴关系等。受欺负个体通常具有消极的自我认知，表现出较低的自尊水平，进而导致父母采用拒绝的教养方式。而当父母频繁采用拒绝教养时，往往又会降低儿童自尊水平，引发受欺负。但以往研究大多考察两两之间的单向关系，对于三者之

间动态相互作用的研究比较不充分。本研究采用为期三年的追踪研究设计，通过构建发展级联模型探讨儿童中晚期受欺负，自尊和母亲拒绝教养的相互预测关系，以及受欺负通过自尊对母亲拒绝教养的影响。研究以 607 名 3、4 年级学生为被试（$M_{年龄}$=9.00 岁，*SD*=.78，女生 287 人），采用学生报告和母亲报告的多主体报告方式，分别测量学生的受欺负，自尊和母亲拒绝教养。结果表明：（1）受欺负，自尊和母亲拒绝教养在三年中具有一定程度的稳定性，受欺负和自尊呈负相关，自尊和母亲拒绝教养呈负相关，受欺负和母亲拒绝教养呈正相关；（2）受欺负和自尊能够相互预测，受欺负（T1）负向预测自尊（T2），自尊（T2）负向预测受欺负（T3）；（3）自尊和母亲拒绝能够相互预测，自尊（T2）负向预测母亲拒绝教养，母亲拒绝教养（T2）负向预测自尊（T3）；（4）发展级联的结果表明，自尊（T2）在受欺负（T1）与母亲拒绝教养（T3）的关系中起中介作用，即儿童受欺负经历降低了其自尊水平，进而引发了更多的母亲拒绝。

关键词 受欺负，自尊，母亲拒绝教养，发展级联模型

The Relationship Between Bullying, Self-esteem and Maternal Rejection in Middle and Late Childhood: a Developmental Cascade Model

Yangyang Liu[1], Guomin Jin[2], Zhou Tong[2], Junsheng Liu[2], Dandan Cheng[1] (corresponding author)
1 College of Health Sciences, Shandong University of Traditional Chinese Medicine, Jinan, 250355，512671170@qq.com
2 College of Psychological and Cognitive Science, East China Normal University, Shanghai, 200234

Abstract：Bullying is one of the adverse life events in school, which seriously endangers students' physical and mental health development. Studies have shown that individuals who suffer frequent bullying are closely related to their characteristics and surrounding environment, such as personality characteristics, family environment, peer relationship. Bullied individuals usually have a negative self-perception and a low level of self-esteem, which leads to parents adopting a rejection parenting style. When parents frequently adopt rejection parenting, it often reduces children's self-esteem and leads to bullying. However, most of the previous studies have investigated the one-way relationship between the two pairs, and the research on the dynamic interaction between the three is relatively insufficient. To address the limitations in existing literature, this study used data from 607 students(*M* age =9.00 years, *SD*=.78, 287 girls) and their mother to examine the longitudinal and dynamic association among bullying, self-esteem and maternal rejection. The results show that: (1) Bullying, self-esteem and maternal rejection had a certain degree of stability in the three years, bullying and self-esteem were negatively correlated, self-esteem and maternal rejection to parent were negatively correlated, bullying and maternal rejection to parent were positively correlated; (2) Bullying and self-esteem predicted each other, bullying (T1) negatively predicted self-esteem (T2), and self-esteem (T2) negatively predicted bullying (T3); (3) Self-esteem and maternal rejection predicted each other, self-esteem (T2) negatively predicted maternal rejection, and maternal rejection (T2) negatively predicted self-esteem (T3) ; (4) The results of the developmental cascade showed that self-esteem (T2) plays a mediating role in the relationship between bullying (T1) and maternal rejection (T3). Children's bullying experience reduced the self-esteem level, which in turn led to more maternal rejection.

Keywords：bullying, self-esteem, maternal rejection, developmental cascade model

6.35“行为与健康心理学专业委员会”分组展贴报告

自尊与攻击行为的关系：反刍思维与社交焦虑的链式中介作用

卫殿博[1]　焦江丽[1]（通讯作者）

新疆师范大学心理学院，乌鲁木齐市，830017，通讯作者 E-mail：jiaoannie@126.com

摘 要 目的：攻击行为作为一种有意伤害他人的行为或倾向，普遍存在于校园生活中，并对青少年身心健康发展造成诸多不良影响。已有研究发现自尊是攻击行为的重要影响因素，但自尊与攻击行为之间的关系呈现多样性，并无一致结论。本研究基于一般攻击模型和反应风格理论，探究自尊与攻击行为的关系以及反刍思维和社交焦虑在其中发挥的作用，以阐明自尊作用于攻击行为的潜在机制。方法：采用简单随机抽样的方式，通过自尊量表、反刍思维量表、交往焦虑量表和攻击性量表对 538 名大学生进行问卷调查，收取有效问卷 501 份；被试平均年龄为 20.11 岁（SD=1.68）。结果：（1）自尊与攻击行为（r=-0.32, p＜0.01）、反刍思维（r=-0.44, p＜0.01）、社交焦虑（r=-0.31, p＜0.01）均呈显著负相关，反刍思维与社交焦虑（r=0.39, p＜0.01）、攻击行为（r=0.46, p＜0.01）均呈显著正相关，社交焦虑与攻击行为（r=0.35, p＜0.01）呈显著正相关。（2）自尊通过反刍思维和社交焦虑的中介作用影响个体攻击行为，中介效应由 3 条路径组成：自尊→反刍思维→攻击行为、自尊→社交焦虑→攻击行为、自尊→反刍思维→社交焦虑→攻击行为，相对效应分别为 46.30%、10.12%、8.3%。结论：自尊不仅可以直接影响攻击行为，而且可以通过反刍思维和社交焦虑对个体攻击行为产生影响，即自尊水平越低的大学生越容易陷入反刍思维状态，加剧社交焦虑，进而导致攻击行为。

关键词 自尊，攻击行为，反刍思维，社交焦虑

Relationship between self-esteem and aggressive behavior: Chain mediating effect of rumination and social anxiety

WEI Dianbo, JIAO Jiangli

School of Psychology, Xinjiang Normal University, Urumqi, 830017

***Abstract*:** objective: As a deliberate act or tendency to harm others, aggressive behavior is prevalent in campus life and causes many adverse effects on the physical and mental health development of adolescents. Self-esteem has been found to be an important influence on aggressive behavior, but the relationship between self-esteem and aggressive behavior presents diversity and no consistent conclusion. Based on the general aggression model and response style theory, this study explores the relationship between self-esteem and aggressive behavior, as well as the role that rumination and social anxiety play in order to elucidate the potential mechanisms by which self-esteem acts on aggression. Methods: A simple random sampling was used to survey 538 college students through the Self-Esteem Scale, Ruminative Thinking Scale, Interaction Anxiety Scale, and Aggression Scale, and 501 valid questionnaires were collected. The mean age of the subjects was 20.11 years (SD=1.68). Results: (1)Self-esteem was significantly negatively correlated with aggressive behavior (r=-0.32, p<0.01), rumination(r=-0.44, p<0.01), and social anxiety(r=-0.31, p<0.01). Rumination was significantly positively correlated with social anxiety(r=0.39, p<0.01) and aggressive behavior(r=0.46, p<0.01). Social anxiety was significantly positively correlated with aggression(r=0.35, p<0.01). (2)Self-esteem influences individual aggressive behavior through the mediating effect of rumination and social anxiety, and the mediating effect consists of three pathways: self-esteem→ rumination→ aggressive behavior, self-esteem→ social anxiety→ aggressive behavior, and self-esteem→ rumination→ social anxiety→ aggressive behavior, with relative effects of 46.30%, 10.12%, and 8.3%, respectively. Conclusion: Self-esteem can not only directly influence aggressive behavior, but also affect individual aggressive behavior through rumination and social anxiety. In other words, college students with

lower self-esteem are more likely to fall into rumination and increase social anxiety, and leads to aggressive behavior.

Keywords：self-esteem, aggressive behavior, rumination, social anxiety

青少年领悟社会支持对自杀意念的影响：心理素质和正负情绪的链式中介作用

唐天桂　王婷　谭磊　彭小凡（通讯作者）

贵州师范大学心理学院，贵阳，50025，Pengxf@gznu.edu.cn

摘 要　自杀是导致青少年死亡的第二大原因。自杀意念作为个体自杀行为的有效预测因素，主要是指想结束生命的想法。因此，探讨青少年自杀意念的影响机制对预防其自杀行为具有重要意义。本研究从积极心理学的视角，基于自杀的人际理论和自杀缓冲假设，考察家庭支持和朋友支持与自杀意念的关系，并探讨心理素质和正负情绪在其中的作用。研究采用领悟社会支持量表中的家庭支持和朋友支持分量表、心理素质量表、正负情绪量表和青少年自杀意念量表对 2045 名中学生进行问卷调查。结果发现：(1）除了正性情绪和负性情绪的相关不显著，其余变量均两两显著相关。其中自杀意念与家庭支持、朋友支持、心理素质、正性情绪显著负相关，与负性情绪显著正相关；(2)家庭支持对年自杀意念的预测显著(β = -0.20，p < 0.001)，朋友支持对自杀意念的预测不显著（β = -0.02，p > 0.05）；（3）家庭支持能通过心理素质和正负情绪的中介作用对自杀意念产生影响，且该中介作用包含了 5 条路径：家庭支持→心理素质→自杀意念（Bootstrap 法重复抽取 5000 次,95% CI = [-0.045, -0.013]，中介作用显著，中介效应值-0.028）；家庭支持→正性情绪→自杀意念（95% CI = [-0.069, -0.017]，中介作用显著，中介效应值-0.042）；家庭支持→负性情绪→自杀意念（95% CI = [-0.061, -0.016]，中介作用显著，中介效应值-0.037）；家庭支持→心理素质→正性情绪→自杀意念（95% CI = [-0.079, -0.046]，链式中介作用显著，中介效应值-0.060）；家庭支持→心理素质→负性情绪→自杀意念（95% CI = [-0.024, -0.011]，链式中介作用显著，中介效应值-0.016）；（4）朋友支持能通过心理素质和正性情绪的中介作用对自杀意念产生影响，且该中介作用包含了 2 条路径：朋友支持→正性情绪→自杀意念（95% CI = [-0.095, -0.041]，中介作用显著，中介效应值-0.067）；朋友支持→心理素质→正性情绪→自杀意念（95% CI = [-0.048, -0.018]，链式中介作用显著，中介效应值-0.032）。结论：家庭支持能直接削弱自杀意念，也可通过影响心理素质和正负情绪对自杀意念产生间接削弱。朋友支持仅通过心理素质和正性情绪对自杀意念产生间接削弱。本研究结果认为学校应注重协调中学生的亲子关系，提高学生的心理素质和积极情绪，提升心理健康水平，减少自杀意念的产生，从而有效的预防自杀现象的发生。

关键词　领悟社会支持，心理素质，正性情绪，负性情绪，青少年自杀意念

The Influence of Perceive Social Support on Suicidal Ideation among Adolescents: The Chain Mediating Effect of Psychological Suzhi and Positive and Negative Emotions

Tang Tiangui, Wang Ting, Tan Lei, Peng Xiaofan

School of Psychology, Guizhou Normal University, Guiyang 550025, China

Abstract: Suicide is the second leading cause of death among adolescents. Suicidal ideation, as an effective predictor of individual suicidal behavior, mainly refers to the thoughts of ending one's life. Therefore, it is of great significance to explore the influencing mechanism of suicidal ideation among adolescents for the prevention of

their suicidal behavior. This study, from the perspective of positive psychology, based on the interpersonal theory of suicide and the suicide buffer hypothesis, examines the relationship between family support, friend support, and suicidal ideation, and explores the role of psychological suzhi and positive and negative emotions in this relationship. The study used the Family Support and Friend Support subscales from the Perceived Social Support Scale, the Psychological Suzhi Scale, the Positive and Negative Emotion Scale, and the Adolescent Suicidal Ideation Scale to conduct a questionnaire survey on 2045 middle school students. The results showed that: (1) except for the non-significant correlation between positive emotions and negative emotions, all other variables were significantly correlated with each other; Suicidal ideation was significantly negatively correlated with family support, friend support, psychological suzhi, and positive emotions, and significantly positively correlated with negative emotions; (2) Family support had a significant predictive effect on suicidal ideation (β = -0.20, p < 0.001), while friend support did not have a significant predictive effect (β = -0.02, p > 0.05); (3) Family support could influence suicidal ideation through the mediating effects of psychological suzhi and positive/negative emotions, and the mediating effects included five paths: family support → psychological suzhi → suicidal ideation (Bootstrap method, repeated sampling 5000 times, 95% CI = [-0.045, -0.013], the mediating effect was significant, the mediating effect value was -0.028); family support → positive emotions → suicidal ideation (95% CI = [-0.069, -0.017], the mediating effect was significant, the mediating effect value was -0.042); family support → negative emotions → suicidal ideation (95% CI = [-0.061, -0.016], the mediating effect was significant, the mediating effect value was -0.037); family support → psychological suzhi → positive emotions → suicidal ideation (95% CI = [-0.079, -0.046], the chain mediating effect was significant, the mediating effect value was -0.060); family support → psychological suzhi → negative emotions → suicidal ideation (95% CI = [-0.024, -0.011], the chain mediating effect was significant, the mediating effect value was -0.016). (4) Friend support could influence suicidal ideation through the mediating effects of psychological suzhi and positive emotions, and this mediating effect included two paths: friend support → positive emotions → suicidal ideation (95% CI = [-0.095, -0.041], the mediating effect was significant, the mediating effect value was -0.067); friend support → psychological suzhi → positive emotions → suicidal ideation (95% CI = [-0.048, -0.018], the chain mediating effect was significant, the mediating effect value was -0.032). Conclusion: Family support can directly weaken suicidal ideation and indirectly weaken it by influencing psychological suzhi and positive/negative emotions. Friend support only indirectly weakens suicidal ideation through psychological suzhi and positive emotions. The results of this study suggest that schools should focus on coordinating the parent-child relationship of middle school students, improving their psychological suzhi and positive emotions, enhancing their mental health, and reducing the occurrence of suicidal ideation, thus effectively preventing suicide.
***Keywords*:** perceived social support, psychological suzhi, positive emotions, negative emotions, suicidal ideation

快生命史策略对心理困扰的影响：成长型思维的缓冲作用

王馨蕊

山西师范大学教育科学学院，太原，030031

摘　要 以往研究表明，由恶劣和不确定的成长环境塑造的快生命史策略，与心理困扰和精神病理相联系。然而，这一联系可能受到成长型思维的缓冲。成长型思维指的是个体对自身特质可以改变或发展的信念。本研究通过两个子研究考察了上述缓冲效应。研究一通过网络招募了 691 名被试（男性 273 名，年龄 17-62 岁，M = 22.62, SD = 8.50）。被试完成抑郁-焦虑-压力自评量表，K-SF-42 量表，以及成长型思维量表。结果显示，成长型思维调节效应显著（p = .011），对于成长型思维倾向更强的个体，快生命史策略对心理困扰的影响较弱（t = 6.37, p < .001），而对于固定型思维倾向更强的个体，快生命史策略对心理困扰的影响更强

（$t = 8.21, p < .001$）。研究二使用了中国家庭追踪调查（2014–2018）数据，考察快生命策略对心理困扰的长期影响是否受到成长型思维的缓冲作用。研究样本包含 1255 名完成了两次调查问卷的青少年和年轻成年人（男性 625 名，年龄 10-21 岁，$M = 14.29, SD = 4.43$）。生命史策略和成长型思维相关题目于 2014 年（T1）测量，心理困扰相关题目于 2018 年（T2）测量。结果验证了研究一发现的成长型思维的调节作用（$p = .04$）。对于 T1 报告的成长型思维倾向更低的个体，快生命史策略（T1）可以显著预测更严重的心理困扰（T2）（$t = 4.38, p < .001$）；而对于 T1 报告的成长型思维倾向更强的个体，快生命史策略（T1）则不能预测心理困扰（T2）（$p > .05$）。本研究说明关于成长型思维的干预可能是保护快生命史策略的个体更少地受到心理困扰的一种有效方式。
关键词 生命史策略，心理困扰，成长型思维

Psychological distress as a manifestation of fast life-history strategies: Buffering effect of growth mindset

Xinrui Wang
Faculty of Educational Sciences, Shanxi Normal University, Taiyuan, China

Abstract: Fast life-history strategy (LHS), calibrated by harsh and unpredictable environments, has been linked with mental distress and psychopathology. This cascade might be buffered by growth mindset, which refers to beliefs that personal attributes can be improved or developed. The present research investigated the above-mentioned buffering effect via two studies. Study 1: A community sample of 691 participants were recruited (273 male, aged 17 to 62 years old, $M = 22.62$, $SD = 8.50$). Participants completed the Depression Anxiety Stress Scales, the K-SF-42, and the mindset of SES scale, and report demographics. Results indicated significant moderating effect of growth mindset ($p = .011$). For individuals who are more prone to growth mindset, the influence of fast LHS on mental distress is weaker ($t = 6.37, p < .001$), compared with individuals who incline to fixed mindset ($t = 8.21, p < .001$). Study 2: We used data of the 2014–2018 China Family Panel Studies, a nationally representative longitudinal data set in China. The sample contains 1255 adolescents and young adults who completed both waves of the survey (625 male, aged 10-21 years, $M = 14.29$, $SD = 4.43$). LHS and growth mindset were tested in 2014 (T1), and mental distress was tested in 2018 (T2). Results showed that the growth mindset (T1) significantly moderated the relation between fast LHS (T1) and mental distress (T2), $p = .04$. Simple slope analyses showed that for individuals who reported lower growth mindset in T1, fast LHS (T1) significantly predicted greater mental distress ($\beta = .17$, $t = 4.38$, $p < .001$, 95%CI[.09, .24]). While for individuals who reported higher growth mindset in T1, association between fast LHS (T1) and mental distress (T2) was not significant ($p > .05$). The present research implied that growth mindset interventions could be considered as an effective way to prevent people with fast LHS from mental distress.
Keywords: Life-history strategy, psychological distress, growth mindset

儿童期虐待对大学生抑郁症状的影响：基本心理需求满足的中介作用

孔凤[1]（通讯作者） 李程程[1] 钟凯馨[1] 郭甜甜[1]
1 陕西师范大学心理学院，西安，710062，kongfeng87@126.com

摘 要 儿童期虐待作为一个全球性问题，影响着不同国家和地区的数百万儿童。童年时期的虐待经历会

给个体留下潜在创伤，这些创伤伴随着个体成长，可能对其心理健康造成深远的不利影响。抑郁症作为最常见的精神障碍之一，其形成与发展也易受到儿童期虐待的持久影响。已有研究发现儿童期虐待与抑郁症状密切相关，但很少有研究使用周记法和日记法调查两者之间的联系。这两种方法在较短时间内对个体进行纵向追踪，可以更准确地考察到个体一段时间内抑郁症状的平均水平。此外，目前尚不清楚儿童期虐待对日常生活中抑郁症状的影响机制。根据自我决定理论，不良环境因素（如儿童期虐待）会阻碍个体的基本心理需求获得满足，长此以往可能会导致抑郁。因此，本研究旨在通过周记法和日记法检验儿童期虐待与大学生抑郁症状的关系，并探究基本心理需求满足在两者之间的中介作用。研究 1 基于周记法，采用儿童期创伤问卷、基本心理需求满足量表、抑郁-焦虑-压力量表的抑郁分量表，连续 9 周对 106 名大学生进行纵向周记调查。运用 Mplus 8.3 进行多水平回归分析和多水平中介分析。结果发现，在控制了被试的性别、年龄和社会经济地位后，儿童期虐待显著正向预测抑郁症状，并且基本心理需求满足在儿童期虐待与抑郁症状之间发挥中介作用。为减少被试报告的回忆偏差，研究 2 进一步基于日记法，采用儿童期创伤问卷、日记基本心理需求满足量表、日记抑郁心境量表，连续 14 天对 243 名大学生进行日记调查。研究 2 发现，在控制性别、年龄和社会经济地位后，基本心理需求满足在儿童期虐待与抑郁症状之间起到了中介作用。本研究联合周记法和日记法，从短期和长期视角揭示了儿童期虐待对大学生抑郁症状的预测作用。同时，本研究强调了基本心理需求满足在儿童期虐待影响大学生抑郁症状中的中介作用，这对抑郁症的有效预防和干预实践工作具有一定参考价值。
关键词　儿童期虐待，抑郁症状，周记法，日记法，多水平模型

Childhood maltreatment and depressive symptoms in college students: The mediating effect of basic psychological need satisfaction

Feng Kong[1] (Corresponding author), Chengcheng Li[1], Kaixin Zhong[1], Tiantian Guo[1]
1 School of Psychology, Shaanxi Normal University, Xi'an, 710062, kongfeng87@126.com

Abstract: Childhood maltreatment is a global issue that affects millions of children in different countries and regions. Childhood maltreatment may leave individuals with hidden trauma that may have a far-reaching adverse impact on their mental health with their growth. Depression is one of the most prevalent mental disorders, and its formation and development are also vulnerable to the lasting influence of childhood maltreatment. It has been found that childhood maltreatment has well-documented relations with depression, but few studies have employed weekly and daily diary methods to investigate the relation between childhood maltreatment and depressive symptoms. These two methods follow individuals longitudinally in a shorter period of time, which can more accurately examine the average level of depressive symptoms in individuals over a period of time. Moreover, the mechanism of childhood maltreatment on depressive symptoms in daily life is still unclear. According to Self-Decide Theory, adverse environmental factors (such as childhood maltreatment) may hinder individuals' basic psychological need satisfaction, which may lead to depression in the long run. Therefore, the current study aimed to examine the relation between childhood maltreatment and depressive symptoms in college students using weekly and daily diary methods, and to explore the mediating effect of basic psychological need satisfaction. Based on the weekly diary method, Study 1 conducted a longitudinal weekly diary survey on 106 college students for 9 consecutive weeks using the Childhood Trauma Questionnaire-Short Form, the Basic Psychological Need Satisfaction Scale, and the depression subscale of 21-item Depression Anxiety Stress Scale. Mplus 8.3 was used for multilevel regression and mediation analyses. The results found that after controlling for sex, age, and

socioeconomic status of the participants, childhood maltreatment significantly positively predicts depressive symptoms and basic psychological need satisfaction mediated the relation between childhood maltreatment and depressive symptoms. In order to reduce the recall bias reported by the participants, Study 2 was further based on the daily diary method, and used the Childhood Trauma Questionnaire-Short Form, the daily Basic Psychological Need Satisfaction Scale, and the daily depression items of Profile of Mood States to conduct a diary survey on 243 college students for 14 consecutive days. Study 2 also found that basic psychological need satisfaction mediated the relation between childhood maltreatment and depressive symptoms after controlling for sex, age, and socioeconomic status. Overall, the current study combined the weekly and daily diary methods to reveal the predictive effect of childhood maltreatment on depression symptoms of college students from short-term and long-term perspectives. This study also emphasizes the mediating effect of basic psychological need satisfaction in the influence of childhood maltreatment on depressive symptoms in college students, which has implications for effective prevention and intervention of depression.

Keywords**:** Childhood maltreatment, Depressive symptoms, Weekly diary method, Daily diary method, Multilevel model

儿童期不良经历对青少年主观幸福感的影响：基本心理需求满足中介作用和自我关怀的调节作用

杨晓彤[1]　李文洁[2]　孔凤[1]（通讯作者）

1 陕西师范大学心理学院，西安，710062，通讯作者 E-mail：kongfeng@snnu.edu.cn

2 清华大学心理学系，北京，100084

摘 要　儿童期不良经历（Adverse Childhood Experiences，ACEs）是个体在 18 岁之前所遭受的有损生理、心理健康的实际或潜在的各种不良经历的统称。以往国内研究重点关注儿童期不良经历与青少年功能障碍、疾病和死亡率的关系，但关于儿童期不良经历与青少年主观幸福感的研究仍然有限。根据家庭风险模型和自我决定理论，儿童期不良经历可能会对基本心理需求满足产生负性影响，进而影响青少年主观幸福感。此外，根据弹性框架理论，自我关怀在有虐待经历青少年的健康发展中可以起到保护作用。因而自我关怀可能调节儿童期不良经历对青少年主观幸福感的影响以及调节儿童期不良经历对青少年基本心理需求满足的影响。因此，本研究通过构建一个有调节的中介模型，旨在考察基本心理需求满足在儿童期不良经历与青少年主观幸福感的中介作用以及自我关怀在该过程中的调节作用。研究对陕西省某高中学生进行问卷调查，采用儿童期不良经历量表、积极情绪和消极情绪量表、生活满意度量表、自我关怀简版量表和基本心理需求满足量表作为测量工具，共收集有效问卷 1246 份，平均年龄 17.11±0.71 岁。使用 SPSS 和 PROCESS 插件进行统计分析。结果表明：（1）儿童期不良经历可以显著负向预测青少年主观幸福感；（2）基本心理需求满足在儿童期不良经历和青少年主观幸福感之间起部分中介作用，中介效应值为 0.21（95%*CI*=[-0.24，-0.17]）；（3）自我关怀调节了儿童期不良经历和基本心理需求满足的影响，具体而言，高度的自我关怀会提高青少年的基本心理需求满足，而此效应在遭受较少儿童期不良经历的青少年中比遭受较多童年期不良经历的青少年中更强（β=-0.18，95%*CI*=[-0.23, -0.13], $p < 0.001$；β=-0.30, 95%*CI*=[-0.38, -0.22]，$p < 0.001$），但自我关怀没有调节儿童期不良经历对青少年主观幸福感的影响。综上，本研究发现个体所遭受的儿童期不良经历会负向影响其青少年期主观幸福感，而提升其基本心理需求满足和自我关怀水平可能成为这一特殊群体的有效干预方式。

关键词　儿童期不良经历，主观幸福感，基本心理需求，自我关怀

Adverse childhood experiences and subjective well-being: the role of need satisfaction and self-compassion

Xiaotong Yang[1], Wenjie Li[2], Feng Kong[1] (Corresponding author)
1 School of Psychology, Shaanxi Normal University, Xi'an, 710062
2 Department of Psychology, Tsinghua University, Beijing, 100084

***Abstract*:** Adverse childhood experiences (ACEs) refer to a collective term for a variety of actual or potential adversities suffered by individuals before the age of 18 that are detrimental to their physical and psychological health. Previous national studies have focused on the relationships between adverse childhood experiences and adolescent dysfunction, illness, and mortality, while research on adverse childhood experiences and adolescents' subjective well-being remains limited. According to the risky families model and the self-determination theory, adverse childhood experiences may negatively affect basic psychological needs satisfaction, which further affect adolescents' subjective well-being. In addition, according to the Resilience Framework Theory, self-compassion can play a protective role in the healthy development of adolescents who have experienced maltreatment. Thus, self-compassion may moderate the effects of adverse childhood experiences on adolescents' subjective well-being as well as the effects of adverse childhood experiences on adolescents' basic psychological needs satisfaction. Therefore, by constructing a moderated mediation model, the present study aimed to examine the mediating role of basic psychological needs satisfaction in adverse childhood experiences and adolescents' subjective well-being, as well as the moderating role of self-compassion in this process. The study invited students from a high school in Shaanxi Province to participate in a questionnaire survey, using the Adverse Childhood Experiences Scale, the Scale of Positive and Negative Experience, the Satisfaction with Life Scale, Self-compassion Scale-Short Form, and Basic Psychological Needs Scale as the measurement tools, and collected a total of 1246 valid questionnaires, with an average age of 17.11 ± 0.71 years. Statistical analyses were performed using SPSS and PROCESS programs. The results showed that: (1) Adverse childhood experiences significantly and negatively predicted adolescents' subjective well-being. (2) Basic psychological needs satisfaction partially mediated the relationships between adverse childhood experiences and adolescents' subjective well-being with standardized effect value of 0.21 (95%*CI* = [-0.24～-0.17]). (3) Self-compassion moderated the relationship between adverse childhood experiences and basic psychological needs satisfaction. Specifically, high self-compassion increased adolescents' basic psychological needs satisfaction, and these effects were stronger in adolescents low in adverse childhood experiences than in those with high levels of adverse childhood experiences(β = -0.18，95%*CI* = [-0.23, -0.13], $p < 0.001$; β = -0.30, 95%*CI* = [-0.38, -0.22], $p < 0.001$). But self-compassion did not moderate the effects of adverse childhood experiences and adolescents' subjective well-being. The present study has discovered that adverse childhood experiences have a detrimental impact on the subjective well-being of individuals during adolescence. It has been determined that facilitating their satisfaction of basic psychological needs and improving their levels of self-compassion could be effective interventions for this group.

***Keywords*:** Adverse childhood experiences, subjective well-being, self-compassion, basic psychological needs satisfaction

网游成瘾者奖赏网络与执行控制网络之间不足的功能连接：来自与网游娱乐者对比的证据

王凌霄 [1, 2, 3]（通讯作者）
1 杭州师范大学附属医院认知与脑部疾病研究中心，杭州，311121
2 杭州师范大学心理科学研究所，杭州，311121
3 浙江省认知障碍评估研究重点实验室，杭州，311121，wanglingxiao@hznu.edu.cn
摘 要 网游成瘾日趋严重，目前迫切需要探究该成瘾疾病的发病机制，为网游成瘾的预防和干预提供新的视角和思路。在以往网游成瘾研究中，控制组人群的游戏经历未有明确。多数研究中的控制组包含了完全不玩网游和有游戏经历的游戏玩家两种。控制组与网游成瘾组的游戏经历差异是成瘾研究中需要考虑的重要因素。为克服以往网游成瘾研究的不足，本研究采用网游娱乐人群作为控制对照组。网游娱乐人群指的是与成瘾人群有同样历史和时间的游戏经历，但并未发展为成瘾的人群。与该人群的对比，可更好地理解和探究网游成瘾人群的发病机制。对游戏行为和渴求的失控是网游成瘾人群的核心特征。本研究共包含64 名网游成瘾者和 63 名网游娱乐者，两组在游戏经历上无显著差异。通过种子点功能连接的分析方法对比了两组在静息状态下其奖赏网络和执行控制网络之间的功能连接强度。结果发现，和娱乐组相比，网游成瘾组的奖赏网络与额下回、额中回及部分额上回脑区的功能连接更弱，且其右侧执行控制网络与皮层下脑区纹状体的功能连接更弱。该结果揭示了网游成瘾人群对游戏渴求失控的神经基础：不足的奖赏和执行控制网络之间的功能连接。与娱乐人群对比的该研究结果精准揭示了网游成瘾人群发展成瘾的原因和特征，可为网游成瘾的预防和干预提供可靠的靶点。
关键词 网游成瘾，网游娱乐者，奖赏网络，执行控制网络

Deficient functional connectivity between reward network and executive control network in people with Internet gaming disorder: Evidence from the comparison with recreational Internet game users

Lingxiao Wang[1,2,3*]
1 Centre for Cognition and Brain disorders, The Affiliated Hospital of Hangzhou Normal University, Hangzhou, Zhejiang Province, China
2 Institute of Psychological Science, Hangzhou Normal University, Hangzhou, Zhejiang Province, China
3 Zhejiang Key Laboratory for Research in Assessment of Cognitive Impairments, Hangzhou, Zhejiang Province, China
Abstract：Internet gaming disorder (IGD) is becoming more and more serious. At present, it is urgent to explore the pathogenesis of this addiction disorder, so as to provide new perspectives and ideas for the prevention and intervention of IGD. In previous studies on IGD, the gaming experience of the control group was not clear. The control groups in most studies included both non-gamers and experienced gamers. The difference in gaming experience between the control group and the addicted group is an important factor to be considered in addiction research. To overcome the shortcoming of previous studies on IGD, the study used the recreational internet gaming users (RGU) as the control group. RGU refers to people who have the same history and time of gaming experience as group with IGD, but have not developed IGD. Compared with RGU, we can better understand and explore the pathogenesis of IGD. The loss of control over gaming behavior and desire is a core characteristic of people with IGD. This study compared the functional connectivity between the reward network and the executive control network in the resting state of 64 IGD subjects and 63 RGU subjects by using the seed-based functional

connectivity analysis. There was no significant difference in gaming experience between the two groups. The results showed that compared with the RGU group, the reward network in the IGD group had weaker functional connections with the inferior frontal gyrus, the middle frontal gyrus and some parts of superior frontal gyrus, and the functional connections between the right executive control network and the subcortical brain region striatum were weaker. The results reveal the neural basis of the uncontrolled behavior over gaming craving in IGD population: the deficient functional connectivity between inadequate reward and executive control networks. The results from comparison with the RGU group of this study accurately reveal the causes and characteristics of the development of addiction in IGD population, which can provide a reliable target for the prevention and intervention of IGD.

***Keywords*：** Internet gaming disorder, recreational internet gaming users, reward network, executive control network

流动青少年的脆弱自恋对非自杀性自伤的影响机制

徐泽静[1]　何宁[2]（通讯作者）

1 陕西师范大学心理学院，西安，710062

2 陕西师范大学心理学院，西安，710062，通讯作者 E-mail：hening@snnu.edu.cn

摘 要　流动青少年是指因求学、务工及监护人流动等原因，从农村或乡镇迁移到城市，造成现居地与户籍地址相异的 12-18 岁人群。非自杀性自伤（NSSI）是指没有自杀意图，故意伤害身体组织的行为且这种行为不受到社会的认可。青春期是 NSSI 的高危期，新近的一项元分析表明，全球 18.6%的青少年报告称在过去 12 个月内有过 NSSI。而已有研究表明，流动青少年又是自伤行为的高发群体。脆弱自恋是一种隐蔽的自恋，表现为过于看重他人对自己的评价、缺乏自信、对批评和拒绝等威胁极度敏感等特点，且与 NSSI 呈显著相关。然而，国内研究者较少关注流动青少年的 NSSI 及其心理机制。基于此，本研究旨在探索脆弱自恋对非自杀性自伤的影响，以及生命意义感、个人神话和假想观众的作用机制。

采用问卷调查法对西安三所初中进行调查，被试共 620 人，年龄均在 12-16 岁之间。采用 SPSS22.0、Process 插件以及 AMOS 进行数据分析，探讨脆弱自恋对非自杀性自伤影响，以及个人神话、想象观众的中介作用和及生命意义感的调节效应。

结果发现：（1）流动青少年的脆弱自恋、个人神话、想象观众、生命意义感、非自杀性自伤在性别、家庭收入、家庭结构上存在差异；（2）脆弱自恋、个人神话、想象观众均可正向预测非自杀性自伤，生命意义感负向预测非自杀性自伤；（3）个人神话、想象观众在脆弱自恋和非自杀性自伤关系中起中介作用；（4）生命意义感对脆弱自恋影响非自杀性自伤的关系有调节作用：高生命意义感会弱化个人神话、想象观众对非自杀性自伤的正向影响；反之，低生命意义感会提升个人神话、想象观众对非自杀性自伤的正向影响。

本研究丰富了非自杀性自伤的影响机制研究，为流动青少年的非自杀性自伤的干预提供了一定的理论依据和实证支持。

关键词　脆弱自恋，个人神话，想象观众，生命意义感，非自杀性自伤

The impact mechanism of vulnerable narcissism on NSSI among Migrant teenagers

Xu Zejing　He Ning

Department of Psychology, Shaanxi Normal University, Xi'an

Abstract: Migrant teenagers refer to the 12-18 year old people who migrate from rural areas or towns to cities due to reasons such as schooling, working, and the mobility of guardians, resulting in the difference between their current residence and registered residence address. Non suicidal self-injury (NSSI) refers to the act of intentionally harming body tissues without suicidal intent, and such behavior is not recognized by society.Adolescence is a high-risk period for NSSI, and a recent meta-analysis shows that 18.6% of adolescents worldwide report having NSSI within the past 12 months. Some studies have shown that migrant teenagers are also a high-risk group for self harm behavior.vulnerable narcissism is a hidden form of narcissism characterized by overemphasis on others' evaluations of oneself, lack of confidence, and extreme sensitivity to threats such as criticism and rejection, which is significantly correlated with NSSI. However, domestic researchers have paid less attention to the NSSI and its psychological mechanisms of migrant adolescents. Based on this, this study aims to explore the impact of vulnerable narcissism on NSSI, as well as the mechanisms of the sense of life meaning, personal fable, and imaginary audience. A questionnaire survey was conducted on three junior high schools in Xi'an, with a total of 620 participants aged between 12 and 16. Using SPSS 22.0, Process plugin, and AMOS for data analysis, explore the impact of vulnerable narcissism on NSSI, as well as the mediating effect of personal fable, imaginary audience, and the moderating effect of meaning in life

The results showed that: (1) there were differences in gender, family income, and family structure in the vulnerable narcissism, personal fable, imaginary audience, meaning in life, and non suicidal self harm of migrant adolescents; (2)vulnerable narcissism, personal fable, and imaginary audiences can all positively predict NSSI, while meaning in life can negatively predict NSSI; (3) Personal fable and imaginary audiences play a mediating role in vulnerable narcissistic and NSSI relationships; (4) The sense of meaning in life has a moderating effect on the relationship between vulnerable narcissism and NSSI: a high sense of meaning in life weakens the positive impact of personal fable and imaginary audience on the NSSI; On the contrary, a low sense of meaning in life will enhance the positive impact of personal fable and imaginary audiences on NSSI.

This study enriches the research on the impact mechanism of NSSI and provides certain theoretical basis and empirical support for the intervention of NSSI in migrant teenagers.

Keywords: vulnerable narcissism, personal fable, imaginary audience, meaning in life, non suicidal self-injury

知觉压力与大学生睡眠质量的关系：有调节的中介模型

陆增颜[1]　李泱巾[1]　孙文强[1]（通讯作者）

1 安徽师范大学教育科学学院，芜湖，241000，sunwq2007@163.com

摘 要　睡眠在个体生存和发展中起到非常重要的作用，良好的睡眠是保证个体身心健康的重要条件。长期睡眠不良不仅会导致个体认知和情绪障碍，还会引起免疫系统、代谢和心血管等生理方面的问题。根据以往研究，影响睡眠质量的因素主要来自知觉压力、电子产品的使用、生活事件和个体特征等方面。因此，本研究基于个体与环境交互作用理论，通过构建一个有调节的中介模型，考察了大学生睡眠质量的影响因素及作用机制。具体考察了错失焦虑和手机依赖在知觉压力与大学生睡眠质量间的链式中介作用，进而检验了个体对环境的敏感性在手机依赖预测大学生睡眠质量间的调节作用。本研究采用知觉压力问卷、错失

焦虑量表、手机依赖问卷、阿森斯失眠量表、环境敏感性量表对安徽省 748 名大学生($Mage$ = 20.6, SD = 2.65)进行问卷调查。使用 SPSS 26.0 进行数据的描述性统计和相关分析，使用 Process 插件进行中介和调节效应分析。结果显示：(1)知觉压力、错失焦虑、手机依赖和睡眠质量均显著正相关，环境敏感性和睡眠质量显著负相关。(2)知觉压力不仅对大学生睡眠质量的直接预测作用显著(β = 0.27, 95% CI [0.20, 0.34])，还能通过三条间接路径预测睡眠质量：错失焦虑的中介作用(R^2=0.10, β = 0.02, 95% CI [0.01, 0.04])、手机依赖的中介作用(R^2=0.22, β = 0.06, 95% CI [0.04, 0.09])以及错失焦虑和手机依赖的链式中介作用(R^2=0.24, β = 0.02, 95% CI [0.01, 0.03])。(3)环境敏感性调节了手机依赖的中介作用的后半段(β = 0.06, p < 0.05)，具体而言，高环境敏感性水平的个体手机依赖对睡眠质量的影响更大。本研究构建的有调节的中介模型，在一定程度上揭示了知觉压力对大学生睡眠质量的影响机制，对提升大学生睡眠质量有一定的启示作用。
关键词　睡眠质量，知觉压力，错失焦虑，手机依赖，环境敏感性

The Effect of Perceived Stress on Sleep Quality in College Students: A Moderated Mediation Model

Lu Zengyan[1], Li Yangjin[1], Sun Wenqiang[1]
1 School of Educational Science, Anhui Normal University, Wuhu, 241000

Abstract：Sleep plays a very important role in individual survival and development, and good sleep is an important condition to ensure individual physical and mental health. Long-term poor sleep will not only lead to individual cognitive and emotional disorders, but also cause physiological problems such as immune system, metabolism and cardiovascular. According to previous studies, the factors that affect sleep quality mainly come from perceived stress, the use of electronic products, life events and individual characteristics. Therefore, based on the organism-environment interaction model, this study investigated the influencing factors and mechanism of sleep quality of college students by constructing a moderated mediation model. The mediation effects of fear of missing out and mobile phone dependence on perceived stress and sleep quality of college students were investigated, and the moderating effects of individual sensitivity to environment on the prediction of sleep quality of college students were examined. In this study, 748 college students ($Mage$ = 20.6, SD = 2.65) in Anhui Province were investigated by means of perceived stress questionnaire, fear of missing out scale, mobile phone dependence questionnaire, Assens Insomnia Scale and environmental sensitivity scale. SPSS 26.0 was used for descriptive statistics and correlation analysis of data, and Process plug-in was used for mediation and moderating effect analysis. The results showed that: (1) Perceived stress, fear of missing out, mobile phone dependence were significantly positively correlated with sleep quality, while environmental sensitivity was significantly negatively correlated with sleep quality. (2) Perceived stress not only directly predicted the sleep quality of college students significantly (β = 0.27, 95%CI [0.20, 0.34]), but also predicted the sleep quality through three indirect paths: The mediating role of fear of missing out (R^2=0.10, β = 0.02, 95%CI [0.01, 0.04]) and mobile phone dependence (R^2=0.22, β = 0.06, 95%CI [0.04, 0.09]) and the chain mediating effect of fear of missing out and mobile phone dependence (R^2=0.24, β = 0.02, 95% CI [0.01, 0.03]). (3) The mediating effect of mobile phone dependence on sleep quality of college students was regulated by individual sensitivity to environment (β = 0.06, p < 0.05), individuals with high environmental sensitivity had a greater impact on sleep quality. The mediated model constructed in this study reveals the mechanism of the influence of perceived stress on the sleep quality of college students to a certain extent, and has certain implications for improving the sleep quality of college students.
Keywords：sleep quality, perceived stress, fear of missing out, mobile phone dependence, environmental sensitivity

情景未来思维对进食和食物跨期决策的影响

黄艾玥[1] 何清华[2]（通讯作者）
1 西南大学心理学部教育部认知与人格重点实验室，重庆，404100
2 西南大学心理学部，重庆，404100， heqinghua@swu.edu.cn

摘 要 对于正在寻找有效的减肥方法的超重和肥胖群体而言，了解影响食物选择的因素对实现他们控制饮食并达到减肥目标至关重要。在本次文献综述中，我们聚焦于两种与饮食行为密切相关的概念：延迟折扣和情景未来思维。延迟折扣是指个体更倾向于接受立即获得的较小回报，而不是未来的较大回报。对于肥胖的个体，他们往往表现出较高的延迟折扣率，这通常表现为他们更偏向于选择高热量食物以获得瞬间的满足，而忽略了由不良饮食带来的长期健康风险。另一方面，情景未来思维被描述为将自我投射到未来以预期某一事件发生的认知过程。情景未来思维和情景记忆过程被认为都具有相似的神经激活表征。之前的研究表明肥胖人群在情景未来思维的表现较差，这可能是他们在食物选择上倾向即时满足的一个重要原因。而越来越多的研究也发现，通过干预情景未来思维可以减少正常体重群体和肥胖群体的进食量，这无疑提供了一种具有潜力的干预策略，尽管其长期效果还需要更多实证性的研究支持。此外，由于情景未来思维可以改变未来选项的主观价值，因此也有许多研究探讨了情景未来思维对延迟折扣的改善。我们总结了前人在这方面的研究，完善了情景未来思维对决策造成影响的模型，并且由于情景未来思维的干预可以调节未来选项的主观价值，探索延迟折扣的个体差异对情景未来思维影响的调节作用至关重要。我们以期根据这一模型获得更加规范化和个性化的干预方案，进一步提高情景未来思维对饮食选择的干预效果。
关键词 肥胖，食物选择，情景未来思维，延迟折扣

The impact of episodic future thinking on eating and food intertemporal decision

Aiyue Huang[a], Qinghua He[b] (corresponding author)
[a] Faculty of Psychology, MOE Key Laboratory of Cognition and Personality, Southwest University, Chongqing, China
[b] Southwest University Branch, Collaborative Innovation Center of Assessment toward Basic Education Quality, Chongqing, China
2 Tiansheng Rd, Chongqing, 400715 CHINA.

Abstract： Understanding the factors that influence food choices is crucial in controlling diets and achieving weight loss, especially in populations seeking effective weight reduction methods. This paper presents a systematic review of the literature on delay discounting (DD) and episodic future thinking (EFT) in relation to eating behavior. DD refers to the preference for immediate smaller rewards over larger future rewards, while EFT is a cognitive process of projecting oneself into the future to pre-experience an event, enabling an accurate imagination of the future. The evidence indicates that adolescents with obesity and adults exhibit higher DD and poorer EFT. Furthermore, interventions using EFT can reduce eating in normal-weight or groups with obesity, but long-term interventions require further research and practical application. Additionally, exploring the moderating effect of individual differences in DD on the impact of EFT is crucial since EFT interventions moderate future option values. These studies provide a more profound understanding and a reference for developing measures to improve

eating behavior.

Keywords: Obesity, Food choice, Episodic future thinking, Delay discounting

6.36“时间心理学专业委员会”分组展贴报告

时间流逝观：体悟生命行进的形式与过程

余习德　刘嘉帆　邱智婷　张琳　张思旖
广东技术师范大学教育科学学院，广州，510665
通讯作者：余习德
E-mail: dr_cider@gpnu.edu.cn

摘 要 从生命历程的角度，时间流逝既是客观现象，也是心理表征。一个事实不能罔顾：对所有人来说，流逝的每一天，既是成长的一天，也是离死亡更近的一天。死亡的必然性促使个体思考生命的有限与时间的稀缺。根据稀缺理论，因生命流逝而“时间稀缺”的感知，促使个体做出“珍惜时间”的补偿行为。典型表现是：重新定义目标、为目标而行动、享受行动过程，以此完成对“死亡”的三重超越——海德格尔的“向死而生”。行为受制于观念，并与观念交互，珍惜时间的行为源于珍重时间的观念，而惜时观念又与“感知时间流逝、体悟时间稀缺”息息相关。国内学者余习德等人(2023)首次明确提出“时间流逝观”，并通过心理测量技术考察了大学生时间流逝观的概念结构。结果表明：时间流逝观包含正性促进、负性抑制、生命触动、时间估计与基本价值五个维度。尽管“流逝观”这一概念近期才被提出，但拟基于以下两点开展再探索：第一，突出考察对补偿行为更有促进意义的维度——流逝意识启动后效；第二，优化概念内涵与精简测量模型。对余习德等(2023)的访谈资料再次深入挖掘，根据分析结果修饰原概念结构、调整原量表维度。对 996、770、817 与 84 名大学生分别进行探索性与验证性因素分析、效标关联效度分析与重测信度检验。结果表明：第一，时间流逝观包含启动后效、生命触动、积极促进与消极抑制四个维度，修订量表各维度分别对应 9、5、4 与 4 题(共 22 题)。第二，修订量表信效度良好。信度：在不同样本中的内部一致性 Cronbach’s *a* 系数范围是 0.83-0.95；分半信度是 0.75；重测信度为 0.82；效度：验证性因素分析结果良好(χ^2/df=1.97, RMSEA = 0.035, CFI = 0.961, SRMR = 0.040)；同时，流逝观总分与时间观中的消极过去维度呈显著正相关(r = 0.37, p＜0.01)，流逝观总分与时间管理总分也呈显著正相关(r =0.45, p＜0.01)。总之，修缮的概念内涵更简练，修订的量表结构更稳健。

关键词 时间；生命；流逝；观念

View of the passage of time (VPT):

Realizing the form and process of life’s journey

Yu Xide, Liu Jiafan, Qiu Zhiting, Zhang Lin, Zhang Siyi
School of Educational Science, Guangdong Polytechnic Normal University, Guangzhou (510665)
Corresponding authors: Yu Xide
E-mail: dr_cider@gpnu.edu.cn

Abstract From the perspective of the life course, the passage of time is both an objective phenomenon and a psychological representation. One fact cannot be ignored: for all of us, each passing day is both a time of growth and a time closer to death. The inevitability of death prompts individuals to think about the finite nature of life and the scarcity of time and prompts them to engage in compensatory behaviors to value time. Typical expressions are:

redefining the goal, acting for the goal, and enjoying the process of action - thus completing the triple transcendence of death. Behavior is constrained by concepts and interacts with them: the behavior of valuing time originates from the concept of valuing time, and the concept of valuing time is closely related to “perceiving the passage of time and realizing the scarcity of time”. Yu et al. (2023) first explicitly proposed the concept of the view of the passage of time, and examined the conceptual structure of college students’ view of time passing through psychometric techniques. The results showed that the view of time passing contains five dimensions: positive promotion, negative inhibition, life touch, life estimation, and basic value. Although the concept of the view of the passage of time has only been proposed recently, we propose to re-explore this concept based on the following two points: first, focusing on the dimension that has a greater significance in facilitating compensatory behaviors, namely, the after-effects of the initiation of time passing awareness; and second, optimizing the conceptual connotation and streamlining the measurement model. The interview data of Yu et al. (2023) were further explored, and the original conceptual structure and scale dimensions were adjusted according to the results of the analysis. Exploratory and confirmatory factor analyses, criterion correlation validity, and retest reliability tests were conducted on 996, 770, 817, and 84 college students, respectively. The results showed that, first, the view of time passing contains four dimensions, namely, initiation aftereffect, life touch, positive promotion, and negative inhibition, and each dimension of the revised scale corresponds to 9, 5, 4, and 4 questions (22 items in total). Second, the reliability of the revised scale is good. Reliability: internal consistency Cronbach’s *a* coefficient in different samples ranged from 0.83 to 0.95; split-half reliability was 0.75; retest reliability was 0.82; validity: the results of the validated factor analyses were good (χ^2/df = 1.97, RMSEA = 0.035, CFI = 0.961, SRMR = 0.040); meanwhile, the total score of the VPT was significantly and positively correlated with the negative past dimension of the Time Perspective (r = 0.37, p < 0.01), as well as the similar relationship between the VPT and the Time Management Disposition (r = 0.45, p < 0.01). In conclusion, the revised concept was more concise and the revised scale was more robust.

Keywords: time; life; passage; view

未来自我连续性的研究述评

王佳荷

河南大学教育学部，开封，475004，wjh9540210@163.com

摘 要　未来自我连续性指个体将现在自我和未来自我联系在一起的紧密程度，包括相似性、生动性、积极性三个方面。2009 年以来，学者对未来自我连续性的概念界定、结构、测量工具、影响因素和干预措施进行了探讨，并取得了一定的成果。未来自我连续性的操作性定义主要涉及测量和操作两个方面，前者将其看作是一种特质或个体差异，关注对未来自我连续性进行准确测量；后者将其看作是一种状态，关注对其进行有效操纵。研究发现，未来自我连续性对心理和行为有重要影响。高未来自我连续性的个体意识到“未来自我”与“现在自我”在时间维度上的同一性，以此增加对未来自我的关注，使现在和未来的目标一致，从而根据当前情况做出有利于未来的决策。而且，未来自我连续性能够促进个体面向未来的行为或表现，如学业成绩、自我控制、锻炼行为以及储蓄行为等；同时可以预测低水平的病理性焦虑、抑郁、职业倦怠、学术拖延、不道德行为、违法犯罪行为等不良情绪或行为。此外，已有研究通过让被试阅读文本材料，以及借助书信交流和新兴技术与“未来自我”进行互动等手段，实现了对个体未来自我连续性的成功操纵。未来研究可以进一步清晰界定未来自我连续性的内涵和外延、深入探讨其神经基础、形成机制以及加强定制化干预研究，以拓展未来自我连续性相关的应用研究。

关键词　未来自我连续性，时间自我

A Review of Future Self-Continuity

Jiahe Wang
Faculty of Education, Henan University, Kaifeng, 475004, wjh9540210@163.com

Abstract：Future self-continuity refers to the degree to which an individual connects the present self with the future self, including similarity, vividness and enthusiasm. Since 2009, scholars have discussed the concept definition, structure, measurement tools, influencing factors and intervention measures of future self-continuity, and have achieved certain results. The operational definition of future self-continuity mainly involves two aspects: measurement and operation. The former regards it as a trait or individual difference and focuses on accurate measurement of future self-continuity. The latter sees it as a state and is concerned with manipulating it effectively. Research has found that future self-continuity has important effects on psychology and behavior. Individuals with high future self-continuity realize the identity of the "future self" and the "present self" in the time dimension, so as to increase their attention to the future self and make the present and future goals consistent, so as to make decisions conducive to the future according to the current situation. In addition, future self-continuity can promote the individual's future-oriented behavior or performance, such as academic achievement, self-control, exercise behavior and saving behavior. At the same time, it can predict the low level of pathological anxiety, depression, job burnout, academic procrastination, unethical behavior, illegal and criminal behavior and other bad emotions or behaviors. In addition, previous studies have successfully manipulated an individual's future self-continuity by having subjects read text materials and interacting with the "future self" through letter exchanges and emerging technologies. Future research can further clearly define the connotation and extension of future self-continuity, deeply explore its neural basis and formation mechanism, and strengthen customized intervention research, so as to expand the applied research on future self-continuity.

Keywords：future self-continuity, temporal self

6.37"婚姻家庭心理与咨询专业委员会"分组展贴报告

依恋焦虑和回避、自我扩张与婚姻质量：基于主客体互倚模型

杨培滢 曾加慧 刘学兰（通讯作者）
"儿童青少年阅读与发展"教育部哲学社会科学实验室(华南师范大学)/心理应用研究中心/华南师范大学心理学院，广州，510631，liuxuelan@m.scnu.edu.cn

摘 要　婚姻关系和谐与否对个体和家庭影响重大，识别个体因素和人际关系过程对婚姻质量的影响，有助于深入了解婚姻家庭幸福与稳固的基础。研究者将依恋理论扩展到成人阶段，认为浪漫关系中对伴侣的情感联结也可以被看做为一种依恋关系，即成人依恋。根据依恋维度观,成人依恋分为依恋焦虑和依恋回避，以往已有研究揭示了依恋焦虑和回避与婚姻质量之间的密切关系。基于相互依赖理论，同属一对关系的个体以复杂的方式相互影响, 一方在影响自己的同时也会影响对方。前人在探究依恋焦虑和回避与婚姻质量的联系时，大多关注成人依恋对自身婚姻质量的影响，较少研究考察夫妻双方的成人依恋是否以及如何影响自身和彼此的婚姻质量。此外，自我扩张是指个体将伴侣的观点、资源和身份纳入到自我中，是浪漫关

系中的一个重要影响变量。因此，本研究旨在探究夫妻的依恋焦虑和回避与婚姻质量的关系，以及自我扩张的中介作用。研究对 567 对夫妻（丈夫 M_{age}=37.89，SD = 5.11；妻子 M_{age}=35.33，SD = 4.90）进行了问卷调查，并采用主客体互倚模型对数据进行了分析。结果发现：（1）妻子和丈夫的依恋回避和依恋焦虑与婚姻质量均呈负相关。（2）妻子和丈夫的依恋回避显著负向预测自身的婚姻质量（主体效应）和对方的婚姻质量（客体效应）。（3）丈夫和妻子的依恋焦虑显著负向预测自身的婚姻质量（主体效应），但客体效应不显著。（3）丈夫的自我扩张在自身依恋焦虑对自身婚姻质量的影响路径中存在“遮蔽效应”。（4）妻子和丈夫的自我扩张中介依恋回避对婚姻质量的主体和客体影响。本研究发现不仅有助于深化人们对于依恋焦虑和回避、自我扩张和婚姻质量之间的联系，而且可以为婚姻干预实践提供一定的启示：了解夫妻双方的依恋类型，并关注夫妻的自我扩张水平，进而促进夫妻的婚姻质量和主观幸福。
关键词　依恋焦虑，依恋回避，婚姻质量，自我扩张，主客体互倚模型

Attachment Anxiety and Avoidance, Self-expansion, and Marital Quality: Based on the Actor-Partner Interdependence Model

YANG Peiying; ZENG Jiahui; LIU Xuelan

"Reading and Development of Children and Adolescents" Philosophy and Social Science Laboratory of the Ministry of Education (South China Normal University) / Centre for Applied Psychological Research / School of Psychology, South China Normal University, Guangzhou, 510631

***Abstract*:** Harmonious marital relationships have a significant impact on individuals and families, and identifying the impact of individual factors and interpersonal processes on marital quality can help provide insight into the foundations of marital and family happiness and stability. Researchers have extended attachment theory to the adult stage, arguing that the emotional connection to a partner in a romantic relationship can also be viewed as an attachment relationship, i.e., adult attachment. According to the dimensional view of attachment, adult attachment is categorised as attachment anxiety and attachment avoidance, and previous research has revealed a strong relationship between attachment anxiety and avoidance and marital quality. Based on the theory of interdependence, individuals belonging to the same pair interact with each other in a complex way, and the behaviour of one party affects the other party while affecting oneself. When exploring the link between attachment anxiety and avoidance and marital quality, most of the previous studies have focused on the effects of adult attachment on one's own marital quality, and fewer studies have examined whether and how adult attachment in couples affects their own and each other's marital quality. In addition, self-expansion, which refers to an individual's incorporation of a partner's perspectives, resources, and identity into the self, is an important influence variable in romantic relationships. Therefore, the purpose of this study was to explore the relationship between couples' attachment anxiety and avoidance and marital quality, as well as the mediating role of self-expansion. The study administered a questionnaire to 567 couples (husbands M_{age} = 37.89, SD = 5.11; wives M_{age} = 35.33, SD = 4.90) and analysed the data using the actor-partner interdependence model. The results found that (1) both wives' and husbands' attachment avoidance and attachment anxiety were negatively related to marital quality. (2) Wives' and husbands' attachment avoidance significantly and negatively predicted their own marital quality (actor effect) and the other's marital quality (partner effect). (3) Husbands' and wives' attachment anxiety significantly and negatively predicted their own marital quality (actor effect), but the partner effect was not significant. (3) Husbands' self-expansion had a “suppressing effect” in the path of their own attachment anxiety on their own marital quality. (4) Wives' and husbands' self-expansion mediated the actor and partner effects of attachment

avoidance on marital quality. The findings of this study not only help to deepen the understanding of the links between attachment anxiety and avoidance, self-expansion, and marital quality, but also may provide some insights into marital intervention practices: understanding the attachment types of couples and focusing on the level of self-expansion of couples, which in turn can promote the marital quality and subjective well-being of couples.

Keywords ： attachment anxiety, attachment avoidance, marital quality, self-expansion, actor-partner interdependence model

婚姻访谈情感语义特征及其对婚姻质量的预测

郑庆广[1]　方晓义[1]（通讯作者）

1 北京师范大学发展心理研究院，北京, 100875, fangxy@bnu.edu.cn

摘 要　在诸多婚姻质量的影响因素之中，情感方面的因素被认为是最具有影响力的因素之一。个体的语言使用模式、风格以及内容等等语义特征，往往能够反映其许多内隐的心理特质和心理状态，包括情感。此外，婚姻访谈法是婚姻家庭领域研究的常用范式，在访谈文稿中往往蕴藏着受访者对于婚姻的大量认知信息。近年来对海量文本信息的语义特征进行处理和分析的自然语言处理技术日渐成熟，使得从访谈文本中提取情感语义特征信息并进行分析具有可行性。本研究招募 76 名被试对其进行婚姻访谈，并使用婚姻质量量表(Quality of Marriage Index, QMI)测量其婚姻质量。利用自然语言处理技术进行情感分析，探究其中情感语义特征对婚姻质量的预测作用。通过分步回归分析，检验了访谈文本中情感比例特征（即被试不同情感的发言条目占访谈总发言条目的比例）和情感字数特征（即被试不同情感的发言字数）对于婚姻质量的预测作用，并通过设置字数门槛进行筛选的方式，控制参与分析的文本长度，以检验积极和消极情感的字数特征各自的优势字数范围。结果表明，积极和消极情感的字数特征表现出不同的预测作用和模式，在积极情感比例特征的基础上，加入积极情感字数特征不能提高模型对婚姻质量的预测作用($\beta = -0.027$, $p = 0.841$, $R^2 = 0.090$, $\Delta R^2 = 0.001$)；而在消极情感比例特征的基础上，加入消极情感字数特征显著提高模型对婚姻质量的预测作用($\beta = -0.259$, $p = 0.036$, $R^2 = 0.127$, $\Delta R^2 = 0.055$)。字数门槛分析发现积极和消极情感的字数特征所敏感的字数范围不同，积极情感字数特征在字数范围较低（60 字左右）的文本中表现出更好的预测作用，而消极情感字数特征在字数范围较高（200 字以上）的文本中表现出更好的预测作用。研究结果强调对字数特征的关注能够更加准确地从文本中提取隐藏的情感信息，提升对婚姻质量的预测作用，并初步发现了婚姻访谈中所蕴含的情感信息所敏感的字数范围不同的特点。

关键词　婚姻质量，婚姻访谈，语义特征，自然语言处理，情感分析

Emotional Semantic Features in Marriage Interviews and Their Prediction of Marital Quality

Qingguang Zheng[1], Xiaoyi Fang[1]

1 Institute of Developmental Psychology, Beijing Normal University, Beijing, 100875,

fangxy@bnu.edu.cn

Abstract：Among the numerous factors influencing the quality of marriage, emotional factors are considered one of the most impactful. An individual's language use patterns, styles, content, and other semantic features often

reflect many implicit psychological traits and states, including emotions. In addition, the marriage interview method is a common research paradigm in the field of marriage and family, with the interview transcripts often containing a wealth of cognitive information about marriage from the interviewees. Recent advancements in natural language processing technology for handling and analyzing semantic features in massive text information have made it feasible to extract and analyze emotional semantic features from interview texts. This study recruited 76 participants for marriage interviews and used the Quality of Marriage Index (QMI) to measure their marital quality. Using natural language processing technology for emotional analysis, we investigated the predictive role of emotional semantic features in marital quality. Through stepwise regression analysis, we tested the predictive role of emotional proportion features (i.e., the proportion of the interviewee's different emotional statements to total statements) and emotional word count features (i.e., the word count of the interviewee's different emotional statements) on marital quality. By setting a word count threshold for screening, we controlled the length of text included in the analysis, to test the optimal word count range for both positive and negative emotional features. The results show that the word count features of positive and negative emotions present different predictive roles and patterns. Adding the positive emotional word count feature based on the positive emotional proportion feature does not improve the model's predictive power for marital quality ($\beta = -0.027$, $p = 0.841$, $R^2 = 0.090$, $\Delta R^2 = 0.001$). However, adding the negative emotional word count feature based on the negative emotional proportion feature significantly improves the model's predictive power for marital quality ($\beta = -0.259$, $p = 0.036$, $R^2 = 0.127$, $\Delta R^2 = 0.055$).The word count threshold analysis revealed that the sensitive word count ranges for positive and negative emotional features are different. The positive emotional word count feature shows better predictive power in texts of lower word count (around 60 words), whereas the negative emotional word count feature performs better in texts with a higher word count (over 200 words).The results emphasize that focusing on word count features can extract hidden emotional information from texts more accurately, improve the prediction of marital quality, and initially identify the different sensitive word count ranges for emotional information contained in marriage interviews.

Keywords：Marital quality, Marriage interview, Semantic features, Natural language processing, Sentiment analysis

6.38“正念心理学专业委员会”分组展贴报告

基于正念训练的专注力游戏课程对小学生注意力的改善效果

陈晓[1,2]（通讯作者） 钟紫琪[3]

1 广东白云学院 应用心理学系，广州，510450

2 北京师范大学 未来教育学院，珠海，519087 psychenxiao@126.com

3 深圳市光明区玉律学校，深圳，518132

摘 要 本研究基于正念训练为基础开发一套面向小学生专注力游戏干预课程，课程以“外星人的地球探索之旅”游戏主题活动。课程共由十节课组成，每周一节，一节课时长约为 50 分钟。在每节课开始时，教师介绍本次课程的故事背景并进行热身活动，正式课程活动包括两个主活动，主活动是在传统正念训练基础上结合当节外星人的故事进行改编包括正念的呼吸、正念行走、正念进食等。25 名 3-5 年级小学生参与为期 10 周的课程。在课程前、课程后和课程结束一个月后父母完成 Conners 父母症状问卷，学生完成儿童版注意网络测试。结果表明：1）干预结束一个月后的多动水平和学习问题上均显著低于前测水平，但这两个

方面在前测和后测以及后测和一个月后的追踪无显著差异；2）干预后的冲动水平显著低于前测，一个月后的冲动水平显著低于前测，但是后测和一个月追踪的冲动水平无显著差异；3）干预后的注意执行网络效率反应时显著低于前测，其他检测点之间无显著差异；4）品行问题和心身问题方面在各个监测点之间均无显著差异。基于正念的专注力游戏课程对小学生的多动和学习问题有显著的延时效果，对冲动多动有显著的即时效果和延时效果；对盖上小学生的注意力执行网络效率有显著改善作用。

关键词　正念训练，注意力，游戏，小学生

The Effect of a Mindfulness-Based Attention Training Game Program on Elementary School Students' Attention

Chen Xiao[1,2]　Zhong Ziqi[3]

10. Department of Applied Psychology, Guangdong Baiyun University, Guangzhou, 510450

11. College of Education for the Future, Beijing Normal University, Zhuhai, 519087, Email: psychenxiao@126.com

12. Shenzhen Gungming Yulv School, Shenzhen, 518132

Abstract: This study developed a mindfulness-based attention training game intervention program specifically for elementary school students. The program themed was "Aliens' Journey to Earth". The program consisted of ten sessions, with one session per week, and each session lasted approximately 50 minutes. At the beginning of each session, the teacher introduced the story background of the session and conducted warm-up activities. Each session included two main activities, adapted from traditional mindfulness training, such as mindful breathing, mindful walking, mindful eating, et al. A total of 25 students in grades 3-5 participated in the 10 weeks. Their parents completed the Conners Parent Symptom Questionnaire, and students completed the Children's Version of the Attention Network Test before, after, and a month after the program. The results showed that: 1)One month after the program, the level of students' hyperactivity and learning problems were significantly lower than the pre-program levels. However, there were no significant differences between the pre-program, post-program, post-program and one-month follow-up for these aspects. 2) Students' impulsivity after the intervention were significantly lower than the pre-program level, and the levels of impulsivity one month after the program were also significantly lower than the pre-program level. However, there were no significant differences in impulsivity between the post-program and one-month follow-up. 3)The reaction time of attentional executive network efficiency after the program was significantly lower than the pre-program levels. 4)There were no significant differences in conduct problems and psychosomatic problems between the different measurement points. The mindfulness-based attention training game program showed significant delayed effects on reducing hyperactivity and learning problems in elementary school students. It also had significant immediate and delayed effects on reducing impulsive behavior. The program significantly improved the efficiency of attentional executive network in elementary school students.

Keywords: Mindful training, Attention, Game, Elementary school student

正念训练对记忆的影响及其对抑郁症患者的临床应用

杨雅[1]　任桂琴[1]（通讯作者）　栗庆阳[1]　邵红涛[1]

1 辽宁师范大学心理学院，大连，116029, renguiqin@126.com

摘 要 正念训练是一种特定类型的冥想练习方式，它强调专注于体验当下意识，而不试图压制、判断或对任何刺激做出任何反应。近年来正念训练带来的积极效用得到了研究者们的高度关注。研究发现，正念训练能提高工作记忆容量，通过注意力的提升加强信息的储存和加工，减少默认网络活动的激活，对工作记忆有一定程度的保护作用，同时预防与压力相关的工作记忆障碍，甚至改变影响工作记忆的因素。同时正念训练对短时记忆和长时记忆也具有改善作用。大量研究显示正念训练不仅可以改善正常人的记忆，作为一种临床干预的手段，它也有助于改善精神疾病患者或是其他类型临床患者相关的记忆，比如通过训练抑郁症患者注意他们经历的特定方面，提高对心理内容的意识，从而促进更准确的编码和检索，改善自传体记忆的过度概括化；同时正念训练调节对消极刺激的情绪反应，减少对消极刺激的注意偏向，改善情绪记忆偏差都具有积极的效应。正念训练可以以简单的形式展开，从而应用到需要改善记忆的不同情境中，更广泛地提升其应用价值。未来研究应当探寻正念训练影响记忆加工的路径及过程；对不同的正念训练类型进行归纳和标准化；比较正念训练与其他影响记忆干预措施的差异；并探究正念训练影响记忆的普遍适用性和持续性。

关键词 正念训练；记忆；自传体记忆；情绪记忆

The effects of Mindfulness Meditation Practices on Memory and its clinical application in depressed patients

Yang Ya, Ren Guiqin, Li Qingyang, Shao Hongtao

Liaoning Normal University, Dalian, 116029, China, renguiqin@126.com

Abstract：As a specific method of meditation practice, Mindfulness meditation practices emphasize experiencing the current consciousness rather than trying to suppress, judge or react to any stimulus. In recent years, the positive effects of mindfulness training have attracted much attention from researchers. Recent researches have found that mindfulness meditation practices can protect the working memory to a certain extent, increase the working memory capacity, as well as prevent the stress-related working memory disorders. even chang the factors that affect working memory. Furthermore, mindfulness meditation practices can be used to improve the short-term and long-term memory. A great number of researches have shown that mindfulness meditation practices can not only improve memory in normal people, but also help to improve the relevant memory of mental patients or other types of clinical patients as a means of clinical intervention. For example, by training people with depression to pay attention to specific aspects of their experiences, increasing awareness of psychological content, thereby promoting more accurate encoding and retrieval, and improving overgeneralization of autobiographical memory; At the same time, mindfulness training has positive effects on regulating emotional response to negative stimuli, reducing attention bias to negative stimuli, and improving emotional memory bias. Mindfulness training can be developed in a simple form, so that it can be applied to different situations that need to improve memory, increasing its application value more broadly. Further follow-up studies need to be conducted to determine the psychological mechanism of mindfulness meditation practices affecting memory, and to generalize and standardize different mindfulness practices training types, as well as studies compare the differences between mindfulness practices training and other memory interventions, Moreover, it is important to explore the impact of mindfulness practices training on the universality and persistence of memory.

Keywords：mindfulness meditation practices, memory, autobiographical memory, emotional memory

大学生正念对网络成瘾的影响：经验回避和冗思的链式中介效应

刘群[1]　苗洪霞[2]　宋广文[3]（通讯作者）

1 安徽师范大学皖江学院，芜湖，241000

2 曲阜师范大学心理学院，曲阜，273165

3 华南理工大学心理测评与应用心理学研究所，广州，510641，songhw@scut.edu.cn

摘 要　网络成瘾在现阶段大学生群体中的问题日益凸显。目的：探究正念对大学生网络成瘾的影响，以及经验回避和冗思在其内部的作用机制。方法：采用正念注意觉知量表、接纳与行动问卷、反刍思维量表、青少年病理性互联网使用量表，对 1011 名大学生进行问卷调查。结果：（1）正念与经验回避、冗思、网络成瘾均呈显著负相关（r=-0.283,-0.252,-0.269,P＜0.05）；经验回避与冗思、网络成瘾均呈显著正相关（r=0.548,0.432,P＜0.05）；冗思与网络成瘾呈显著正相关（r=0. 480,P＜0.05）；（2）正念可以对网络成瘾产生直接影响（95%置信区间：-0.156～-0.042），也可以通过三条中介路径作用于网络成瘾：经验回避的中介作用（95%置信区间：-0.090～-0.031），冗思的中介作用（95%置信区间：-0.066～-0.011），经验回避和冗思的链式中介作用（95%置信区间：-0.065～-0.027）。结论：正念可以通过经验回避与冗思影响个体网络成瘾，建议高校教育工作者通过加强正念训练，提升积极心理品质；降低经验回避，提升心理弹性水平；减少冗思困扰，提升心理适应能力。

关键词　正念，经验回避，冗思，网络成瘾

Effect of College Students' Mindfulness on Internet Addiction: Chain Mediation Effect of Experience Avoidance and Redundancy

Liu Qun[1]　Miao Hongxia[2]　Song Guangwen[3]

1 Wanjiang College of Anhui Normal University, Wuhu, 241000

2 Miao Hongxia, Qufu Normal University, Qufu, 273165

3 Song Guangwen, South China University of Technology, Guangzhou, 510641

Abstract：The problem of Internet addiction among college students is becoming more and more prominent. Objective: To analyze the effect of mindfulness on Internet addiction in college students and the mechanism of experience avoidance and redundancy. Methods: 1011 college students were investigated by Mindful Attention Awareness Scale（MAAS）,Acceptance and Action Questionnaire-and Edition（AAQ-II）,Ruminative Responses Scale（RRS）, Adolescent Pathological Internet Use Scale（APIUS）. Results: (1) Mindfulness was negatively correlated with experience avoidance, redundancy, and Internet addiction (r=-0.283, -0.252, -0.269, P < 0.05). Experience avoidance was positively correlated with redundancy and Internet addiction (r=0.548,0.432, P < 0.05). Experience avoidance was positively correlated with redundancy and Internet addiction (r=0.548,0.432, P < 0.05). (2) Mindfulness can have a direct impact on Internet addiction (95% CI: -0.156 to -0.042). It can also act on Internet addiction through three mediating pathways: Mediating effect of experience avoidance (95% CI: -0.090 to -0.031), mediating effect of experience avoidance (95% CI: -0.090 to -0.031), chain mediating effect of

experiential avoidance and redundancy (95% CI: -0.065 to -0.027). Conclusion: Mindfulness can affect individual Internet addiction through experiential avoidance and redundancy. College educators can help college students strengthen mindfulness training and improve positive psychological quality; reduce experience avoidance and improve the level of psychological flexibility; reduce the trouble of redundancy and improve the ability of psychological adaptation.

Keywords：Mindfulness，Experience avoidance，Redundancy，Internet addiction

正念疗法对进食障碍的影响及作用机制

曹燕华[1] 张敏[2] 何元庆[1]

（1.安徽师范大学教育科学学院，芜湖，241000，E-mail: hyqkgq@126.com；

2.泰兴市第三高级中学，泰兴，225400）

摘 要　进食障碍是一种由心理障碍引发的精神障碍疾病，大量研究表明对其治疗方法的探究是该领域的研究重点。正念疗法是以“正念”为核心的心理疗法的总称，强调对当下经验的注意和接纳，被众多研究证明能有效缓解进食障碍症状。本文首先总结了正念疗法应用于进食障碍的心理临床成果，包括正念进食的主要评估工具和正念疗法干预进食障碍的有效性两个方面。其中，评估工具包括正念进食问卷（The Mindful Eating Questionnaire，MEQ）、正念进食量表（The Mindful Eating Scale, MES）、进食行为量表（The Mindful Eating Behavior Scale, MEBS）、正念进食量表（The Mindful Eating Inventory, MEI），为进食障碍的临床干预和正念疗法在进食障碍中的潜在作用机制研究提供参照依据。然后提出正念疗法在进食障碍中的生理作用机制：个体在正念训练过程中大脑神经生理活动和大脑功能及结构的变化在一定程度上改善了个体的注意、感知觉、情绪调节以及自我控制能力；接着提出正念疗法在进食障碍中的心理作用机制：进食障碍患者在正念状态下可以通过注意和接纳技能提高其对身体外部线索（如体像）、身体内部线索（如饥饿感、饱腹感）和内部情感线索（如冲动、焦虑）的感知觉能力，提升其对内部情感线索的情绪调节和自我控制能力，进而改善患者的进食障碍；最后对当前研究提出展望：完善研究方法，提升结果可靠性、加强正念疗法的本土化和差异性研究、深入探明正念疗法发挥作用的机制。

关键词　正念疗法，进食障碍，作用机制

Application and Mechanism of Mindfulness Therapy in Eating Disorders

Cao YanHua[1], Zhang Min[2] He YuanQing[1]

([1]School of Educational Science, WuHu, 241000, China) ([2]Taixing 3 rd high school, TaiXing, 225400 , China)

Abstract：Eating disorder is a mental disorder caused by psychological disorder, and a large number of studies show that the exploration of its treatment is the focus of research in this field. Mindfulness therapy is the general name of psychotherapy with mindfulness as the core, which emphasizes the attention and acceptance of current experience and has been proved by many studies to effectively alleviate eating disorder symptoms. Firstly, this paper summarizes the psychological and clinical achievements of mindfulness therapy in eating disorders, including the main evaluation tools of mindfulness eating and the effectiveness of mindfulness therapy in intervening eating disorders. Among them, the evaluation tools include The Mindful Eating Questionnaire (MEQ), The Mindful Eating Scale, MES) and The Mindful Eating Behavior Scale (MEQ). MEBS) and The Mindful Eating Inventory, MEI) provide reference for clinical intervention of eating disorders and the study of the potential

mechanism of mindfulness therapy in eating disorders. Then the physiological mechanism of mindfulness therapy in eating disorders is put forward: the physiological activities of the brain and the changes of brain function and structure in the process of mindfulness training improve the individual's ability of attention, perception, emotional regulation and self-control to some extent; Then, the psychological mechanism of mindfulness therapy in eating disorders is put forward: patients with eating disorders can improve their perception ability of external cues (such as body image), internal cues (such as hunger and satiety) and internal emotional cues (such as impulse and anxiety) by paying attention to and accepting skills, so as to improve their emotional adjustment and self-control ability of internal emotional cues, and then improve their eating disorders; Finally, the prospect of current research is put forward: perfecting research methods, improving the reliability of results, strengthening the localization and difference research of mindfulness therapy, and deeply exploring the mechanism of mindfulness therapy.

Keywords：mindfulness therapies，eating disorders，mechanism

结合虚拟现实技术的正念减压干预：自我关怀和睡眠问题的动态交互

翁小芳[1]　郭鑫苗[1]　韩卓[2]（通讯作者）

1 北京师范大学，北京，100875

2 北京师范大学心理学部，北京，100875，rachhan@bnu.edu.cn

摘 要　目的 ：基于正念的减压疗法具有改善自我关怀和减少睡眠问题的作用，但存在正念练习的坚持难和依从性低等问题，而且正念干预起效的过程和动态相关研究仍较为缺乏。本研究将利用虚拟现实技术（VR）的沉浸感特点，设计一个结合传统正念干预技术和 VR 放松减压技术的八周正念减压干预方案，并进行随机对照试验探究该方案对大学生的干预效果及过程机制，评估正念干预是否能够提升大学生的自我关怀水平，并解析正念干预过程中自我关怀与睡眠障碍的动态变化关系。方法： 在北京某大学通过线上线下相结合的方式招募自愿参加八周正念团体辅导的大学生被试，通过问卷进行筛选，筛选标准包括年龄 18 以上、无任何精神类疾病、无参加过任何有关正念技能的培训。采用随机分配法将其分成控制组和实验组各 31 例，其中控制组不接受任何干预，实验组接受正念疗法的 8 周干预。对照组和干预组在八周干预前和八周干预后分别报告自我关怀水平，干预组每周干预前（T1-T8）报告过去一周的自我关怀水平和过去一周的睡眠障碍。结果 ：在 SPSS 26 进行方差分析，发现干预 8 周后实验组 SCS 评分显著高于控制组（控制前测 SCS 得分，$F = 4.926, t = 2.29, p < 0.05$）。在 Mplus 采用两水平时间序列模型分析，发现自我关怀水平和睡眠障碍的自回归效应均显著（$\beta = 0.334$，$p < 0.01$, $\beta = 0.267$，$p < 0.01$），睡眠障碍不能预测下一周的自我关怀水平($\beta = 0.087$，$p > 0.1$)，更高的自我关怀与下一周更少的睡眠障碍相关($\beta = -0.154$，$p < 0.05$)。结论 ：①正念疗法可以显著提升大学生的自我关怀水平；②干预过程中的自我关怀水平能降低睡眠障碍。本研究开发的结合 VR 的正念减压方案能提升自我关怀水平，而且解析了干预过程中的自我关怀能持续有效地促进睡眠质量这一动态过程，为未来正念干预的开发和实施提供证据，特别是针对具有睡眠困扰的大学生群体。

关键词　结合虚拟现实的正念干预，自我关怀，睡眠障碍，时间序列模型

Mindfulness-based intervention using Virtual Reality: a dynamic interaction between self-care and sleep problems

Weng Xiaofang, Guo Xinmiao, Han Zhuo

Beijing Normal University, 19 Xinjiekou Wai Street, Haidian District, Beijing

***Abstract*:** Mindfulness-Based Stress Reduction(MBSR)has the effect of improving self- compassion and reducing sleep problems, but there are problems such as difficulty in adherence to positive thinking practice and low compliance, and there is still a lack of research related to the process and dynamics of the effectiveness of positive thinking intervention. In this study, we will utilize the immersive characteristics of virtual reality (VR) technology to design an eight-week positive thinking stress reduction intervention program that combines traditional positive thinking intervention technology and VR relaxation and stress reduction technology, and conduct a randomized controlled trial to investigate the intervention effect and process mechanism of the program on college students, to assess whether positive thinking intervention can improve the level of self- compassion of college students, and to analyze the dynamic change of the relationship between self-concern and sleep disorders in the process of positive thinking intervention. We also analyze the relationship between self- compassion and sleep disorders during the process of positive thinking intervention. College student who voluntarily participated in eight weeks of positive thinking group counseling were recruited through a combination of online and offline methods at a university in Beijing, and were screened through a questionnaire, with the screening criteria including age of 18 or above, absence of any psychiatric disease, and absence of any training on positive thinking skills. Random assignment method was used to divide them into 31 cases each in the control group and the experimental group, in which the control group did not receive any intervention and the experimental group received the eight-week intervention of positive thinking therapy. The control group and the intervention group reported the level of self- compassion before and after the eight-week intervention, respectively, and the intervention group reported the level of self-compassion in the past week and sleep disturbances in the past week before each weekly intervention (T1-T8). SCS scores were significantly higher in the experimental group than in the control group after 8 weeks of intervention (control pre-tested SCS scores, $F = 4.926$, $t = 2.29$, $p < 0.05$). Analysis at Mplus using two-level time-series modeling revealed significant autoregressive effects for both level of self- compassion and sleep disorder ($\beta = 0.334$, $p < 0.01$, $\beta = 0.267$, $p < 0.01$), with sleep disorder failing to predict level of self- compassion in the following week ($\beta = 0.087$, $p > 0.1$), and higher self- compassion being associated with fewer sleep disorders in the following week ($\beta = -0.154$, $p < 0.05$). We conclude that (1) MBSR can significantly enhance the level of self- compassion among college students; (2) the level of self- compassion during the intervention reduces sleep disturbance. The positive thinking stress reduction program combined with VR developed in this study enhances the level of self-compassion, and resolves the dynamic process that self- compassion during intervention can continue to effectively promote sleep quality, providing evidence for the development and implementation of positive thinking interventions in the future, especially for the college student population with sleep disturbances.

***Keywords*:** Mindfulness-based intervention combining Virtual Realit，self-compassion，sleep disorder，time series model

表 1 对照组、实验组干预前后自我关怀评分的比较

项目	组别	数量	干预前		干预后		*F*	*P*
			M	*SD*	*M*	*SD*		
SCS	控制组	31	3.092	0.125	3.137	0.638	0.289	0.593
	实验组	29	3.188	0.129	3.436	0.503	**4.926****	0.030

注： $^{**}p < 0.05$，

SCS 为自我关怀量表得分

表 2 自我关怀与睡眠障碍的两水平时间序列模型参数

参数	标准化回归系数	95% 置信区间
SCS_t on SCS_{t-1}	**0.334**	**[0.11, 0.67]**
$PSQI_t$ on $PSQI_{t-1}$	**0.267**	**[0.07, 0.59]**
SCS_t on $PSQI_{t-1}$	0.087	[-0.07, 0.23]
$PSQI_t$ on SCS_{t-1}	**-0.154**	**[-0.30, 0.00]**

注： SCS 为自我关怀量表总分，PSQI 为匹兹堡睡眠质量指数睡眠障碍维度总分。

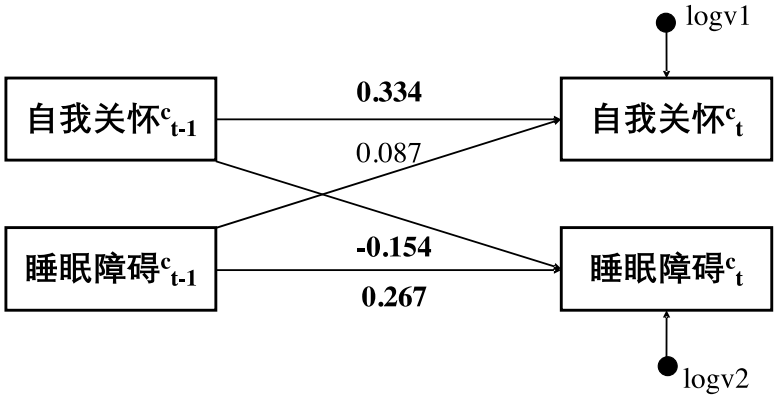


图 1 自我关怀与睡眠障碍的两水平时间序列图

6.39“学习心理专业委员会”分组展贴报告

学习意图和环境复杂度对个体空间记忆的影响

张亚南[1] 刘仙芸[2]（通讯作者）

1 天津师范大学心理学部，天津，300387

2 天津师范大学心理学部，天津，300387，liuxianyun5099@163.com

摘 要 虽然有意学习在多种一般记忆如情节信息、言语、风味中的积极作用已经被证实，但空间学习过程中学习意图对空间记忆的作用还存在争议。一种观点认为空间学习是自动发生的，学习结果不受练习、年龄、学习意图等因素的影响；另一种观点认为空间学习结果（如方向和距离）受到练习和努力加工信息的影响。考虑到外出环境类型的多样性，本研究旨在借助虚拟环境考察巡航过程中学习意图和环境复杂度对个体空间记忆的影响。先前研究认为个体的空间能力是影响空间记忆的一个重要因素，因此本研究在实验前根据圣巴巴拉方向感问卷对被试进行筛选。实验采用 2（学习意图：有意、无意）×2（环境复杂度：城市、郊区）被试间设计，88 名中等空间能力的被试被随机分配到四个条件下，性别在各个条件下平衡。研究包括环境学习和任务测试两个部分，在环境学习过程中，被试根据路线的导航提示模拟驾驶至终点；随后依次完成路线再巡航、地图绘制、场景再认、顺序再认四个任务。结果发现：城市环境中被试在地图绘制和场景再认任务上的表现优于郊区环境；有意学习条件下被试在各个任务上的表现都优于无意学习条件；与郊区环境相比，城市环境中被试有意学习和无意学习的路线再巡航表现差异更大。结果表明：学习意图在空间学习过程中发挥着重要作用，有意学习能够促进中等空间能力水平个体的空间记忆，这种促进作用在城市环境中更明显，对于理解空间记忆的影响因素以及设计有效的空间学习策略具有一定的指导意义。

关键词 学习意图，环境复杂度，空间记忆，空间学习

The effect of learning intention and environment complexity on spatial memory in individuals

Yanan Zhang[1] Xianyun Liu[2]
1 Faculty of Psychology, Tianjin Normal University, Tianjin, 300387
2 Faculty of Psychology, Tianjin Normal University, Tianjin, 300387, liuxianyun5099@163.com

***Abstract*:** While the positive role of intentional learning in a variety of general memories such as episodic information, verbal, and flavor has been demonstrated, the role of learning intentions on spatial memory during spatial learning is still controversial. One view was that spatial learning occurred automatically and that learning results were not influenced by factors such as practice, age, or intention; another view suggested that spatial learning results (e.g., direction and distance) were influenced by practice and effort to process information. Given the diversity of outdoor environment types, this study aimed to examine the effects of learning intention and environment complexity on individual spatial memory during navigation with the help of virtual environments. Previous researches have suggested that individuals' spatial ability was an important factor in spatial memory, so the present study selected participants based on the Santa Barbara Sense-of-Direction scale first. Then a 2(learning intention: intentional learning/incidental learning)×2(environment complexity: urban/suburban) between-subjects design was used, 88 participants with moderate spatial ability were randomly assigned to four conditions, with gender counterbalanced across conditions. The study consisted of two parts: environment learning and task testing. During learning process, participants simulated driving to the end point according to the navigation cues of the route; then completed the four tasks of route retracing, map-drawing, scenes recognition, and scenes order recognition in turn. The results showed that participants in the urban environment performed better than in the suburban environment on map-drawing and scenes recognition tasks; participants in the intentional learning condition were better at four tasks than in the incidental learning condition; the difference in route retracing performance between intentional and incidental learning was greater in the urban environment compared to the suburban environment. The results suggested that learning intentions played an important role in the spatial learning process, and intentional learning could promote spatial memory in individuals with moderate levels of spatial ability, the promotion was more obvious in the urban environment, which were instructive for understanding the influences on spatial memory and for designing effective spatial learning strategies.

***Keywords*:** learning intention, environment complexity, spatial memory, spatial learning

触屏手势对幼儿数认知的影响：匹配性的优势效应

伍韫旖，毛忆晨，王福兴（通讯作者）
华中师范大学心理学院，武汉，430079，E-mail: fxwang@ccnu.edu.cn

摘 要 具身认知的研究表明手势会影响儿童的认知过程和学习表现。随着技术的发展，触屏手势在儿童基于触屏的数认知学习中起到支持作用，这种作用在学习材料与心理表征高度映射时可能更加突出。本研究关注不同的触屏交互手势在幼儿数认知中的作用。我们考察了在具备连续意义的数轴材料中，拖拽手势（连续动作-匹配）和点击手势（离散动作-不匹配）对儿童数估计表现的影响，并通过分析触屏手势在数估计范围大小和位置上的差异，探讨匹配手势产生优势效应的边界条件。实验采用 2（触屏交互方式：拖拽/点

击）× 2（数估计范围：0-10/0-20）×2（数估计位置：中点左侧/中点右侧）的三因素混合设计。70 名 5-6 岁幼儿(其中女生 33 人)被随机分配拖拽组(n = 34)和点击组(n = 36)完成实验。结果发现，在错误率上，拖拽组只有在进行难度较大（大数估计中的数轴右侧）数估计时会更有优势；在反应时间指标上，相较于点击组，拖拽组更快地对刺激做出反应，并在进行较大的数估计时思考的时间更长。结论认为，在儿童需要外显化脚手架的辅助时，与数轴匹配的拖拽手势为建构心理表征提供了更好的支持，降低了数估计难度，并帮助幼儿释放更多的心理资源进行策略调整。研究发现说明触屏媒体能够促进幼儿的数认知，对触屏学习提供了启示。
关键词 触屏手势，数估计，心理数轴，具身认知，学前儿童

The influence of touchscreen gestures on young children's numerical cognition: the superiority effect of congruency

Yunyi Wu, Yichen Mao, Fuxing Wang*
School of Psychology, Central China Normal University, Wuhan

***Abstract*:** Research on embodied cognition shows that gestures may impact children's cognitive processes and learning outcomes. As technology advances, touchscreen gestures play a supportive role in children's touchscreen-based numerical cognitive learning, and this role may be more pronounced when learning materials are highly mapped to mental representations. The current study examined how different interactions on touchscreen devices influence children's numerical cognition. In the continuous number line material, we investigated the impact of drag gestures (continuous action - congruent) and tap gestures (discrete action - incongruent) on children's performance in numerical estimation. By examining differences in the set size and position of the number line estimation, we also explored the boundary conditions for the superiority effect of congruent gestures. The study used a 2 (type of touchscreen interaction: drag/tap) × 2 (estimated set size: 0-10/0-20) × 2 (estimated position: left of midpoint/right of midpoint) mixed design. 70 children aged 5-6 years (33 girls) were recruited and randomly assigned to either the drag group (n = 34) or the tap group (n = 36) to complete the experiment. Regarding the results of estimating error, only while completing challenging estimation (right side in the large-size set) was the drag group superior to the tap group. In terms of response time, the drag group responded to the stimulus faster and spent more time in thought than the tap group in the large-size set of estimation. The results suggest that when young children require explicit scaffolding, congruent gestures enable them to release more mental resources for strategic adjustments, decrease the difficulty of numerical estimation, and provide better support for constructing mental representations. The findings show that touchscreen media can facilitate young children's numerical cognition and provide insight into touchscreen learning.
Keywords: touchscreen gesture, numerical estimation, mental number line, embodied cognition, preschool children

听障成年人动作序列学习过程的特异性：视觉和本体觉成分的比较研

究

辛梦瑶 王芸姣 马伟娜 谢宇（通讯作者）
杭州师范大学经亨颐教育学院，杭州，311121，yu_xie@hznu.edu.cn

摘要 听障成年人的动作技能尚未得到广泛探索，他们学习动作技能的过程是否表现出特异性一直是研究者关注的焦点问题，然后当前观点并不一致。新动作技能的发展涉及整合来自多种感官模式的信息，尤其依赖于视觉和本体觉输入的信息。个体通过反复练习能够顺利且轻松地将一系列简单或复杂的动作元素整合为一个整体的过程被称为动作序列学习，它与动作技能学习密切相关。本研究采用改版的序列反应时任务（serial reaction time task, SRTT）对动作序列学习过程中本体觉和视觉成分进行分离，考察听障成年人对不同成分的学习表现并探讨他们的动作序列学习模式与健听组相比是否存在特异性。共招募 31 名听障成年人和 32 名健听成年人分别完成了序列反应时任务，两组被试的年龄与性别做了匹配。结果表明：在测验阶段，听障组的视觉成分和本体觉成分的序列反应时均慢于健听组，但两组被试在序列反应时任务中视觉成分和本体觉成分的学习分数上均不存在显著性差异。在前期的训练阶段，两组被试在完成相同试次任务时，只有听障组表现出序列学习，即序列试次的平均反应时比随机试次的平均反应时更短。此外，听障组被试是先天或后天的听力损伤与其动作序列学习表现之间不存在显著性相关关系。综合上述研究结果可发现，听障成年人具有正常的动作技能学习能力，并且在动作序列学习模式上的特异性主要表现为序列学习的敏锐度更高。

关键词 听觉障碍，序列反应时间任务（SRTT），视觉，本体觉

The specificity of motor sequence learning process in hearing-impaired adults : a comparative study of visual and proprioceptive components

Xin Mengyao Wang Yunjiao Ma Weina Xie Yu
Jing Hengyi School of Education, Hangzhou Normal University, Hangzhou

***Abstract*:** The motor skills of hearing-impaired adults have not been widely explored, whether the process of motor skill learning shows specificity has always been the focus of researchers ' attention, and then the current views are not consistent. Development of new motor skills involves integrating information from multiple sensory modalities, which is particularly reliant on information of visual and proprioceptive input. The individual takes a series of simple or complex action elements as a whole through repeated practice, and the process that can be completed smoothly and easily is called motor sequence learning, which is closely related to the learning of motor skills. In this study, a modified serial reaction time task (SRTT) was used to separate the proprioceptive and visual components in the process of motor sequence learning, investigate the learning performance of hearing-impaired adults on different components and explore whether patterns of motor skill learning differ in hearing-impaired adults as compared with healthy controls. 31 hearing-impaired adults were recruited in this study and 32 normal-hearing adults matched for age and gender served as controls. The findings suggest that, in the testing period, the reaction time (RT) of hearing-impaired participants was slower than healthy controls during the visual and proprioceptive component task, but the two groups did not significantly differ in the learning scores. In the training period, only hearing-impaired group demonstrated sequence learning that the average RT of sequenced trials were significantly faster than that of random trials. In addition, congenital or acquired hearing loss and motor

sequence learning performance were not significantly correlated in the hearing-impaired group. In conclusion, hearing-impaired adults have normal motor skill learning ability, and the specificity of motor sequence learning mode is mainly manifested in the higher sensitivity of sequence learning.
Keywords：hearing impairment, serial reaction time task (SRTT), vision, proprioception

语义联想程度对语义效应的影响

王文媛[1]　冷英[1]（通讯作者）
1 南通大学教育科学学院，南通，226000，lengying@ntu.edu.cn

摘 要　研究言语产生过程中，词汇产生尤为重要，重点是研究语义干扰效应（semantic interference effect, SIE），通常使用图片—词汇干扰任务（picture-word interference task, PWI）。该任务是用于探测口语词汇产生机制的典型任务，任务中会呈现目标图片和一个干扰词，要求被试忽略干扰词，说出图画名称。通过该任务，前人发现了语义干扰效应，即干扰词和目标词相关时的命名潜伏期显著长于两者无关时。相比语义无关的干扰词，语义相关的干扰词干扰图片的命名，产生语义干扰效应。

语义干扰效应的存在得到了大量研究的证实，但语义效应并非只有语义干扰，语义相关的类型影响语义干扰效应的产生和大小。研究者们通常将语义相关的类型划分为类别相关、联想相关、反义相关、同义相关等，其中，类别相关和联想相关对词汇产生的作用相反，前者是语义干扰作用，后者是语义促进作用。大多数研究中使用的是单一的相关关系进行语义干扰效应的研究，本研究重点是在语义相关类型中的类别相关材料中加入不同程度的联想相关，即将材料划分为高联想类别相关、中联想类别相关、低联想类别相关和类别无关四种材料。以此来研究联想程度对语义干扰效应的产生及效应大小的影响。

本研究使用图画-词汇干扰任务对 48 张黑白图片进行反应，采用 4（语义相关类型：高联想类别相关/中联想类别相关/低联想类别相关/类别无关）单因素四水平被试内设计，51 名被试完成了该项任务。发现命名潜伏期上，语义相关类型主效应显著。高联想类别相关显著快于中联想类别相关、低联想类别相关和类别无关，中联想类别相关、类别无关均显著快于低联想类别相关。

总的来说，一方面，该研究再次证实了词汇产生过程中语义干扰效应的存在。另一方面，本研究在类别相关中细分词对的联想相关程度，发现即使存在类别相关，当联想程度的不同，语义效应的极性会发生改变，由语义干扰变为语义促进。本研究中，高联想类别相关表现出语义促进，仅低联想类别相关表现为语义干扰。
关键词　语义干扰效应，图画-词汇干扰任务，语义相关

The influence of semantic association degree on semantic effect

Wang Wenyuan[1], Leng Ying[1]
1 Nantong University, Nantong

Abstract：In the process of speech production, word generation is particularly important, and the focus is on the semantic interference effect (SIE), usually using picture-word interference task (PWI). This task is a typical task used to detect the production mechanism of spoken words. In the task, the target picture and a distractor word are presented, and the subjects are asked to ignore the distractor and name the picture. Through this task, predecessors found semantic interference effect, that is, the naming latency when the distractor and the target word are correlated is significantly longer than when they are unrelated. Compared with the semantically irrelevant distractors, the semantically related distractors interfere with the naming of pictures, resulting in semantic

interference effect.

The existence of semantic interference effect has been confirmed by a large number of studies, but semantic effect is not only semantic interference, and the type of semantic relatedness affects the generation and size of semantic interference effect. Researchers usually divide the types of semantic relatedness into category relatedness, association relatedness, antisense relatedness and synonym relatedness, etc. Among them, category relatedness and association relatedness have opposite effects on words, the former is semantic interference, the latter is semantic promotion. In most studies, a single relatedness is used to study semantic interference effects. This study focuses on adding different degrees of associative relatedness to category-related materials of semantically correlated types, that is, materials are divided into four types: high-associative category relatedness, medium-associative category relatedness, low-associative category relatedness and category-unrelatedness. In this paper, the influence of association degree on semantic interference effect and effect size is studied.

In this study, 48 black and white pictures were responded to using a picture-word interference task, which was completed by 51 subjects in a four-level, single-factor within-subject design with (high-associative category relatedness/medium-associative category relatedness/low-associative category relatedness/category-unrelatedness). It was found that the semantic relatedness type had a significant main effect on the naming latency. High-associative category relatedness is significantly faster than medium-associative category relatedness, low-associative category relatedness and category-unrelatedness, and medium-associative category relatedness and category-unrelatedness are significantly faster than low-associative category relatedness.

In conclusion, on the one hand, this study once again confirms the existence of semantic interference effect in the process of word production. On the other hand, this study subdivides the associative relatedness degree of word pairs in category relatedness, and finds that even if there is category relatedness, the polarity of semantic effect will change from semantic interference to semantic promotion when the association degree is different. In this study, high-associative category relatedness shows semantic promotion, while low-associative category relatedness shows semantic interference.

Keywords： Semantic interference effect, Picture-word interference task, Semantic relatedness

高一新生求助数学教师行为与感知到数学教师支持的异质性及其对数学学业积极发展的影响：基于潜在剖面分析的证据

代文武[1] 王婉宁[2] 魏秀超[2] 赵崇池[1] 杨智辉[1]（通讯作者）

1 北京林业大学人文社会科学学院心理系，北京，100083，zhihuiyang2008@126.com

2 河北师范大学教育学院，石家庄，050024

摘 要 基于个体中心的视角，考察高一新生求助数学教师行为和感知到的数学教师支持的异质性，并进一步探究不同类型的个体在数学学业积极发展上表现出的差异。采用求助数学教师行为问卷，感知到的数学教师支持问卷，积极学业情绪量表和数学学习投入量表对 687 名高一新生进行问卷调查，运用潜在剖面分析探索高一新生求助数学教师行为和感知到的数学教师支持组合的异质性及特征，并通过方差分析比较不同组别个体在数学学业积极发展指标上的差异。结果发现：（1）求助数学教师行为和感知到的数学教师支持可被分为四个潜在类别：“双高积极型”（n = 200，29.11%），“中等匹配型”（n =171，24.89%），“情感缺失型”（n =233，33.92%），“双低消极型”（n =83，12.08%）；（2）四个潜在类型的个体在积极学业情绪和学习投入上均存在显著差异。具体而言，“双高积极型”在积极高唤醒情绪、积极低唤醒情绪和学习投入上，显著优于“中等匹配型”，“情感缺失型”和“双低消极型”。高一新生求助数学教师行为和感知到的

数学教师支持存在显著的群体异质性，且不同类型群体在数学学业积极发展上存在一定差异，未来可根据人群特点开展针对性的干预措施。

关键词　高一新生，求助数学教师行为，感知到的数学教师支持，数学学业积极发展，潜在剖面分析

The heterogeneity of high school freshmen's seeking help from mathematics teachers and perceived mathematics teacher support and its impact on positive mathematics academic development: Evidence based on latent profile analysis

Wenwu Dai[1], Wanning Wang[2], Xiuchao Wei[2], Dongchi Zhao[1], Zhihui Yang[1] (Corresponding author)

1 Department of Psychology，School of Humanities and Social Sciences，Beijing Forestry University，Beijing 100083，China

2 College of Education，Hebei Normal University，Shijiazhuang，050024

***Abstract*：** From an individual-centered perspective, this study examines the heterogeneity of high school freshmen's seeking help from mathematics teachers and their perceived mathematics teacher support, and further explored the differences in positive mathematics academic development among different types of individuals. Seeking help from mathematics teachers questionnaire, perceived mathematics teacher support questionnaire, positive academic emotion scale, and mathematics learning engagement scale were adopted to test 687 high school freshmen. Latent profile analysis was employed to explore the heterogeneity and characteristics of the combinations of seeking help from mathematics teachers and perceived mathematics teacher support among high school freshmen. Differences in positive mathematics academic development indicators among different types were compared using analysis of variance. The results were as follows: (1) Seeking help from mathematics teachers and perceived mathematics teacher support could be classified into four latent categories: "dual-high positive type" (n = 200, 29.11%), "moderate matching type" (n = 171, 24.89%), "affective deficiency type" (n = 233, 33.92%), and "dual-low negative type" (n = 83, 12.08%). (2) Significant differences were found among the four latent types of individuals in positive academic emotions and learning engagement. Specifically, the "dual-high positive type" outperformed the "moderate matching type," "affective deficiency type," and "dual-low negative type" in positive-high arousal emotions, positive-low arousal emotions, and learning engagement. There exists significant heterogeneity in high school freshmen's seeking help from mathematics teachers and their perceived mathematics teacher support, and different groups exhibit differences in positive mathematics academic development. Future interventions can be tailored based on these characteristics to promote positive development in mathematics learning.

***Keywords*：** high school freshmen, seeking help from mathematics teachers, perceived mathematics teacher support, positive mathematics academic development, latent profile analysis

6.40“神经心理学专业委员会”分组展贴报告

波动环境下 Alpha 振荡编码空间注意的计算神经机制：基于贝叶斯信念更新框架

李思莹[1]　刘梦[2]　董文珊[2]　陈琦[1]（通讯作者）
1 深圳大学心理学院，深圳，518000，chenqi@szu.edu.cn
2 华南师范大学心理学院，广州，510000

摘 要　空间注意资源部署被认为取决于对即将发生事件的预测与推断，尤其是当人们处在一个充满不确定性的波动环境中。根据贝叶斯大脑假说（Bayesian brain hypothesis），大脑在不断更新基于感官输入的生成模型，以此来推断环境的因果关系结构并预测未来事件。尽管有关贝叶斯信念更新如何影响感知刺激加工的讨论十分广泛，但相关研究仍未完全揭示其中潜在的神经机制。因此，为了探讨 alpha 频段神经活动（8-13Hz）如何编码空间注意的部署，以及预测精度（信念更新过程的决定因素之一）如何作为计算神经基础参与这些调控过程，本研究采用了中央线索 Posner 实验范式，线索有效概率在 88%、69%、50%三个水平之间变化，随时间不断变化的线索有效概率构成了波动的概率环境条件。本研究收集了 28 名正常被试的行为和脑电数据，并通过计算建模（包含感知模型 Hierarchical Gaussian Filter，HGF 模型与反应模型）来量化个体内部注意加工的信念更新过程，最后通过线性回归分析考察确定性（预测精度）调控的注意资源部署与 alpha 频段神经活动的关系。计算行为结果表明，可以从信念更新的角度来解释注意资源分配过程，不同的注意资源比例对反应速度存在影响。神经生理方面：（1）在目标出现之前，对于高确定性的线索（88%有效概率）个体会利用预测精度影响注意资源分配，并负向调节 alpha 频段神经活动。但这种显著的调节关系并未出现在低确定性（69%、50%有效概率）的线索条件中。（2）在目标刺激呈现后，当目标出现在提示位置时（有效线索条件），预测精度对注意资源分配的影响由 alpha 频段编码，表现为对 alpha 频段活动的负向调节；但是当刺激出现在未提示的位置时（无效线索条件），并未发现这种显著的调节关系。以上研究结果表明，预测精度是 alpha 频段振荡调控注意资源分配的计算神经基础。

关键词　空间注意，贝叶斯信念更新，alpha 振荡，线索有效性

The Computational and Neural Mechanisms of Alpha Oscillation Encoding for Spatial Attention in Dynamic Environments: Based on the Bayesian Belief Updating Framework

Siying Li[1], Meng Liu[2], Wenshan Dong[2], Qi Chen[1*]
1 School of Psychology, Shenzhen University, Shenzhen, China.
2 School of Psychology, South China Normal University, Guangzhou, China

***Abstract*：** The deployment of spatial attention is believed to depend on predictions and inferences about upcoming events, especially when individuals are in a volatile environment filled with uncertainty. According to the Bayesian brain hypothesis, the brain continuously updates its generative model based on sensory inputs to infer causal relationship structures in the environment and predict future events. Although there has been extensive discussion on how Bayesian belief updating affects the processing of perceptual stimuli, the underlying neural mechanisms remain largely unexplored. Therefore, to investigate how neural activity in the alpha frequency

(8-13Hz) encodes the deployment of spatial attention and how precision of prediction (one of the determinants of belief updating) serves as a computational neural basis in these regulatory processes, this study adopted the central cue Posner paradigm. The probability of valid cues varied among three levels: 88%, 69%, and 50%, reflecting a volatile probabilistic environment over time. Behavioral and electroencephalographic (EEG) data from 28 healthy participants were collected, and computational modeling (including the hierarchical Gaussian filter perceptual model, HGF model, and response model) was employed to quantify the belief updating process in individual internal processing. Lastly, linear regression analysis was used to examine the relationship between certainty (precision) of attentional resource allocation and neural activity in the alpha frequency. The computational behavioral results suggest that the process of attentional resource allocation can be explained from the perspective of Bayesian belief updating, and different proportions of attentional resources have an impact on reaction speed. Neurophysiological aspect: (1) Prior to the appearance of the target, precision of prediction influenced attentional resource allocation and negatively regulated alpha-band power in response to high-certain cues (with 88% valid probability). However, this significant regulatory relationship did not appear in conditions with low-certain cues (with 69% and 50% valid probability). (2) Following the presentation of the target, when the target appeared at the cued location (valid condition), the influence of precision on attentional allocation was encoded by the alpha-band power. However, when the stimulus appeared at the uncued location (invalid condition), no significant regulatory relationship was observed. The formal findings indicated that precision of prediction served as a computational foundation for the regulation of attentional allocation by alpha-band oscillations.

Keywords：spatial attention, Bayesian belief updating, alpha oscillations, cue validity

基于反应抑制训练对排球运动员执行功能的训练效应和迁移效应的影响研究

盖子墨[1] 施伟[1] 杨东[2] 付哲敏（通讯作者）[3]

1 沈阳体育学院，沈阳,110102

2 沈阳体育学院，沈阳,110102

3 沈阳体育学院，沈阳，110102（1007243254@qq.com）

摘 要 **目的：**反应抑制是指抑制不符合当前需要的或不恰当行为反应的能力。Stopsignal 任务作为一种与 Stroop 任务、Go/No-go 任务加工过程相似，训练对执行功能是否会发生训练效应和迁移效应？因此，本研究基于即时反馈的反应抑制任务——StopSignal 范式为训练任务，测量训练前后排球运动员在执行功能中反应抑制的 Go/No-go 任务、干扰抑制的 Stroop 任务、工作记忆的 N-back 任务和推理上是否发生训练效应及迁移效应。

方法：采用实验法，招募国家二级及以上排球运动员 100 人，青少年被试 40 人。其中成年男性 30 人，成年女性 30 人，将成人被试随机分配到成人实验组、成人积极控制组和消极控制组，将青少年被试随机分配到青少年实验组和青少年积极控制组。在前、后测阶段，抑制功能任务（StopSignal、Go/No-go、Stroop）、工作记忆任务（N-back）、瑞文标准推理测验采用随机顺序进行测量，为避免疲劳效应，均分为两天进行。在训练阶段，对实验组和积极控制组进行持续 3 周，每周 3 次的 Stop Signal 任务训练，其中实验组训练任务中加入即时反馈，积极控制组无反馈。训练共分为 8 个 block，每个 block 包含 100 个试次。

结果：两个实验组均产生了对反应抑制 Go/No-go 任务的迁移效应；但只有青少年实验组出现了对干扰抑制 Stroop 任务的迁移效应。成人实验组和积极控制组都出现了对 2-back 任务的迁移效应；但只有青少年实验组出现了在 2-和 3-back 任务上的迁移效应。所有组别都未能出现对推理能力的迁移。基于即时反馈的反应抑制训练能够对执行功能产生训练和迁移效应，但迁移仅限于抑制和工作记忆等基础成分，无法改善推理

能力。
结论：迁移效应受到认知可塑性的年龄差异和任务性质的双重影响。在青少年和成人组，均发生了对同为反应抑制的 Go/No-go 任务和工作记忆的迁移效应，但未能出现对推理能力的迁移。补充了抑制训练改善执行功能的发展趋势，提示未来抑制功能训练对排球运动员成年期以前的年龄阶段更具有塑造作用。
关键词 反应抑制训练，执行功能，排球运动员

Based on the effect of response inhibition training on the training effect and migration effect of volleyball players executive function

GaiZimo[1] SHIWei[1] YANGdong[2] FUZhemin（corresponding author）[3]
1Shenyang Sport University, Shenyang,110102
2Shenyang Sport University, Shenyang,110102
3Shenyang Sport University, Shenyang,110102(1007243254@qq.com)

***Abstract*：** **Objective :** Response inhibition refers to the ability to suppress responses that do not meet current needs or inappropriate behaviors. Stopsignal task is similar to Stroop task and Go / No-go task. Does training have training effect and transfer effect on executive function ? Therefore, based on the response inhibition task of immediate feedback-StopSignal paradigm as the training task, this study measured whether the training effect and transfer effect occurred in the response inhibition Go / No-go task, interference inhibition Stroop task, working memory N-back task and reasoning of volleyball players before and after training.

Methods : The experimental method was used to recruit 100 national second-level and above volleyball players and 40 teenagers. There were 30 adult males and 30 adult females. The adult subjects were randomly assigned to the adult experimental group, the adult positive control group and the negative control group. The adolescent subjects were randomly assigned to the adolescent experimental group and the adolescent positive control group. In the pre-test and post-test stages, inhibition function tasks (StopSignal, Go / No-go, Stroop), working memory tasks (N-back), and Raven 's Standard Progressive Matrices were measured in random order. In order to avoid fatigue effects, they were divided into two days. In the training phase, the experimental group and the active control group were trained in the Stop Signal task for 3 weeks, 3 times a week. The experimental group added instant feedback to the training task, and the active control group had no feedback. The training is divided into 8 blocks, each block contains 100 trials.

Results : Both experimental groups produced a migration effect on the response inhibition Go / No-go task ; however, only the adolescent experimental group showed a migration effect on the interference suppression Stroop task. Both the adult experimental group and the active control group showed a migration effect on the 2-back task ; however, only the adolescent experimental group showed the transfer effect on the 2-and 3-back tasks. No transfer of reasoning ability occurred in all groups. Response inhibition training based on immediate feedback can produce training and transfer effects on executive function, but transfer is limited to basic components such as inhibition and working memory, and cannot improve reasoning ability.

Conclusion : The transfer effect is influenced by the age difference of cognitive plasticity and the nature of the task. In both adolescent and adult groups, the transfer effect of Go / No-go task and working memory with the same response inhibition occurred, but the transfer of reasoning ability did not occur. It complements the development trend of inhibition training to improve executive function, suggesting that future inhibition function training has a more shaping effect on the age stage of volleyball players before adulthood.

Keywords : response inhibition training, executive function, volleyball player

健康人群延迟折扣与灰质体积的关系：基于体素形态测量学的 ALE 元分析研究

刘洋[1]，蔡新璐[1]

[1] 杭州师范大学基础医学院脑科学研究所，杭州，310012

通讯作者 Email：caixinlu@hznu.edu.cn

摘 要　延迟折扣是发生在跨期决策中的现象，是指个体在面临即时奖励和延迟奖励时，对延迟奖励金额的主观估值下降而更偏好即时奖励。延迟折扣在评估个体的冲动性方面也起到了重要作用，通过衡量个体对即时奖励和延迟奖励的偏好程度，我们可以使用延迟折扣率这一指标来评估个体的冲动性，较高的延迟折扣率意味着个体更倾向于选择即时奖励，也就是更冲动。前人研究结果发现异常的延迟折扣率和冲动性行为和心理健康程度紧密相关。随着脑成像技术的发展，研究者们已经深入探索了健康人群的脑结构与延迟折扣之间的关系，发现凸显网络、默认网络、执行控制网络和奖赏网络相关脑区的灰质体积与延迟折扣率之间存在相关关系，但是尚缺少统一的结论，因此本研究旨在使用激活似然估计（Activation likelihood estimation， ALE）元分析的方法来考察健康群体延迟折扣任务相关的脑灰质体积。本研究在 PubMed、Web of Science 和 PsycInfo 数据库中进行检索，最终纳入 6 项实验（共 667 名健康被试）。使用 GingerALE 软件进行元分析，结果发现左侧脑岛的灰质体积与延迟折扣率之间成显著正相关。脑岛是多模态信息加工的整合位点，与认知、情感、奖赏加工和执行控制等功能之间紧密相关，本元分析的结果提示脑岛在跨期决策中起着重要的作用，为临床与非临床群体中的延迟折扣研究提供启示。

关键词　激活似然估计元分析，延迟折扣，基于体素的形态测量学

Brain gray matter volume associated with delay discounting and in healthy subjects: A voxel-based morphometry ALE meta-analysis

Liu Yang[1], Cai Xinlu[1]

[1] Institute of Brain Science and Department of Physiology, School of Basic Medical Science, Hangzhou Normal University, Hangzhou, China

Abstract: Delay discounting refers to the phenomenon in intertemporal choice where individuals subjectively undervalue delayed rewards compared to immediate rewards. Delay discounting also plays an important role in assessing one's impulsivity. By measuring an individual's preference for immediate versus delayed rewards, we can use the index of delay discounting rate to evaluate one's impulsiveness. Elevated discount rates imply an increased probability of individuals opting for instantaneous reinforcement. Previous studies have found that abnormal delay discounting rates are closely related to impulsive behaviors and psychological health. With the development of brain imaging techniques, researchers have extensively explored the relationship between brain structures and delay discounting in healthy populations. They found that gray matter volumes in regions related to salience network, default mode network, executive control network and reward circuitry are correlated with delay discounting rates, but a unified conclusion is still lacking. Therefore, this study aims to use activation likelihood estimation (ALE) meta-analysis to investigate the relationship between gray matter volumes and delay discounting in healthy subjects. Literature search was conducted in PubMed, Web of Science and PsycInfo databases, and 6

experiments (with 667 healthy subjects) were finally included. Meta-analysis using GingerALE software found that left insular gray matter volume was significantly positively correlated with delay discounting rates. The insula is a hub integrating multimodal information and closely involved in cognition, emotion, reward processing and executive control. The results of this meta-analysis suggest the insula plays an important role in intertemporal choice, providing insights for clinical and non-clinical research on delay discounting.

Keywords: activation likelihood estimation meta-analysis, delay discounting, voxel-based morphometry

虚拟环境中工具材料对干扰抑制的影响：来自行为和 EEG 的证据

冯健儒[1]，赵鑫[1]（通讯作者）

1 西北师范大学心理学院，兰州，730070，psyzhaoxin@nwnu.edu.cn

摘 要 干扰抑制，又称为认知抑制，指个体为了达成当下的认知目标，抑制先前主动或被动激活的与当前认知内容无关的信息，既包括对外源性物理刺激的抑制，也包括对内源性刺激的抑制。目前的研究发现，相较于图片与虚拟物体，真实工具材料对干扰抑制的行为表现影响更大，这可能是因为人类需要额外的认知资源来抑制真实工具材料提供的交互可能性（如勺子提供抓取这一交互可能）。但交互可能对干扰抑制的神经机制仍然未知，且现实世界中工具材料所提供的交互可能无法操纵。本研究搭建了一个虚拟环境，并以 Flanker 范式为任务，探索如下几个问题：（1）交互可能是否影响干扰抑制（2）对干扰抑制的影响是否随交互方式变化而改变（3）交互可能影响干扰抑制的神经机制。本实验为 3（交互可能：可交互 vs 不可交互 vs 无交互）*2（前测 vs 后测）*2（一致 vs 不一致）的混合实验设计。66 名健康成年人完成本实验并同时采集了 64 导 EEG 信号。使用 MATLAB 工具包 EEGLab、Feildtrip 对 EEG 数据进行 ERP、时频、溯源以及源水平连通性分析，使用 R 对 EEG 数据以及行为数据进行统计分析。结果发现，不可交互组的后测干扰效应相较于前测显著降低，而无交互组与可交互组的前后测无显著差异。EEG 结果发现，无交互组的 P3 差异波平均波幅后测显著高于前测，后测一致与不一致条件下α节律 ERD 的差异更小，且后测不一致条件下顶区与枕区间的相干性显著降低。本研究的结果表明，干扰抑制受交互可能的影响，抑制工具材料交互可能所需的认知资源在交互后不会增加，但在交互失败后会减少。此外，背侧视觉流可能在这一过程中起到了关键作用，顶枕间α节律连通性的改变可能是所需认知资源减少的原因。

关键词 干扰抑制，虚拟现实，交互，EEG

Effects of instrumental materials on interference inhibition in virtual environments: evidence from behavior and EEG

Jianru Feng[1], Xin Zhao[1]

1 Department of Psychology, Northwest Normal University, Lanzhou

Abstract：Interference inhibition, also known as cognitive inhibition, refers to an individual's inhibition of prior active or passive activation of information unrelated to the current cognitive content in order to reach the cognitive goal of the moment, both to exogenous physical stimuli and to endogenous stimuli. The current study found that

real tool materials have a greater impact on behavioral performance of interference inhibition compared to pictures and virtual objects, possibly because humans require additional cognitive resources to suppress the interaction possibilities provided by real tool materials (e.g., spoons provide the interaction possibility of grasping). However, the neural mechanisms by which interaction possibilities contribute to interference inhibition remain unknown, and interactions provided by tool materials in the real world may not be manipulated. In this study, a virtual environment was constructed and the Flanker paradigm was used as a task to explore the following questions: (1) whether interaction possibilities affect interference inhibition (2) whether the effect on interference inhibition changes with interaction modality (3) the neural mechanisms by which interaction possibilities affect interference inhibition. This experiment was a 3 (interaction possible: interactable vs. non-interactable vs. no interaction) * 2 (pre-test vs. post-test) * 2 (congruent vs. incongruent) mixed experimental design. Sixty-six healthy adults completed this experiment and simultaneously acquired 64-lead EEG signals. ERP, time-frequency, traceability, and source-level connectivity analyses of the EEG data were performed using the MATLAB toolbox EEGLab, Feildtrip, and statistical analyses of the EEG data and the behavioral data were performed using R. The results revealed that the posttest interference effect was significantly lower in the non-interactable group compared to the pretest, while there was no significant difference between the pre and posttests of the non-interactable group and the interactable group. EEG results revealed that the mean amplitude of the P3 difference wave was significantly higher posttest than pretest in the no-interaction group, that the difference in alpha rhythm ERDs was even smaller in the posttest concordant versus discordant condition, and that coherence between the parietal and occipital regions was significantly lower in the posttest discordant condition. The results of the present study suggest that interference inhibition is affected by interaction possibilities, and that the cognitive resources required to suppress tool-material interaction possibilities do not increase after interaction, but decrease after interaction failure. In addition, dorsal visual streaming may play a key role in this process, and alterations in parieto-occipital alpha rhythm connectivity may account for the decrease in required cognitive resources.

Keywords：interference inhibition, virtual reality, interaction, EEG

分裂型特质个体视听跨通道 Stroop 效应：一项 ERP 研究

赖文昊[1, 2]　贾璐霞[1, 2]　王亚[1, 2, 3]（通讯作者）

1 中国科学院心理研究所，北京，100101

2 中国科学院大学心理系，北京，100101

3 首都师范大学心理学院，北京，100048

通讯作者 E-mail：wangyazsu@gmail.com

摘 要

背景：精神分裂症患者存在认知控制缺损，比如在 Stroop 任务中更容易受到不一致信息的干扰。精神分裂症的风险人群，分裂型特质个体中也存在认知控制的缺损。但过往研究大多专注于考察单感觉通道的抑制能力，对视听觉跨通道干扰抑制的研究较少。本研究旨在考察分裂型特质个体视听觉跨通道干扰抑制的表现和神经机制。

方法：30 名高分裂型特质个体和 29 名低分裂型特质个体完成跨通道 Stroop 任务并记录脑电。任务中同时呈现一个听觉颜色词和视觉颜色词（可能一致也可能不一致），被试需要对特定的注意通道刺激的颜色进行按键反应。研究采用 2（组别：高分裂型特质组、低分裂型特质对照组）*2（注意通道：注意视觉忽略听觉、注意听觉忽略视觉）*2（刺激一致性：一致、不一致）混合实验设计，分析被试的行为表现、

前额区 N1（80-140ms）和 P3（280-420ms）的平均波幅及额中区 theta（4-8hz）节律在 N1 和 P3 潜伏期内的功率值是否存在差异。

结果：1）行为结果显示，任务正确率的组别主效应显著，高分裂型特质个体正确率高于低分裂型特质个体。2）脑电结果显示，N1 平均波幅的组别主效应显著，高分组小于低分组；组别*刺激一致性的交互作用显著，简单效应检验表明高分组刺激一致显著大于刺激不一致的平均波幅，低分裂型特质个体不存在条件间差异。P3 平均波幅的组别主效应及与组别相关的交互作用均不显著。3）时频分析结果显示，额中区 theta 节律组别主效应显著，高分裂特质个体在 N1、P3 潜伏期内的功率值均显著大于低分裂特质个体。

结论：本研究提示高分裂型特质个体较低分裂型特质在 Stroop 任务中表现更好，且高分裂特质个体在处理干扰抑制任务时额中区 theta 节律更强；高分裂型特质个体对刺激一致性敏感；这些结果为理解分裂型特质个体的干扰抑制能力提供了启示。

关键词　分裂型特质，视听跨通道，事件相关电位，Stroop，theta

Cognitive interference in an audiovisual Stroop task in individuals with high schizotypal traits: An ERP study

Wenhao Lai[1,2], Luxia Jia[1,2], Ya Wang[1,2,3]

1. Institute of Psychology, Chinese Academy of Sciences
2. Department of Psychology, University of Chinese Academy of Sciences
3. School of Psychology, Capital Normal University

E-mail of Corresponding author: wangyazsu@gmail.com

Abstract

Background: Schizophrenia is associated with deficits in cognitive control, such as having a high level of Stroop interference effect. Individuals with high schizotypal traits, a high risk group for schizophrenia, also have cognitive inhibition impairment. However, previous studies mainly focused on the audio or visual unimodal task, little is known about cross-modal interference effect in the schizophrenia spectrum. This study aimed to investigate cross modality interference in an audiovisual Stroop task and its neural correlates in individuals with high schizotypal traits.

Methods: Thirty high (HST) and 29 low (LST) schizotypal trait individuals underwent a cross modality Stroop task while EEG were recorded. In the study, a visual color name and an audio color name were presented simultaneously (either congruent or incongruent), participants were instructed to attend to one modality and make relevant responses. A 2 (Group: HST, LST) x 2 (Attended modality: visual vs. auditory) x 2 (Congruency: congruent vs. incongruent) mixed design was adopted. Behavioral performance, mean amplitude for N1 (80-140ms) and P3 (280-420ms), and midfrontal theta (4-8Hz) during N1 and P3 time window were analyzed.

Results: 1) Behavioral results showed that HST had a higher overall accuracy than LST. 2) For N1 mean amplitude, there was a main effect of Group, LST exhibited greater amplitude than HST; there was a significant Group * Congruency interaction, further analysis revealed that HST showed a greater amplitude in congruent condition than incongruent condition, while LST did not show this difference. The main effect of Group and interactions involving Group were non-significant for P3 mean amplitude. 3) Midfrontal theta power showed a main effect of Group, HST had higher power than LST during the time windows of both N1 and P3.

Discussion: These results suggest that HST had a higher accuracy in Stroop tasks and larger midfrontal theta

power than LST. In addition, HST were more sensitive to stimulus congruency in cross-modality Stroop tasks. These findings may shed light on understanding the cognitive inhibition mechanism in individuals with schizotypal traits.

Keywords：Schizotypal traits, audiovisual, cross modality , ERP, Stroop, theta

